U.S. Environmental Protection Agency
Public Water System Supervision Program

Review of the
Michigan Department of Environmental Quality
Drinking Water Program
2016

FINAL REPORT
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Contents

List of Acronyms

ACO	Administrative Consent Order
AL	Action Level
ALE	Action Level Exceedance
ARDP	Annual Resource Deployment Plan
BCA	Bilateral Compliance Agreement
BWA	Bottled Water Agreement
CCR	Consumer Confidence Reports
CCT	Corrosion Control Treatment
CD	Compliance determination discrepancy
CDWU	Community Drinking Water Unit
CFE	Combined Filter Effluent
CFR	Code of Federal Regulations
CMDP	Compliance Monitoring Data Portal
CQ	Calendar Quarter
CWS	Community Water System
DBCP	Dibromochloropropane
DBPR	Disinfectants and Disinfection Byproducts Rule
DF	Data flow discrepancy
DTMB	Department of Technology, Management, and Budget
DWW	Drinking Water Watch
EDB	Ethylene Dibromide
EPA	U.S. Environmental Protection Agency
ERP	Enforcement Response Policy
ETT	Enforcement Targeting Tool
EV	Enforcement Verification
FR	File Review
GWR	Ground Water Rule
HAA5	Haloacetic Acids Five
HQ	Headquarters
IESWTR	Interim Enhanced Surface Water Treatment Rule
IFE	Individual Filter Effluent
IOC	Inorganic Contaminants
IT	Information Technology
LCR	Lead and Copper Rule
LHD	Local Health Department
LIMS	Laboratory Information Management System
LRAA	Locational Running Annual Average
LT1ESWTR	Long-Term 1 Enhanced Surface Water Treatment Rule
LT2ESWTR	Long-Term 2 Enhanced Surface Water Treatment Rule
MAG	Michigan Attorney General
MCS	Modified Consecutive System
MCL	Maximum Contaminant Level
MDEQ	Michigan Department of Environmental Quality
MDHHS	Michigan Department of Health and Human Services

MOR	Monthly Operating Report
M/R	Monitoring and Reporting
MRDL	Maximum Residual Disinfectant Level
NCWS	Non-Community Water System
NOV	Notice of Violation
NPDWR	National Primary Drinking Water Regulations
NTNCWS	Non-Transient Non-Community Water System
OCCT	Optimal Corrosion Control Treatment
ODWMA	Office of Drinking Water & Municipal Assistance
OWQP	Optimal Water Quality Parameters
PE	Public Education (for the LCR)
PN	Public Notification
POE	Point of Entry
POU	Point of Use
PWS	Public Water System
PWSS	Public Water System Supervision
QA	Quality Assurance
RAA	Running Annual Average
RRD	Remediation and Redevelopment Division
RTC'd	Returned to Compliance
RTCR	Revised Total Coliform Rule
SDWA	Safe Drinking Water Act
SDWIS/Fed	Federal Safe Drinking Water Information System
SDWIS/State	State Safe Drinking Water Information System
SOC	Synthetic Organic Contaminants
SOP	Standard Operating Procedure
SQL	Structured Query Language
SW	Surface Water
SWP	Surface Water – Purchased
SWTR	Surface Water Treatment Rule
TCR	Total Coliform Rule
TNCWS	Transient Non-Community Water Systems
TOC	Total Organic Carbon
TSWM	Triggered Source Water Monitoring
TT	Treatment Technique
TTHM	Total Trihalomethanes
VOC	Volatile Organic Contaminants
WSG	EPA's Water Supply Guidance
WSSN	Water Supply Serial Number
WQP	Water Quality Parameters

Executive Summary

The National Primary Drinking Water Regulations (NPDWRs) are set out at 40 CFR Part 141. Regulations for state implementation and enforcement of the NPDWRs are set out at 40 CFR Part 142. Part 142, Subpart B provides specific requirements for state primary enforcement responsibility (primacy), including: initial determination of primacy (40 CFR § 142.11); revision of state programs (40 CFR § 142.12); state recordkeeping and reporting (40 CFR §§ 142.14 and 142.15); and special primacy requirements (40 CFR § 142.16).

To obtain primacy, states must adopt all NPDWRs. To do so, a state must: 1) promulgate state regulations that are at least as stringent as the federal regulations; 2) provide an attorney general's statement indicating that the state rules are duly adopted and enforceable; and 3) indicate how the provisions of 40 CFR Part 142 will be implemented.

To achieve primacy to enforce the NPDWRs, the State of Michigan enacted the Michigan Safe Drinking Water Act, Michigan Compiled Laws 325.1001 *et seq*., and promulgated implementing rules set out at Michigan Administrative Code, Rule 325.10101 *et seq*. Michigan received initial primacy from the U.S. Environmental Protection Agency for the drinking water program in February of 1978 and currently has primacy for all NPDWRs except the Revised Total Coliform Rule (RTCR) (for which the Michigan Department of Environmental Quality (MDEQ) has interim primacy pending EPA's approval of MDEQ's application).

In accordance with 40 CFR § 142.14, states and other entities that have primacy for implementing the NPDWRs must retain certain records pertaining to their public water system supervision (PWSS) programs. 40 CFR § 142.15 requires primacy agencies to submit reports containing the retained information to the EPA Administrator. The information, comprise new violations of NPDWRs, new enforcement actions taken by the primacy agencies, and notification of any variances and/or exemptions granted by the primacy agencies, must be reported quarterly. MDEQ data is managed in the primacy agency-level version of the Safe Drinking Water Information System (SDWIS), known as SDWIS/State, and for non-community water systems (NCWSs) within a Michigan-developed database named WaterTrack.

Under the Safe Drinking Water Act (SDWA), 42 U.S.C. § 300f *et seq.*, and federal drinking water regulations, EPA regularly reviews state drinking water programs in those states that have obtained primacy for the administration and enforcement of primary drinking water regulations and requirements applicable to public water systems within the state[1]. By regulation, EPA conducts reviews of state programs annually. In addition, approximately every six years, EPA conducts in-depth drinking water program reviews in EPA Region 5 states, a process that includes File Reviews (FRs) and Enforcement Verifications (EVs). The program review is a systematic process of reviewing state drinking water program implementation, including the collection, analysis, and interpretation of data, that results in recommendations by EPA to improve the state's drinking water program's effectiveness. Each state has thousands of regulated public water systems (PWSs), which makes it unfeasible to examine a significant portion of those systems. As a result, a small number of systems is reviewed as an indicator of overall program implementation. The purpose of a FR is to detect discrepancies between the PWS data in the primacy agency files or database and

[1] Each year EPA and MDEQ develop an annual workplan to prioritize activities directly impacting public health. The workplan is used to negotiate and track MDEQ commitments including goals for PWS compliance. EPA evaluates MDEQ's end-of-year progress on the workplan and completes a report with input from MDEQ. EPA regularly discusses issues, priorities and progress with MDEQ, both formally and informally. Informal mechanisms include a monthly conference call with the EPA Region 5 state drinking water directors (including the MDEQ director), semi-annual calls with each state, and an annual face-to-face meeting in Chicago with all EPA Region 5 state drinking water directors.

the data reported to the federal version of SDWIS, known as SDWIS/Fed; and (2) to ensure that the primacy agency is determining compliance in accordance with state and federal rules and regulations.

During the week of April 4-8, 2016, EPA conducted an on-site review of the Michigan Drinking Water Program at the MDEQ Offices in Lansing, Michigan. The purpose of the on-site review was to assess the State drinking water program's quality and effectiveness, to stimulate program planning and improvement, and to encourage program development in strategic directions that continue to reflect the purpose of the SDWA. For the 2016 program review, EPA selected a total of 25 PWSs from the approximately 10,795 regulated PWSs in Michigan: 13 community water systems (CWSs), including the City of Flint; six non-transient non-community water systems (NTNCWSs); and six transient non-community water systems (TNCWSs)[2]. EPA selected systems for in-depth review that appeared likely to reveal critical issues. EPA focused on PWSs across all MDEQ District Offices and selected systems that had a record of violations in order to get a picture of program implementation across the State and review problematic systems that were likely to reveal implementation challenges.

The FR focused on the following NPDWRs:

- Total Coliform Rule
- Ground Water Rule
- Lead and Copper Rule
- Phase II/V Rule (Inorganic, Volatile Organic, and Synthetic Organic Contaminants)
- Radionuclides Rule
- Stage 1 and Stage 2 Disinfectants and Disinfection Byproducts Rules
- Surface Water Treatment Rules
- Public Notification Rule
- Consumer Confidence Report Rule

The Michigan program review is unique from other program reviews conducted by EPA because it consisted of three separate evaluations. These evaluations are covered in three separate chapters of this report, described below. For all three evaluations, MDEQ files covering the approximate time period of October 1, 2013, to September 30, 2015 were reviewed.[3] Each of the three evaluations found discrepancies[4] and resulted in recommended actions to improve the State's drinking water program.

Chapter 1: Drinking Water Program File Review (FR)

The Program File Review (FR) used a standard protocol[5] developed by EPA. The FR team, which was composed of EPA staff from both Region 5 and Headquarters, as well as contractors from The Cadmus Group, Inc., evaluated whether MDEQ had properly determined compliance in accordance with State and federal regulations, reviewed PWS records, and verified whether information in MDEQ's database and files had been correctly reported to the federal database, SDWIS/Fed, for the selected group of PWSs. The FR team also reviewed MDEQ's compliance determination actions and policies, as compared to what is

[2] A PWS provides water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serves an average of at least 25 people for at least 60 days a year. EPA defines three types of PWSs: 1) CWSs supply water to the same population year-round; 2) NTNCWSs supply water to at least 25 of the same people at least six months of the year; and 3) TNCWSs provide water in a location where people do not remain for long periods of time, such as a gas station or campground. Source: https://wcms.epa.gov/dwreginfo/information-about-public-water-systems.

[3] The specific time periods of the reviews are identified in each chapter.

[4] "Discrepancy" is a term used to describe inaccurate compliance determinations (*i.e.,* compliance determinations that are not in accordance with Michigan and federal rules and regulations), as well as differences between data in the MDEQ and local health department files or databases and the data reported to SDWIS/Fed. EV discrepancies also occur when the State fails to follow standard operating procedures.

[5] *PROTOCOL FOR CONDUCTING A PWSS PROGRAM DATA FILE REVIEW*, U.S. Environmental Protection Agency, Office of Ground Water and Drinking Water, Washington, D.C., August 11, 2014.

federally-mandated or approved in MDEQ's primacy regulations. Finally, MDEQ staff were interviewed by EPA Region 5 regarding program administration and implementation.

Chapter 2: Michigan Lead and Copper Rule (LCR) Review
A detailed review of MDEQ's implementation of the lead regulations under the Michigan Lead and Copper Rule (LCR), both throughout the State as well as in the City of Flint, Michigan, was conducted by EPA LCR experts outside of EPA Region 5. The EPA LCR team reviewed the MDEQ's adoption of the federal LCR and subsequent revisions, and discussed with MDEQ staff implementation practices throughout the State and specifically in Flint. The LCR team also reviewed a number of PWS files identified in the FR, including the Flint PWS file, to obtain more detailed information as to how the lead regulations are being implemented in Michigan.

Chapter 3: Enforcement Verification (EV)
A concurrent EV was conducted by an EPA enforcement team, consisting of EPA Region 5 and EPA Headquarters staff, for a selected group of PWSs with violations. The EV included an examination of whether appropriate follow-up was conducted once a violation was determined, and whether MDEQ's standard operating procedures (SOPs) and compliance and enforcement strategy were followed for escalating enforcement actions to ensure that systems are returned to compliance in a timely manner. In addition, the EV included a comparison of the information in the MDEQ enforcement file with the data reported to MDEQ databases and the federal database to ensure that the enforcement data reported to MDEQ and federal databases were accurate and complete.

Major Findings and Recommendations

The program review revealed a number of challenges with MDEQ's implementation of its drinking water program, including inadequate electronic data reporting, inadequate data management capabilities, and a notable failure to correctly implement the LCR statewide and in Flint. These deficiencies must be corrected to protect the public health of the citizens of Michigan. This report makes numerous recommendations to address identified deficiencies and Region 5 will be working closely with MDEQ to identify and track corrective actions to ensure program improvements are made. It is important to note that this report only represents a limited percentage of the total number of PWSs in Michigan during the period of review. EPA recognizes that the State may have implemented changes to its data system and policies after EPA conducted the on-site joint review in April of 2016 and subsequent analyses through the summer of 2016. Key deficiencies include the following:

- MDEQ did not fully implement some of the required elements of its drinking water program, as detailed in Appendix H of Chapter 1, including the NCWS program's inability to report all violations;
- MDEQ did not implement certain provisions of the LCR, both Statewide and in Flint;
- MDEQ did not issue a number of rule violations and did not report some lead action level exceedances (ALEs);
- MDEQ did not develop an updated drinking water compliance and enforcement strategy that is adequate to compel compliance with the State primary drinking water regulations; and
- The public health emergency in Flint resulted in part from MDEQ's failure to properly oversee and manage: 1) Flint's switch in April of 2014 from using high quality finished water purchased from the Detroit Water and Sewerage District (Detroit PWS) to using lower quality raw water from the Flint River, and 2) Flint's start-up and operation of its own drinking water treatment plant. The

circumstances surrounding the City's switch to a lower quality water source appear to have been unusual, but MDEQ was unprepared to deal with this situation and failed to recognize how the LCR should have been applied, resulting in a confused and ineffective implementation of the LCR in Flint.

The program review was largely a file and record review. Although attention was devoted to the Flint PWS files and records, the program review was not a comprehensive investigation of the Flint emergency. The findings and determinations in this report regarding MDEQ's implementation of the LCR Statewide and in Flint must be read in that context.[6]

Based on EPA's review, EPA believes that the types of challenges noted above are attributable to a number of programmatic vulnerabilities. These vulnerable areas are identified below along with the major findings and recommendations for each.

Data Management

Findings:

1. Many deficiencies in the MDEQ drinking water program stem from MDEQ's inefficient and antiquated drinking water data management systems, as noted throughout Chapters 1 through 3. Efforts to improve the data management system have been complicated by the centralization of Information Technology (IT) staff into a broad agency department without drinking water expertise.
2. Laboratory reporting is very inefficient, as described in the Data Management section of the FR report (Chapter 1). CWS sample data received electronically from the MDEQ laboratory is not in a format that automatically uploads to the drinking water database, so the data must be entered manually into SDWIS/State. The NCWS data management system can accept results electronically from the MDEQ laboratory, but this data transfer has limitations and does not address electronic reporting from other laboratories used by PWSs.

Recommendations:

1. MDEQ should enhance and streamline data management practices and transparency for both CWS and NCWS programs by fully utilizing SDWIS/State and, eventually, SDWIS/Prime (the EPA information management system that is intended to replace SDWIS/State and SDWIS/Fed in the near future).
2. MDEQ should hire additional staff or contractors with specific drinking water data management expertise. MDEQ staff should be cross-trained regarding the program's data systems, data flows, limitations of data systems, and how to query and use management reports.
3. MDEQ should operationalize electronic reporting from the MDEQ laboratory and private laboratories to the MDEQ drinking water database. This step is critical to ensuring notification to MDEQ and the public of potential public health issues, improving timely reporting of monitoring results, and increasing staff resource efficiencies.

[6] There have been a number of published reports which focus specifically on the Flint emergency, including the following:
Flint Water Advisory Task Force Report, which was commissioned by Governor Rick Snyder and issued in March of 2016;
Michigan Auditor General's Report regarding Flint situation, which was issued in December of 2015;
EPA Office of the Inspector General's (OIG) Management Alert, which was issued on October 20, 2016;
U.S. House Committee on Oversight and Government Reform investigation with letter issued by Rep. Jason Chaffetz on December 16, 2016;
and an on-going investigation that is being conducted by EPA's OIG with a report anticipated for release in the latter part of 2017.

State Drinking Water Program Resources

Findings:

1. As described in Chapter 1, many existing deficiencies in the MDEQ drinking water program stem from longstanding inadequate resources [7] and the difficulty of managing a program with a decentralized structure in a consistent manner. It is resource-intensive to ensure staff coordination and consistent implementation across eight decentralized MDEQ District Offices and 44 local health departments (LHDs).
2. Staff departures and retirements have caused a significant loss in expertise and technical knowledge, as described in Appendix 1-H of the FR report. These staff have not been replaced due to a lack of resources and/or hiring constraints, which presents a threat to the future implementation of an effective program.
3. MDEQ's drinking water program has not fully implemented certain required activities, such as public notification of monitoring and reporting (M/R) violations, due to serious resource limitations.

Recommendations:

1. MDEQ must focus on obtaining long-term sources of funding. MDEQ senior management should evaluate MDEQ's development of an overall drinking water program strategy and possible funding methods needed to support it.
2. MDEQ can greatly improve the efficient use of its existing staff resources by using electronic reporting capabilities and working toward upgrading and/or replacing data systems.
3. MDEQ should analyze resource deployment of its existing resources to determine the most effective organizational structure to meet public health goals and efficiently implement the drinking water program.
4. MDEQ must better facilitate both external and internal training and outreach for all technical staff. Internal training should include review of policies and procedures to help ensure consistency.

Compliance Determinations and Drinking Water Program Implementation

Findings:

1. The majority of discrepancies found in the FR (Chapter 1) for the 25 systems reviewed were related to M/Rs and data system limitations, not violations of health standards.
2. Findings in the detailed LCR Review (Chapter 2) indicate that MDEQ failed to implement provisions of the Michigan LCR correctly, including setting water quality parameters (WQPs), issuing violations, requiring corrosion control studies and treatment, documenting files, and maintaining records.
3. Findings in the EV (Chapter 3) indicate that numerous violations were not reported to SDWIS/Fed. Improvements in data management and increased resources, including additional staff, will provide the necessary support to track and report all federally-reportable violations to SDWIS/Fed.

[7] The Association of State Drinking Water Administrators recently estimated that at least $625 million per year, or $240 million more than currently received from all funding sources, is needed nationally by state drinking water programs to fulfill the minimum required regulatory functions under the SDWA. For more robust, comprehensive programs, the aggregate amount needed would be $748 million per year.

Recommendations:

1. MDEQ should report all violations noted in the program review to EPA via SDWIS/Fed, and submit an action plan of steps to be taken to correct the process that led to these violations not being reported to SDWIS/Fed.
2. MDEQ should set enforceable distribution system WQP ranges for all applicable PWSs, and establish a form or other method of compiling distribution system WQP ranges to allow water systems to review and detect trends and excursions.
3. MDEQ must ensure that all samples used for compliance purposes meet requirements for proper sample collection.
4. MDEQ must revise the State LCR policy to address water sample invalidation procedures and actions required after a system exceeds an action level - including lead service line replacement (LSLR) or corrosion control treatment (CCT) – as well as ensure proper training of MDEQ and LHD staff.
5. MDEQ should ensure that LHDs contact PWSs when LHD staff become aware of positive total coliform results to remind the systems to conduct required follow-up activities including collection of repeat samples.
6. MDEQ should ensure that all LHDs are tracking PWS compliance and generating revised monitoring requirement notifications in the NCWS data system.

MDEQ Oversight of City of Flint Public Water System

Findings:

1. MDEQ neither required a CCT study nor designated optimal CCT (OCCT) for the Flint PWS treatment plant at the time of plant start-up.
2. MDEQ did not implement key provisions of the Michigan LCR correctly, including setting WQPs, assigning violations, requiring CCT studies and treatment, documenting files, and maintaining records.
3. MDEQ did not issue M/R violations to the Flint PWS for failing to timely submit required Lead and Copper Reports in January of 2015 and July of 2015.
4. The Flint PWS Lead and Copper Report for January to June 2015 contained contradictory information regarding the tier of each sample location, and MDEQ's files did not include any documentation of the rationale for invalidated samples or the required management approval of invalidated samples.

Recommendations:

1. MDEQ must ensure that all required studies are completed and reviewed and all required treatment, including CCT, is approved and implemented before operation of any new drinking water treatment plant, change in long-term treatment, or addition of a new source, as required by State statutes, rules, and policy.
2. MDEQ should revise Section 5.c. of the Michigan LCR Policy to establish, strengthen, and elevate the review and approval process to address any upcoming change in long-term treatment or addition of a new source before it is implemented by the PWS.
3. MDEQ, along with the City of Flint and State of Michigan, must comply with EPA's January 21, 2016 SDWA Section 1431 Emergency Administrative Order and its November 17, 2016 First Amendment to the Order that: 1) requires the Flint PWS to continue to add corrosion inhibitors

when using Detroit PWS water; and 2) outlines the requirements that must be met if the PWS transitions to a new water source, before water from the new source can be distributed to consumers.

MDEQ's Enforcement Program

Findings:

1. MDEQ has not developed a compliance and enforcement strategy that includes an enforcement escalation policy that outlines when MDEQ's focus should shift from technical and compliance assistance to formal enforcement.
2. EPA found three unreported lead ALEs at two PWSs that were not resolved for many years.

Recommendations:

1. MDEQ should develop a more effective State compliance and enforcement response policy using EPA's 2009 Drinking Water Enforcement Response Policy (ERP) as a model.
2. MDEQ must consistently document that violation letters are issued to CWSs that include a public notice template and instructions for the system to return to compliance in a timely manner.
3. MDEQ must focus on timely reporting. For example, MDEQ failed to report Total Trihalomethanes (TTHM) Maximum Contaminant Level (MCL) violations in a timely manner for the Flint PWS.
4. MDEQ should escalate enforcement for LCR public education (PE) and other treatment technique (TT) violations following lead ALEs which are not followed up on in a timely manner.
5. MDEQ must ensure that systems with arsenic MCL violations are following the regulations to protect public health. NTNCWSs on bottled water agreements (BWAs) should be escalated to formal enforcement after the BWAs expire.

Conclusion

Based on the on-site review and EPA's other program oversight activities, EPA's overall finding is that while MDEQ has tried to prioritize its management activities to focus on the protection of public health, limited resources have prevented MDEQ from fully implementing applicable drinking water regulations. EPA's review revealed a number of significant challenges that MDEQ faces with regard to implementation of its drinking water program, including an overall lack of resources (funding and staffing), an inadequate electronic data reporting and data management capabilities, and a failure to correctly implement, on a statewide basis, provisions of the Michigan LCR, including provisions relating to setting WQPs, assigning violations, and requiring CCT studies and treatment.

MDEQ is expected to implement all aspects of the drinking water program. EPA will require the State to identify and track corrective actions to ensure program improvements are made. While EPA acknowledges MDEQ's expressed concerns about declining resources, including staffing levels, EPA finds that MDEQ has not managed the use of its limited resources to better take into account reduced staffing, such as by upgrading its electronic data systems to reduce extensive manual data entry. The State of Michigan must take steps to ensure that MDEQ's drinking water program is provided with the resources commensurate with an effective and fully-functioning program.

EPA Region 5 continues to point out MDEQ's need for better IT support and data management capabilities and has recommended that MDEQ fully implement SDWIS/State and replace WaterTrack, the archaic data system still being used for the NCWS program. EPA assistance includes:

- EPA Region 5 worked with MDEQ in FY 2003 to obtain an Exchange Network grant worth $297,000;
- EPA Headquarters issued a Multi-Purpose grant to MDEQ in July 2016 worth $173,000 to develop and implement enhanced data tracking and analysis capabilities for LCR data; and
- EPA Region 5 assisted MDEQ with obtaining access to a national contract for assistance with migration of data from WaterTrack to SDWIS/State.

EPA will continue its oversight of MDEQ and will require MDEQ to address the challenges identified in this report.

Chapter 1 File Review

This chapter provides an overview of the file review (FR). More information is available in Appendix 1-A – Detailed File Review Description.

1.1 Summary

1.1.1 Purpose and Scope of Review

During the week of April 4-8, 2016, the "FR team," consisting of representatives of EPA Headquarters, EPA Region 5, and The Cadmus Group, Inc., conducted a FR of the MDEQ Drinking Water Program[8]. The review was conducted in the MDEQ central office in Lansing, Michigan. Organizationally, all MDEQ drinking water functions are in the Office of Drinking Water & Municipal Assistance (ODWMA), except for laboratory certification, which is in the Laboratory Services Section, Remediation and Redevelopment Division. The MDEQ drinking water program is a decentralized program, with compliance responsibilities delegated to district offices and Local Health Departments (LHDs).

In Michigan, drinking water samples are typically collected by the PWSs or contract operators, with some LHDs assisting in sample collection for non-community water systems, particularly if there are compliance concerns. MDEQ's Community Water System District Office staff determine compliance for CWSs, with oversight by MDEQ staff in Lansing. LHDs determine compliance for NCWSs, with oversight by MDEQ NCWS staff.

1.1.2 Data Sources Reviewed

The FR team compared MDEQ's data to the most recent data in SDWIS/Fed for a subset of PWSs in the State, through the quarter ending September 30, 2015. The FR team reviewed both files and electronic records relating to PWSs, including:

- Correspondence files (for waivers, violation documentation, and sanitary surveys);
- Files containing documentation, certifications, studies, and treatment recommendations for the Lead and Copper Rule (LCR), and reports for the Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR);
- Lab results for the NPDWRs; and
- Monthly Operating Reports (MORs) submitted by the water systems, which contain disinfectant residual and turbidity results, some Total Coliform Rule (TCR) summary data, and elements required for disinfection byproducts reporting.

The FR team reviewed several data sources to verify system compliance and State oversight, including: SDWIS/State and WaterTrack; the State's internal copy of Drinking Water Watch, which summarizes information from SDWIS/State; WaterChem, which is a database used to track entry point chemical monitoring sample results; and hard copy documentation of updates to inventory and compliance data for drinking water rules.

[8] EPA Region 5 prepared the appendix, *Findings and Recommendations from EPA Discussions with MDEQ*, based on discussions with MDEQ drinking water program and laboratory staff in Lansing as part of the FR. This appendix includes more specific information on the history and background of MDEQ's drinking water program and its organization and administration.

1.1.3 Findings

This review represents the FR team's findings after file reviews of 25 PWSs and interviews that EPA conducted with MDEQ staff. The FR examined 13 CWSs, six non-transient non-community water systems (NTNCWSs) that are schools or daycares, and six transient non-community water systems (TNCWSs). Appendix 1-B includes a list of the systems that were reviewed. Appendix 1-C contains a table that summarizes any data discrepancies between State and federal records (referred to as data flow (DF) discrepancies), and errors in the State's compliance determinations (referred to as CD discrepancies) that were identified during this review. Appendix 1-D contains a detailed, system-specific list of each discrepancy identified during this review.

General: Program Resources, Data Management and Organizational Structure

- The major findings from the FR program implementation discussions with MDEQ staff (summarized in Appendix 1-H) illustrate many longstanding challenges faced by the State in effectively implementing the drinking water program. Most of these issues appear to stem from inadequate resources (funding and staff), an inefficient data management system, the decentralized structure of the State's program, and repetitive organizational restructuring**.**
- The existing MDEQ data information systems are not sufficient to allow for adequate compliance tracking in addition to EPA-required reporting needs, and these information system weaknesses also make the program staff more inefficient. WaterTrack cannot be used to report all violations to SDWIS/Fed, and LHDs must manually enter data from private labs, which is resource intensive and inefficient. SDWIS/State is not fully utilized, and some regulatory requirements that should be tracked or reported within the data system are tracked outside of SDWIS/State, with the result: 1) that violations of some requirements are not considered when establishing compliance assistance and enforcement priorities; and 2) such violations may remain uncorrected. The State had planned to transition to SDWIS/Prime, but EPA's development of the new SDWIS/Prime information system is behind schedule. The delay in implementing SDWIS/Prime has created further challenges for the State's data management activities. For instance, the State did not update WaterTrack to manage some of the newer regulations in anticipation of moving to the new platform by now. The need to improve information systems is even more critical as the State's drinking water program is losing experienced staff, and the ability to automate and streamline the compliance determination process and utilize effective tools for tracking and reporting violations becomes even more essential.
- The FR team found documentation of the many technical assistance activities MDEQ performed to help public water systems (PWSs) remain or return to compliance with drinking water regulations. Voluntary activities undertaken by the State to help PWSs included: providing monitoring schedules via hard copy; requiring samples to be submitted earlier than the regulatory deadline so the State can track compliance and telephone or send reminder letters when needed to ensure compliance; specifying the year and date for multi-year monitoring periods to balance lab capability and ensure the State can track results and help systems that need it; and providing technical assistance when problems occur. The files document interactions between local offices and PWSs. The FR team found copies of correspondence, including emails, reminder and formal notice of violation (NOV) letters, when problems were identified. Visits to PWSs were documented in the files and data systems, particularly if problems were detected. However, as further discussed in Chapter 3: Enforcement Verification (EV), in some instances, this prolonged emphasis on technical assistance may delay a system's return to compliance. For a few systems in the sample, the FR team found protracted periods of noncompliance notwithstanding repeated and concerted efforts by MDEQ compliance staff to address the systems' problems. The compliance assistance approach requires an

enormous outlay of State resources to chase problem systems and track whether the systems have complied with State requests.

Sanitary Survey and Inventory

- All sanitary surveys of the systems reviewed were completed on schedule and included review of all relevant required eight elements.
- The NCWS program staff does not verify some elements of the sanitary survey on-site, but relies on electronic review of records at the office by LHD or MDEQ staff.
- The State follows EPA's Water Supply Guidance (WSG) 32 (September 1987), which defines the number of hours that individuals have the potential to regularly consume the water at a given facility and which results in the classification of systems as either NTNCWSs or TNCWSs.
- An inventory update was late in one case, and the updated activity status for sources was not reported in three other instances. Facility level activity status for NCWSs is not reported to SDWIS/Fed because it is not trackable in WaterTrack (other than to remove the monitoring schedule for a given source).

Consumer Confidence Reports (CCR) Rule

- For the CWSs reviewed, MDEQ successfully implemented the Consumer Confidence Report (CCR) requirements to ensure that systems produce, deliver, and certify distribution of the report.
- This positive result is the effect of MDEQ's commitment beginning in 2012 to end its temporary disinvestment in issuing and reporting violations for failure to produce and distribute CCRs.

Total Coliform Rule (TCR)

- Discrepancies for TCR MCL violations were noted. In two instances, monthly MCL violations at NCWSs were not reported in the same month as acute MCL violations because the WaterTrack system only allows one violation to be issued per month, so only the most egregious violation is reported.
- Compliance determination discrepancies for monitoring and reporting were identified. No violations were assigned when they should have been in the following incidences: one system failed to collect five TCR samples in the month after a positive result; five systems submitted late compliance samples; and several systems missed routine samples.
- The State's practice to invalidate and replace samples should be reviewed to ensure proper coding of sample types in the information system.
- In some cases, coding of TCR sample type (e.g., "routine" or "repeat") was not listed properly by either the sample collector, the lab, or data entry into the State NCWSs data system. The State responded correctly despite the data management issue, but some non-community systems' records are not accurate in WaterTrack.

Disinfectants and Disinfection Byproducts Rule (DBPR)

- During the period reviewed, MDEQ temporarily disinvested from tracking and calculating running annual averages (RAA)/locational RAA (LRAA) for total trihalomethanes (TTHM) and haloacetic acids (HAA5) only if all sample results were below the MCL, as well as Total Organic Carbon (TOC) removal ratios if all sample results were below the Maximum Residual Disinfectant Level (MRDL). Some districts started tracking MRDLs in the past year, and now RAAs can be calculated

in SDWIS/State for CWSs. The State does not issue Monitoring and Reporting (M/R) violations when a system does not have an RAA/LRAA calculated. Discrepancies were assigned to three systems for this disinvestment. In the FY 2017 PWSS Grant work plan, the CWS and NCWS programs have committed to calculating the RAA/LRAAs for TTHMs, HAA5s, and TOC removal ratios during FY 2017.

Ground Water Rule (GWR)

- No discrepancies were found during the FR for implementation of the Ground Water Rule (GWR). However, as discussed in Chapter 3, the EV conducted concurrently found that during the timeframe it addressed (which was longer than the FR review period), three PWSs were not assigned violations when failing to take triggered source water coliform samples within 24 hours.

Inorganic Contaminants (IOCs)

- One PWS failed to monitor for nitrate, and no M/R violation was assigned.
- One PWS did not initiate quarterly monitoring for nitrate after an MCL violation, and no M/R violation was assigned.

Volatile Organic Contaminants (VOCs)

- No discrepancies were found for implementation of the Phase II/V Rule for Volatile Organic Contaminants (VOCs).

Synthetic Organic Contaminants (SOCs)

- One PWS did not collect a replacement sample after invalidation of a Synthetic Organic Contaminants (SOCs) routine sample within the 2011 - 2013 compliance period.

Revised Radionuclides Rule

- No discrepancies were found for implementation of the Revised Radionuclides Rule.

Surface Water Treatment Rules (SWTRs)

- One PWS improperly monitored for Combined Filter Effluent (CFE), and no TT violations were assigned.
- One PWS failed to submit a sampling plan and perform the initial round of source water monitoring, as required under the Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). No violations were assigned.
- One PWS failed to submit MORs on time, and no violations were assigned.
- For NCWSs, WaterTrack only partially supports tracking and reporting of this rule.

Lead and Copper Rule (LCR)

- Lead and copper 90th percentile values were calculated incorrectly at two CWSs. For one system, the problem was long-standing and was noted in the previous FR.
- One PWS failed to complete all required steps after an ALE and was out of compliance for over five years. The same system also provided late consumer notice. Violations were not reported to EPA.
- Two NTNCWSs failed to sample in summer months, and no M/R violations were assigned.

Public Notification (PN) Rule

- One TNCWS performed public notice (PN) incorrectly by taking down the posted notice before the situation was resolved and subsequent illness complaints were received. The State responded on behalf of the system quickly and thoroughly to post PN properly and identify the source of the contamination, but no PN M/R violation was assigned.

1.1.4 Major Recommendations

Based upon the findings from the FR, the FR team has the following recommendations:

Program Resources

- MDEQ should work with the Association of State Drinking Water Administrators (ASDWA), EPA, and other stakeholders regarding approaches for identifying: 1) core primacy and other public health priority work; 2) organizational structure options; and 3) alternative funding/Full-Time Equivalent (FTE) needs, as described on page 124.

- MDEQ should focus on efficient use of resources by streamlining reporting and eliminating manual data entry through improved electronic reporting capabilities and upgraded data systems. EPA fully acknowledges MDEQ's efforts over the past five years in trying to overcome some of its data management limitations. MDEQ managers recognize that even if MDEQ had funding for new and improved data systems, the State would still need additional staff with knowledge and experience to operate these new data systems. For example, as described on page 129, the State has been planning the transition from WaterTrack to SDWIS/Prime for several years.
- MDEQ should obtain long-term source(s) of funding. MDEQ had been working on an overall water strategy and the funding needed to support it, and management should re-evaluate this effort. Although EPA Region 5 acknowledges MDEQ's past attempts to secure additional program funding, potential increases in funding need to be further explored. EPA Region 5 supports MDEQ's continued evaluation at the senior management level of whether federal Section 106 grant funds should be used for ground water protection activities. EPA recognizes the decision to utilize this funding source is not under the control of the MDEQ drinking water program. State staff mentioned the administrative costs of managing their current public water supply fee program, where a significant portion of the fees being collected go to administering the program. Therefore, staff may consider it advantageous for a third party to administer the program if a different fee program was enacted, as described on page 129.

Data Management

- The FR team strongly supports MDEQ's efforts to introduce e-Reporting for compliance samples, to improve data quality, reduce staff workload, and prepare the State to be ready to transition to SDWIS/Prime when the upgrade to the information management system occurs. Implementation of the EPA's Compliance Monitoring Data Portal (CMDP) may be a good option.
- The FR team encourages the State to ensure that the State laboratory's new Laboratory Information Management System (LIMS) is compatible with the CMDP or with other means to report to SDWIS/Prime, so that the State can capture and report all violations.

Multiple Rules

- The State must assign violations for results reported after the reporting deadline.

Total Coliform Rule

- LHDs must ensure that all required increased routine samples are collected after a positive sample result. NCWSs may not collect fewer routine samples in the month after a positive Total Coliform Rule result, unless a site visit is conducted at the system to verify that the problem has been resolved and documentation provided in writing.
- Any changes to the monitoring frequency dictated by previous sample results, population changes, or site visits by LHDs should be communicated in a timely manner to the appropriate MDEQ NCWS program and LHD staff who track compliance with this regulation.
- Coding of sample type in the data system should be reviewed with all data entry staff.

Disinfectants and Disinfection Byproducts Rule

- In the FY 2017 PWSS Grant work plan, the CWS and NCWS programs have committed to ensure RAA/LRAAs for TTHMs, HAA5s, and TOC removal ratios are calculated during FY 2017. The State must either require PWSs to report the RAA/LRAA or calculate the RAA/LRAA for systems in order to determine compliance with the MCL and MRDL.
- An M/R violation should be assigned if the PWS does not collect disinfection residual samples at the same time and place as samples collected for the Total Coliform Rule in the same compliance period.

Phase II/V Rule (Volatile Organic, Synthetic Organic, and Inorganic contaminants)

- When samples are invalidated, replacement samples must be collected in the same compliance period in which the original samples were collected (or within the window specified by the rule if the notification of the invalidated sample takes place after the end of the compliance period).

Surface Water Treatment Rules

- PWSs with new sources must be required to complete all steps for source water monitoring under the LT2ESWTR, including submission of sampling plan and two years of sampling.
- PWSs with a bank of filters must conduct sampling of the Individual Filter Effluent (IFE), and then, if combined before entry into the distribution system, sample or calculate the Combined Filter Effluent (CFE) for compliance purposes.

Lead and Copper Rule

- Instructions for calculating lead and copper 90th percentile values should be reviewed with all staff to ensure that the values are calculated correctly. For example, allowable reasons to invalidate a sample should be carefully reviewed to ensure that no sample is invalidated incorrectly. MDEQ and LHD staff also should ensure that all samples submitted are collected at sites in the PWS's targeted sampling pool, as determined by the PWS's materials survey.
- All PWSs with ALEs should be reviewed to confirm that systems have returned to levels below the Action Level (AL) or that follow-up steps required to complete OCCT have been completed. The State should confirm that all systems have certified that they provided consumer notice to all customers whose homes were sampled for LCR compliance purposes.
- PWSs must collect annual and triennial LCR samples in the summer months, unless an alternate four-month compliance period is established by the State in writing and routinely used.

Public Notification Rule

- If PN is performed incorrectly, the State must issue a PN violation.

General

- The State should report violations noted in Appendix 1-D to EPA, as well as submit an action plan of steps taken to correct the processes that led to these problems.
- Please see the complete list of recommendations from the interviews in Appendix 1-H, pages 112-148.

Chapter 2 Review of Michigan's Lead and Copper Rule

2.1 Introduction

As part of the Michigan Department of Environmental Quality (MDEQ) Drinking Water Program File Review (FR), EPA created a Lead and Copper Rule review team (LCR team), which included staff from EPA Regions 3, 8 and 9, and EPA Headquarters. Part 1 of this report reviews the State's adoption of the federal Lead and Copper Rule (LCR) and evaluates MDEQ's implementation of the Michigan Lead and Copper Rule (Michigan LCR) Statewide. Part 2 evaluates MDEQ's oversight of the City of Flint Public Water System's (Flint PWS) compliance with the Michigan LCR as the Flint PWS switched sources from finished water purchased from the Detroit Water and Sewerage District (DWSD or Detroit PWS) to treating its own raw water from the Flint River in April of 2014.

The LCR team reviewed LCR implementation documents, including the Flint PWS file, and held conversations with MDEQ staff to understand how MDEQ implements the Michigan LCR for both community and non-community water systems. The FR, described in Chapter 1, includes information relating to Michigan LCR implementation through individual PWS file reviews.

Documents reviewed included, but were not limited to, the following:

- Primacy applications, including the Michigan LCR;
- Current implementation policies and procedures, as provided by MDEQ;
- MDEQ's Flint PWS file; and,
- Modified Consecutive System (MCS) approach[9] for Detroit PWS and its consecutive public water systems.

The LCR team conducted two conversations with MDEQ staff and management. The review did not include conversations with representatives of the Flint PWS or an examination of files in the possession of the Flint PWS.

2.2 Review of the Statewide LCR Program

This section focuses on selected elements of MDEQ's lead and copper program, and is not intended to be a comprehensive review of every aspect of the Michigan LCR.

2.2.1 Regulatory Review

The National Primary Drinking Water Regulations (NPDWRs) are set out at 40 CFR Part 141. The federal LCR is included in the NPDWRs at 40 CFR Part 141, Subpart I. Regulations for state implementation and enforcement of the NPDWRs are set out at 40 CFR Part 142. To achieve primacy to enforce the NPDWRs, the State of Michigan enacted the Michigan Safe Drinking Water Act (SDWA), Michigan Compiled Laws 325.1001 *et seq*., and promulgated implementing rules set out at Michigan Administrative Code, Rule 325.10101 *et seq*., including the Michigan LCR at Mich Admin Code, R 325.10604f.

The Michigan LCR applies to community water systems (CWS) and non-transient non-community water systems (NTNCWS). MDEQ is organized to oversee the two types of systems separately, with the non-community system oversight further delegated by MDEQ to county health departments. The MDEQ Water

[9] MDEQ first presented the MCS approach to EPA in September 1991.

Treatment Specialist provides support to both community and non-community programs regarding LCR issues.

The LCR team reviewed Michigan's adoption of the federal LCR. The review included an examination of Michigan's regulatory language for implementing the 1991 LCR, the LCR Minor Revisions from 2000, and the LCR Short-Term Revisions from 2007. The review focused on determining if the State had adopted all provisions of the federal LCR and if the State rules are as stringent as the federal regulations.

The LCR review did not investigate the Attorney General's statement regarding the State rules or the timeliness of the State's submission of the primacy packages to EPA. The review also did not look at the State's compliance with the recordkeeping and reporting requirements at 40 CFR §§ 142.14 and 15.

Overall, the LCR team identified no significant concerns with the State's adoption of the federal LCR, including the LCR revisions. The review of the Michigan LCR revealed that the State rules closely mirrored the federal regulations. Where the language of the State rules differed, it appeared that the rules were at least as stringent as the federal regulations.

The special primacy requirements at 40 CFR § 142.16(d) (*Requirements for States to adopt 40 CFR part 141, subpart I – Control of Lead and Copper*) provide that, in addition to adopting the general primacy requirements, states must submit a description of how they will accomplish certain special program requirements regarding optimal corrosion control (OCCT), source water treatment, lead service line replacement (LSLR), and sample collection for reduced monitoring. Rather than referencing any State rules that had been promulgated to accomplish such program requirements, Michigan's primacy application included an implementation strategy that spelled out how the State would address the special program requirements. Following EPA approval of a primacy application, a state could change its approach to addressing special primacy requirements, without need for EPA approval, under certain circumstances. Changes must remain consistent with the special primacy condition. In Chapter 1, the FR addresses specific LCR requirements that the State had not been fully implementing, and references MDEQ's PWSS Grant work plan for FY 2017, which requires a plan and schedule for full implementation.

In its initial primacy application, the State chose not to designate optimal corrosion control treatment (OCCT) for new public water systems or large systems that exceed the lead action level (copper was not mentioned). Instead, the State chose to allow the PWSs to determine OCCT through demonstration studies. Furthermore, any non-large PWS that exceeds the lead or copper action level is allowed to determine OCCT through a desktop evaluation. The desktop evaluation will likely be accompanied by the results from a full-scale corrosion control treatment study. The LCR review does not include within its scope an analysis of the State's involvement with the completion of demonstration studies or desktop evaluations.

2.2.2 Lead and Copper Program Review

MDEQ LCR Policy

The stated purpose of the MDEQ LCR Policy, *MDEQ Water Division Policy and Procedure* ODWMA-399-027, Lead and Copper Rule Implementation (August 4, 2003; Reformatted January 17, 2013) (LCR Policy), is to provide guidance for implementation of the Michigan LCR by MDEQ and local health department (LHD) staff regarding sampling site selection, monitoring, improper (invalid) samples, calculation of the

90th percentile value[10], and corrosion control. Among other items, the LCR Policy states that all large water supplies (serving more than 50,000 people) must complete the steps to demonstrate that CCT is optimized, regardless of lead and copper levels. The LCR Policy also contains provisions for notification of an upcoming long-term change in treatment or addition of a new source, and monitoring or other actions to ensure that CCT is optimized. The LCR Policy addresses consecutive systems by setting general requirements for consecutive systems and states that the wholesale supplies must comply with the requirements associated with CCT. The MCS approach as applied to the Flint PWS is discussed in Part 2 below and in Appendix 2-B.

Recommendations:

- *The LCR Policy should be expanded and made more comprehensive in the following areas to provide better tools and to work toward consistent implementation for MDEQ and LHD staff:*
    - *Amend the policy to include relevant and consistent regulatory (or guidance) citations for each section of the policy, as is currently done in Section 3.f., for example.*
    - *Amend the policy to include or refer to other documents that clearly state what constitutes a violation for each part of the Michigan LCR.*
    - *Expand the Corrosion Control Section of the policy to include guidance on what constitutes a long-term change in treatment or a "similar source," including changes to/from purchased water, and monitoring after an action level exceedance (ALE). Include appropriate references to EPA's Corrosion Control Guidance. Ensure there is enough time for systems to consult with the State prior to the source or treatment change to complete a corrosion control study for systems that must maintain treatment, and for MDEQ to approve the change in writing prior to implementation.*
    - *Amend the policy to address required actions after a system exceeds an AL or to refer to the appropriate sections of the Michigan LCR.*
    - *Amend the policy to include a section on water quality parameter (WQP) monitoring at both the entry points to the distribution system and within the distribution systems.*
    - *Amend Section 2 of the policy to clearly state that all Tier 1 sites must be exhausted prior to using Tier 2 sites; and so on. Further, MDEQ could encourage systems to exhaust all lead service line (LSL) Tier 1 sites) sites prior to using copper-with-lead-solder Tier 1 sites. This approach is more stringent than the current LCR requirement of 50 percent of each type of Tier 1 site, but would be most protective of public health because it would target the highest risk sites. In Section 2.c., clarify that sampling sites with faucets that have point of use (POU) or point of entry (POE) treatment devices that are designed to remove inorganic contaminants must not be used. This information could be reiterated in Section 3.d. regarding the determination of improper samples.*
    - *Amend the policy to include a process for staff to review lead and copper tap sampling documentation during system visits, such as sanitary surveys, since documentation of the tier designation of LCR sampling sites must be kept on file for inspection by the State.*

[10] Mich Admin Code, R 325.10604f(1)(c) and 40 CFR § 141.80(c) provide that the lead AL is exceeded if the concentration of lead in more than 10 percent of tap water samples collected during any monitoring period conducted in accordance with R 325.10710a and 40 CFR § 141.86, respectively, is greater than 0.015 mg/L (milligrams per liter); *i.e.*, if the ''90th percentile'' lead level is greater than 0.015 mg/L. The lead action level is commonly expressed as 15 ppb (parts per billion) which is equal to 15 µg/L (micrograms per liter).

- *MDEQ should create SOPs:*
  - *For LHDs for approving alternate monitoring schedules for NTNCWSs, and for reviewing and approving invalidation requests;*
  - *For tracking compliance with optimal water quality parameters (OWQPs) at entry points and within distribution systems, including within a MCS approach; and*
  - *For investigation of potentially improper samples, including necessary documentation.*

Lead and Copper Report Form and Response Letter

MDEQ relies on water system-supplied information that identifies sufficient site locations for Tier 1, 2, and 3 sampling sites to collect tap samples under the Michigan LCR. MDEQ provides a Lead and Copper Report form to PWSs that includes instructions explaining how to identify each site's "sample category." The "sample category" identifies the tier of the site. Neither a materials inventory nor a sampling plan is required by either federal or State regulations to be sent to the State, so there is no document in MDEQ system files that would allow State personnel to confirm that the system collected all samples from appropriate "sample categories." The Consumer Notice Certification form is a part of the Lead and Copper Report, and MDEQ encourages systems to submit the Certification with the Report ten days after the end of the monitoring period. MDEQ calculates the 90th percentile and then sends a response letter that includes the 90th percentile value and the number of samples on which it is based. In addition to the standard letter, MDEQ sent a letter in March of 2016 to all CWSs requiring each system to review and update its distribution system inventory.

Strengths:

- *MDEQ's Lead and Copper Report form includes the addresses and results of each site so addresses can be easily compared to previous monitoring rounds. MDEQ calculates the 90th percentile value for samples by the most accurate method –interpolation. MDEQ's response letter to PWSs clearly lists the number of samples taken and the 90th percentile value calculated by the State.*

Consumer Notice Provisions

The Lead and Copper report form includes a Consumer Notice Certification Form for the distribution of lead and copper sampling results to those locations that participated in the sampling program. The purpose of the consumer notice is to provide a resident with lead and copper results for that location, along with health information relating to lead, and suggestions for reducing the risk of exposure. Previously, MDEQ indicated to EPA that it had not fully implemented and enforced the Consumer Notice provision since 2011. However, beginning in FY 2014, MDEQ committed to full implementation of the Consumer Notice requirement at CWSs, and, in the FY 2016 PWSS Grant, MDEQ committed to full implementation of the Consumer Notice requirement at NTNCWSs.

Discrepancy:

- *The Consumer Notice Certification Form was not present in some system files. No violations were assigned.*

Recommendations:

- *Fully implement the Consumer Notice provisions of the Michigan LCR.*

- *Create standard review procedures for LHD staff, as needed, to ensure that Consumer Notice Certification is received and violations are assigned as needed for failure to distribute sample results to customers at NTNCWS.*

Sampling Reminder Letter

MDEQ issues reminder letters to PWSs in advance of lead and copper monitoring periods. The current version of the letter includes reminders to select Tier 1 sites, use the same sites as were used for previous monitoring periods, and report changes to sites. The letter also reviews sampling procedures and emphasizes that all analyzed samples are used to calculate the 90th percentile.

Strength:

- *MDEQ engages in a proactive practice of reminding PWSs to collect samples at appropriate sites and report the results correctly. After assessment of the tier information for the Flint PWS, MDEQ sent a letter in March of 2016 to all CWSs to review and update each CWS's materials inventory to ensure accuracy.*

Recommendations:

- *Revise the letter to remind systems to verify Tier 1 criteria, including presence of a LSL at new locations.*
- *Clarify that Tier 1 sites must be used for sampling, prior to using Tier 2 or 3 sites, rather than referring to the Lead and Copper Report form, which may not be referenced until after sampling has concluded.*
- *Revise the letter to include a reminder about the use of appropriate faucets (kitchen/bath; no POU/POE treatment designed to remove inorganic contaminants) and a reminder about existing policies regarding aerators, pre-stagnation flushing, and filters so that PWSs can modify sample collection instructions, as needed.*

Non-transient Non-Community Program Find and Fix Approach

MDEQ uses a flow chart to articulate the steps for NTNCWSs serving fewer than 3,301 people, including the steps to be taken after a system exceeds an AL. The flow chart is undated; is unclear on whether it applies to lead, copper, or both ALs; and does not reflect the current regulatory requirement for a system to revert to standard monitoring after an ALE. Additionally, MDEQ staff indicated that, after an ALE, the optional path of sampling all taps and taking corrective measures (i.e., "find and fix") was prioritized over meeting regulatory requirements and deadlines. Thus, systems undertook a voluntary "find and fix" program without incurring violations for failing to propose or install CCT or collect WQPs. Since no NTNCWSs with ALEs were reviewed under the FR, no specific examples of this alternative path were reviewed. MDEQ staff indicated that, moving forward, NTNCWSs that undertake the voluntary "find and fix" path must still concurrently comply with the regulatory requirements and deadlines for WQP monitoring and CCT identification.

Discrepancy:

- *MDEQ is not ensuring compliance with the requirements to install CCT or collect WQPs after an ALE at NTNCWSs.*

Recommendations:

- *Clarify whether the "find and fix" approach is applicable to both lead and copper ALEs, or just to lead ALEs.*
- *Ensure that LHDs implement the LCR regulatory requirements concurrently with voluntary "find and fix" processes if a system exceeds the lead or copper AL, and assign violations as needed.*
- *Remind PWSs replacing problematic valves, fittings, and fixtures to replace with those that meet the new SDWA Lead-Free definition.*

Non-Transient Non-Community Program LCR Sampling

During conversations with EPA, MDEQ staff indicated that lead and copper samples collected by NTNCWSs outside the required June to September monitoring period were routinely accepted and used to calculate 90th percentile values. Due to resource constraints, prior to FY 2016, MDEQ did not commit to ensuring that collected samples were taken within the June to September monitoring period. However, during FY 2016, MDEQ began requiring all NTNCWSs to sample within the June to September monitoring period.

Discrepancies:

- *Violations were not assigned by either LHDs or MDEQ to NTNCWSs for failure to collect samples within the June to September monitoring period. Further, allowing systems to collect samples outside of the monitoring period makes taking timely WQP samples highly unlikely.*

Recommendations:

- *Ensure LHDs document when alternate monitoring periods are established for seasonal NTNCWSs to better represent the period when the highest lead levels are most likely to occur during their open season.*
- *Ensure that MDEQ and LHD staff are assigning Michigan LCR monitoring violations and taking appropriate enforcement actions.*

Water Quality Parameter Program

MDEQ requires that when any chemicals are added as part of the water treatment process, the dosages must be reported to the State. During conversations with EPA, MDEQ staff indicated that OWQPs, as required by Mich Admin Code, R 325.10604f(3) and 40 CFR § 141.82(f), are not set for locations in the distribution system. This practice is based on a guidance that is in the State's records; specifically, a May 28, 1998, electronic mail message from a State employee providing his interpretation of a one-day workshop conducted by EPA Region 5 on LCR implementation. This email asserts that state agencies and large systems do not have to set or maintain minimum values or ranges for WQPs for points in the distribution system, as called for in the regulation. The email further states that WQPs must be set only for point-of-entry samples. This email does not correctly interpret the regulatory requirement for distribution system WQPs.

Discrepancies:

- *MDEQ did not set OWQP ranges at distribution system locations for any affected systems – large systems, consecutive systems, or small/medium systems that continued to exceed an AL after corrosion control is installed. For systems that conduct monitoring for WQPs at distribution system locations, MDEQ does not have a value or range for comparison to determine if the system's corrosion control is optimized.*

Recommendations:

- *Set enforceable distribution system WQP ranges as required for all systems under a consecutive systems agreement, including wholesale and consecutive, that have installed CCT.*
- *Set enforceable distribution system WQP ranges as required for large systems that are not part of a wholesale/consecutive system and for small/medium systems that continue to exceed an AL and that currently only have WQP ranges specified at the entry point to the distribution system.*
- *Establish a form or method of compiling distribution system WQP ranges for water systems to review and detect trends and excursions.*
- *Review small and medium system data taken at the plant for compliance with OWQPs which were set for the plant by MDEQ, as appropriate.*

2.3 Review of MDEQ Oversight of City of Flint PWS

2.3.1 Background

Prior to April of 2014, the Flint PWS purchased water from the Detroit PWS and, therefore, the Flint PWS was considered to be a consecutive system. In April of 2014, the Flint PWS ceased purchasing water from the Detroit PWS and began operating its own water treatment plant that drew water from the Flint River. In October of 2015, the Flint PWS discontinued operation of its plant and resumed purchasing water from the Detroit PWS, again making it a consecutive system. Details from the Flint FR are summarized in Appendix 2-A.

In order to address the Detroit PWS and its 115 consecutive systems, including the Flint PWS, MDEQ developed (and EPA Region 5 approved) a MCS approach to implement the Michigan LCR, which included a reduced number of sampling sites for the consecutive PWSs. A more detailed description of the MCS approach is included in Appendix 2-B. The MCS approach did not apply to the Flint PWS during the time when it operated its own water treatment plant between April of 2014 and October of 2015.

Under the MCS approach for the Detroit consecutive systems, each individual system has a designated number of lead and copper tap samples and WQP distribution system samples to collect, based on the individual system's population, with a total of 877 tap samples (100 in Detroit) and 204 WQP samples distributed throughout the collective distribution system. The 204 WQP samples were taken twice every six months. While MDEQ set OWQP limits for a PWS's entry point, MDEQ did not set any OWQP limits in the distribution system for any PWS in the State, including for the Detroit consecutive systems. Therefore, even though WQP samples were collected, there were no numerical water quality criteria with which to determine compliance. Under the MCS agreement, each individual system in the Detroit consecutive system was responsible for meeting the requirements of the Michigan LCR, if it exceeded the AL.

From 1992 until 2008, the Flint PWS was required to collect 33 tap samples during each monitoring period and 10 WQP samples (eight samples in the distribution system and two samples at the entry points) taken twice in a six-month period. MDEQ re-evaluated the MCS approach in 2007, and reduced the number of tap samples required to be collected by the Flint PWS from 33 to 23 in the 2011 sampling period, due to Flint's decreased population. Following the source change to the Flint River by the Flint PWS in 2014, MDEQ increased the required number of tap samples to 100, reflecting a standard monitoring requirement, and again reduced the required number to 60 tap samples in 2015 based on declining city population.

2.3.2 Maintenance of Corrosion Control Treatment and Treatment Decisions

Maintenance of Corrosion Control

The Michigan LCR at Mich Admin Code, R 325.10604f requires that the supplier of a large water system (i.e., one that serves more than 50,000 persons) complete the corrosion control treatment steps specified in the Rule unless the supplier is considered to have optimized CCT under the provisions of the Rule. *See* 40 CFR §§ 141.81 and 141.82. The Michigan LCR at Mich Admin Code, R 325.10604f(2)(b) and R 325.10604f(3)(f) requires any large system that has met the optimized CCT requirements through the installation of CCT to continue operating and maintaining the treatment and to continue meeting the WQP limits established by the primacy agency. *See* 40 CFR §§ 141.81(b)(3) and 141.82(g). The measured parameters established for Flint were pH, temperature, total alkalinity and total phosphorus, based on the addition of orthophosphate by the Detroit PWS. (The lack of established WQPs in the Flint distribution system is addressed below.)

Prior to April of 2014, the Flint PWS met the criteria for optimized CCT by utilizing water that the Detroit PWS had treated with orthophosphate. Accordingly, as a large system with optimized CCT, the Flint PWS was required to continue demonstrating optimized CCT when it switched sources and began treating and distributing water from the Flint River in April of 2014. However, when the Flint PWS began treating raw Flint River water at its own plant full-time, it did not add orthophosphate for CCT. In the files that MDEQ provided to the LCR review team, there was no documentation to indicate that, prior to the City's starting up its own treatment plant to treat Flint River water, MDEQ: 1) required the Flint PWS to perform corrosion control studies to identify OCCT for the system; 2) required the Flint PWS to maintain optimized CCT by adding orthophosphate in a manner compatible with the new source water; or 3) otherwise formally approved revised CCT to be implemented by the Flint PWS. MDEQ did require the Flint PWS to increase tap monitoring for lead and copper and WQP monitoring both at the entry point and within the distribution system. MDEQ also modified the WQPs being monitored by the City by dropping total phosphorus and adding conductivity and calcium.

Treatment Decisions

The Flint PWS, as part of the Detroit consecutive system, was on a triennial reduced monitoring schedule prior to April of 2014 when the Flint PWS switched the source of its water from finished water purchased from Detroit PWS to raw water from the Flint River and began treating that water at its own treatment plant. The Michigan LCR at Mich Admin Code, R 325.10710a(4)(d)(vii) states that any system on a reduced monitoring frequency shall notify MDEQ in writing of any upcoming long-term change in treatment or addition of a new source, and that MDEQ shall review and approve the addition of a new source or long-term change in water treatment before it is implemented by the water supply. *See* 40 CFR § 141.86(d)(4)(vii). The rule further provides that the State may require the system to take additional measures, such as commencing standard monitoring, increased WQP monitoring, or re-evaluation of CCT.

There was no documentation in the files that MDEQ provided to the LCR review team to indicate that the source change from treated Detroit PWS water to raw Flint River water was reviewed and approved by MDEQ, for OCCT, before the Flint PWS began using the new source. There should have been documentation addressing the impact within the distribution system of a switch from a source with orthophosphate treatment for CCT to a new source without such treatment. If OWQPs had been established in the distribution system, then the documentation should have explained why orthophosphate measurements (measured as total phosphorus) in the distribution system were not necessary with the new source. There should also have been documentation indicating what the new CCT process was for the Flint

PWS, since the orthophosphate treatment was not being maintained. The key WQPs for the new corrosion control process should have been specified prior to the source switch to comply with monitoring requirements under Mich Admin Code, R 325.10710b(5)(c). Required monitoring after the source switch would have depended on the treatment strategy employed.

After the source change to Flint River water, the WQPs that the Flint PWS was monitoring were pH, alkalinity, calcium, conductivity, and temperature, indicating that the Flint PWS may have been relying on pH passivation, rather than orthophosphate treatment, for CCT. However, any such reliance on pH passivation for CCT was insufficient. The pH values of water leaving the Flint treatment plant were typically in the mid to upper pH 7 range, which is not an effective range for a pH passivation approach to control lead leaching from LSLs. An effective range of pH for pH passivation would be above pH 8.5, depending on alkalinity and other factors. *See* U.S. Environmental Protection Agency *Lead and Copper Rule Guidance Manual, Volume II: Corrosion Control Treatment.* Office of Water. EPA 811-8-92-002 (1992).

If the source/treatment change had been correctly reviewed and approved by MDEQ, then MDEQ should have set OWQPs and WQP ranges for the entry point to the distribution system once the Flint PWS began treating Flint River water. MDEQ also should have set OWQP ranges in the distribution system, but did not do so presumably because of the previously identified program-wide deficiency in setting WQP ranges within distribution systems. If MDEQ had selected a different OCCT, then after one year of follow-up monitoring, the State would have needed to review and possibly revise OWQP ranges at the entry point to the distribution system and at locations in the distribution system to ensure that corrosion control was optimized. The data collected on the critical WQPs during the year of follow-up monitoring would be used to revise the OWQP ranges for the treatment process. While OWQP ranges at sites in the City's distribution system were not set, presumably because of the previously identified program-wide deficiency, MDEQ also failed to set OWQP ranges at the entry point to Flint's distribution system after the source switch and to review/revise those ranges as necessary after the one year of follow-up monitoring.

Discrepancies:

- *MDEQ did not require a CCT study prior to implementation of the switch to the new source.*
- *MDEQ did not designate CCT for the Flint PWS at the time of plant start-up, either by designating installation of orthophosphate (to continue to maintain the OCCT) or designating installation of a revised and approved CCT, after MDEQ was notified of the source change.*
- *MDEQ did not issue a violation to the Flint PWS for failing to maintain CCT after the source change to Flint River water.*
- *MDEQ did not designate OCCT and associated WQP ranges at the entry point and in the distribution system after the source/treatment switch and review/possibly revise OWQPs after the January to June 2015 monitoring period.*

Recommendations:

- *Update Section 5.c. of the Michigan LCR Policy to establish a review and approval process to address and document any upcoming change in long-term treatment or addition of a new source, including any impact of that treatment or source change on existing CCT, before it is implemented by the PWS, as required by the Michigan LCR.*
- *Report violations for failing to maintain CCT to SDWIS.*

Note:

- *In October of 2015 MDEQ determined OCCT for the Flint PWS's current source (i.e., when Flint went back to receiving finished water from Detroit PWS) and established enforceable WQP ranges. EPA's January 21, 2016 SDWA Section 1431 emergency enforcement order requires the Flint PWS to continue to add corrosion inhibitors as it uses Detroit PWS water and to complete a corrosion control study. The emergency order also addresses the Flint PWS's CCT if it decides to transition to a new water source, including the requirement to complete a corrosion control study and a performance period to allow for the demonstration of the adequacy of treatment of the new water source to meet all SDWA and NPDWRs before it can be distributed to consumers.*

2.3.3 Measurement of Water Quality Parameters before and after April 2014

As previously noted in this Report, MDEQ did not set OWQP ranges in the distribution system, as required by the Michigan LCR. This discrepancy applies to the Flint PWS, both prior to April 2014, when it was part of the MCS approach with the Detroit PWS, and when it was operating its own treatment plant in 2014 and 2015. When the Flint PWS was purchasing treated water from the Detroit PWS, Detroit was responsible for meeting the OWQP ranges at the entry point to the distribution system. Under the MCS approach, the Flint PWS took samples at eight locations in the distribution system and at each entry point to the Flint PWS twice during each six-month period. The measured parameters were pH, temperature, total alkalinity and total phosphorus, based on the addition of orthophosphate by the Detroit PWS. However, total phosphorus is not a good surrogate for orthophosphate as it includes other forms of phosphate. (The correct measurement of orthophosphate was provided in the WQP monitoring results after the Flint PWS returned to water being supplied by Detroit in October of 2015.) If an optimal minimum value or range had been set for orthophosphate/total phosphorus in the Flint distribution system, then either a change in the OWQP ranges or the addition of orthophosphate would have been required when the Flint PWS switched to the new source.

Once the Flint PWS switched to the Flint River source and was no longer part of the Detroit MCS, MDEQ added 15 sites to the original 10 sites for WQP monitoring within the Flint PWS distribution system. MDEQ changed the WQPs that were monitored at these 25 sites by dropping total phosphorus and adding conductivity and calcium. There was no documentation in the files that MDEQ provided to the LCR review team about the reason for the change in the WQPs being monitored in the distribution system. The increase in the number of WQP sites to 25 is consistent with the number of WQP distribution sites required for systems serving over 100,000 people on standard monitoring. As noted above, OWQP ranges were not set in the distribution system following the source change, even though the parameters being monitored did change. Also, as noted in the Treatment Decisions Section above, OWQP ranges should have been set at the entry point to the distribution system and then reviewed and possibly revised after one year of follow-up monitoring. The Flint treatment plant was conducting daily monitoring, which was being submitted on the MORs to MDEQ, but there were no OWQP ranges set for comparison to evaluate the performance of the plant.

Discrepancy:

- *MDEQ did not set OWQP ranges for entry points to the Flint distribution system or in the distribution system. Therefore, a compliance determination for distribution system WQP samples was not possible.*

Recommendation:

- *See Part 1, item 7, of this chapter for recommendations on setting WQPs Statewide.*

2.3.4 Lead and Copper Monitoring

Tier 1 Sites

In the year preceding the start of sampling for the Michigan LCR in 1992, MDEQ provided information to water systems during on-site training events, in meetings, and in newsletters about the 50/50 mix of samples and the requirement to conduct a materials survey. MDEQ relied on all of its PWSs to certify on their LCR reporting forms that each sampling site contained the actual type of service line reported on the form. (The federal LCR does not require any state to review or approve sample locations.) MDEQ's limitations were made clear in a November 12, 1991, letter from MDEQ to EPA Region 5 that states, "*The State does not have sufficient knowledge of service line materials and plumbing materials to second guess the sites certified by the public water supplies.*"

The Flint PWS reported in 2014 and 2015 that all Tier 1 sampling sites had LSLs and did not include sites with copper service lines with lead solder installed between 1983 and 1988. MDEQ's file did not include a reference document to verify that each such service line was positively identified as a LSL.

Once MDEQ became aware that Flint's information on service line materials, which was originally on index cards and recently converted to electronic files, did not provide the needed verification, MDEQ sent a letter on November 9, 2015, requiring the Flint PWS to provide verification for all of the sites it used since 1992 (324 different locations). The letter from MDEQ to Flint's Utility Administrator states, *"The DEQ has obtained a copy of these 10,895 digital records and cross referenced them with the addresses for the City's 324 historic LCR compliance monitoring sites. However, only 46 of the 324 sites were able to be matched at the current time. Of these 46 sites, only 6 sites contained information confirming the Tier 1 site criteria based on having lead service line materials. Fourteen sites were listed as having no available information (n/a), and require additional documentation to justify being designated as a Tier 1 sample site having a lead service line. The remaining 26 cross referenced sites were listed as having copper service line materials which conflicts with the City's LCR reports certifying these sites as Tier 1 based on the criteria of having a lead service line."*

Discrepancies:

- *The Flint PWS Lead and Copper Report form for January to June 2015 contained contradictory information regarding the tier of each sample location. On the first summary sheet, the water system answered "no" to question 9 asking if all samples were from Tier 1 sites. However, on page 2, the results were all listed as being Tier 1, specifically all sites having LSLs. The file did not contain any documentation demonstrating that MDEQ noted or addressed this reporting discrepancy. In a letter dated November 9, 2015, MDEQ asked for verification from the Flint PWS that Tier 1 sites had LSLs.*

Historic Lead 90th Percentile Values

The Flint PWS collected the required number of lead and copper samples pursuant to the MCS approach (see Table 2-1, below), except for the 2011 monitoring period when two samples were collected outside the June to September monitoring period required for systems under a reduced monitoring schedule. All historic lead and copper sampling events were below their respective ALs with the potential exception of 2015, discussed below. All 90th percentile values were correctly calculated by interpolation.

Table 2-1. Flint PWS historic lead sampling data

Sample period	# LSLs sampled/required	Lead 90th Percentile (ppb)	Highest Concentration of Lead (ppb)
Jan 1 - Jun 30, 1992	33/33[11]	15.4	25
Jul 1 – Dec 31, 1992	33/33	14.4	23
Jan 1 – Jun 30, 1997	33/33	4.5	25
Jul 1 – Dec 31, 1997	33/33	5	32
Jul 1 – Dec 31, 1998	33/33	7.4	29
Jan 1 – Jun 30, 1999	33/33	5	13
Jun 1 – Sep 30, 2000	33/33	7	21
Jun 1 – Sep 30, 2001	33/33	4.4	7
Jun 1 – Sep 30, 2002	33/33	4	21
Jun 1 – Sep 30, 2005	33/33	1.4	5
Jun 1 – Sep 30, 2008	33/33	0	0
Jun 1 – Sep 30, 2011	23/23[12] (two samples late)	0	0
Jul 1 – Dec 31, 2014	100/100[13]	6	37
Jan 1 – Jun 30, 2015	69[14]/60[15]	11	(at two sites)

Insufficient Number of Lead and Copper Samples Collected in 2011

The Flint PWS collected 23 lead and copper samples during 2011, but only 21 of 23 required samples were collected before the end of the June to September monitoring period. MDEQ inquired about the insufficient number of samples collected prior to the end of the monitoring period, and the Flint PWS responded in a July 16, 2012, letter explaining that the two samples delivered on September 30th were rejected by the City of Detroit laboratory due to insufficient stagnation time. The consumers were asked to resample, and the samples were submitted to the laboratory on October 24, 2011. If those two samples were considered improper or invalid, the regulations would have required the Flint PWS to collect replacement samples by October 20, 2011; however, no documentation was found in the file to confirm invalidation by MDEQ. After the Review, MDEQ reviewed EPA's draft report and provided documentation - the City's October 24, 2011 signed "Drinking Water Lead & Copper Report & Certificate," which noted that the City collected the required replacement samples on October 17, 2011 and October 18, 2011.

Discrepancy:

- *MDEQ did not issue a M/R violation to the Flint PWS for failing to collect the required number of samples. After the FR, MDEQ provided documentation in March of 2017, which provided evidence that the replacement samples were collected prior to October 20, 2011, which would remove this discrepancy.*

[11] Number of required samples for Flint PWS from the original 1991 MCS approach with Detroit PWS that was approved by EPA and MDEQ.
[12] Number of required samples for Flint PWS that resulted from the 2007 re-evaluation of the 1991 MCS approach.
[13] Number of required samples for Flint PWS for standard monitoring for a system serving more than 100,000 people.
[14] Number of samples MDEQ used to calculate 90th percentile values. Invalidations of samples is discussed below.
[15] Number of required samples for Flint PWS after the most recent census which showed its population was approximately 99,000.

2.3.5 Invalidated Samples, January to June 2015

MDEQ's file did not include proper documentation on the decisions and rationale for invalidating samples collected by the Flint PWS during the January to June 2015 sampling period and excluding them from the 90th percentile calculation. Two samples from the initial list of 71 sample results were excluded from the final 90th percentile calculation. The 90th percentile of the 71 sample results was above the lead action level, and both excluded sites were above the lead action level. The documentation for a Grand Traverse Avenue site indicated that it was not a Tier 1 site because it was a business and therefore did not meet the Tier 1 site requirement to be a single-family residence. The documentation for the sample collected at a Browning Avenue site on February 18, 2015, indicated that the site had a whole-house filter. Several additional samples were taken at the Browning Avenue site during the January to June 2015 monitoring period (on March 3, 2015; March 18, 2015; and April 2, 2015). These results were submitted to MDEQ, but were also excluded from the 90th percentile calculation because of documentation noting the whole-house filter.

The sample collected on March 18, 2015, was not a first draw sample, so it could be excluded from the 90th percentile calculation for that reason. The Michigan LCR sample site location requirements at Mich Admin Code, R 325.10710a(1)(a) state, *"Sampling sites may include faucets that have point-of-use or point-of-entry treatment devices designed to remove inorganic contaminants only if the devices have been approved by the department for the purpose of optimizing corrosion control." See* 40 CFR § 141.86(a)(1). The documentation on the whole-house filter at the Browning Avenue site does not specify if it was designed to remove inorganic contaminants. Therefore, there was insufficient documentation to make a decision about invalidating a sample from that site based on a filter.

Additionally, a sample at the Browning Avenue site was collected at a basement tap before the filter on April 2, 2015. There is no documentation on why this sample was not included in the 90th percentile calculation as it would not be from a faucet with a point-of-entry device designed to remove inorganic contaminants (assuming that the whole-house filter was designed for that purpose). If the whole-house filter was not designed to remove inorganic contaminants, then the samples taken on February 18 and March 3, 2015, should have been included in the 90th percentile calculation, which would have put the system over the AL. If the April 2, 2015, sample collected from the basement was from a bathroom tap, then it should have been included in the 90th percentile, even if the whole-house filter was designed to remove inorganic contaminants. There are four potential scenarios based on the data from this site:

1. All samples were invalid – whole-house filter was designed to remove inorganic contaminants and basement tap was not a bathroom/kitchen tap;
2. Whole-house filter was designed to remove inorganic contaminants and basement tap was a bathroom/kitchen tap before the whole-house filter;
3. Whole-house filter was not designed to remove inorganic contaminants and basement tap was not a bathroom/kitchen tap; and
4. Whole-house filter was not designed to remove inorganic contaminants and basement tap was a bathroom/kitchen tap.

The 90th percentiles for these scenarios would have been: 1) 11 ppb; 2) 13 ppb; 3) 18 ppb; and 4) 20 ppb, respectively.

Discrepancy:

- *MDEQ's file did not include documentation of decision/rationale or management approval to designate samples taken for the January to June 2015 sampling period as improper and exclude*

them from the 90th percentile calculation. There was no documentation that all samples collected during the monitoring period were investigated, as directed by the Michigan LCR Policy.

Recommendation:

- *Amend LCR policy to establish process to document and approve sample invalidations.*

2.3.6 Late Reporting in 2014 and 2015

The Flint PWS submitted its Lead and Copper report for the July to December 2014 monitoring period on February 27, 2015, and its report for the January to June 2015 monitoring period on July 28, 2015. These reports were due by January 10, 2015, and July 10, 2015, respectively. MDEQ did not assign violations for late submission of either of these reports. Since 2011, MDEQ has indicated to EPA that it does not plan to issue or report violations for late reporting violations, including submittal of the Lead and Copper report form, because MDEQ believed that there were no negative public health effects from late reporting. The late reporting by the Flint PWS, however, delayed actions by MDEQ to assess information in the report and may have resulted in public health protection measures not being implemented. For example, MDEQ staff invalidated samples for the January – June 2015 monitoring period. If a recalculated 90th percentile value was over 15 ppb lead (see discussion below), the Flint PWS would have been starting PE, LSLR, and other required activities later than it would have if the reports had been submitted on time.

Discrepancy:

- *MDEQ did not issue M/R violations to the Flint PWS for failing to submit the referenced Lead and Copper reports by January 10, 2015, and July 10, 2015, respectively.*

Recommendations:

- *Report violation to SDWIS.*
- *Ensure that MDEQ and LHD staff issue violations to PWSs that submit Lead and Copper reports late.*

Chapter 3 Enforcement Verification

3.1 Enforcement Verification Summary

From April 4 through April 8, 2016, the EPA Region 5 conducted the Fiscal Year 2016 Enforcement Verification (EV) review of Michigan's Drinking Water Program.

The purpose of the EV was to complete the following:

- Evaluate whether the Michigan Department of Environmental Quality (MDEQ) was following the enforcement processes outlined in available procedures and flow charts;
- Review enforcement documentation in MDEQ's files; and
- Compare MDEQ's files with violation and enforcement information reported to the national Safe Drinking Water Information System (SDWIS/Fed).

The EPA EV review team reviewed the records of 16 systems with 40 known violations that occurred between October 1, 2013, and September 30, 2015, and found 21 additional violations (18 that were unreported or reported late to SDWIS/Fed). The review included six community water systems (CWSs), five non-transient non-community water systems (NTNCWSs) that are schools or daycares, and five transient non-community water systems (TNCWSs).

The 16 systems had maximum contaminant level (MCL), treatment technique (TT), and/or monitoring and reporting (M/R) violations for one or more of the following rules: Total Coliform Rule (TCR), Ground Water Rule (GWR), Nitrate/Nitrite, Arsenic, Lead and Copper Rule (LCR), Consumer Confidence Report (CCR) Rule, and Stage 1 and 2 Disinfectants and Disinfection Byproducts Rule (DBPRs). The EV review team found a total of 58 discrepancies with 17 discrepancies being unreported violations (identified as compliance determinations or CD discrepancies), three discrepancies related to data flow (DF discrepancies), and 38 discrepancies related to MDEQ's failure to follow its standard operating procedures (SOPs) (identified as enforcement verification or EV discrepancies).

EPA found the following items/processes that MDEQ used to strengthen its implementation of its PWSS program:

- Comprehensive flowcharts for addressing M/R violations including public notice (PN) requirements and state administrative fines, total coliform-positive sample follow-up, Phase II/V inorganics and organics sample results that exceed MCL follow-up, violations of state drinking water standards including PN, and enforcement.
- A GWR significant deficiency SOP.
- The 2014 Noncommunity Program Staff Reference Manual.
- A fine policy for M/R violations and violations of state drinking water standards.
- The centralized issuance of Administrative Consent Orders (ACOs) to CWSs and non-community water systems (NCWSs) from staff in the central office, thus improving consistency across the State.
- Follow-up procedures for TCR MCL violations include actions that are more stringent than the federal rule, such as requiring NCWSs to provide PN for TCR monthly MCL violations within 24-hours, the same timeframes that CWSs and NCWSs are required to provide PN for TCR acute MCL

violations, instead of within 30 days. Procedures also include timely site visits conducted by local health department (LHD) staff after TCR acute and monthly MCL violations.

The EV review team recommends that MDEQ address the following:

- EPA expects MDEQ to ensure that data systems are in place so that the State can report all federally reportable violations to SDWIS/Fed. It is critical that Michigan allocate program resources to effectively manage data and fully utilize SDWIS/State, which is the primacy agency-level version of SDWIS, for all PWSs.
- MDEQ should use EPA's 2009 Drinking Water Enforcement Response Policy (ERP) as a model for developing its drinking water program compliance and enforcement strategy.
- MDEQ must focus on timely reporting. MDEQ should have reported two TTHM MCL violations for Flint, for the first and second quarters of 2015. Not reporting these violations affected enforcement targeting tool (ETT) scoring, preventing Flint from becoming a priority system sooner (on October 2015 ETT).
- MDEQ's community program should issue a violation notice for all violations, once they are determined, in order to provide the PWS with public notice documentation and return to compliance information in a timely manner. These notices should be kept in the PWS file and reported to SDWIS/State and SDWIS/Fed as SIA (state violation notice) enforcement actions.
- MDEQ should ensure that all LHDs are tracking PWS compliance with total coliform routine monitoring requirements by updating WaterTrack in a timely manner when LHDs instruct systems to increase routine monitoring to quarterly, so that systems receive quarterly monitoring reminders and are issued violations when they fail to monitor at the required frequency.
- MDEQ should ensure that all LHDs contact systems that had a total coliform-positive routine sample in a timely manner to remind them to collect repeat samples within the required 24-hours.
- MDEQ should ensure that all LHDs instruct groundwater PWSs that do not provide at least 4-log treatment of viruses to collect, within 24 hours of notification of the total coliform positive sample, at least one groundwater source sample from each groundwater source in use at the time the total coliform positive sample was collected.
- MDEQ should follow up with systems that fail to conduct GWR-triggered source water monitoring and report all triggered source water M/R violations at NCWSs after it is able to generate and submit these violations to SDWIS/Fed.
- MDEQ should initiate formal enforcement action at all PWSs that were previously on bottled water agreements for exceeding the arsenic MCL when the MCL went from 0.050 mg/L (milligrams per liter) to 0.010 mg/L and have not yet returned to compliance. MDEQ should require these systems to monitor for arsenic on a quarterly basis, provide alternative water, and provide public notice until an alternate source is found or treatment is installed and the systems return to compliance.

Additional Recommendations for NCWSs:

- The EV review team found NTNCWSs with non-transient populations between 50 and 70 people served that had State lead and copper tap monitoring schedules requiring fewer than five samples. Site visits are recommended to confirm that there are fewer than five taps used for human consumption.

- MDEQ should ensure that LHDs only accept first-draw samples for lead and copper compliance and that systems on reduced monitoring collect at least their required number of compliance samples between June and September.
- MDEQ should ensure that all lead and copper action level exceedances (ALEs) are reported to SDWIS/Fed and that LHDs and/or MDEQ follow up on them in a timely manner.
- LHDs/MDEQ need to escalate enforcement for lead ALEs when systems fail to follow LHD recommendations for resolving the lead ALEs, including the possible use of the State's emergency authority under Michigan SDWA Section 15 (Section 325.1015).

EPA is encouraged that MDEQ is working to update its drinking water program compliance and enforcement strategy, and looks forward to working with MDEQ to address the recommendations in this report. Most importantly, EPA recognizes the resource constraints that are stressing MDEQ's drinking water program, especially the lack of effective data systems to support compliance monitoring efforts. Securing adequate personnel and data resources will be critical as MDEQ moves forward to ensure that its drinking water program is well implemented to protect public health and provide the people of Michigan with safe drinking water.

3.2 Introduction

From April 4 through April 8, 2016, EPA Region 5 conducted the Fiscal Year 2016 EV review of Michigan's Drinking Water Program.

3.2.1 EV Purpose

The purpose of the EV was to complete the following:

- Evaluate whether appropriate enforcement escalation and follow-up activities occur to address violations in a timely manner, as described in MDEQ's enforcement policies and procedures;
- Review enforcement documentation in MDEQ's files; and
- Compare MDEQ's files with violation and enforcement information reported to State data systems, SDWIS/State and WaterTrack, as well as SDWIS/Fed, to ensure that the enforcement data in SDWIS/Fed are accurate and complete.

The EV review period was from October 1, 2013, through September 30, 2015. EPA reviewed two systems with escalated enforcement actions (Administrative Order, Administrative Penalty, etc.) and two with bilateral compliance agreements, which involved a review of all violations associated with the enforcement actions, with some violations occurring before October 1, 2013. EPA did not review any violations prior to October 1, 2013, for the 12 remaining systems unless the system had a history of lead action level exceedances.

EPA conducted the review in MDEQ's central office in Lansing, Michigan. MDEQ has primary responsibility for administering and enforcing the requirements of the Safe Drinking Water Act (SDWA) and national primary drinking water regulations (NPDWRs) in Michigan and does so through its Office of Drinking Water and Municipal Assistance (ODWMA). *(Note: After the EV review, MDEQ renamed ODWMA to the Drinking Water Municipal Assistance Division.)* MDEQ fully cooperated with the EV review team by answering questions throughout the EV process and providing copies of enforcement documents and supporting information to reviewers as requested.

3.2.2 Description of Public Water Systems Reviewed

The EV review team reviewed the records of 16 PWSs: six CWSs, five NTNCWSs, and five TNCWSs. These systems were distributed among MDEQ's field offices. There are eight district field offices for the Drinking Water Program:

Table 3-1. Number of CWSs in Violation Reviewed, by District Office

CWS District Field Office	Number of PWSs in Violation Reviewed
Cadillac/Gaylord	2
Grand Rapids	1
Jackson	0
Kalamazoo	1
Lansing	1
Saginaw Bay (Bay City)	1
Southeast Michigan (Warren)	0
Upper Peninsula (Marquette)	0

Table 3-2. Number of NCWSs in Violation Reviewed, by District Office

NCWS Field Office	Number of PWSs in Violation Reviewed
Cadillac/Gaylord	1
Grand Rapids	2
Jackson	2
Kalamazoo	1
Lansing (Central Office)	3
Upper Peninsula	1

System selection was based on the following factors:

- PWS type (CWS, NTNCWS, and TNCWS);
- Source water type (ground water, surface water, and purchased surface water);
- Population served (less than or equal to 500 people; 501-3,300; 3,301-10,000; and 10,001-100,000);
- Distribution across district offices;
- Systems with health-based and/or monitoring and reporting violations of the following National Primary Drinking Water Regulations (NPDWRs): Ground Water Rule (GWR), Total Coliform Rule (TCR), Nitrate/Nitrite, Lead and Copper Rule (LCR), Arsenic, Consumer Confidence Report (CCR) Rule, Stage 1 Disinfectants and Disinfection Byproducts (Stage 1 DBPR), and Stage 2 Disinfectants and Disinfection Byproducts (Stage 2 DBPR);
- Enforcement targeting tool (ETT) score with at least one priority system (ETT score of 11 or above);
- Community water systems with lead service lines;
- Systems that are schools or daycares; and
- Systems with escalated enforcement actions that were open during the review period.

3.2.3 Violations Reviewed

The 16 PWSs reviewed by the EV team had MCL, TT, M/R, and/or other violation types for one or more of the following rules: TCR, Nitrate, GWR, LCR, Arsenic, Stage 1 DBPR, Stage 2 DBPR, and CCR. For all systems that had tier 1 or tier 2 violations, the EV team reviewed the associated PN.

The EV review team reviewed enforcement records for the types and number of violations listed below (see Appendix 3-G for more details):

Table 3-3. Number of Violations reviewed, by Rule and Violation Type

Violation Type	Number of Violations
TCR Acute MCL	4
TCR Monthly MCL	10
GWR TT	1
Nitrate MCL	1
Arsenic MCL	2
LCR TT	4
Stage 2 DBPR MCL	8
TCR Routine M/R	13
TCR Repeat M/R	4
GWR M/R (Triggered Source Water Monitoring)	3
Nitrate M/R	3
LCR M/R	5
Stage 1 DBPR M/R	1
CCR	1
Tier 1 PN	1
Total Number of Violations Reviewed	**61**

Of the 61 violations reviewed, 30 were health-based violations that required tier 1 or tier 2 PN. The EV team analyzed available copies of PN and certifications to determine whether PN was provided in a timely manner (which is within 24 hours of the PWS receiving a notice of violation (NOV) for a tier 1 violation and within 30 days of receiving an NOV for a tier 2 violation).

3.3 State Enforcement Organization and Enforcement Process

3.3.1 State Organization

Community Water Systems in Michigan are overseen by eight MDEQ district field offices. The MDEQ Community Drinking Water Unit (CDWU) of the Field Operations Section provides program support to district field staff and the regulated community and coordinates federal reporting from the district offices. The CDWU consists of program specialists, engineers, and technicians at the central office. The enforcement coordinator in the Environmental Health Section provides support to the CDWU.

About eight non-community water supply staff in the Non-community and Private Drinking Water Supplies Unit of the Environmental Health Section provide assistance and oversight to the 44 LHDs, under contract with MDEQ, that implement the non-community program. There are eight field offices across the State with non-community staff at six of them.

MDEQ uses SDWIS/State for CWSs and WaterTrack for NCWSs to track compliance with the NPDWRs. WaterTrack, however, does not support many of the newer regulatory requirements.

3.3.2 State Enforcement Process

The EV review team requested documents related to MDEQ's current compliance and enforcement strategy, which demonstrate how the State responds to violations and escalates enforcement efforts to return systems to compliance. The EV team specifically requested the latest version of MDEQ's:

- Enforcement strategy, SOPs, and flow charts for following up on violations;
- Noncommunity Program Staff Reference Manual, which was created on January 2, 2009 and revised in winter 2014. Specifically, the EV review team examined:
    - Chapter 6: Water Quality Standards and Monitoring
    - Chapter 7: Public Notice
    - Chapter 8: Compliance and Enforcement
    - Chapter 9: State and Federal Reporting
    - Appendices to each chapter
- Compliance SOPs and flow charts for addressing the following violations linked to enforcement actions that occurred at the selected systems during the review period:
    - TCR M/R and MCL violations
    - Stage 1 and Stage 2 DBPR M/R and MCL violations
    - GWR M/R and TT violations
    - Arsenic MCL and M/R violations
    - CCR violations
    - Nitrate MCL and M/R violations
    - LCR TT and M/R violations
- Procedures and flow charts for issuing Administrative Consent Orders (ACOs), MDEQ Orders (which are unilateral), and referrals to the Michigan Attorney General (MAG) or EPA; and
- An example enforcement notice and ACO. MDEQ's FY 2015 Annual Report on Capacity Development Program states that the Community Water Supply Program began issuing ACOs after an NOV and prior to referral to MAG or EPA.

The full list of resources that EPA used during the EV is provided in Appendix 3-B of this report. During the EV, MDEQ noted that its Drinking Water Program's Compliance and Enforcement Procedures were not updated when ODWMA was reorganized in 2011. MDEQ provided the EV review team with MDEQ's agency-wide Policy and Procedure 04-003 Compliance and Enforcement revised October 12, 2015. This policy and procedure requires ODWMA to develop its own compliance and enforcement policy and procedures and implement each of the five sections of the MDEQ Compliance and Enforcement Policy and Procedure (i.e., Compliance Evaluations; Compliance and Enforcement Process; Settlement Issues; Compliance Tracking, Measurement and Coordination; and Coordination and Management of Multimedia Cases).

MDEQ noted it has developed policies and procedures for compliance evaluations, some pertaining to compliance and enforcement, and plans to complete a comprehensive ODWMA compliance and enforcement procedure by the end of 2016, including procedures and flow charts for issuing informal violation notices (actions with SIA enforcement code in SDWIS), formal NOVs (actions with SFJ

enforcement code in SDWIS), enforcement notices, ACOs, and referrals to the MAG or EPA. MDEQ said that although it has not incorporated EPA's 2009 Enforcement Response Policy (ERP) into its procedures, its general process targets the same systems.

Update:

- *After EPA drafted this report, MDEQ submitted to EPA its "Escalated Enforcement Action" policy for the Drinking Water Program, which became effective on January 25, 2017. EPA has reviewed the four-page document and it does not implement EPA's 2009 ERP and it also does not appear to apply to non-community water systems. Given the large number of these systems in Michigan as well as the LHDs being the lead for the non-community program, it is critical to develop a policy and procedure for MDEQ and the LHDs to coordinate escalated enforcement efforts to address significant non-compliers.*

All ACOs are developed and sent by an enforcement specialist from the central office in Lansing, thus improving consistency across the State. Compliance officers in district offices make the compliance determinations and issue violation notices and/or NOVs. All district supervisors and central office managers meet monthly with the enforcement specialist to provide updates on ongoing enforcement cases. During the monthly meetings, district staff also discuss potential new cases for enforcement. Between meetings, the enforcement specialist receives emails and phone calls from district staff regarding possible systems for referral. Sometimes a draft ACO is sent with an enforcement notice to see if the PWS will enter into an ACO. Other times an enforcement notice is sent without an ACO, and the system is offered an opportunity to meet with the State.

Under MDEQ's policy for CWSs, the first step may be compliance communications (e.g., phone call, email, letter, but not an official notice) to the PWS. When violations occur more than once, districts may refer systems to the enforcement specialist in Lansing. However, a referral can be made at any point when deemed necessary. Templates are in the draft MDEQ-wide Compliance and Enforcement Policy and Procedure.

During the EV, MDEQ said it was going to work on a separate policy for non-community enforcement, specifying at what point the LHDs should refer a system to MDEQ. EPA supports this effort and looks forward to reviewing the LHD enforcement escalation policy.

3.4 Enforcement Findings

It is important to note that this report only represents a limited percentage of the total number of PWSs in Michigan during the period of review. EPA recognizes that the State may have implemented changes to its data system and policies after EPA conducted the on-site joint review in April of 2016 and subsequent analyses through the summer of 2016.

Further details on the discrepancies summarized below are provided in Appendix 3-C, Appendix 3-D, and Appendix 3-E. Appendix 3-C provides details on the differences between data reported to SDWIS/Fed, SDWIS/State, WaterTrack, and the State files. Appendix 3-D provides a count of the different types of discrepancies while Appendix 3-E includes explanations of each of the discrepancies. State responses to questions posed by the EV review team, including questions about these discrepancies, are included in Appendix 3-F. Further details on the data collected while conducting the EV are provided in Appendix 3-G, which is the Enforcement Verification Analysis Excel Workbook.

3.4.1 Compliance and Enforcement Strategy

MDEQ did not provide a comprehensive compliance or enforcement strategy for the drinking water program.

Recommendation:

- *EPA requests that ODWMA use EPA's 2009 Drinking Water ERP as a model for developing its drinking water program compliance and enforcement strategy.*

3.4.2 Standard Operating Procedures

One of the purposes of the EV was to evaluate whether MDEQ was following the enforcement processes outlined in its procedures and flow charts. The community program provided compliance and enforcement follow-up procedures for TCR M/R and MCL violations; failure to address significant deficiencies under the GWR; LCR M/R and TT violations; and CCR violations. However, compliance and enforcement follow-up procedures, including procedures for PN requirements, were not provided for Stage 1 and Stage 2 DBPR M/R and MCL violations. EPA strongly recommends MDEQ develop these SOPs. A list of the SOP documents reviewed by EPA is provided in Appendix 3-B.

Recommendation:

- *MDEQ should expand compliance and enforcement follow-up procedures to include procedures for PN requirements as well as Stage 1 and Stage 2 DBPR M/R and MCL violations.*

3.4.3 Total Coliform Rule

Community Program

EPA reviewed the records for 12 TCR violations (two acute MCL, nine monthly MCL, and one M/R) that occurred among four CWSs.

Three PWSs had TCR MCL violations. MDEQ promptly followed up on the two acute MCL violations at two systems (City of Flint and Butterfield Woods Subdivision) by ensuring that boil water notices were issued within the 24-hour requirement.

For the third system with TCR MCL violations, Washburn Lake Village MHP, MDEQ used escalated enforcement to address the six TCR monthly MCL violations from July through December 2013. However, all six TCR monthly MCL violations were linked to just one violation notice (SDWIS enforcement code SIA) which was dated October 30, 2013. A separate violation notice should have been issued once each of these violations was determined in order to notify the PWS of the violation, provide public notice documentation, and return to compliance in a timely manner. The PWS returned to compliance (RTC'd) on December 3, 2013, based on total coliform negative sample results.

MDEQ was proactive in protecting public health by requiring the PWS to issue a precautionary boil water public notice and to keep it in effect until the TCR monthly MCL was returned to compliance. However, a written certification from the system stating that it fully complied with the PN regulations, along with a representative copy of each type of notice distributed, posted, and made available to persons served by the system were not in the State file. Additionally, evidence that the boil water PN was continuously posted was not found. In follow-up to EPA's review, MDEQ stated that the PWS indicated by phone that the boil water PN was issued in July 2013, after the first TCR monthly MCL occurred. Furthermore, MDEQ received a call from a resident in response to the PN, further confirming the PN was issued as required. The only

evidence of PN for the TCR monthly MCL violations was a PN received on November 26, 2013, and a Facility Surveillance Report indicating that MDEQ was on-site on November 20, 2013.

The October 30, 2013 violation notice that MDEQ issued the system for failure to correct significant deficiencies (i.e. to install many required well appurtenances) also states that the system had a TCR MCL violation which has not been resolved due to lack of these appurtenances and that the boil water notice must be reissued, since it has been over 90 days from the date the first notice was issued. Compliance communications, including phone calls, emails, and in-person interactions with the PWS, were not documented in the State file, as required by MDEQ's agency-wide Compliance and Enforcement SOP. After the review, MDEQ confirmed that violation notices were not generated each month due to the ongoing nature of the event and the continuous compliance communications throughout that time period.

Recommendation:

- *MDEQ should issue a violation notice for all violations, once they are determined, in order to provide the PWS with public notice documentation and return to compliance information in a timely manner. These notices should be kept in the PWS file and reported to SDWIS/State and SDWIS/Fed as SIA enforcement actions.*

The remaining three TCR monthly MCL violations, which occurred in Flint and Butterfield Woods Subdivision, were addressed quickly (two were reported with the TCR acute MCL violations discussed above) and the one M/R violation reviewed at Spring Lake Club Condominiums was quickly resolved when the PWS collected its routine samples within 15 days of receiving the violation notice.

Non-community Program

EPA reviewed the records for 19 TCR violations (two acute MCL, one monthly MCL, 12 routine M/R, and four repeat M/R) that occurred among six NCWSs (five TNCWSs and one NTNCWS).

TCR MCL Violations

Two PWSs had TCR MCL violations. For the first of two consecutive acute MCL violations at KOA Bath House, the EV Team could not find information confirming that the LHD contacted KOA Bath House within 24 hours or by the end of the next business day of the system's June 9, 2015 positive *E. coli* result as required by the 2014 Noncommunity Program Staff Reference Manual. However, after the EV, the LHD provided documentation that it received the result for the June 9, 2015 routine sample on June 11, 2015, contacted the KOA Bath House system the next day with this result and results for the two repeat samples the system collected on June 11, 2015 which were also *E. coli* positive. The June 12, 2015, violation notice letter that the LHD issued for this violation required the system to complete the following:

1. Post PN as long as the system remains in noncompliance; and
2. Take precautionary measures:
    a. In lieu of closure, provide bottled water from an approved source;
    b. Not to use the system's water for consumption and/or bathing and use special precautions for hand washing;
    c. Have the water supply evaluated to determine what corrective measures must be taken, complete any needed repairs, and then have the well chlorinated by a registered well-drilling contractor; and

d. Collect a minimum of two repeat samples at least 24-hours apart and the month after two satisfactory samples have been collected, collect five additional routine total coliform samples.

The LHD returned the system to compliance after the system's water was chlorinated and the system obtained two satisfactory water samples.

The LHD should have issued the system a TCR minor repeat M/R violation for only collecting two of the four required repeat samples. The State file documents the LHD should have issued the system a PN violation.

The second acute TCR MCL violation at KOA Bath House was addressed with escalated enforcement. The LHD took timely follow-up actions and coordinated effectively with MDEQ, including site visits, compliance conferences, a bilateral compliance agreement (BCA), a joint LHD/MDEQ inspection, a down-hole camera inspection of the well that resulted in the issuance of a well abandonment order, and approval of a new water supply. The July 14, 2015 violation notice that the LHD issued for this violation had the same requirements as the violation notice for the previous TCR acute MCL violation, with the additional requirements that all showers must remain closed and locked, and every camper must be notified not to consume the water.

If the LHD had adopted ODWMA policy and procedures (399-012 Administrative Fines -Violations of State Drinking Water Standards), it could have issued the system a $1,000 per day negligent category administrative fine, for a total amount of $2,000, for the system's failure to provide PN for the June 2015 TCR acute MCL violation as required by the LHD's June 12, 2015 violation notice.

For the July 2014 TCR monthly MCL violation at Hour Kidz, the same LHD should have escalated enforcement when the PWS failed to comply with the requirements of the LHD's July 31, 2014 violation notice. Hour Kidz and Advance Urgent Care (Suppliers), another business served by the PWS, and the LHD eventually signed a trilateral compliance agreement on April 24, 2015. The LHD could have issued Hour Kidz a $200 civil fine for failing to collect the second of two consecutive (at least 24 hours apart) satisfactory coliform bacteria water samples after making necessary repairs to the distribution system as required by the NOV. The system complied with the terms of the agreement, and the LHD returned the system to compliance on June 11, 2015. However, the trilateral compliance agreement did not include the requirements of the violation notice to have the well chlorinated by a registered well-drilling contractor after necessary repairs were completed.

In addition, if the LHD had adopted ODWMA policy and procedures (399-012 Administrative Fines - Violations of State Drinking Water Standards), it could have issued the system a $400 per day negligent category administrative fine, for a total amount of $800 for failing to have its water system evaluated to determine what corrective measure must be taken to resolve its July 2014 TCR MCL violation as required by the LHD's July 31, 2014 violation notice.

Recommendation:

- *All LHDs should adopt ODWMA policy and procedures for administrative fines for M/R violations as well as violations of State Drinking Water Standards.*

TCR Major Repeat M/R Violations

The LHD completed timely follow up to Sandy Point Beach House's June 1, 2014 TC-positive, routine sample, issuing an "Initial Positive Bacteria Response" letter, referencing a phone conversation the same day that outlined repeat sampling locations, including one from the same tap as the initial positive and one from the raw water tap. The conversation record also advised, if all four repeat samples come back non-detect, five additional routine coliform samples must be taken the following month. The letter, which was not issued until June 13, 2014, explains that the system's laboratory told the LHD it will not send or forward results to the LHD, and the LHD reminded the system that it is the system's responsibility to send sample results as soon as they are received.

There are notes in the file regarding an LHD telephone call to the system's laboratory to discuss its policy, which confirmed the laboratory has no policy about contacting customers when there is a positive result. The laboratory sends out emails to customers 36-48 hours after results are obtained and will not email or share results with the LHD. The LHD sent the system another follow-up letter on June 23, 2014, acknowledging receipt of results for four non-detect repeat samples, and instructing the system to collect five routine samples in the first week of July 2014. The LHD issued the system a violation notice on July 10, 2014, for the system's June 2014 TCR Major Repeat M/R violation, for not submitting results for four repeat coliform samples within 24 hours of the initial positive result. The violation notice advises that to be in compliance with the SDWA in the future, "please ensure that the laboratory used is capable of notification of positive results the same day."

However, the July 10, 2014 violation notice should not have waived posting PN for the violation ("The four repeat samples were taken on June 17, 2014, and as such, public postings are not necessary at this time."), and, per MDEQ's fine policy, should have warned the system that it will be issued a $200 civil fine if it has another TCR M/R violation in the next 12 months.

There was no documentation that the LHD provided timely written or verbal reminders to Knollview Golf outlining the sampling locations and protocol for the collection of the four repeat samples required to be taken within 24 hours of notification of the positive December 2, 2013 routine sample result, or that the system was directed to implement precautionary measures until four non-detect repeat samples were collected per the 2014 Noncommunity Program Staff Reference Manual. On January 30, 2014, the LHD issued the system a violation notice for collecting the four repeat samples late on January 14, 2014. The violation notice required the system to post PN. The violation notice explained how forthcoming sample results would determine future sampling requirements, but it should have included a warning that the system would be assessed a $200 fine if it had another TCR M/R violation within 12 months of the previous violation.

On the same day, the LHD also issued the system a monitoring violation notice form letter that instructs the system, "If you have not collected the above mentioned sample(s), please send in the sample(s) immediately." This violation notice form letter has the same PN instructions as the January 30, 2014 NOV and warns that the LHD can assess a civil fine of $200 for each failure to sample and report results. The LHD should not have issued the monitoring NOV form letter to the system because the LHD had already received the system's repeat sample results.

The LHD was late in contacting Battle Creek Baptist Temple regarding TCR repeat sample monitoring requirements. Repeat monitoring reminder letters were sent on January 14, 2014, and January 30, 2014, instructing the system to collect four repeat samples within 24 hours of being notified of the

December 17, 2013 routine positive sample result and outlining sampling locations, including one from the same tap as the initial positive.

The LHD issued Battle Creek Baptist Temple a violation notice very late, on December 3, 2014, almost a year after the violation, following an MDEQ review of the LHD program for FY 2014. The LHD issued the violation notice for an (assumed) MCL violation based on the system's continued failure to collect repeat samples following the December 17, 2013 TC-positive annual routine sample. The violation notice required the system to: take the well out of service; provide bottled water until corrections are made; have the well chlorinated by a licensed well-drilling contractor; collect two samples eight hours apart after continuous pumping of the well with verification that no chlorine residual is present; post the enclosed PN while the well is out of service; send back a signed copy of the PN; and collect five additional routine bacteriological samples in January of 2015. There was no documentation in the system file that the system complied with any of the above requirements of the violation notice.

Since EPA found a copy of the PN certification without a signature, title, or distributed date in the Battle Creek Baptist Temple case file, EPA asked MDEQ if the PN was ever distributed. MDEQ replied that the LHD delivered the PN in person and left a copy of the PN at the church door. There is no documentation in the file that the system posted the PN or provided bottled water and bagged ice.

Recommendation:

- *Per MDEQ's 2014 Noncommunity Program Staff Reference Manual, MDEQ should ensure that all LHDs contact systems that had a total coliform-positive routine sample in a timely manner to remind them to collect repeat samples and to issue a timely violation notice to systems that fail to comply.*

TCR Routine M/R Violations

The EV review team reviewed the records for five TCR Major Routine M/R violations that occurred at three systems, and checked if the LHD issued a violation notice with enclosed PN and issued administrative fine warnings and fines for M/R violations. The EV team also reviewed seven TCR Major Routine M/R violations that were either reported late to SDWIS/Fed (two violations) or not reported to SDWIS/Fed (five violations).

On January 14, 2014, the LHD issued Sandy Point Beach House a violation notice for its failure to collect a TCR and nitrate samples by December 1, 2013. The violation notice warns the system to sample by January 24, 2014, to avoid further monitoring violations and potential monetary fines. It also notifies the system that its new frequency for monitoring coliform bacteria is quarterly with samples due at the beginning of each quarter effective for January-March 2014. The violation notice also instructs the system to post an enclosed PN and return a signed copy to the LHD. Per the ODWMA policy and procedures for administrative fines for M/R violations, the LHD should have issued Sandy Point Beach House an annual total coliform reminder notice 30-90 days before the due date that warns of a $200 civil fine if it fails to sample by the due date. There was also no documentation of phone calls reminding the system to collect total coliform samples.

The LHD could have included a $200 civil fine with the February 5, 2015 violation notice that it issued Sandy Point Beach House for its 2014 fourth calendar quarter (CQ4) TCR Major Routine M/R violation because it was the system's second TCR M/R violation within 12 months. The violation notice warns of a $100 civil fine for each failure to sample and report results which is less stringent than ODWMA's administrative fines policy for M/R violations that specifies a $200 fine warning after the first violation of a sampling event, a $200 civil fine for a second missed TCR sampling event within 12 months of the previous

violation, and a $400 civil fine for each additional missed TCR sampling event within 12 months of the previous violation.

Battle Creek Baptist Temple's 2014 TCR annual routine M/R violation was not in SDWIS/Fed as of the January 2016 data freeze. There is an undated LHD monitoring violation notice form letter for an annual 2014 TCR Routine M/R violation and an annual 2014 nitrate M/R violation in the Battle Creek Baptist Temple file that references Battle Creek's water supply serial number (WSSN) but does not include the PWS name. However, it does not appear that an NOV was issued. After the EV, MDEQ said this violation was generated very late in WaterTrack on December 30, 2015, and was not submitted to SDWIS/Fed until February 2016. The violation is in the July 2016 data freeze with January 5, 2015 SIA (State violation notice) and SIE (State PN requested) enforcement action codes. There is also a December 3, 2014 NOV form letter the LHD issued the system that includes failure to collect any quarterly bacteriological samples during 2013, but the monitoring schedule in WaterTrack lists that annual sampling is required for January 1, 1997, through October 1, 2015.

After the EV, in response to EPA's question about the system's TCR monitoring frequency, MDEQ advised that the PWS was placed on quarterly monitoring following a LHD program review for FY 2015. The December 3, 2014 monitoring violation notice form letter says quarterly, but WaterTrack was not updated and the system did not receive quarterly monitoring reminders or violations. This violation notice and the LHD's January 5, 2016 violation notice for the system's 2015 annual nitrate M/R violation, and October 2, 2014 and October 21, 2015 monitoring reminder letters warned Battle Creek Baptist Temple that failure to sample may result in further enforcement including civil fines. However, per the LHD's December 1, 2015 email to MDEQ, the LHD has no fine policy in place.

Recommendations:

- *MDEQ should ensure that all LHDs are tracking PWS compliance with monitoring requirements, generating RTCR M/R violations for the correct compliance period, and updating WaterTrack when they instruct systems to increase to quarterly RTCR monitoring so systems receive quarterly monitoring reminders and violations.*
- *All LHDs should adopt ODWMA policy and procedures for administrative fines for M/R violations as well as violations of State Drinking Water Standards.*

The LHD could have included a $200 civil fine with the March 20, 2014 NOV it issued to Knollview Golf for its February 2014 TCR Major Routine M/R violation because it was the system's second TCR M/R violation in a 12-month running period.

On November 22, 2013, the LHD issued the second of the two violation notices to Manistique Ice for TCR Major Routine M/R violations for CQ3 of 2013 for failing to sample prior to November 15, 2013, which is the date the October 22, 2013 violation notice instructed the system to "collect sample/submit result prior to December 15, 2013, to avoid further fines and/or other legal action." Both NOVs assessed $200 civil fines. The November 22, 2013 violation notice and $200 civil fine were not reported to SDWIS/Fed. Per ODWMA policy and procedures for administrative fines for M/R violations, violation notices for quarterly M/R violations should not set a new sample due date. Per ODWMA policy and procedures, violation notices for quarterly M/R violations should remind systems to sample by the end of the current calendar quarter and warn of a $200 fine for a second missed quarterly sampling event in a 12-month period and $400 fine for each additional missed sampling event within 12 months of the previous violation.

Per MDEQ's fine policy, the July 14, 2014 violation notice that the LHD issued for Manistique Ice for its CQ2 of 2014 TCR Major Routine M/R violation with a $200 civil fine should have warned that each additional missed TCR sampling event within 12 months of the previous violation results in a $400 fine. On March 16, 2016, the LHD issued Manistique Ice another violation notice for its CQ3 of 2015 TCR Major Routine M/R violation, which was reported late to SDWIS for the April 2016 data freeze, and a "2/29/16 Annual 2016 nitrate requested collection date" violation, with a combined $600 civil fine - $400 for the TCR M/R violation and $200 for the nitrate M/R violation. Neither of these violation notices nor the LHD's April 9, 2015 violation notice for Manistique Ice's CQ1 of 2015 TCR Major Routine M/R violation instruct the system to send back a signed copy of the PN it posted.

The April 21, 2011, and April 6, 2016 sanitary surveys for Manistique Ice required the system to collect one routine coliform bacteria sample within the first 15 days of each quarter the facility is open. EPA is concerned that requiring systems to collect routine coliform bacteria samples during the first 15 days of the quarter, issuing violation notices that set a new sampling date of two to four weeks before the end of the quarter, and issuing another violation notice and $200 fine for missing the new date (instead of reminding the system to sample by the end of the quarter to avoid another fine) is confusing to both the system and to LHD staff. This confusion is apparent in the March 24, 2016 violation notice for the system's CQ3 of 2015 TCR M/R violation which states, "[a]t the time the February 4, 2016, letter was sent the above bacteria violation was not identified. I apologize for the over sight. A bacteria sample was taken on January 22, 2016, indicating non-detect, thus putting the facility back to routine quarterly sampling." The LHD erroneously issued the March 24, 2016, violation notice for the fourth instead of the third calendar quarter, but has correctly listed the due date as September 30, 2015. The February 4, 2016, letter referenced in the March 24, 2016 violation notice is the violation notice for the system's CQ4 of 2015 TCR M/R violation, which incorrectly listed the violation as occurring during the first quarter instead of the fourth quarter, but included the correct due date and civil fine of December 31, 2015, and $400, respectively.

Recommendation:

- *LHDs should maintain the use of standard compliance periods for quarterly total coliform compliance monitoring rather than setting new due dates for monitoring.*

3.4.4 Ground Water Rule

Community Program

EPA reviewed the records for one CWS with a GWR treatment technique violation for failure to correct a significant deficiency at Washburn Lake Village MHP.

MDEQ correctly followed SOP ODWMA-399-019, dated December 28, 2012, which covers significant deficiencies, when it issued a significant deficiency violation notice to Washburn on June 27, 2013, as a follow-up to MDEQ's site visit on June 12, 2013. The SOP requires that the violation notice be sent within 30 days of the site visit. The system failed to address the significant deficiency within 120 days and received a violation notice for this failure on October 30, 2013.

MDEQ followed up with an administrative consent order (ACO) dated January 22, 2014. Washburn returned to compliance with the GWR on January 22, 2014.

Non-community Program

EPA reviewed the records for three NCWSs with a total of three TCR Major Repeat M/R violations, and two NCWSs with a total of three TCR MCL violations (two TCR acute MCL violations at one system and one TCR monthly MCL at another system) for the collection of GWR-triggered source water samples within 24 hours of notification of the total coliform positive sample as required by Mich Admin Code, R 325.10739 and 40 CFR § 141.402.

For the three systems with a TCR Major Repeat M/R violation, the EV review team found that all three should have also been issued a GWR-triggered source water M/R violation. There was a "DEQ Reporting Form Groundwater Rule Violations" in the file for two of these systems. The form explains that WaterTrack has not been upgraded to allow the generation and submittal of violations of the GWR. The form includes the TCR monitoring frequency and monitoring period begin and end dates and occurrence date of the positive total coliform sample(s). These violations must be entered into SDWIS with a time period starting on the violation date with no end date. There was no "DEQ Reporting Form Groundwater Rule Violations" in the file for Sandy Point Beach House's failure to collect a GWR-triggered source water sample within 24 hours of being notified of the June 2, 2014 routine total coliform-positive sample result. The LHD sent the system a June 13, 2014 "Initial Positive Bacteria Response" letter. The letter referenced a phone conversation that same day and outlined repeat sampling locations, including the raw water tap at the pressure tank. On June 17, 2014, the system collected the triggered source water sample along with the TCR repeat samples.

There was no documentation that the LHD provided written or verbal reminders to Knollview Golf to collect four TCR repeat samples, including a GWR-triggered source water sample, within 24 hours of notification of the December 2, 2013 positive result. Knollview Golf collected the TCR repeat samples on January 14, 2014, but did not collect a GWR-triggered source water sample**.** Therefore, the system was issued a GWR M/R violation for this failure. It appears that the system does not have a raw water tap, based on the system's Bacteriological Sample Siting Plan in WaterTrack.

The January 14, 2014, and January 30, 2014 repeat-reminder letters the LHD sent Battle Creek Baptist Temple did not include the requirement that one of the repeat samples be taken at the tap closest to the well, as per the 2014 Noncommunity Program Staff Reference Manual**.**

For the two systems with MCL violations, the EV review team found that the systems collected GWR-triggered source water samples within 24 hours of notification of the TCR routine positive sample result for the two TCR acute MCL violations at one system and the one TCR monthly MCL at the other system.

Recommendations:

- *MDEQ should ensure that all LHDs instruct groundwater PWSs that do not provide at least 4-log treatment of viruses to collect, within 24 hours of notification of the total coliform positive sample, at least one groundwater source sample from each groundwater source in use at the time the total coliform positive sample was collected.*
- *MDEQ should follow up with systems that fail to conduct GWR-triggered source water monitoring; and report all triggered source-water M/R violations at NCWSs after it is able to generate and submit these violations to SDWIS/Fed.*

3.4.5 Nitrate/Nitrite

EPA reviewed the records for two nitrate violations (one MCL and one M/R) that occurred at two NCWSs. EPA also reviewed two other systems that reported nitrate M/R violations late to SDWIS/Fed.

The EV review team reviewed the records for one NCWS, The Hop Childcare Center, with a nitrate MCL violation. There is no documentation that the LHD followed up with the system after the PWS failed to provide PN within 24 hours following the 11.2 mg/L (milligrams per liter) routine nitrate sample collected on February 13, 2014, 12.4 mg/L confirmation sample collected on February 17, 2014, and the 10.9 mg/L sample collected on February 18, 2014, until it made a March 6, 2014 site visit and "observed alternate water (bottled) being used; informal postings at kitchen sink and restroom; discussed new well" per the comment the LHD entered into WaterTrack for the site visit. Under Mich Admin Code R 325.10402 and 40 CFR § 141.202, systems must provide PN for a nitrate MCL violation as soon as practical and no later than 24 hours after the system learns of the violation. The system is also required to initiate consultation with the primacy agency within the same time frame to determine additional PN requirements. There is no documentation in the file that the system contacted the LHD after it collected the February 17, 2014 confirmation sample, or that the LHD instructed the system to post PN and provide bottled water until the LHD's March 6, 2014 site visit. The LHD issued a violation notice on March 10, 2014, that instructed the system to post PN and take precautionary measures including providing bottled water.

In addition, the LHD should have notified the Michigan Department of Health and Human Services (MDHHS), the licensing agency responsible for overseeing the system, about the MCL violation as outlined by best practices in the 2014 Noncommunity Program Staff Reference Manual.

The July 8, 2015 LHD letter reducing the Well 001 system's nitrate monitoring frequency from quarterly to annual should have instructed the system to sample during CQ1 of 2016 because that is the quarter the system had its highest nitrate result when it sampled for four calendar quarters after its February 20, 2010 sample was greater than 50% of the MCL (9.3 mg/L). The system collected its 2012, 2013, and 2014 annual samples during CQ1 and exceeded the nitrate MCL during CQ1 of 2014.

Recommendations:

- *LHDs should contact NCWSs that have a nitrate routine sample that exceeds 10 mg/L to remind them to collect a confirmation sample within 24 hours of the system's receipt of the sample results, and, if the system is unable to comply with the 24-hour sampling requirement, to instruct it to immediately provide PN to persons served by the water system in accordance with Tier 1 PN requirements.*
- *MDEQ should require LHD staff to conduct an immediate field inspection following nitrate MCL violations at childcare facilities serving infants to ensure that PN is posted and bottled water is being used.*
- *The LHD should have notified MDHHS, the licensing agency responsible for overseeing the system, about the nitrate MCL violation as required by the 2014 Noncommunity Program Staff Reference Manual.*
- *EPA recommends that the LHD place The Hop Childcare Center PWS back on quarterly nitrate monitoring as long as it continues to use Well 001 because the infant/toddler program was moved from the building served by Well 002 to the building served by Well 001 (per a March 10, 2015 fax from the system to the LHD) and Well 001's history of periodic nitrate levels over or near the MCL.*

The LHD's January 14, 2014 violation notice for Sandy Point Beach House's 2013 nitrate and TCR M/R violations gave the system until January 24, 2014, to send the results to avoid further monitoring violations and potential monetary fines. The violation notice also instructed the system to post the PN and return a signed copy to the LHD. Per the ODWMA policy and procedures for administrative fines for M/R violations, the LHD should have issued the system a written annual nitrate reminder notice 30-90 days before the sampling due date that warned the system of a $200 civil fine if it fails to sample by the due date. There was no documentation of any nitrate sampling reminders to the system.

Battle Creek Baptist Temple's 2014 nitrate annual M/R violation was not in SDWIS/Fed as of the January 2016 data freeze. After the EV, MDEQ said this violation was generated very late in WaterTrack on January 7, 2016, and was not submitted to SDWIS/Fed until February 2016. The violation is in the July 2016 data freeze with no enforcement actions linked to it. There is an LHD monitoring violation notice for a 2014 annual TCR and a nitrate M/R violation that references the system's WSSN in the file. However, it appears that it was not issued because it is undated and does not include the system's name or the name of an LHD staff person, as the other violation notices issued to the system do. After the EV, in response to EPA's question about the system's TCR monitoring frequency, MDEQ advised that following their LHD program review of FY 2015, the LHD placed the system on quarterly nitrate monitoring beginning January 1, 2016.

3.4.6 Arsenic

EPA reviewed the records for one NTNCWS, Michigan Community Services, Inc., with two arsenic MCL violations.

The system signed a bottled water agreement (BWA) with MDEQ on January 29, 2008, for the January 1, 2008 arsenic MCL violation. This violation was open-ended until EPA asked MDEQ to stop entering open-ended violations for arsenic MCL violations and to close off open-ended arsenic MCL violations with a September 30, 2014 end date to meet the requirements of EPA's Water Supply Guidance 192 dated February 20, 2014, and entitled "Reporting Chemical/ Radiological Maximum Contaminant Level Violations to SDWIS/Fed with Appropriate Compliance Period End Dates." The BWA requires that the PWS still conduct arsenic monitoring. The BWA expired in 2011, three years after it was issued in 2008. After the EV, MDEQ stated that all of the facilities that signed BWAs were on three-year arsenic monitoring until 2015 when MDEQ and EPA agreed to put them on quarterly arsenic monitoring. The systems were switched to quarterly monitoring on July 1, 2015.

After the EV, EPA asked MDEQ why escalated enforcement had not been initiated to place PWSs on an enforceable schedule, and what assurances are there that public health is being protected per the agreement requirements. MDEQ responded that all of the BWAs expired and they chose not to renew them because MDEQ agreed with EPA to move all of these systems toward installing treatment, if an alternate source was still not an option. Public health is protected because bottled water from an approved source is still being provided to the public. MDEQ is contacting and addressing those facilities on BWAs for arsenic to get them on treatment. MDEQ linked both a November 24, 2014, and a February 18, 2015 State unresolved enforcement action (SO7 code in SDWIS/Fed) to the January 1, 2008, through September 30, 2014 arsenic MCL violation to update each system's compliance status.

The CQ3 of 2015 arsenic MCL violation was not in the State file and neither was the PN, but after the EV, MDEQ stated that it entered that violation into WaterTrack. The LHD did not. Therefore, a violation notice was not sent to the PWS. The value MDEQ entered for this violation (0.0305 mg/L) is the same value as the 2008-2014 arsenic MCL violation. MDEQ is assuming there is a violation until the system collects four

quarterly samples, and the results are averaged to see if the system's running annual average exceeds the MCL.

Recommendation:

- *All PWSs that were previously on bottled water agreements and are not yet returned to compliance should be escalated to formal enforcement until an alternate source is found or treatment is installed, in order to ensure that the system monitors for arsenic on a quarterly basis, provides alternate water, and provides public notice.*

3.4.7 Lead and Copper Rule

Community Program

EPA reviewed the records for five LCR violations (two TTs and three M/Rs) that occurred at one CWS – Spring Lake Club Condominiums.

All five LCR violations from Spring Lake Club Condominiums were linked to the same violation notice dated May 28, 2014. There was no official copy of this violation notice in the file but it was referenced in email correspondence, and there was good documentation of the May 28, 2014 actions in SDWIS/State**.** While records indicate that PE was late, MDEQ confirmed that PE was provided to residents on time but was reported late to MDEQ leading to a violation notice.

MDEQ notified Spring Lake Club that it had a lead ALE in a letter dated October 4, 2013, with a 90th percentile value of 18 ppb (parts per billion). (Note that EPA's lead action level is 15 ppb). This was while the system was on reduced monitoring with a compliance period of 2011-2013.

The system was placed on two six-month rounds of LCR compliance monitoring for 2014 and was required to provide PE and lead consumer notices, conduct source water and water quality parameter monitoring, and develop a corrosion control proposal. PE materials for the 2013 lead ALE were emailed to the residents on November 12, 2013, but the State was not notified until March 20, 2014, resulting in the TT violation for failure to provide PE. The State waived the Tier 2 PN requirement for the TT violation for failure to provide PE, since the PE was provided on time and just reported to the State late. Lead consumer notice requirements were also met with the PE, since all residents were informed of the sample results.

On May 30, 2014, MDEQ sent the system a follow-up letter (the date for the letter was reported to SDWIS/Fed and SDWIS/State as May 28, 2014). EPA could not locate a copy of this letter in the State file but it was referenced in an email exchange between MDEQ and the system. This violation notice is linked to all five LCR violations in SDWIS/Fed and SDWIS/State. In lieu of a corrosion control proposal that was due by September 30, 2014, the system submitted an Action Plan on December 8, 2014, that stated the system would continue to issue PE once a year, including sending notices to all residents about the lead problem and requesting that they replace fixtures. Residents are required to replace all fixtures at homes with lead results greater than 10 ppb. The Action Plan will be re-evaluated each year.

The two six-month LCR monitoring rounds in 2014 yielded lead ALEs with values of 42 ppb and 31 ppb. The system was below the lead ALE for the first half of 2015. MDEQ has directed the system to continue monitoring every six months in 2016. No other lead ALEs have been reported for this system. MDEQ kept the system on six-month monitoring since corrosion control treatment had not been installed to ensure that there were no further lead ALEs.

Recommendations:

- *MDEQ should maintain complete State files with written documentation of exchanges with the PWS and track the progress of the systems in returning to compliance including appropriate follow-up after a lead ALE. There was little evidence in the file that appropriate follow-up was conducted for the three lead ALEs that occurred during the review period.*
- *An administrative fine for failure to submit a corrosion control proposal, and two administrative fines for LCR M/R violations could have been issued per ODWMA's policy and procedures for administrative fines (see Appendix 3-E).*

Non-community Program

EPA reviewed the records for two LCR M/R violations, two LCR TT violations, and two lead action level exceedances that occurred at two NTNCWSs.

The January 15, 2013 violation notice for Vlahakis Management Company's January 1, 2013 LCR M/R violation for the July-December 2012 compliance period states that the LHD's records show the system did not submit lead and copper water samples prior to the required date (1 of 2 samples not collected). The violation notice directs the system to post an enclosed PN until these sample results are received or for seven days, whichever is greater; sign and date one of the enclosed monitoring violation PNs; and send a copy of the PN and certification back to the LHD.

The PWS should have been required to collect five lead and copper samples. The EV team noted that LHDs are requiring two other NTNCWS daycare centers included in the EV (Hour Kidz and The Hop Childcare Center) to collect only one L/C sample per compliance period, and a NTNCWS school (Michigan Community Services Inc.) included in the EV is required to collect only three L/C samples. However, it appears that these systems should be required to collect five L/C samples. (Information on drinking water taps at these systems from WaterTrack and Michigan Department of Health and Human Services (MDHHS) licensing study reports are included in Appendix 3-F - File Review Questions and State Responses in the "U.S. EPA Questions/Comments" column.)

Recommendation:

- *NTNCWSs that serve 25-100 people should be required to collect five* lead and copper *samples unless they have fewer than five drinking water taps that can be used for human consumption, in which case, they should be required to sample all the taps that can be used for human consumption. The EV review team found NTNCWSs with non-transient populations between 50 and 70 people served that had State lead and copper tap monitoring schedules requiring fewer than five samples. Site visits are recommended to confirm that there are fewer than five taps used for human consumption. Prior to these site visits, MDEQ should check the system's "Storage-Distribution" and "Bacteriological Sample Siting Plan" screens and* lead and copper *sample results in WaterTrack to identify any additional drinking water taps that can be used for human consumption that should be added to the system's lead and copper Sample Siting Plan screen. MDEQ should also consult with the MDHHS prior to these site visits to daycare centers and/or make joint site visits with MDHHS to identify taps that are likely to be used for human consumption.*

  (NOTE: After the EV, MDEQ notified EPA that LHD staff visited two of these systems to verify the number of taps used for human consumption.)

The January 15, 2013 violation notice should have warned that the system will be issued a $200 civil fine if it has another LCR M/R violation in the next 12 months per the ODWMA policy and procedures for administrative fines for M/R violations.

An undated LHD "Public Notice for Monitoring Violations" memorandum to NCWSs with M/R violations in the Fife Lake Elementary School file states the LHD's records indicate that the system failed to collect the required water sample(s) from the sampling period. This memo directs the system to sign and post the enclosed PN until the appropriate samples are collected and sign and return the white copy of the PN. It also reminds the system that collecting the samples early in the monitoring period will help prevent any unnecessary monitoring violations. The LHD's violation notice should have required the system to post the PN for at least seven days and until the system receives satisfactory results. A signed and dated PN from the system was not in the file. The enclosed PN for failure to sample for lead and copper during the 2012-2014 monitoring period incorrectly states that previous sampling has demonstrated that water quality met State and Federal drinking water standards, that the water is safe for drinking, and there is no need to seek an alternative water source. This PN language should not have been used because the system had an ongoing unresolved and unreported lead ALE.

Lead Action Level Exceedances

EPA reviewed the records of one reported Lead Action Level Exceedance (lead ALE) that should have had two LCR TT violations associated with it as well as an earlier unreported LCR ALE at the same system (Vlahakis Management Company). There were two unreported ALEs at another system (Fife Lake Elementary School).

The LHD required Vlahakis Management Company to collect only two lead and copper samples for the January- June 2012 monitoring period. The sample collected from the kitchen tap on June 12, 2012, had concentrations of 0.105 mg/L for lead (action level is 0.015 mg/L) and 3.3 mg/L for copper (action level is 1.3 mg/L), and the sample collected at the daycare drinking water fountain on the same day had 0.002 mg/L for lead and 1.74 mg/L of copper. Using these two samples to calculate system compliance yields 90th percentile values for both lead and copper that are well above the action levels. In response to these results, the LHD should have notified the system of the ALEs, required the system to deliver PE, collect a source water lead and copper sample, and submit a corrosion control study. In addition, these lead and copper ALEs for the January-June 2012 monitoring period should have been reported to SDWIS/Fed. Further details about this compliance determination discrepancy may be found in Appendix 3-E.

The LHD's March 18, 2013 letter for Vlahakis Management Company's January-June lead ALE notified the system that it "…exceeded the 0.015 mg/L action level for lead at 0.032 mg/L at the daycare drinking fountain." The letter required the system to provide PE information at all facilities where the lead AL had been exceeded. However, the letter was worded in this manner: "at facilities where the lead AL has been exceeded and posted at drinking water fixture(s)." This wording may have contributed to the system initially delivering PE information only to the daycare center and not to the other businesses served by the system.

The LHD's March 18, 2013 letter also required the system to do the following:

- Within 60 days, provide the enclosed PE information to all users of the water system at facilities where the lead AL has been exceeded and post it at drinking water fixtures, and submit a signed and dated copy to the LHD when the PE information has been distributed and posted; and
- Submit a proposal for one of the following forms of corrective action by June 1, 2013:

- Replace fixtures with NSF lead-free fixtures/joints and sample replaced fixtures for two consecutive six-month monitoring periods with the results below the AL;
- Propose a flushing program monitored by the Michigan Department of Agriculture and the EPA;
- Use some form of corrosion control treatment, such as an NSF-approved under the counter Reverse Osmosis unit with a D-5 certified operator and sample for two consecutive six-month periods with results below the AL; or
- Connect facility to a municipal water supply.

This is more stringent than the LCR which requires: 1) delivery of PE materials within 60 days of the end of the monitoring period in which the ALE occurred, i.e., the January-June 2013 monitoring period, would require delivery of PE by August 29, 2013, and 2) submittal of an OCCT study within six months of the end of the monitoring period in which the ALE occurred, which is by December 31, 2013. However, the LHD should have also required the system to collect a source water lead and copper sample by December 31, 2013**.**

The LHD's October 10, 2013 letter to the system's certified operator acknowledged receipt of additional satisfactory lead and copper samples and the letter the daycare center sent parents, notifying them of the lead ALE. The LHD's letter notes the four lead and copper samples collected on August 15, 2013 all appear to be taken at the appropriate sampling locations and are below the ALs for lead/copper.

In addition, the LHD did not send a written recommendation to the system to provide an approved alternate source of water for potable consumption until its July 22, 2014 letter providing notice of an informal hearing on July 30, 2014.

Recommendations:

- *The LHD should have followed up with the system on the June 12, 2012 lead and copper ALEs as soon as it received the sample results.*
- *The LHD's above referenced October 10, 2013 letter to the system's certified operator should have questioned if the samples, which were all taken between 5:30 p.m. and 6:00 p.m. on a non-holiday weekday, were first draw samples after the water had stagnated for at least six hours as required.*
- *The LHD should have also taken issue with the wording of the letter the daycare center sent parents that says the March 2, 2013 lead and copper sample from the drinking fountain "reported slightly higher levels of lead in the drinking fountain" and "All other testing samples performed prior to this most recent test were normal" because it mischaracterizes the 0.032 mg/L lead result at the drinking fountain and the 0.105 mg/L lead result at the kitchen sink on June 12, 2012.*
- *MDEQ should emphasize in certified operator and non-community program staff training that lead and copper samples must be first draw after the water has stagnated for at least 6 hours, as required by the LCR. LHDs and MDEQ should require systems that collect a non-first draw lead and copper sample(s) to collect another lead and copper sample(s) that is first-draw.*
- *The LHD/MDEQ should have issued the January 21, 2014 NOV sooner for the PE TT violation since the NOV indicated that the violation began on June 1, 2013.*
- *LHD/MDEQ should have entered the system's June 1, 2013 open-ended PE TT violation into SDWIS instead of linking the March 18, 2013 SFG enforcement action code (State Notification Issued) to the system's January 1, 2013 LCR M/R violation for the July-December 2012 compliance period.*

- *The LHD's and MDEQ's first priorities after the initial lead ALE in June 2012 should have been to use every available means to prevent use of the drinking water taps in the daycare center. The LHD and MDEQ should have made sure employees and customers of the four businesses served by the system and parents of children in the daycare were notified of the lead ALE and lead sample results, the health effects of lead, and steps to reduce exposure to lead in drinking water, so they could make informed decisions regarding using the water.*
- *While not required per the Federal LCR or MDEQ SOPs, the letters issued by LHDs for lead ALEs to childcare centers and schools that serve children, especially those under six years of age, should quickly address the ALE by having the system shut off the tap(s) with high levels, replace the fixtures at those taps or provide bottled water until the lead ALE is resolved.*
- *LHDs/MDEQ should escalate enforcement for LCR TT violations following lead ALEs, including consideration of using MDEQ's emergency order authority.*

The LHD's August 19, 2014 "Lead/Copper Compliance Issues and Informal Hearing Follow Up" letter gives Vlahakis Management Company until August 31, 2014, to submit a corrective action proposal. The letter warns the system that failure to comply will result in additional fines and referral to MDEQ for escalated enforcement.

The LHD should have entered an open-ended February 19, 2015 LCR OCCT Study Recommendation (Type 57) TT violation into SDWIS/Fed after the system failed to meet the extended February 17, 2015 deadline in MDEQ's January 16, 2015 letter to system.

For Fife Lake Elementary School, the LHD should have escalated enforcement immediately after the system failed to collect the lead and copper samples requested in its March 6, 2009 letter to the system after it had a lead ALE for the 2006-2008 compliance period (0.019 mg/L lead) based on one of the five samples it collected on February 4, 2008, (0.026 mg/L lead at kitchen sink), and a repeat sample collected from the kitchen sink on February 26, 2008 (0.015 mg/L lead). This lead ALE was not reported to SDWIS/Fed.

The March 6, 2009 letter required the system to collect the lead and copper samples from all the drinking fountains in each classroom, the hallway, and the kitchen sink tap "that previously had a lead level exceedance" by March 30, 2009, and again in July 2009. The letter states "Additional sampling, corrective measures, or treatment, if required, will be determined after the second round of Lead/Copper samples are reviewed by the Department." The system did not collect any lead and copper samples during the required timeframe, but eventually collected a single lead and copper sample from the kitchen sink tap on December 6, 2010 (0.029 mg/L lead), and February 21, 2011 (0.008 mg/L lead).

The March 6, 2009 letter also recommended replacement of the kitchen sink tap with a new, NSF-approved faucet and the removal of the old water lines and solder underneath the sink. However, even though a March 23, 2009 handwritten note on this letter states: "Talked to" system contact who "is removing faucet and will sample in summer for lead/copper again," neither the faucet removal nor the sampling were done. Per the LHD's November 2, 2015 email to MDEQ, the system did not replace the sink tap until after the December 6, 2010 lead and copper sample from the tap had 0.029 mg/L lead. A January 13, 2016 LHD note to the file states that the system's certified operator said the sink was removed in December 2010, and the new sink tap was sampled on February 21, 2011, with a result of 0.008 mg/L lead and on October 21, 2015, with a result of 0.013 mg/L lead.

The system has still not replaced the old water lines serving the sink. Per the LHD's January 13, 2016 note to the file, the system's certified operator said the school would be removing all old plumbing from the kitchen. The LHD requested another set of lead and copper samples after the kitchen renovation, and the certified operator said he would contact LHD for testing in June 2016. However, there are no results in WaterTrack for any lead and copper samples that have been taken since the above referenced samples collected on October 21, 2015. After the EV, MDEQ notified R5 that the system was supposed to be placed on six-month lead and copper monitoring, but the LHD did not make the change in WaterTrack so the system stayed on triennial monitoring.

The system also had a lead ALE for the 2009-2011 compliance period (0.024 mg/L) based on one of the ten samples it collected on June 11, 2010, (0.026 mg/L lead at kitchen sink tap), and a repeat sample collected from the kitchen sink tap on December 6, 2010 (0.029 mg/L lead). Another follow-up sample at the high kitchen tap was collected on February 21, 2011 (0.008 mg/L lead). All 12 samples collected during this reduced LCR compliance monitoring period should have been used to calculate the system's 90th percentile value. This lead ALE was also not reported to SDWIS/Fed.

The July 29, 2015 sanitary survey kept the system on lead and copper triennial monitoring, but required lead and copper sampling by September 30, 2015. The system sampled on October 21, 2015.

Recommendations:

- *The LHDs and MDEQ should report all lead and copper ALEs to SDWIS/Fed in a timely manner.*
- *LHDs/MDEQ need to escalate enforcement for lead ALEs when systems fail to follow LHD recommendations for resolving the lead ALEs, including the possible use of the State's emergency authority under Michigan SDWA Section 15 (Section 325.1015).*

3.4.8 Stage 1 and Stage 2 Disinfectants and Disinfection Byproducts Rules

EPA reviewed the records for nine violations of the Stage 1 and Stage 2 DBP Rules (eight MCL and one M/R) that occurred among three CWSs.

The one M/R violation was quickly RTC'd before the violation notice was even issued. There was sufficient documentation of the violation and MDEQ's follow-up in SDWIS/State.

The eight MCL violations presented a few issues. First, two of the Stage 2 DBPR MCL violations were not reported to SDWIS/State or SDWIS/Fed, even though they happened within the review period. These were the total trihalomethanes (TTHM) MCL violations in the City of Flint during the first and second quarters of 2015. The State files did have a copy of the March 5, 2015 violation notice for the CQ1 TTHM MCL violation and the June 9, 2015 violation notice for the CQ2 TTHM MCL violation. Not reporting these two MCL violations to SDWIS/Fed led to Flint not receiving priority status sooner on the quarterly ETT, since ten more points would have been on the October 2015 ETT giving Flint a score of 15 rather than the score of five based on the violations that were reported to SDWIS/Fed (fourth quarter 2014 TTHM MCL violation). Further review by EPA found that these two violations were reported to SDWIS/Fed for the April 2016 data freeze.

Recommendation:

- *MDEQ should have reported two TTHM MCL violations for Flint, for the first and second quarters of 2015 on time. Not reporting these violations on time affected ETT scoring, preventing Flint from becoming a priority system sooner (on October 2015 ETT).*

Beaver Township PWS had five of the TTHM MCL violations reviewed. Two of the violations (CQ1 of 2015 and CQ3 of 2015) did not have documentation in the State paper file. MDEQ staff indicated that there were no written violation notices, since the first violation was discussed with the PWS over the phone, and the other was discussed with the operator in person. DEQ SOP 04-003 "Compliance and Enforcement" requires compliance communications to be documented in writing in State files and signed and dated by the DEQ staff member who provided the communication.

Recommendation:

- *MDEQ should have included written documentation in the system file that MDEQ had notified the Beaver Township PWS that it had TTHM MCL violations for CQ1 of 2015 and CQ3 of 2015 and required the system to provide PN for these violations.*

Beaver Township became a priority system for enforcement in July of 2015 with an ETT score of 15. Beaver Township's ETT score rose to 21 in October of 2015, which reflects SDWIS data reported by MDEQ through June 30, 2015, and rose again to 26 in January 2016, which reflects SDWIS data reported by MDEQ through September 30, 2015. MDEQ did not follow the ERP, in that Beaver Township was a priority system for more than six months.

Recommendation:

- *MDEQ should have escalated the enforcement of Beaver Township as part of MDEQ's commitment to EPA's 2009 ERP to address or return to compliance PWSs with ETT scores of 11 or more within six months of a system becoming a priority.*

3.4.9 Consumer Confidence Report Rule

EPA reviewed one Consumer Confidence Report (CCR) violation for failure of the Village of Bear Lake to submit its 2013 CCR by July 1, 2014.

MDEQ was successful in sending reminders to the PWS prior to the deadline. Unfortunately, the PWS was not notified of its failure to submit a CCR until a violation notice dated January 16, 2015. The PWS returned to compliance on June 25, 2015, by placing its 2013 CCR data into its 2014 CCR.

3.4.10 Public Notice for Tier 1 and Tier 2 Violations

EPA reviewed the records for 28 violations that required Tier 1 or Tier 2 PN: 22 violations at CWSs and six violations at NCWSs.

Community Program

Two violations required Tier 1 PN—both were TCR acute MCL violations, and both systems posted timely boil water notices within 24 hours of receiving notice of the positive sample results.

Of the 20 violations at CWSs that required Tier 2 PN, 15 violations had timely PN, which was provided by the PWS to consumers within 30 days of being notified by the State of the violation. For the remaining five Tier 2 PN violations, three did not have records in the State files to indicate that timely PN was provided, and two were late. These five violations occurred at two systems. Without a record that PN was received, these PWSs should have been issued violations for failure to provide timely PN.

Non-community Program

Three violations required Tier 1 PN - one nitrate MCL and two TCR acute MCL violations - and the systems posted timely public notice within 24 hours of receiving the positive sample results for the nitrate

MCL violation and for one of the TCR acute MCL violations. The other system should have been issued a PN violation for the June 2015 TCR acute MCL violation for not cooperating with the LHD's effort to provide the PN and for taking down the PN after a State site visit, instead of continuous posting.

Of the three violations that required Tier 2 PN, two violations had timely PN, which was provided by the PWS to consumers within 30 days of being notified by the State of the violation. MDEQ requires NCWSs to provide PN for TCR monthly MCL violations within the same timeframe that it requires CWS and NCWSs to provide PN for TCR acute MCL violations, i.e., as soon as practical but not later than 24 hours after the system learns of the violation. This requirement is more stringent than the federal rule, which requires PWSs to provide PN for TCR monthly MCL violations within 30 days of being notified by the State of the violation.

The other Tier 2 PN violations did not have a record in the State files to indicate that timely PN was provided. Without a record that PN was received, this PWS should have been issued a violation for failure to provide timely PN.

The violation notices the LHD issued for KOA Bath House's two TCR acute MCL violations and Hour Kidz' TCR monthly MCL violation should have required posting a PN in conspicuous locations throughout the area served by the water system rather than just "a conspicuous location." The violation notice requires Hour Kidz to post the PN as soon as practical but within 24 hours after the supply learns of the violation, which is more stringent than the federal rule.

Appendix 3-G, which is the detailed EV Analysis Excel Workbook, contains further details on all 28 Tier 1 and 2 public notices. EPA reviewed each PN to capture the dates that the PN was posted and certified by the PWS and the date that the PN was received by the State.

Recommendation:

- *EPA urges that MDEQ maintain more complete records of PNs received and issue violations to PWSs that fail to provide Tier 1 or Tier 2 PNs.*

Chapter 6.8, Arsenic Monitoring, of the 2014 Noncommunity Program Staff Reference Manual incorrectly states, "However, in the process of developing a compliance consent agreement, it must be made very clear that the MCL violation requires public notice within 60 days of the violation and re-issuance every quarter until the violation is resolved."

Recommendation:

- *Chapter 6.8 Arsenic Monitoring of the 2014 Noncommunity Program Staff Reference Manual should be corrected on page 6-28 to state that public notice for the MCL violation is required within 30 days of the violation instead of within 60 days of the violation.*

3.5 Escalated Enforcement and Case Referral

3.5.1 Community Program

EPA reviewed one escalated enforcement case for the community program, which was Washburn Lake Village Mobile Home Park (Washburn). Washburn is a CWS serving a population of approximately 108 people. The PWS was out of compliance with the TCR monthly MCL from July through December 2013. The PWS also failed to address significant deficiencies identified by MDEQ under the Ground Water Rule from October 2013 through January 2014.

Washburn became a priority system for enforcement in January of 2014 with an ETT score of 15. Its ETT score rose to 35 in April of 2014, which reflects SDWIS data reported by MDEQ through December 31, 2013. Washburn's ETT score went down to 0 in the July 2014 ETT since all violations were linked to the January 22, 2014 State administrative consent order (ACO). MDEQ followed the ERP by ensuring that Washburn was not a priority system for more than six months. Prior to the termination notice, the owner/operator was required to submit a request consisting of a written certification that the system has fully complied with the ACO and paid all fines. There was no record that this certification was received in either the State file or SDWIS/State.

The ACO references a June 27, 2013 significant deficiency violation notice, as well as an October 30, 2013 violation notice which outlines Washburn's failure to address the significant deficiencies within 120 days. The October violation notice includes a description of the ongoing TCR monthly MCL violations. EPA recommends listing the specific violations in the ACO in addition to attaching the violation notices as exhibits. There were no other written violation notices associated with this case. MDEQ indicated that all violation communications with the PWS for the TCR Monthly MCL violations were conducted by phone, in person, and by email.

3.5.2 Non-community Program

Formal Enforcement

Reported to SDWIS/Fed

EPA reviewed one escalated enforcement case for the non-community program. However, the July 14, 2014 document issued to Manistique Ice for its CQ2 of 2014 TCR Major Routine M/R violation should have been entered into SDWIS/Fed with a State Administrative Penalty Assessed (SFM) enforcement code and not a State Administrative Order with penalty (SFO) enforcement code.

EPA did find, however, that escalated enforcement was taken against KOA Bath House after the system had a second consecutive TCR acute MCL violation for July of 2015 with two July 13, 2015, positive *E. coli* samples. This escalated enforcement action was not reported to SDWIS/Fed. On July 13, 2015, the LHD issued the system a Notice of Compliance Conference to discuss PN requirements, seasonal startup procedures, and water sampling requirements for the facility on July 16, 2015. On July 16, 2015, a joint inspection with MDEQ and the LHD was conducted at the campground. After the inspection and review of water sample results taken directly from the well casing, it was determined that a down-hole camera should be used to evaluate the interior of the well casing.

On July 17, 2015, a well-drilling contractor was hired to video the well. MDEQ, the LHD, the drilling contractor, and the campground operator were all present for the down-hole camera evaluation. By using the camera, it was determined that the well casing was compromised.

The system and the LHD signed a Bilateral Compliance Agreement (BCA) on July 17, 2015, whereby the system agreed to:

- Appoint an individual who is responsible for following all requirements as described within Act 399 (Michigan's SDWA);
- Keep all Tier 1 PNs posted where the public can view them until the MCL violation is resolved and the LHD approves removal of the PNs;
- Resolve the MCL violation by continuing to investigate probable causes of contamination and obtaining quotes for abandonment of the well and construction of a new well; and

- Assure the protection of public health by preventing campers from consuming or bathing in the contaminated water.

The July 17, 2015 State BCA (SDWIS enforcement code SFK) was not entered into SDWIS/Fed. On July 24, 2015, the LHD issued the system an Administrative Order to abandon the well at KOA Campground, Bath House. This State Order (SDWIS enforcement code SFL) was not entered into SDWIS. The bath house was closed down, and final approval of the new water supply was given on October 19, 2015, when the old, compromised well was abandoned (LHD and MDEQ were present for the abandonment).

Not Reported to SDWIS/Fed

The July 30, 2015 document issued to the Vlahakis Management Company daycare center was entered into SDWIS/Fed with the SDWIS enforcement action code of SFK for a BCA, which was linked to the system's January, 1, 2013 open-ended LCR initial tap sampling violation, when it was actually an ACO (SDWIS enforcement code SFL). MDEQ should have initiated formal enforcement after the system failed to submit a corrective action proposal by the August 31, 2014 extended deadline in the LHD's August 19, 2014 Lead/Copper Compliance Issues and Informal Hearing Follow Up letter, which was issued after a lead ALE in June 2012. The letter warns the system that failure to comply will result in additional fines and referral to MDEQ for escalated enforcement.

However, MDEQ did not issue the system a Notice of Informal Meeting on Administrative Proceedings against Vlahakis Management Company letter until April 24, 2015. An ACO was signed by the system on July 30, 2015. MDEQ or the LHD should have exercised its emergency authority under Michigan SDWA Section 15 (Section 325.1015) to implement emergency public health measures if a public water system posed "an imminent hazard to public health" to provide bottled water for the daycare center and the other businesses served by water system. The LHD did not send a written recommendation to provide bottled water until July 22, 2014, two years after the original unreported lead ALE in June 2012. Also, the LHD should have notified the MDHHS, the licensing agency responsible for overseeing the Vlahakis Management Company daycare center system, about the system's June 1, 2013 PE violation as required by the 2014 Noncommunity Program Staff Reference Manual.

Bilateral Compliance Agreements

In addition to the BCA for Vlahakis, EPA also reviewed two systems with BCAs (Michigan Community Services and Hour Kidz), which involved a review of all violations associated with the enforcement actions with some violations incurred before October 1, 2013.

First, Michigan Community Services signed a BWA with MDEQ on January 29, 2008, for its 2008 arsenic MCL violation which is discussed in detail in Section 4.f. above.

Second, Hour Kidz signed a BCA that was not reported to SDWIS/Fed. The LHD issued this system a July 31, 2014 violation notice for its July 2014 TCR monthly MCL violation that requires it to: post the enclosed PN; provide bottled water; have the water supply evaluated; complete any needed repairs; have the well chlorinated by a registered well-drilling contractor; and then collect a minimum of two repeat samples at least 24 hours apart. The LHD should have escalated enforcement sooner following the July 2014 MCL violation and the December 9, 2014 total coliform positive sample.

Escalated enforcement was not initiated until the LHD issued Hour Kidz a Notice of Compliance Conference letter on March 11, 2015 for a compliance conference scheduled for March 27, 2015, for the

purpose of ensuring that all parties involved with this water system understand the violation, requirements of public notice and the methods of correction, and to discuss future sampling requirements. The compliance conference was later rescheduled for April 24, 2015. The LHD collected five TCR "repeat" samples on March 30, 2015, and the kitchen sink sample was total coliform positive. A trilateral compliance agreement was signed by the LHD, Hour Kidz, and Advance Urgent Care on April 24, 2015, whereby the suppliers agreed to hire an S-5 level certified operator and resolve the total coliform MCL violation by making necessary repairs to the distribution system and submitting two consecutive (at least 24 hours apart) satisfactory coliform bacteria water sample results to the LHD.

The LHD should have notified the MDHHS, the licensing agency responsible for overseeing Hour Kidz, about the MCL violation as required by the 2014 Noncommunity Program Staff Reference Manual. Also, MDEQ may have been able to exercise its emergency authority under Michigan SDWA Section 15 (Section 325.1015) to implement emergency public health measures if a public water system posed "an imminent hazard to public health."

Recommendation:

- *EPA urges MDEQ to develop a written compliance and enforcement strategy for the Office of Drinking Water and Municipal Assistance, as well as an SOP for escalated enforcement action that highlights the need for documentation of compliance assistance communications and PWS follow-up in State enforcement files.*

3.6 SDWIS Violation and Enforcement Action Data Quality Review

This section summarizes Appendix 3-C - Data Differences Among SDWIS/Fed and State Data Systems and State Paper Files.

3.6.1 Community Program

Of the six CWSs reviewed, there were four instances where information in SDWIS/Fed was different from the information in SDWIS/State. There were two violations that were not reported to SDWIS/Fed on time at one PWS and two violations did not have appropriate enforcement actions linked to them in SDWIS/Fed.

There were 17 instances where information in the State paper files was missing or contained different information than what was reported to SDWIS/Fed and/or SDWIS/State.

3.6.2 Non-community Program

Of the 10 NCWSs reviewed, there were five instances where information in SDWIS/Fed was different from the information in WaterTrack. There were two violations that were not reported to SDWIS/Fed on time for one PWS and three violations did not have appropriate enforcement actions linked to them in SDWIS/Fed.

There were 34 instances where information in the State paper files was missing or contained different information than what was reported to SDWIS/Fed and/or WaterTrack.

3.7 Program Strengths

ODWMA uses policies and procedures for issuing boil water advisories; addressing GWR significant deficiencies; and flowcharts for the following: M/R violations, total coliform-positive follow-up, violations of State drinking water standards, and enforcement; and fine policies for M/R violations and State drinking water standard violations.

MDEQ handles issuance of ACOs to CWSs and NCWSs in the central office, thus improving consistency across the State. The number of ACOs and referrals to the Michigan Attorney General appears to have increased, based on example ACOs provided during the EV and MDEQ compliance updates for priority systems on the quarterly ETT list.

3.7.1 Community Program

The EV review team found the following effective elements in MDEQ's PWSS program implementation:

- Follow-up for the two TCR acute MCL violations by ensuring boil water notices were issued within the 24-hour requirement.
- The one TCR M/R violation reviewed had the PWS collecting its routine samples within 15 days of receiving the violation notice.
- The use of the GWR significant deficiency SOP for Washburn Lake Village MHP.
- Keeping Spring Lake Club Condominiums on six-month LCR compliance monitoring since CCT had not been installed to ensure that there are no further lead ALEs and that the fixture replacement strategy is helping to address the issue.
- The one DBPR M/R violation was quickly RTC'd before the violation notice was even issued. There was sufficient documentation of the violation and MDEQ's follow-up in SDWIS/State.
- Sending Village of Bear Lake reminders to submit its 2013 CCR by July 1, 2014.

3.7.2 Non-community Program

The EV review team found the following effective elements in MDEQ's PWSS program implementation:

- The 2014 Noncommunity Program Staff Reference Manual.
- The fine policy for M/R violations and violations of State drinking water standards.
- Handling issuance of ACOs to CWSs and NCWSs in the central office, thus improving consistency across the State. The number of ACOs and referrals to the MAG appears to have increased, based on example ACOs provided during the EV and MDEQ compliance updates for priority systems on the quarterly ETT list.
- The procedures for TCR MCL violations in the 2014 Noncommunity Program Staff Reference Manual requiring the LHD to make a site visit within five days to verify the PN and bottled water are in place and that acceptable actions are underway to identify and correct the MCL violation.
- For an *E. coli*-positive sample, the LHD is required to contact the system within 24 hours of notification to confirm the requirement to collect repeat samples and to conduct a site visit within 72 hours of notification to evaluate the water system's potential for contamination.
- MDEQ requires NCWSs to provide PN for TCR monthly MCL violations and acute MCL violations within the same timeframe that it requires CWSs, *i.e.,* as soon as practical but not later than 24 hours after the system learns of the violation, which is more stringent than the federal rule that requires PWSs to provide PN for TCR monthly MCL violations within 30 days of being notified by the State of the violation.

3.8 Program Weaknesses

3.8.1 Community Program

The EV review team recommends that MDEQ address the following:

- Lack of documentation of violations in the system files. For example, there was no official copy of violation notices for five LCR violations (two TTs and three M/Rs) that occurred at Spring Lake Club Condominiums. (However, it was referenced in email correspondence.)
- MDEQ should maintain more complete State files with written documentation of exchanges with the PWS and progress of the system in returning to compliance, including appropriate follow-up after a lead ALE. There was little evidence in the file that appropriate follow-up was conducted for each of the three lead ALEs that occurred during the review period.
- Per ODWMA policies and procedures for violations of State drinking water standards and M/R violations, MDEQ should have issued Spring Lake Club Condominiums a contributory category administrative fine of $400 for failure to submit a corrosion control proposal by April 1, 2014, and $200 and $400 administrative fines for its LCR initial water quality parameter M/R violation and source water M/R violation, respectively.
- Two TTHM MCL violations were not reported to SDWIS/Fed on time for Flint, which affected ETT scoring, preventing it from becoming a priority system sooner (on October 2015 ETT).
- Lack of documentation in the State file that MDEQ notified the Beaver Township PWS of and requested PN for two of the system's five TTHM MCL violations.
- MDEQ does not have an SOP for implementing the Stage 1 and Stage 2 DBPRs.
- Three violations that required Tier 2 PN at two PWSs did not have records in the State files to indicate that timely PN was provided, and two were late. Without a record that PN was received, these PWSs should have been issued violations for failure to provide timely PN.

3.8.2 Non-community Program

The EV review team recommends that MDEQ address the following:

- Some system files demonstrate a lack of LHD contact with PWSs following TCR routine M/R violations, TCR repeat M/R violations, and Nitrate M/R violations, or very late contact, in one case, two years after the violation**.**
- One LHD failed to follow MDEQ's fine policy and frequently contacted a system to issue multiple civil fines for failure to sample within the same quarterly compliance period.
- Some LHDs failed to track PWS compliance with total coliform routine monitoring requirements by updating WaterTrack in a timely manner when LHDs instruct systems to increase routine monitoring to quarterly, so that systems receive quarterly monitoring reminders and are issued violations when they fail to monitor at the required frequency.
- A couple of LHDs did not contact systems that had a total coliform-positive routine sample in a timely manner to remind them to collect repeat samples. Another system that failed to collect repeat samples was not issued a violation notice until almost a year later, and the system had still not complied more than a year after the violation notice was issued. One system only collected two of the four required samples, but the LHD did not issue it a minor repeat M/R violation. However, the LHD made a site visit several days later and collected five TCR samples that were all *E. coli*-positive.

- MDEQ should escalate enforcement sooner when LHD efforts are not effective or are lacking.
- WaterTrack is unable to report GWR triggered source water M/R violations to SDWIS/Fed.
- The EV review team did not find documentation of LHD follow-up with systems for conducting GWR-triggered source water monitoring.
- All PWSs that were previously on bottled water agreements because of high arsenic concentrations and are not yet returned to compliance should be escalated to formal enforcement until an alternate source is found or treatment is installed, in order to ensure that the system monitors for arsenic on a quarterly basis, provides alternate water, and provides public notice until the system is returned to compliance with the arsenic MCL.
- NTNCWSs that serve 25-100 people should be required to collect five lead and copper samples unless they have fewer than five drinking water taps that can be used for human consumption, in which case, they should be required to sample all the taps that can be used for human consumption. The EV review team found NTNCWSs with non-transient populations between 50 and 70 people served that had State lead and copper tap monitoring schedules requiring fewer than five samples. Site visits are recommended to confirm that there are fewer than five taps used for human consumption. Prior to these site visits, MDEQ should check the system's "Storage-Distribution" and "Bacteriological Sample Siting Plan" screens and lead and copper sample results in WaterTrack to identify any additional drinking water taps that can be used for human consumption that should be added to the system's lead and copper Sample Siting Plan screen. MDEQ should also consult with MDHHS prior to these site visits to daycare centers and/or make joint site visits with MDHHS to identify taps that are likely to be used for human consumption.

  (NOTE: After the EV, MDEQ notified EPA that LHD staff visited two of these systems to verify the number of taps used for human consumption.)
- It appeared that some LHDs accepted non-first-draw samples for lead and copper compliance (based on sample collection time) and that systems on reduced monitoring did not collect the required number of compliance samples between June and September as required.
- LHDs should ensure the following in addressing lead ALEs at NTNCWSs:
  - Report lead and copper ALEs and follow up on them in a timely manner.
  - Require childcare centers and schools serving children, especially those under six years of age, that have a lead ALE to quickly shut off the tap(s) with high levels, replace the fixtures at those taps or provide bottled water until the lead ALE is resolved. *(NOTE: These actions are recommended and not required by the Federal LCR or MDEQ SOPs).*
  - Notify the licensing agency about MCL violations and lead and copper ALE follow-up violations per the 2014 Noncommunity Program Staff Reference Manual.
  - Escalate enforcement, where needed, in a timely manner, including using MDEQ's emergency order authority.

3.9 Conclusion

In conclusion, EPA is encouraged that MDEQ is working to update its drinking water program compliance and enforcement strategy. Additionally, MDEQ's fine policies provide a useful tool to prevent repeat violations.

Following lead ALEs at daycare centers, MDEQ should prioritize using every available means to prevent use of the drinking water taps in the daycare center with high lead results until corrective action is completed. The employees and customers served by the system and parents of children in the daycare need to be notified of the lead ALE and lead sample results, the health effects of lead, and steps to reduce exposure to lead in drinking water so they can make informed decisions regarding using the water.

EPA looks forward to working with MDEQ to address the recommendations in this report. EPA recognize the resource constraints that are stressing the program, especially the lack of effective data systems to support compliance monitoring efforts. Securing adequate personnel and data resources will be critical, as MDEQ moves forward to ensure that its PWSS program is well implemented to protect public health and provide the people of Michigan with safe drinking water.

Appendix 1-A: Detailed File Review Description

Introduction

In accordance with 40 CFR § 142.14, states and other entities that have primacy for implementing the National Primary Drinking Water Regulations (NPDWRs) must retain certain records pertaining to their public water system supervision (PWSS) programs. 40 CFR § 142.15 requires primacy agencies to submit reports containing the retained information to the EPA Administrator. The information, comprised of new violations of NPDWRs, new enforcement actions taken by the primacy agencies, and notification of any variances and/or exemptions granted by the primacy agencies, must be reported quarterly. MDEQ data is managed in the primacy agency-level version of Safe Drinking Water Information System (SDWIS), known as SDWIS/State, and for non-community water systems (NCWSs) within a Michigan-developed database named WaterTrack.

For the EPA Office of Ground Water and Drinking Water (OGWDW) and EPA regions to make informed decisions, the data in SDWIS/Fed must be accurate and complete. To verify the reliability of the data in a manner that is consistent nationwide and to identify opportunities for primacy agency implementation improvements, EPA conducts periodic Program File Reviews (FRs). The purpose of a FR is two-fold: (1) to detect discrepancies between the public water system (PWS) data in the primacy agency files or database and the data reported to Safe Drinking Water Information System–Federal Version (SDWIS/Fed); and (2) to ensure that the primacy agency is determining compliance in accordance with state and federal rules and regulations.

During the week of April 4-8, 2016, the "FR team," consisting of representatives of EPA Headquarters, EPA Region 5, and The Cadmus Group, Inc., conducted a FR of the Michigan Department of Environmental Quality's (MDEQ) Drinking Water Program. The review was conducted in the central office in Lansing, Michigan.

The MDEQ drinking water program is a decentralized program, with compliance responsibilities delegated to district offices and Local Health Departments (LHDs). Decentralization may be a factor regarding consistency of compliance decisions and review, although the FR team noted the extensive Standard Operating Procedures (SOPs) and examples of communication between the central and district offices found in the files. Some discrepancies in Appendix 1-D of this report document some data flow problems. For example, the State issued a violation or conducted a sanitary survey and the information was not recorded in SDWIS/Fed. Similarly, some violations and inventory updates were submitted after the reporting deadline. See Appendix 1-H, "Program Organization and Administration" for additional details on organizational structure.

To meet the purpose of the project, the FR team compared MDEQ's data to the most recently frozen data in SDWIS/Fed for the quarter ending September 30, 2015. The FR team reviewed both hard copy files and electronic records.

The Program FR included both file review and interviews. To assist with the FR team's review, MDEQ's district offices sent water system files to the central office, and questions about the files were directed to district staff either in person or by email. EPA Region 5 separately conducted interviews with State personnel. Observations and recommendations from the Region's interviews are attached as Appendix 1-H, "Findings and Recommendations from EPA Discussions with MDEQ."

Description of Sample

The period of review for each of the regulations is shown in Table 1-1. Appendix 1-C contains a table that summarizes any data discrepancies between State and federal records and errors in compliance determinations that were identified during this review. Appendix 1-D contains a detailed, system-specific list of each discrepancy identified during this review.

The FR team reviewed a selected sample of PWSs to verify system compliance and State oversight. The FR team reviewed 25 PWSs, including 13 community water systems (CWSs), six non-transient non-community eater systems (NTNCWSs) that are schools or daycares, and six transient non-community water systems (TNCWSs). Appendix 1-B includes a list of the systems that were reviewed.

Regulations Reviewed

Table 1-1: Periods of Review

Category	Date
Inventory	Most recent
CCR	Year 2014, due 2015
Sanitary Survey	2 most recent surveys
Total Coliform Rule	Oct. 1, 2014 – Sept. 30, 2015
Lead & Copper Rule	2 most recent samples
Phase II/V (except nitrate)	2011 - 2013
Nitrate	2013, 2014
Stage 1 & 2 DBPR	Oct. 1, 2014 – Sept. 30, 2015
Revised Radionuclides	Most recent samples
SWTR, IESWTR, LT1 & 2 ESWTR	Oct. 1, 2014 – Sept. 30, 2015
GWR	Oct. 1, 2014 – Sept. 30, 2015
Public Notice	Per related violation

The FR team reviewed MDEQ's data systems: SDWIS/State; the State's internal copy of Drinking Water Watch, which summarizes information from SDWIS/State; WaterChem, which is a database used to track entry point chemical monitoring; and WaterTrack. The FR team also reviewed hard copy documentation for updates to inventory and compliance data for the rules listed in Table 1-1.

CWS files are organized by MDEQ using a color-coded folder system. A copy of the Community Water Supply File Checklist that must be completed for each CWS is included in Appendix 1-E. The folders and key subjects reviewed by the FR team are listed here: correspondence (including public notification (PN)); chemical monitoring results; annual reports (including consumer confidence reports (CCRs)); construction permits; basic data (including sanitary surveys); and lead and copper. Monthly Operating Reports (MORs), microbial, turbidity, and disinfection monitoring results are maintained in the district offices, but were sent to Lansing for the FR team to review.

The FR team reviewed the PWS records against the federal standards and any primacy agreements. EPA Region 5 has been formally made aware of activities in which MDEQ temporarily disinvested in light of limited resources. The annual update of the State's activities clearly identifies the implementation activities the State does not perform, and its goals to address any of these limitations, if possible. The 2010 FR report had this recommendation, *"MDEQ should reconsider the disinvestment activities. MDEQ's actions and policies should be as stringent as federally mandated rules and policies. All instances where the federal rules were not correctly implemented were treated as discrepancies."* The FR team applied the same approach in this FR and reemphasizes the same recommendation. Appendix 1-D records instances where discrepancies were noted.

EPA Region 5 and MDEQ discussed this 2010 recommendation. Recognizing that some of the same issues remain today, the Region provided this response: "*Many state PWSS programs do not have access to enough resources to implement all of the provisions of drinking water regulations, and other primacy program requirements. Therefore, EPA Region 5's Annual Resource Deployment Plan (ARDP) allows for the State and Region to plan for circumstances where resources are inadequate to implement the entire drinking water protection program. EPA Region 5 and MDEQ have an obligation to ensure that Michigan's limited resources are deployed in a way that ensures maximum health protection benefit, since the purpose of the Safe Drinking Water Act (SDWA) is to protect public health. Some activities have been identified as not directly related to public health protection, and the State temporarily disinvested in these activities, which has been acknowledged by EPA Region 5. As noted over the past 4 years, the State has been gradually reinvesting in these temporarily disinvested activities, thus decreasing the number of disinvested activities. The Region and MDEQ collectively keep track of what is and is not being done and strive for full implementation of the SDWA."* Beginning in FY 2017, MDEQ's grant work plan includes the following: "*The State has primacy for implementing the National Primary Drinking Water Regulations, and is expected to fully implement all aspects of its safe drinking water statutes and rules on which primacy is based. If the State is unable to implement any portion of such a statute or rule, or otherwise comply with the federal implementation regulations, the State must submit a plan describing the steps the State will take to achieve full implementation and a schedule for doing so. This plan and schedule must be submitted within 90 days of the award of this grant."* (In FY 2018, EPA will investigate adding specific grant conditions related to full implementation.)

During the FR review period, the State temporarily disinvested from tracking the timeliness of receipt of monitoring results, and did not issue monitoring and reporting (M/R) violations if monitoring was conducted during the required timeframe but the results were received after the required reporting date. The State also temporarily disinvested from tracking, calculating and issuing RAAs/LRAAs for TTHMs, HAA5s, and TOC removal ratios if all sample results were below the MCL or MRDL. Some districts started tracking MRDLs in the past year, and now RAAs/LRAAs can be calculated in SDWIS/State for CWSs. The State does not issue M/R violations when a PWS does not have an RAA/LRAA calculated.

Data Management

MDEQ uses SDWIS/State for CWSs and WaterTrack for NCWSs to track compliance with the NPDWRs. Most program requirements can be tracked and reported using these two information systems, but some data management challenges remain and some key program functions must be tracked manually. Appendix 1-F summarizes the MDEQ PWSS data management limitations for Fiscal Years 2013-2016. There are significant shortcomings relevant to the file review from MDEQ's data limitation summary. These issues, and approaches, to resolve them are outlined below.

- Only the NCWS program has electronic reporting of sample results from the State laboratory (for the subset of NCWSs using the State laboratory); most other reporting is largely manual, including chemical monitoring sample results. During the exit interview, MDEQ indicated that the lab certification program may, in the future, require e-Reporting. Greater efficiency and high data quality are expected from MDEQ's ongoing project to add e-Reporting. No project timeline for e-Reporting was discussed. EPA Region 5 will request a schedule for completion as part of the annual grant work plan.
- Schedules for distribution system monitoring (such as TCR and DBPR) are in SDWIS/State for CWSs and State staff send the monitoring schedules to all CWSs. For NCWSs, LHD staff notifies systems of sampling requirements and compares actual monitoring against the monitoring schedules.

MDEQ uses a separate MS Access database to track entry point chemical monitoring schedules for inorganic contaminants (IOCs), volatile organic chemicals (VOCs), synthetic organic chemicals (SOCs), and radionuclides for CWSs. The State specifies the year in which the PWS must sample and requires sampling before the end of the compliance period to allow time for the State to remind the PWS if samples are missing. SDWIS/State does not have this capability. MDEQ plans to transition to managing this function in SDWIS/State as it prepares for future transition to SDWIS/Prime. However, tracking of the more stringent State schedule requirements must continue to be done manually.

- WaterTrack does not support all of the newer regulatory requirements, as noted in Appendix 1-F. How this affects individual rule implementation is noted below, where shortcomings affect the file review outcome. MDEQ plans to deploy a second instance of SDWIS/State to eventually flow data to SDWIS/Prime, while maintaining both databases (SDWIS/State and WaterTrack). Limited staff will use this second instance at the state level, and LHD staff will continue to use WaterTrack.

The State laboratory has an older Laboratory Information Management System (LIMS). The State laboratory began development of a new LIMS in fall 2016.

Laboratory reporting is very inefficient. CWSs receive data in PDFs from the State laboratory, but it is not an electronic file and it does not automatically upload to the CWS drinking water database, so the data must be entered manually into SDWIS/State. However, the State laboratory does report chemical results electronically to WaterChem; and WaterTrack pulls chemical data from WaterChem for any NCWS that uses the State laboratory. CWS chemical data from WaterChem must be entered manually to SDWIS/State. The CWS program and LHDs also obtain hard copy data via U.S. Postal Service, emailed results, and occasional fax results from private laboratories, at a rate of up to 5,000 separate submittals per month, which also must be entered manually into SDWIS/State. Both State and private labs are used to analyze samples. MDEQ is concerned that more Quality Assurance (QA) is needed for data entry.

Under State and federal regulations, PWSs are not required to use standardized forms to report sample results or for MORs. However, the variability among the forms used by the PWSs in Michigan adds complexity to compliance review, making it more difficult for State staff to ensure the correct information is submitted.

State staff make handwritten edits and corrections to hard copies of forms, calculations, and sample results, after confirming problems. In some cases, the PWS continues to make the same mathematical error, and the problem is not resolved. In one case, a calculation problem was identified and not corrected on the form so that each month the information was inaccurate.

MDEQ started to convert its data systems to work together, but when SDWIS/State was upgraded the data systems were no longer compatible. The State has intended to move to SDWIS/Prime, but raised concerns about the timing for the release of SDWIS/Prime. If EPA released it in 2017, MDEQ would not upgrade its current data systems, but if it takes longer, the State may need to upgrade existing data systems. The need is even more critical as the program is losing staff with tremendous experience and expertise, so the ability to automate and streamline, have automatic compliance determinations, and better tools for tracking and reporting violations is essential. See Appendix 1-H with more detailed discussion of resources and data management concerns.

The MDEQ drinking water program shares staff in the Department of Technology, Management and Budget (DTMB) with other State programs, and limited resources for both the PWSS program and information technology (IT) are an ongoing obstacle. This limitation strongly affects MDEQ's ability to address data limitations. Drinking water IT is not DTMB's highest priority. Please see Appendix 1-H for additional data management recommendations.

Recommendations:

- *The FR team strongly supports MDEQ's project to require electronic reporting through its lab certification program and sees this effort as a high priority. This capability will eliminate redundant manual data entry, improve timeliness, and streamline compliance determination and reporting. E-reporting also reduces the opportunity for data quality errors and preserves the chain of custody, and enables MDEQ to share information across offices more easily. The FR team recommends that the State establish a fast-track schedule for this project in order to take advantage of the new CMDP[16]. The CMDP was launched in October 2016. This capability will allow laboratories to be prepared to use the CMDP when/if the State transitions to SDWIS/Prime.*
- *The State laboratory also should ensure its new LIMS is compatible with the CMDP, to simplify e-Reporting to SDWIS/Prime.*
- *Corrections or edits to forms and sample results submitted for compliance must be accurately documented, and where applicable, justified, to preserve chain of custody. The State should ensure that PWSs are aware of issues with sample result submittals to prevent recurrence of the need for corrections by the State. Ideally, any changes would be noted in a data system in a comment field. EPA Region 5 would be glad to further discuss best practices with the State.*
- *Standardized reporting forms will improve both speed and accuracy of State staff review of materials submitted by PWSs.*
- *Given the public health link to the drinking water program, resources and priority must be given to provide the tools needed to manage the program, one example of which is a NCWS database that is capable of tracking and reporting all violations.*

Inventory

For each PWS, the FR team reviewed SDWIS/State (for CWSs) or WaterTrack (for NCWSs) to confirm the Public Water System Identification Number (PWSID), system name, address, type, population served, service connections, source, season of operation, and activity status. The information also was verified against the most recent sanitary survey, to confirm that the PWS met the definition for each category.

As detailed in Appendix 1-H for "Sanitary Surveys" and "Data Systems and Compliance Determinations," the CWS program maintains inventory in SDWIS/State, and the NCWS program maintains inventory in WaterTrack. The LHD would typically update NCWS changes in inventory, including changes which result in a system status change, such as inactive, change in source, or a different PWS classification. MDEQ has policies in place to account for temporary fluctuations in population, whereby the system classifications would not change unless populations were permanently changed. WaterTrack has built-in features to track completeness of sanitary survey elements for NCWS, and the sanitary survey is not labeled as complete

[16] EPA's new CMDP allows water laboratories and public drinking water systems to electronically share drinking water data with their states. Use of the portal should lead to more timely and higher-quality monitoring data. By reducing the hours previously spent manually entering data, identifying data-entry errors, and issuing data resubmittal requests, states will now be able to free up more time to focus on preventing and responding to public health issues in their communities.

until six required elements are entered. Two other required survey elements, Monitoring/Reporting and Management/Operation, are evaluated outside of WaterTrack during quarterly data processing.

The State strictly adheres to the criteria outlined in EPA's Water Supply Guidance (WSG) 32 in its determination of whether a system should be a NTNCWS or TNCWS.

Discrepancies:

- *Service connections were not updated in a timely fashion for one PWS. The State did submit the change to SDWIS/Fed, but only after the data pull for this review. EPA Region 5 expects inventory updates to SDWIS/Fed within 60 days after the quarter in which they are changed.*
- *Three PWSs had inactivated or seasonal sources in SDWIS/State or historical versions of WaterTrack but not in SDWIS/Fed. Facility level activity status is not reported to SDWIS/Fed because it is not trackable in WaterTrack (other than to remove the monitoring schedule for a given source).*

Recommendations:

- *The State should follow an SOP to update inventory and review the data on a regular schedule and before monitoring schedules are established, as population or activity status updates may affect monitoring schedules or facility upgrades may involve permit review staff or engineers. In one instance, the FR team observed that MDEQ changed established monitoring requirements for the City of Flint after the PWS submitted its sample results. The Flint PWS had submitted fewer samples than the number required by the monitoring schedule, citing an intervening decrease in the city's population. After reviewing census records, MDEQ changed the monitoring schedule and accepted the smaller number of samples. Documentation provided by MDEQ on March 22, 2017, indicated that MDEQ determined on April 1, 2015 that Flint's population had decreased below 100,000; however, the change in population in SDWIS/State was not made until July 9, 2015. With the population change, MDEQ did not issue a monitoring violation since the required number of samples went from 100 to 60. The FR team did not issue a discrepancy for this action for the January – June of 2015 timeframe because the inventory was changed in time to meet EPA reporting requirements. The process to upgrade inventory should include instructions for how to communicate changes to the proper person and QA checks to ensure changes are completed in a timely manner.*
- *MDEQ should reconsider the determination that certain schools and child care facilities are classified as TNCWSs. One PWS regularly serves children 3.5 hours per day, or almost as many as the 4 hours established in the WSG 32 as the maximum for a TNCWS. More importantly, WSG 32 cautions against becoming mired in hours served, without consideration of other critical factors such as sensitive subpopulations. MDEQ's decision comports with the terms of WSG 32, and, therefore, the FR team did not issue a discrepancy. Nonetheless, EPA recommends MDEQ consider these PWSs as NTNCWSs so that additional contaminants are monitored.*
- *One consecutive water system, City of Saginaw, has its primary source in SDWIS/Fed and SDWIS/State listed as Surface Water – Purchased (SWP), but listed as Surface Water (SW) in other State records. The FR team agrees it is a SW source. The water system purchases raw water, treats it, and distributes the treated water to its customers. In 2007, MDEQ raised a question to EPA and the contractors who developed SDWIS/State about how to report this in SDWIS/Fed. Correspondence with EPA was shared with the FR team, which showed that there are limitations in SDWIS/Fed that prevent association of a raw, purchased source as a SW source in SDWIS/Fed. It appears that this may be a limitation of SDWIS. Note that MDEQ is treating the water system as a surface water system that must comply with all Surface Water Treatment Rule (SWTR) requirements.*

This is a SDWIS/Fed issue and the FR team recommends that the question be raised to EPA Headquarters in light of preparation to transition to SDWIS/Prime. EPA Region 5 and EPA Headquarters will try to resolve this issue in SDWIS/Prime.

- *MDEQ should ensure all source inactivation records are flowed to SDWIS/Fed.*
- *MDEQ should ensure changes to service connection records are flowed to SDWIS/Fed.*

Sanitary Surveys

The FR team reviewed the surveys to confirm that the State reviews all eight required elements of a sanitary survey as defined in the Ground Water Rule (GWR) and the Interim Enhanced SWTR (IESWTR). The FR team also verified that the surveys were conducted on the schedule required by the governing regulation.

Compliance with the sanitary survey requirements is tracked in SDWIS/State and WaterTrack and partially automated. Hard copies of sanitary surveys are maintained in the files in the field offices. MDEQ conducts a few partial sanitary surveys for its larger, surface water systems. The SOP instructs staff to only code "full" once all eight elements are completed, but the MDEQ central office staff noted occasions when the field was incorrectly coded "full" after a partial sanitary survey, and they asked field staff to correct the coding.

Corrective actions for CWS significant deficiencies are starting to be tracked in SDWIS/State. The MDEQ central office is training field staff to associate enforcement actions with a violation when a schedule for significant deficiencies should be entered into SDWIS/State.

The CWS sanitary survey report was recently changed; MDEQ added a table to the front of the report that shows the eight elements and whether or not MDEQ found any issues associated with each individual element.

For NCWSs, completeness of sanitary surveys is assured and evaluated, largely through the use of WaterTrack. A standard report, *Sanitary Surveys Not Completed*, lists water systems for which survey data entry has been initiated, but not completed. On the Sanitary Survey data entry screens, the SAVE function requires staff to populate 5 fields (source, pump, treatment, storage, and distribution) and select a corresponding approval status for each survey element, in order for the sanitary survey record to be saved as a complete record. In WaterTrack, the sanitarian records Significant Deficiencies under the GWR by selecting "High Risk" in the approval field of the sanitary survey element in question, and placing details in the associated comment field. Guidance for what to call a significant deficiency is provided in written materials designed for sanitarians. Three elements are not reviewed during the sanitary survey or field visits. Operator compliance is verified on the WaterTrack address maintenance screen, which displays current operator certification status and expiration date from the Operator Training and Certification Program's database of record. This element is not reviewed when there is no certified operator required. The final two required elements, Monitoring/Reporting status (based on the most recent Enforcement Targeting Tool (ETT)) and Management/Operation, are evaluated at the time of quarterly data processing for submittal to SDWIS/Fed.

The NCWS form sometimes contains comments near the relevant section where the sanitarian had to determine whether each element was "approved." The form also indicates a ranking, either "in compliance," "low risk," "moderate risk," or "high risk." Significant deficiencies are always deemed "high risk" and noted in the cover letter sent with the sanitary survey to the system owner.

The CWS sanitary survey reports are very detailed and technical. The State uses a cover letter and summary sheet to convey highlights of the report to the PWS. As noted in Appendix 1-H, it may be helpful to MDEQ if common deficiencies are listed on the sanitary survey form, which would be checked if present.

The 2010 FR report had the following two recommendations, the current status of which is provided:

- *"MDEQ should continue to work to improve sanitary survey frequency."*

  Current status: Ground water and surface water Sanitary Surveys are discussed in Section 4.0 (Sanitary Surveys) of the FY 2017 ARDP. Progress in completing sanitary surveys is also noted under this section, and will be discussed in the FY 2015/FY 2016 End-of-Year Evaluation. Improvement has been noted over the past years.

- *"MDEQ should assign and report violations for failure to have a sanitary survey according to the federal schedule."*

  Current status: The current federal regulations for surface water sanitary surveys at 40 CFR § 142.16 and ground water sanitary surveys at 40 CFR § 141.401 make the state the responsible party for completing the sanitary surveys on time. Since it is currently not the PWS's responsibility to have a sanitary survey within the proper timeframe, there is no basis for MDEQ to issue a sanitary survey violation to the system. Current reporting requirements only require a sanitary survey violation to be reported if the system fails to cooperate with the sanitary survey process.

Discrepancies

- *None; MDEQ successfully completed all sanitary surveys on schedule.*

Recommendations

- *Two required sanitary survey elements, Monitoring/Reporting status and Management/Operation, cannot be reviewed for NCWSs solely through evaluation of information in the State database. No discrepancies were issued, because the State met the requirement. But, these topics also should be discussed during the sanitary survey site visit and documentation of the discussion should be included in the field notes and sanitary survey report. The EPA October of 2008 Sanitary Survey Guidance Manual for Ground Water Systems outlines the data and procedures that should be reviewed with the operator during the site visit.*[17]

- *A similar table as the one found in the front of the CWS sanitary survey report could be useful for the NCWS sanitary survey reports to make it easier to determine whether the eight elements were completed and any concerns identified.*

Consumer Confidence Reports

CCRs are tracked by the CWS program district offices, with dates entered into an Access database by district office staff. Hard copies are stored in the system files in the district offices. MDEQ follows the EPA protocol for electronic delivery of CCRs (EPA memo *CCR Delivery Options* 2013-01-03). MDEQ's website provides information and links to CCR delivery options, including electronic delivery (*see* "CCR Delivery Options Include e-Delivery" on MDEQ's Consumer Confidence Report Rule web page, http://www.michigan.gov/deq/0,4561,7-135-3313_3675_3691-9673--,00.html). Some PWSs in Michigan are utilizing the electronic delivery option allowed by EPA policy, and as specified in Appendix 1-H,

[17] EPA Sanitary Survey Guidance Manual for Ground Water Systems, October of 2008, pages 4-74.

Primacy Status and Rule Implementation, MDEQ checked links to web pages when electronic delivery was first permitted.

CCRs are not tracked in SDWIS/State, but in a separate MS Access database. The tracker notes date received, date certified, and degree of review (although the MDEQ noted that less content review has occurred as resources were diverted to other, higher priorities). The lead consumer notice language is confirmed to be present on the hard copies that are submitted.

Discrepancies

- *No discrepancies were assigned for CCRs. CCRs were sent and certified on time.*

Recommendations

- *None. MDEQ successfully implemented the CCR requirements at the PWSs reviewed. This strong result is the effect of MDEQ's commitment since 2012 to end its temporary disinvestment in issuing and reporting violations for failure to produce and distribute a CCR.*

Total Coliform Rule

The FR team reviewed TCR in WaterTrack for NCWSs and in the State's internal copy of Drinking Water Watch for CWSs. TCR sample results for CWSs are received electronically, sometimes in summary form, and individual results are only included in SDWIS/State if a positive sample occurs. As specified in Appendix 1-H, NCWS TCR samples are either reported from the State lab which flows into WaterTrack, or are hand entered by LHDs when private labs analyze the samples. MDEQ does not allow CWSs to monitor less frequently than monthly.

The 2010 FR report had the following four recommendations, the current status of which is provided:

- *"The LHDs should receive more training on determining compliance with TCR MCLs."*

  Current Status of Recommendation 1: MDEQ regularly hosts training for LHDs. The FR team found correct compliance determinations for MCL violations, but limitations of the data systems prevented staff from assigning and reporting monthly MCL violations if an acute MCL violation occurred in the same month. Only one violation may be issued each month in WaterTrack, and the system generates a violation for the most egregious violation.

- *"At least one round of repeat sampling should always be conducted following a total coliform positive sample, even if a monthly MCL violation has been assigned, so that compliance with the acute MCL can be determined."*

  Current Status of Recommendation 2: The FR team found repeat samples were collected in all instances of a positive routine sample.

- *"To maintain data quality and prevent errors and confusion, TCR samples should be retained as individual sample results and not as sample summaries."*

  Current Status of Recommendation 3: Currently, MDEQ enters sample summaries for the Revised Total Coliform Rule (RTCR) routine negative samples. MDEQ enters positive samples, repeat samples and triggered source samples as individual sample results.

- *"MDEQ should review site-sampling plans on a regular basis."*

Current Status of Recommendation 4: TCR/RTCR site sampling plans are reviewed during the sanitary survey conducted every three years for CWSs, and every five years for NCWSs.

During the 2016 FR, the front page of a PWS's MOR report included a summary of the number of routine samples collected. The figure incorrectly included both routine and repeat samples, which did not correspond to the number of routine samples listed on page 9 of the MOR report. The PWS properly calculated the percentage and properly characterized the samples on page 9 of the MOR. MDEQ staff properly tracked the results in SDWIS with the correct routine/repeat designation.

SDWIS/State contains sample summary results, with the number of samples with no detects. If a sample is positive, more information is entered in the TCR Coliform Sample Results screen. Note that WaterTrack cannot accommodate most tracking and reporting under the RTCR. MDEQ plans to use a second instance of SDWIS/State for MDEQ NCWS staff to use for as much federal reporting as possible, which will allow more violation types to be reported, and allow for an easier transition to SDWIS/Prime. No date was provided for setting up this second instance of SDWIS/State. EPA Region 5 will require a schedule for completion as part of the annual grant work plan.

Miscoding of NCWS TCR samples as "routine" or "repeat" accounted for some confusion. Variation among the laboratory reporting forms may have accounted for the errors, as numerous samples were incorrectly characterized by either the sample collector or the laboratory, usually due to confusion over whether the sample was for routine or repeat monitoring. One TNCWS mislabeled samples in numerous months, so the results were miscoded in WaterTrack. The system was using an alternate source and was only sampling for precautionary measures, but the samples were labeled "repeat."

Consecutive systems are able to enter into consecutive system monitoring agreement(s) with their sellers that establishes a combined monitoring schedule for the seller and all purchasers as a "system-wide" schedule for the TCR, LCR, and Stage 1 and 2 DBPRs. The reduced monitoring approach is permitted under Mich Admin Code, R 325.10733 and 40 CFR § 141.29, and specifically allowed for DBPR under the federal Stage 2 DBPR Special Primacy Requirement at 40 CFR § 142.16(m). These State and federal regulations allow the State to consider interconnected systems as one system for monitoring purposes. After each census, the State re-evaluates the population served by each PWS included in the agreement to determine whether the agreement requires the appropriate number of samples. For example, after the recent census, the population of some systems in the file review sample dropped, decreasing the number of samples that were required.

EPA Region 5 approved MDEQ's schedules for reduced monitoring in the Detroit consecutive system for the LCR in 1992 and the TCR in 2004. MDEQ also has a reduced monitoring schedule under the DBPR, which did not require EPA Region 5 approval.

In addition to the regular consecutive system approach discussed above, MDEQ also utilizes a sampling protocol, which it calls a MCS approach, that allows each individual PWS in the consecutive system to collect fewer samples than would be required under a regular monitoring schedule for the system, but requires each PWS to take more samples than would be required if the entire consecutive system was treated as a single system for monitoring purposes. Compliance under the MCS approach is determined on an individual system basis, rather than as a single system. A more detailed discussion of the Detroit MCS approach for LCR is located in Appendix 2-B at the end of Chapter 2.

The requirement to collect five routine samples in the month after a positive TCR result was properly waived in a few instances, because the State conducted a site visit and determined the cause of the problem.

One TNCWS that accounted for discrepancies described below deserves more description. The PWS had TCR acute MCL violations in June and July. The PWS was closely overseen and carefully monitored by the LHD and MDEQ for follow-up sampling, although the system didn't collect enough samples in all rounds. Teleconferences and several site visits were conducted. Frequent consultation occurred between the LHD, MDEQ, and the well driller hired to assist the PWS with assessment and correction of the problem. After a determination that the problem was not temporary, the LHD pursued emergency actions. MDEQ and LHD staff met with the PWS repeatedly, visited the site regularly to confirm PN (because the PWS removed PN before the problem was resolved – see the PN section), pursued public complaints and reported the health issues to an E-Health data system, took enforcement actions, forced the PWS to abandon the problematic well, and oversaw permitting and drilling of a new well by October.

- Four TCR acute MCL violations were issued and reported to EPA correctly (two for a CWS and two for a TNCWS). The State correctly issued two M/R violations to TNCWSs and reported them to SDWIS/Fed. The FR team questioned the consistency in the sites being used for compliance sampling and the documentation in the sample siting plan. One CWS was inconsistently rotating between two or three sites, and the sampling plan had two sites. If the water system collects more than the required number of samples, the State does not object. No discrepancies were issued for this issue.

Discrepancies

- *Two monthly MCL violations for the same TNCWS were not reported to EPA, due to WaterTrack database limitations so the State reports the most serious TCR violation for a given monitoring period.*
- *One TNCWS failed to collect five routine samples in the month after a positive result. The new schedule was not updated in WaterTrack after the field visit, so it was missed.*
- *Five PWSs were not assigned M/R violations for failure to complete routine sampling (one CWS and four TNCWSs). One of the TNCWSs was placed on quarterly sampling after an internal routine program review of the LHD. The letter was sent to the PWS, but WaterTrack was not updated, and the system did not receive quarterly monitoring reminders or violations. A violation was generated when it was detected and submitted to SDWIS/Fed after the data pull for this audit.*
- *Fourteen samples were sent after the reporting deadline for four CWSs; enforcement of late reporting is an acknowledged disinvestment by MDEQ.*
- *The FR team questioned how invalidated samples are tracked by the State in one situation. A CWS was required to collect one TCR sample, but typically collects two. Both June of 2015 samples were correctly invalidated and the water system was required to take a replacement sample. However, due to the timing at the end of the month, the CWS was notified of the invalidation on July 7, after the end of the compliance period. MDEQ agreed to count one of the two routine samples collected for July compliance as the re-sample for June and the other routine sample as the July compliance sample, which is allowed. (Alternatively, MDEQ could have allowed the CWS to collect replacement samples within 20 days of the invalidation.) The results were not coded properly in the State's data system; both samples were recorded as July routine samples, no sample was recorded for June, and no M/R was issued for June.*

- *Coding of TCR sample type (e.g., "routine" or "repeat") was not listed properly by either the sample collector, the lab, or data entry into the NCWS's State data system in some cases. The correct response from the State occurred regardless, despite the data management issue, but some NCWSs' records are not accurate in WaterTrack. For instance, during a period when a daycare was not serving water to the public but sampling for precautionary reasons, WaterTrack coded the precautionary samples as "repeat." A TNCWS conducted special sampling of its well during construction and repair, while an alternate source was used, and the samples also were coded "repeat" in WaterTrack.*

Recommendations

- *All violations of MCLs should be assigned and reported to EPA.*
- *PWSs should be tracked to ensure that all required increased routine samples are collected after a positive sample result, and an M/R violation should be assigned and reported for failure to meet these requirements.*
- *MDEQ proposed that a better word might be "compliance" samples on the front of the MOR report rather than "number of routine samples collected," since both routine and repeat samples are used in calculating the 5% to determine whether an MCL violation occurred. The front page of the MOR report includes a summary of the number of routine samples collected. The FR team was confused in one case where the sum included both routine and repeat samples, but this did not correspond to the number of routine samples listed on page 9 of the MOR report. The system properly calculated the percentage and properly characterized the samples on page 9 of the MOR. MDEQ staff properly tracked the results in SDWIS with the correct routine/repeat designation. The FR team agrees the proposed wording change would be clearer. Failure to monitor and late reporting violations must be reported to EPA.*
- *The State should confirm that PWSs consistently follow their TCR monitoring schedule and, if the schedule is adjusted (i.e., from seasonal to year-round monitoring), appropriate staff should be notified to ensure the different monitoring regimen is followed.*
- *QA measures should be followed to ensure correct coding of samples in data systems. Use of a standardized form, training every laboratory and sample collector to complete it, and refining form instructions to ensure understanding may make the coding more efficient and improve accuracy.*
- *Mich Admin Code, R 325.10704c(3)(b)(ii)(9) provides that invalidated samples must be replaced within 24 hours of invalidation. (See 40 CFR § 141.21(c) for TCR, and 40 CFR § 141.853(c)(1) for RTCR.) The samples also should be properly entered and validated in the State's data system so MDEQ will count them for compliance. Failure to meet these requirements should lead to an M/R violation.*
- *MDEQ should work with EPA Region 5 to establish another instance of SDWIS/State to ensure reporting in FY 2017 includes all required reporting elements.*

Ground Water Rule

No PWSs in the selected sample of PWSs for this FR were required to conduct routine compliance monitoring for the GWR. Therefore, the FR team reviewed all sample results and corrective actions required when a PWS must conduct triggered source water monitoring after a positive TCR result. Information is tracked electronically, and correspondence files contained information about corrective actions. Note that WaterTrack only partially supports tracking and reporting with this rule. For NCWSs, LHD staff are generally notified directly by the State lab or private labs of an *E. coli* positive result.

Under the TCR, the State permits, as allowed by federal regulation, a ground water system serving 1,000 or fewer people to use a repeat sample collected from a ground water source to meet both the requirements for repeat TCR and triggered source water monitoring if the State approves the use of *E. coli* as a source water monitoring fecal indicator. Note that under the new RTCR, the use of dual purpose RTCR-GWR sampling continues to be allowed under certain conditions in the federal rule, and with State approval. Specifically, the State may allow dual purpose (RTCR and GWR) sampling for PWSs with only one well, and that serve 1,000 or fewer people, as described at 40 CFR § 141.853(a)(5)(ii). However, MDEQ did not adopt the equivalent provision in the State RTCR rules, stating that the federal rule infers that a system with more than one well cannot use a triggered source sample as the upstream repeat location. The State therefore does not allow PWSs to use dual purpose samples.

Discrepancies

- *No discrepancies were detected. (The Enforcement Verification (EV), which reviewed a timeframe prior to that reviewed during the FR, does note for three PWSs that samples were not collected within 24 hours of notification, as required.)*

Recommendations

- *None. MDEQ successfully implemented the GWR requirements at the PWSs reviewed. Please refer to the EV report in Chapter 3 for additional recommendations.*

Phase II/V Rule

The Phase II/V Rule includes monitoring for Inorganics, Volatile Organics, and Synthetic Organics. MDEQ offers many of the standard monitoring reductions and waivers allowed by regulation, and the program remains unchanged from that described in the 2010 report. From the 2010 FR report: "*MDEQ has maintained a waiver program developed in 1993. EPA Region 5 approved this policy and provided written approval. Michigan does not use variances or exemptions, but does have Statewide waivers for asbestos, dioxin, benzo(a)pyrene, di(2-ethylhexyl) adipate and di(2-ethylhexyl) phthalate. In addition, MDEQ has partial SOC waivers, primarily based on system vulnerability, for dalapon, diquat, endothall, glyphosate, ethylene dibromide (EDB) and 1,2 dibromo-3-chloropropane (DBCP).*"

For CWSs, MDEQ reduces VOC monitoring from quarterly to annual for surface water systems and triennial for ground water systems, if there are no detections. NTNCWSs may apply for a waiver of up to six years, if there are no detects. *See* Mich Admin Code, R 325.101716(9); 40 CFR § 141.24(f)(7). IOCs can be reduced to once every nine years. SOC waivers are granted if appropriate to systems that are not vulnerable to these contaminants, which is in line with MDEQ's philosophy of offering as many monitoring waivers as necessary to reduce monitoring costs to systems, because monitoring for these contaminants would not serve a public health benefit in these circumstances. *See* Mich Admin Code, R 325.101717(8); 40 CFR § 141.24(h)(5). A PWS must reapply for a waiver every three years. The FR team noted that the contaminants waived, both Statewide and through the partial waiver program based on vulnerability, are commonly waived in states across the country.

In response to the 2010 report, MDEQ and EPA Region 5 discussed various components of the waiver program over the past five to six years, and MDEQ revised the waiver program, as needed. For example, in a memo from the Region to MDEQ dated July 30, 2013, the Region rescinded the State's ability to issue waivers for cyanide, based on the PWS's ability to maintain a detectable chlorine residual within the distribution system. This item continues to be listed as a recommendation in the FY 2017 ARDP to

encourage the State to continue to make revisions to its waiver program as needed. *See* Section 12.0 of the FY 2017 ARDP.

MDEQ conducted monitoring of SOC waived contaminants in 2005 and confirmed that the waiver program was still valid. However, the FR team did not find many examples that MDEQ staff reviewed whether waivers should be renewed. Usually, the monitoring schedule was used to deduce that the waiver was still valid.

Copies of the entry point monitoring schedules and the cyanide waiver rescission letter are included in Appendix 1-G.

Inorganic Contaminants

Most PWSs monitored for nitrite on an annual schedule when they sampled for nitrate, although the Michigan regulation only requires triennial monitoring for nitrite. As is true in nearly all states, most systems are issued IOC waivers, as allowed under the State's EPA-approved waiver program.

One MCL violation for nitrate for a NTNCWS and two M/R violations for nitrate for a TNCWS were correctly reported to SDWIS/Fed.

Discrepancies

- *A NTNCWS failed to complete quarterly monitoring after a nitrate result greater than the MCL resulted in a violation, and no M/R violations were assigned.*
- *No M/R violation was assigned after a TNCWS failed to sample for nitrate.*
- *The EV report also includes discrepancies for failure to conduct quarterly Arsenic monitoring after an MCL violation, for a system that was providing bottled water.*

Recommendations

- *PWSs should be tracked after routine samples trigger quarterly increased sampling. An M/R violation should be assigned and reported for failure to meet this requirement.*
- *Failure to monitor must be reported to EPA.*

Volatile Organic Contaminants

Many systems were granted reduced frequency of monitoring for VOCs, as allowed under the State's EPA-approved State waiver program.

Discrepancies

- *No discrepancies for VOCs were identified.*

Recommendations

- *None. MDEQ successfully implemented the VOC requirements at the PWSs reviewed.*

Synthetic Organic Contaminants

All PWSs using ground water, and all (except for a small group of PWSs using surface water, that are vulnerable to SOCs) have been granted partial waivers (described above under Phase II/V Rule section).

Discrepancies

- *A NTNCWS failed to resample during the compliance period after a routine sample was invalidated, and no M/R violation was assigned.*

Recommendations

- *PWSs should replace invalidated samples within the same compliance period. An M/R violation should be assigned and reported for failure to meet this requirement.*
- ***EPA additional recommendation:** MDEQ must consistently consider vulnerability, which includes changes such as development that may introduce potential contamination, when evaluating whether to renew an SOC vulnerability waiver every three years. See Mich Admin Code, R 325.10717(9) for complete requirements.*

Revised Radionuclides Rule

All sources at CWSs were required to be monitored for radionuclides.

The following was a finding of the 2010 FR report:

- *"MDEQ should ensure that PWSs monitor for all sources under the Revised Radionuclides Rule."*

  Current status: This recommendation was included in the FY 2012 ARDP. MDEQ committed to ensure that PWSs monitor for all sources under the Revised Radionuclides Rule.

Discrepancies

- *No discrepancies for the Revised Radionuclides rule were identified.*

Recommendations

- *None. MDEQ successfully implemented the Revised Radionuclides rule requirements at the PWSs reviewed.*

Surface Water Treatment Rules

Four systems in the FR sample must comply with the requirements at 40 CFR Part 141, Subpart H (*Filtration and Disinfection*), including two systems with surface water sources and two systems that purchase raw surface water and treat it. (Note that one of the systems, City of Flint, began using surface water as a source in April of 2014, but then inactivated its surface water source and purchases surface water as of October of 2015.)

The LT2ESWTR at 40 CFR Part 141, subpart W (*Enhanced Treatment for Cryptosporidium*) provides that Subpart H systems that are PWSs supplied by surface water sources or groundwater sources under the direct influence of surface water must monitor, determine and implement treatment for *Cryptosporidium*.

Discrepancies

- *One CWS, the Flint PWS, was not monitoring the combined filter effluent (CFE) consistent with State and federal regulations. The plant has two separate filter treatment trains or banks of filters consisting of individual filters, on opposite sides of the plant, and an individual filter effluent (IFE) sample is collected for each filter. A sample is collected at each of two different points that the operator/MDEQ considers CFEs; one sample at the end of each bank of filters. While this is a good diagnostic practice, it does not meet CFE compliance requirements. Therefore, the system was out of compliance with the CFE monitoring requirement. To meet the CFE requirements, turbidity samples*

representative of the system's filtered water prior to disinfection must be taken. While there are options for how the CFE can be determined, in all cases either ONE value must be calculated, or ONE sampling location used. In addition, the IFE turbidity monitoring requirements of the IESWTR and LT1ESWTR require all Subpart H systems to continuously monitor (i.e., every 15 minutes) at each filter. The only time a system is allowed to substitute continuous CFE monitoring for the required IFE monitoring is when the system has two or fewer total filters. Each filter has to have a turbidimeter that monitors continuously and each filter has to meet the IFE performance requirements.

- *One CWS in the FR sample, the Flint PWS, did not conduct source water monitoring for a new source as required under the LT2ESWTR. 40 CFR § 141.710(f) requires a Subpart H PWS serving 10,000 or more people that begins using a new source of surface water to monitor for Cryptosporidium and subsequently meet the "bin classification" and applicable treatment requirements. 40 CFR § 141.702 requires the system to create a sampling plan that is approved by the state before the sampling begins, and then monitor monthly for two years before making a bin classification and treatment implementation, pursuant to applicable provisions of the LT2ESWTR. The Flint PWS should have initiated first round monitoring when it opened the surface water treatment plant in April of 2014 and began using the new source. (A letter in the MDEQ file incorrectly noted that the Flint PWS must complete a second round of source water monitoring under the LT2ESWTR. Under the LT2ESWTR, the second round of sampling is conducted six years after the first round of sampling, to confirm the proper bin classification. EPA Region 5 had responsibility for overseeing the first round of source water monitoring under the LT2ESWTR when the Flint PWS was part of the Detroit consecutive system. LT2ESWTR implementation was transitioned to the State in 2010 and primacy was awarded in 2013. Regardless, the Flint PWS was responsible for first round LT2ESWTR monitoring when it switched to a new source in April of 2014.) The Flint PWS should have been issued a monitoring and reporting (M/R) violation for failing to submit a sampling plan, as required by 40 CFR §§ 141.701(f) and 702. Under 40 CFR § 141.702(a)(5), sampling and monitoring by the PWS is required even if the state is silent regarding approval of the schedule. The PWS should have been issued additional M/R violations for failing to conduct required monthly sampling, per 40 CFR § 141.701(g).*

Recommendations

- *Systems with a bank of filters must monitor for turbidity to meet the CFE turbidity requirements. To meet the CFE requirements, turbidity samples representative of the system's filtered water must be taken at one point prior to disinfection or calculated as one value. EPA Region 5 would be glad to discuss system-specific options for calculating CFEs which meet the regulations.*
- *Any large system that has not completed its first round of LT2ESWTR monitoring should be issued M/R violations for failing to monitor for E. coli and Cryptosporidium.*
- *An M/R violation should be assigned to any system that fails to submit its MOR on time.*

Disinfectants and Disinfection Byproducts Rule

The FR team reviewed compliance with requirements of the Stage 1 and Stage 2 DPBRs. The FR team reviewed all systems providing disinfection for compliance with standards for total trihalomethanes (TTHM) and haloacetic acids (HAA5), chlorine residual in the distribution system, and bromate (where relevant). The monthly and quarterly results were reviewed, and quarterly and running annual averages (RAAs) or locational RAAs (LRAAs) were confirmed where required.

The final 2010 FR report includes the following recommendation:

- *"MDEQ should prioritize determining how to improve chlorine residual compliance. Chlorine residual results for compliance with Stage 1 DBPR should be kept separate from other chlorine samples, RAAs should be calculated and compliance determined according to the federal rule."*

  Current status: This recommendation was included in ARDPs subsequent to the 2010 FR report. MDEQ committed to work to improve compliance with chlorine residual monitoring requirements through staff training and more rigorous data tracking. The State does not issue M/R violations when a system does not have an RAA/LRAA calculated. The CWS and NCWS programs have committed to calculating the RAA/LRAAs for TTHMs, HAA5s, and TOC removal ratios during FY 2017, in the FY 2017 PWSS grant workplan. Most districts started tracking MRDLs for NCWSs in the past several years and all districts were doing so beginning in FY 2016. In addition, now RAAs can be calculated in SDWIS/State for CWSs. Beginning in FY 2017, MDEQ's grant work plan includes the following: "*The State has primacy for implementing the National Primary Drinking Water Regulations, and is expected to fully implement all aspects of its safe drinking water statutes and rules on which primacy is based. If the State is unable to implement any portion of such a statute or rule, or otherwise comply with the federal implementation regulations, the State must submit a plan describing the steps the State will take to achieve full implementation and a schedule for doing so. This plan and schedule must be submitted within 90 days of the award of this grant.* (In FY 2018, EPA will investigate adding specific grant conditions related to full implementation.)

All aspects of the DBPR can be managed in SDWIS/State for CWSs. Since the last review in 2009, the State has added tracking of RAAs and LRAAs in SDWIS/State, which began with implementation of the Stage 2 DBPR for CWSs.

For NCWSs, WaterTrack only partially supports tracking and reporting with this rule. MCL violations for bromate, TTHM, and HAA5 can be tracked, and violations for these contaminants can be generated and reported from the database. MRDL violations cannot be tracked in the database, and manual compliance determination and reporting for this requirement is not being considered at this point.

During the FR review period, the State disinvested from manually calculating RAAs/LRAAs. The CWS program was transitioning to using the calculation function in SDWIS/State. As of FY 2017, the calculation function is now being utilized for all applicable CWSs.

The State correctly assigned and reported to EPA four TTHM MCL violations for a CWS and one M/R violation for a NTNCWS.

Discrepancies

- *One CWS failed to submit source water alkalinity values for the entire period of review. No M/R violations were assigned for this issue.*
- *Two CWSs did not have a RAA in SDWIS/State, and no M/R violations were assigned.*
- *In addition, according to the EV, one CWS did not have TTHM MCL violations reported to EPA on time for a time period outside of the FR period.*

Recommendations

- *M/R and MCL violations must be reported to EPA.*

Lead and Copper Rule

The FR team reviewed the two most recent rounds of sampling conducted for compliance with the LCR. Where an Action Level Exceedance (ALE) had occurred before the period of review, and requirements associated with that ALE affected the requirements for the system, the FR team took the earlier exceedance into consideration. For example, PE requirements vary if a system has not optimized corrosion control from an earlier ALE.

The 2010 FR report included the following recommendations:

- *"All 90th percentiles must be calculated according to federal regulations."*

  Current status: This primacy activity has been included in all ARDPs following the 2010 FR, including the FY 2016 ARDP. MDEQ has committed to ensuring all 90th percentiles are entered into SDWIS as required, although resources and data management limitations have challenged the NCWS program in accomplishing this task.

- *"Milestones should be reported to SDWIS/Fed, according to federal regulations."*

  Current status: This primacy activity has been included in all ARDPs following the 2010 FR, including the FY 2016 ARDP. Although a majority of required milestone data are in SDWIS, some data gaps remain. MDEQ did not commit to 100% reporting due to resource constraints, beginning in the FY 2011 PWSS grant. MDEQ has improved LCR milestone data reporting each year since the 2010 FR was conducted.

  "All systems on annual or triennial monitoring should sample in the summer months of June through September, or an alternate designated four-month timeframe."

  Current status: MDEQ has always required that lead sampling at CWSs on reduced monitoring be conducted within the June through September timeframe, and it has enforced this requirement. However, EPA Region 5 acknowledged that NTNCWSs on reduced monitoring were allowed to sample outside of this timeframe because, at the time, EPA Region 5 did not consider this to be a public health risk. In FY 2014, the Region began pushing the State to require NTNCWSs to sample within the summer months. In order to ease transition to this requirement, EPA Region 5 acknowledged that the LHDs could collect samples in an additional month, in October, in 2014 and 2015, if samples had not already been taken during the June through September timeframe. In FY 2016, MDEQ fully implemented this requirement at all NTNCWSs, where all NTNCWSs were required to sample between June - September. EPA Region 5 is currently working with MDEQ to follow-up on FY 2015 violators, and will work with MDEQ in 2017 to follow-up with FY 2016 violators.

The following LCR activities were not included in the 2010 File Review Report, but were items that EPA Region 5 had historically acknowledged could not be fully implemented by the State. Current Status is provided.

- LCR reporting form: MDEQ committed to issuing violations for failure to conduct the required lead and copper monitoring beginning in the FY 2011 PWSS grant, and it required CWSs to submit the LCR reporting form to the State; however, MDEQ temporarily disinvested in tracking the receipt of the LCR reporting form, and temporarily disinvested in issuing violations for failure to submit the LCR reporting form.

Current status: During discussions in spring 2015, MDEQ stated that almost all CWSs have been submitting the LCR reporting form as required by the State. This is evidenced by the Flint PWS's submission of the LCR reporting form during the second six-month sampling period, January through June of 2015 (EPA Region 5 received a copy of the LCR reporting form and the lab results from the State upon request in August of 2015.) MDEQ fully implemented this provision at CWSs in FY 2016, and is fully implementing the provision for NTNCWSs in FY 2017.

- Lead Consumer Notification of lead results: This was not included in the 2010 FR report because implementation of this requirement was not applicable during the review period. However, it has been a focus of EPA Region 5's Ground Water and Drinking Water Branch since 2012 to ensure the State (and all EPA Region 5 states) implement this requirement. EPA Region 5 has been work-sharing with MDEQ by sending mass mailings to NTNCWSs to notify NTNCWSs of this requirement.

  Current status: Since the Lead and Copper Rule Short-Term Revisions were promulgated by the State in 2009, MDEQ initially had not been able to fully implement the requirement to conduct lead consumer notification of tap results. Beginning in 2010, the State agreed to enforce lead consumer notification requirements for CWSs where one or more individual lead and/or copper sample result was above the lead action level. The State began full implementation of this requirement, including enforcement for CWSs that did not comply, in October of 2012. Since 2012, MDEQ has an overnight process that automatically triggers an auto-notice once LCR sample results are entered. The reminder notifies State staff that the notice is due in 90 days. In FY 2016, the MDEQ committed to full implementation of the lead consumer notification of tap results requirement for NTNCWSs.

- Minimum number of LCR samples: A specific recommendation was not included in the 2010 FR report regarding the minimum number of LCR samples. The original LCR required NTNCWSs to take a minimum of five lead and copper samples. However, MDEQ interpreted the rule differently, which was verified by the Michigan Attorney General. EPA eventually changed the minimum sample requirement in its 2007 Lead and Copper Rule Short-Term Revisions to allow NTNCWSs to collect fewer than five samples when there are fewer than five interior cold-water taps typically used for human consumption available. The discrepancies identified in the 2010 report were for sampling conducted prior to 2007.

  Current status: As permitted by rule, a NTNCWS is allowed to take fewer than five samples when there are fewer than five interior cold-water taps typically used for human consumption available, and the State must document in the file how the NTNCWS has met the criteria to sample fewer than five taps for lead. Otherwise, the NTNCWS must take the number of lead samples as required in the LCR, which is a minimum of five samples.

SDWIS/State contains sample summaries for the past two rounds for CWSs as well as all lead and copper action level exceedances since the rule became effective. All historical sample results can be reviewed in WaterTrack. The State uses interpolation to calculate 90th percentile values.

The State implemented processes to track lead consumer notice for CWSs in 2013; and for addressing the same tracking for NTNCWS schools and daycares in FY 2013 and all remaining in FY 2016.

The FR team determined that one elementary school had a round with one sample above the action level in 2010. The State requested additional testing in 2011 to confirm the problem and determine whether a fixture should be removed. The testing did not occur and that was not discovered until the 2015 sanitary survey. The LHD had frequent follow-up meetings and discussions to identify next steps; the PWS tried removing

some fixtures, but subsequent sampling remained above the action level at that one site (the system did not have an ALE). The system planned to renovate and remove all older plumbing in July of 2016 to address the problem.

As noted in Chapter 2, *Review of Michigan's Lead and Copper Rule*, the FR team determined that the 90th percentile was not calculated correctly for a CWS, and reviewed the State's decision to remove two samples from the sampling round. *See* Chapter 2, "4. *Invalidated samples January – June 2015"* for additional details related to the 90th percentile calculation.

The NCWS database, WaterTrack, does not support all recent requirements of the revised rule. For example, the 90th percentile value for NTNCWSs can only be calculated when at least one sample result from a group of samples collected for the water system exceeds the action level. Otherwise, the data system cannot calculate or store the record in preparation for federal reporting. In addition, tracking and reporting for lead consumer notice is not possible. MDEQ committed to fully tracking the lead consumer notice requirement for all NTNCWSs manually in FY 2016.

The State reported a lead ALE for a CWS and all lead 90th percentile values (12 instances) to EPA for CWSs and NTNCWSs with greater than 3,300 population served. The State also correctly reported to EPA an M/R violation for lead and copper tap sampling for a NTNCWS and an M/R violation for source water monitoring for a CWS.

Discrepancies

- *LCR samples were collected outside of the summer months of June through September for two NTNCWSs. All systems in the FR sample were marked as open year-round, although one is a school. Files documented that the LHDs discussed with the water systems the need to sample in the June through September or other State-designated timeframe.*
- *A CWS did not provide lead consumer notice and no M/R violation was assigned.*
- *Calculations of the 90th percentile value were incorrect for two CWSs. For one system, the problem had occurred in a previous round that was outside the period of review. MDEQ should ensure that processes are in place to avoid typographical or calculation errors.*

Recommendations

- *All M/R violations should be assigned and reported for failure to provide lead consumer notice.*
- *The State should ensure annual and triennial sampling occurs between June and September, designate an alternate monitoring period that is appropriate for that system, or assign an M/R violation.*
- *The State should institute QA to ensure correct calculation of 90th percentile values.*

Public Notification Rule

MDEQ has an external query that checks when PN is needed and confirms whether it has been entered as received by SDWIS/State. If the record that PN has been received is not found, then staff must manually enter a violation.

The LHD issues a letter telling the water system to issue the required PN. The NCWS program requires PN for all tiers of violations, and provides templates for PN. As indicated in Appendix 1-H, under the heading *"Primacy and Rule Implementation,"* the NCWS Program tracks whether Tier 1 and 2 PN is completed, but

does not track compliance with Tier 3 PN. The LHDs often will conduct PN for the system if the system fails to complete Tier 1 or Tier 2 PN.

Neither the MDEQ nor LHDs routinely assign M/R violations for NCWSs for PN for Tier 1, 2, or 3 violations because PN violations for NCWS cannot be reported by WaterTrack to SDWIS/Fed. The State supports a technical assistance approach, and in most of the cases reviewed, the FR team confirmed that the LHDs did ensure proper PN was eventually completed. PN violations would be enforced only if there was escalated enforcement conducted by the State (not LHD) against a NCWS for contaminant violations (such as MCL and TT violations). PN violations cannot be reported to SDWIS/Fed by WaterTrack.

Discrepancies

- *A TNCWS returned proof of PN to the State, but public complaints of illness led to a site visit. Public notification was removed by the PWS after posting by the LHD during that site visit. A second complaint was filed, and a second site inspection confirmed PN was removed before the microbiological contamination problem was resolved. Subsequently, the county closely monitored the situation, and the issue was addressed in a Bilateral Compliance Agreement. No PN M/R violation was reported to EPA.*

Recommendations

- *All M/R violations for failure to perform PN must be reported to EPA. Failure to properly notify the public could lead to public health consequences, such as increased or extended exposures to contaminant(s).*

Appendix 1-B: List of Systems Selected for Review

PWSID	PWS Name	County Served	CWS District Number	CWS District Office	NCWS Office	Population Served	Population Served Category	PWS Type	Primary Source	School/ Daycare
MI0000470	BAY CITY, CITY OF	Bay	21	Saginaw Bay (Bay City)	Lansing	34,932	10,001-100,000	CWS	SWP	N
MI0000510	BEAR LAKE, VILLAGE OF	Manistee	71	Cadillac	Lansing	318	<=500	CWS	GW	N
MI0000518	BEAVER TOWNSHIP	Bay	21	Saginaw Bay (Bay City)	Lansing	1,109	501-3,300	CWS	SWP	N
MI0000710	BIG RAPIDS	Mecosta	61	Grand Rapids	Lansing	10,894	10,001-100,000	CWS	GW	N
MI0001018	BUTTERFIELD WOODS SUBDIVISION	Muskegon	61	Grand Rapids	Grand Rapids	65	<=500	CWS	GW	N
MI0002310	FLINT, CITY OF	Genesee	11	Lansing	Lansing	99,763	10,001-100,000	CWS	SW	N
MI0003420	IRONWOOD	Gogebic	81	Upper Peninsula (Marquette)	Upper Peninsula	6,525	3,301-10,000	CWS	GW	N
MI0005290	PETERSBURG	Monroe	31	Jackson	Jackson	1,278	501-3,300	CWS	SWP	N
MI0005400	PLYMOUTH	Wayne	41	Southeast Michigan (Warren)	Lansing	9,132	3,301-10,000	CWS	SWP	N
MI0005850	SAGINAW, CITY OF	Saginaw	21	Saginaw Bay (Bay City)	Lansing	51,508	10,001-100,000	CWS	SWP	N
MI0006232	SPRING LAKE CLUB CONDOMINIUMS	Emmet	72	Cadillac	Gaylord	87	<=500	CWS	GW	N
MI0006640	TRAVERSE CITY, CITY OF	Grand Traverse	72/73	Cadillac	Gaylord	14,674	10,001-100,000	CWS	SW	N
MI0040477	WASHBURN LAKE VILLAGE MHP	St. Joseph	54	Kalamazoo	Kalamazoo	108	<=500	CWS	GW	N
MI2820036	FIFE LAKE ELEMENTARY SCHOOL	Grand Traverse	72/73	Cadillac	Gaylord	166	<=500	NTNCWS	GW	Y
MI6321444	HOUR KIDZ	Oakland	43 East /44 West	Southeast Michigan (Warren)	Jackson	100	<=500	NTNCWS	GW	Y
MI2120212	Hyde Properties	Delta	83	Upper Peninsula (Marquette)	Upper Peninsula	100	<=500	NTNCWS	GW	Y
MI2520415	MICHIGAN COMMUNITY SVCS. INC.	Genesee	11	Lansing	Lansing	70	<=500	NTNCWS	GW	Y
MI6120441	The Hop Childcare Center	Muskegon	61	Grand Rapids	Grand Rapids	60	<=500	NTNCWS	GW	Y
MI3320169	Vlahakis Management Company	Ingham	12	Lansing	Lansing	100	<=500	NTNCWS	GW	Y
MI1320157	Battle Creek Baptist Temple	Calhoun	51	Kalamazoo	Kalamazoo	100	<=500	TNCWS	GW	N
MI0620435	Knollview Golf	Arenac	21	Saginaw Bay (Bay City)	Lansing	25	<=500	TNCWS	GW	N
MI6322569	KOA BATHHOUSE	Oakland	43 East /44 West	Southeast Michigan (Warren)	Jackson	100	<=500	TNCWS	GW	N
MI7720376	MANISTIQUE ICE	Schoolcraft	83	Upper Peninsula (Marquette)	Upper Peninsula	25	<=500	TNCWS	GW	N
MI7020186	SANDY POINT BEACH HOUSE	Ottawa	63	Grand Rapids	Grand Rapids	200	<=500	TNCWS	GW	N
MI3520208	TAWAS HEADSTART	Iosco	21	Saginaw Bay (Bay City)	Gaylord	40	<=500	TNCWS	GW	Y

Appendix 1-C: Summary of File Review Discrepancies by Rule

FR Discrepancy Counts by Rule						
Rule	System Type	CD			DF	
		M/R	MCL	TT	M/R	MCL
INV	CWS	1			1	
	NTNCWS				1	
	TNCWS				1	
DBP1	CWS	3				
TCR	CWS	15				
	TNCWS	6			2	2
LT2R	CWS	25				
SWTR	CWS	24				
PBCU	CWS	3			1	
	NTNCWS	4				
SOC	NTNCWS	1				
NIT	TNCWS	1				
	NTNCWS	2				
PNR	TNCWS	1				

Appendix 1-D: Exhibits – Detailed Discrepancies by Rule and System

PWSID	System Name	System Type	Rule	Date	FR Question	Supporting Details	MI Response	FR Resolution
MI0000470	Bay City, City Of	CWS	DBP1	7/1/2015	System failed to sample for source and finished water TOC during compliance period. State couldn't calculate TOC removal ratios or RAA. Why wasn't a violation assigned?	For September of 2015.	Calculation of RAA is a temporary disinvestment and District confirmed results were not submitted.	**Not a Discrepancy.** The Bay City Treatment plant was decommissioned and a new regional Bay Area Water System was active as of August 31, 2015. Therefore, an MOR from September of 2015 was not required from the Bay City plant since it was decommissioned.
MI0000470	Bay City, City Of	CWS	DBP1	10/1/2014, 1/1/2015, 4/1/2015	System failed to submit source water alkalinity results, so State could not calculate quarterly TOC removal ratio or RAA for each quarterly compliance period. Why wasn't a violation assigned?	For 3 quarters from 10/1/14 - 6/30/15.	Due to resource limitations, MDEQ must prioritize activities. During the period reviewed, MDEQ temporarily disinvested in tracking MRDL RAAs if all results were below the standard. Tracking in SDWIS was phased-in over time, so many of the districts were tracking in SDWIS for the period reviewed. Beginning Oct 2015, all CWS districts are tracking MRDLs & their RAAs in SDWIS. District confirmed source water alkalinity was not submitted.	Discrepancy stands.

PWSID	System Name	System Type	Rule	Date	FR Question	Supporting Details	MI Response	FR Resolution
MI0000470	Bay City, City Of	CWS	DBP1	7/1/2015	System failed to sample for bromate during quarterly compliance period. Why wasn't a violation assigned?	System did not submit sample results or calculate the RAA.	District confirmed results were not submitted.	**Not a Discrepancy.** The Bay City Treatment plant was decommissioned and a new regional Bay Area Water System was active as of August 31, 2. Therefore, sampling and calculation of an RAA for the period of Oct 1, 2014-Sept 30, 2015 was not required from the Bay City plant since it was decommissioned.
MI0000470	Bay City, City Of	CWS	DBP1	9/1/2015	System failed to sample for chlorine residual at same time as TCR during compliance period. Why wasn't a violation assigned?		District staff confirmed that September of 2015 MOR was not in files and no violation was assigned for missing samples. Same number of chlorine residual samples and TCR samples are listed in Water Track.	**Not a Discrepancy**. The Bay City Treatment plant was decommissioned and a new regional Bay Area Water System was active as of August 31, 2015. Therefore, an MOR from September of 2015 was not required from the Bay City plant since it was decommissioned.
MI0000470	Bay City, City Of	CWS	DBP1	10/1/2014 - 9/30/2015	System failed to submit RAA for MRDL and State didn't calculate it during compliance period. Why wasn't a violation assigned?		District staff confirmed that needed RAAs for 4 quarters from 10/1/14 - 9/30/15, but September of 2015 MOR was not in files. No violation was assigned.	**Not a Discrepancy.** The Bay City Treatment plant was decommissioned and a new regional Bay Area Water System was active as of August 31, 2015. Therefore, submittal of an MOR for September of 2015, and sampling and calculation of an RAA for the period of Oct 1, 2014-Sept 30, 2015 was not required from the Bay City plant since it was decommissioned.

PWSID	System Name	System Type	Rule	Date	FR Question	Supporting Details	MI Response	FR Resolution
MI0000518	Beaver Township	CWS	DBP1	10/1/2014, 1/1/2015, 4/1/2015, 7/1/2015	Can you please provide RAA for MRDL for this system? It was not on the list supplied on-site.	Needed RAAs for 4 quarters from 10/1/2014 - 9/30/2015.	Due to resource limitations, MDEQ must prioritize activities. During the period reviewed, MDEQ temporarily disinvested in tracking MRDL RAAs if all results were below the standard. Tracking in SDWIS was phased-in over time, so many of the districts were tracking in SDWIS for the period reviewed. However, this district did not begin tracking MRDLs in SDWIS until Oct 2015 (after period reviewed). Beginning Oct 2015, all CWS districts are tracking MRDLs & their RAAs in SDWIS.	Discrepancy stands.
MI0005400	Plymouth	CWS	DBP1	10/1/14, 1/1/5, 4/4/15, 7/1/15	System failed to submit RAA for MRDL and State didn't calculate it during compliance period. Why wasn't a violation assigned?	Needed RAAs for 4 quarters from 10/1/14 - 9/30/15.	Due to resource limitations, MDEQ must prioritize activities. During the period reviewed, MDEQ. temporarily disinvested in tracking MRDL RAAs if all results were below the standard. Tracking in SDWIS was phased-in over time, so many of the districts were tracking in SDWIS for the period reviewed. However, this district did not begin tracking MRDLs in SDWIS until Oct 2015 (after period reviewed). Beginning Oct 2015, all CWS districts are tracking MRDLs & their RAAs in SDWIS.	Discrepancy stands. District has started to calculate this value, as committed to in FY2016 data limitations plan.

PWSID	System Name	System Type	Rule	Date	FR Question	Supporting Details	MI Response	FR Resolution
MI0000470	Bay City, City Of	CWS	ESWT	9/1/2015	System failed to sample for turbidity during compliance period. Why wasn't a violation assigned?	For September of 2015. No MOR submitted.	District confirmed results were not submitted.	**Not a Discrepancy.** The Bay City Treatment plant was decommissioned and a new regional Bay Area Water System was active as of August 31, 2015. Therefore, sampling and submittal of an MOR for September of 2015 was not required from the Bay City plant since it was decommissioned.
MI0000510	Bear Lake, Village Of	CWS	INV	Current	Is TP103 active?	SDWIS/Fed reports there are 2 wells and 2 TPs, Drinking Water Watch (DWW) indicates that TP102 is active and TP103 is inactive.	State confirms that DWW is correct.	Discrepancy stands.
MI0006640	Traverse City, City Of	CWS	INV	Current	Why are number of service connections different between SDWIS/Fed and State records?	2014 Sanitary Survey and DWW show 7,738 and SDWIS/Fed shows 6,787.	SDWIS was updated, but after the frozen dataset used in this DV.	Discrepancy stands for not submitting inventory updates in a timely manner.
MI6120441	The Hop Childcare Center	NTNCWS	INV	1/1/2009	Why was inactivation of Well 002 not submitted in an inventory update?	An email dated 3/28/16 from the PWS to MDEQ, which supplied information needed for the audit, reminded the State that Well 002 was not being used as the building does not have anyone in it.	Facility level activity status is not reported to SDWIS/Fed, because it is not trackable in WaterTrack (other than to remove the monitoring schedule for a given source).	Discrepancy stands. Shortcoming of data system prevents State from meeting reporting requirement.

PWSID	System Name	System Type	Rule	Date	FR Question	Supporting Details	MI Response	FR Resolution
MI6322569	KOA Bathhouse	TNCWS	INV	10/1/2014, 1/1/2015	System failed to sample during compliance period. Why wasn't a M/R violation assigned?	System is listed as open year-round in WaterTrack, with schedule for quarterly sampling, but no sample in 4th quarter 2014 or first quarter 2015. Letters provided suggest camp is seasonal. Is this a TCR or inventory/season discrepancy?	LHD changed system from seasonal to year round sometime Nov-Dec 2015 WaterTrack does not capture historical operational periods. The system was seasonal until Nov-Dec 2015. No quarterly samples were required while closed in Oct-Dec 2014 and Jan-Mar 2015.	**Not a discrepancy.** This was added to the final report as a discrepancy in inventory (instead of a TCR discrepancy) due to state database limitations. TCR monitoring was performed as required, when the system was open, but the FR team previously could not confirm exactly when the facility was operating.
MI0002310	Flint, City Of	CWS	IESWTR	10/1/2014 - 9/30/2015	How many samples were taken to determine compliance with requirement to meet 0.3 NTU in 95% of samples of finished water (CFE) each month? How was compliance with the 0.3 NTU CFE determined?	The PWS has two confluence points in the TP which we interpret to be IFEs, and the # of samples collected for each IFE are recorded. The Point of Entry Plant Tap NTU column we interpret to be the CFE result, but nothing indicates the # of samples collected for that column.	The City indicates both points are CFEs. The plant has 2 separate banks of filters, each with a CFE. The number of samples collected for each CFE is recorded on the MOR. An example page is provided (MI0002310_Flint_MORExample).	Discrepancy stands. The system is out of compliance with the CFE monitoring requirement. To meet the CFE requirements, turbidity samples representative of the system's filtered water prior to disinfection must be taken. While there are options for how the CFE can be determined, in all cases either ONE value must be calculated, or ONE sampling location used.

PWSID	System Name	System Type	Rule	Date	FR Question	Supporting Details	MI Response	FR Resolution
MI0002310	Flint, City Of	CWS	LT2R	12/1/2013	Why was no violation issued for failure to submit a sampling schedule for initial source water monitoring when the water system changed their source water?	Schedule for when monitoring was to take place must be approved by primacy agency, sampling schedule was due 3 months prior to system collecting their first samples.	Ask EPA Region 5. The region, not MDEQ, directly implemented the first round of LT2ESWTR monitoring.	Discrepancy stands. EPA Region 5 had responsibility for LT2ESWTR for the first round of monitoring for larger systems, and in 2010 transitioned LT2ESWTR implementation to the State (which is before this system was required to complete initial source water monitoring).
MI0002310	Flint, City Of	CWS	LT2R	10/1/2014 - 9/30/2015	Why did the system not conduct initial source water monitoring for LT2ESWTR?	There is a letter in 2015 stating they must conduct 2nd round source water monitoring, but we could not find any plan for the initial round. As a new source the monitoring was required on a State approved schedule.	Ask EPA Region 5. The region, not MDEQ, directly implemented the first round of LT2ESWTR monitoring.	Discrepancy stands. EPA Region 5 had responsibility for LT2ESWTR for the first round of monitoring for larger systems, and in 2010 transitioned LT2ESWTR implementation to the State (which is before this system was required to complete initial source water monitoring).
MI0002310	Flint, City Of	CWS	LT2R	10/1/2014 - 9/30/2015	Why was no MR violation issued for failure to conduct *E. coli* sampling according to the sampling plan?	Sampling required for 2 years and should have been on schedule to be conducted from 3/1/2014 - 2/28/2016, based on plant online 3/1/2014.	Ask EPA Region 5. The region, not MDEQ, directly implemented the first round of LT2ESWTR monitoring.	Discrepancy stands. EPA Region 5 had responsibility for LT2ESWTR for the first round of monitoring for larger systems, and in 2010 transitioned LT2ESWTR implementation to the State (which is before this system was required to complete initial source water monitoring).

PWSID	System Name	System Type	Rule	Date	FR Question	Supporting Details	MI Response	FR Resolution
MI1320157	Battle Creek Baptist Temple	TNCWS	NIT	1/1/2014	Sampling results were not found. Why wasn't an M/R violation assigned?	No nitrate sample was found for 2014, or included as of the January of 2016 data freeze.	Violation was generated very late in WaterTrack on 1/7/2016 and not submitted to SDWIS until February of 2016.	Discrepancy stands.
MI6120441	The Hop Childcare Center	NTNCWS	NIT	4/1/2013, 7/1/2013	System failed to complete quarterly monitoring after a result greater than 1/2 the MCL. Why weren't violations assigned?	1/14/2013 nitrate sample result for Well 002 was 7.4 mg/L. Expected 3 additional quarters before system could be reduced to annual monitoring again. (System sampled in fourth quarter 2013 and first three quarters of 2014.)	No reason is available for LHD/DEQ failure to require quarterly monitoring April – Sept. of 2013.	Discrepancy stands.
MI0002310	Flint, City Of	CWS	PBCU	1/1/2015-6/30/2015	Why was 2/18/2015 sample number LLF54945 from site with whole house filter excluded from calculation of 90th percentile?	Site address was Browning Avenue. For further details, see Chapter 2 of this report titled Review of Michigan's Lead and Copper Rule, which discusses scenarios for calculating the 90th percentile value based on data that may have been incorrectly excluded from the 90th percentile lead calculation.	Question was not sent to State but discussed with EPA lead audit FR team.	Discrepancy stands. Samples from sites with whole house filter (unless the filter was designed to remove inorganics) should be included in 90th percentile calculations. Please see Chapter 2 of this report, Review of Michigan's Lead and Copper Rule, "Invalidated samples, January to June of 2015" for additional details.
MI0005400	Plymouth	CWS	PBCU	July 2011	Can you explain the difference between the copper 90th percentile value in the files and in SDWIS/State for samples collected in July of 2011?	In 2011 copper result is recorded in the paper files as 0.097 mg/L, but SDWIS/State shows 0.057 mg/L.	This was a data entry error/typo in SDWIS (typed a 5 instead of a 9). All documents in file are correct (0.097 mg/L) and correspondence back to the supply was correct (see doc titled "MI0005400_Plymouth_2011_PbCu_Letter").	Discrepancy stands. Also, a separate discrepancy was not issued, but the team noted a calculation error in 2008, which is outside period of review. Value will be corrected in SDWIS/Fed.

PWSID	System Name	System Type	Rule	Date	FR Question	Supporting Details	MI Response	FR Resolution
MI0006232	Spring Lake Club Condominiums	CWS	PBCU	10/1/2014, 4/1/15	System failed to submit consumer notice for samples collected during compliance period. Why wasn't a violation assigned?	For sampling conducted July - December of 2014 and January - June of 2015	See docs titled "MI0006232_Jul-Dec2014_LC_ConsumerNotice" and "MI0006232_Jan-Jun2015_LC_ConsumerNotice."	Discrepancy stands. Both documents were received in November of 2015, but due in December of 2014 (for July-December of 2014) and September of 2015 (for January-June of 2015).
MI6120441	The Hop Childcare Center	NTNCWS	PBCU	1/1/2011, 1/1/2014	LCR samples were collected outside of the summer months of June through September. Why wasn't a violation assigned?	System is on triennial schedule. From 2010 to 2013, sampled annually in December, January, February, or March and sometimes more than once per year. (Assumed violations for 2008-2010 and 2011-2013).	During the period reviewed (2010-2013), MDEQ temporarily disinvested in ensuring NTNCWSs sampled for lead and copper during the June – Sept timeframe. Beginning in FY 2014, MDEQ began ensuring NTNCWSs sampled for lead and copper during required 4-month timeframe.	Discrepancy stands. R5 comment
MI6321444	Hour Kidz	NTNCWS	PBCU	10/1/2010, 10/1/2013	LCR samples were collected outside of the summer months of June through September. Why wasn't a violation assigned? Also, only one sampling point was sampled (as required.) Can you explain why only one tap is sampled?	In 2010, samples collected in October. In 2010, samples collected in December.	During the period reviewed (2010-2013), MDEQ. temporarily disinvested in ensuring NTNCWSs sampled for lead and copper during the June – Sept timeframe. Beginning in FY 2014, MDEQ began ensuring NTNCWSs sampled for lead and copper during required 4-month timeframe. Picture of result provided: only one drinking water outlet.	Discrepancy stands - late sample collection in both years

PWSID	System Name	System Type	Rule	Date	FR Question	Supporting Details	MI Response	FR Resolution
MI6322569	KOA Bathhouse	TNCWS	PNR	6/13/2015, 7/15/15	Proof of public notification was removed by PWS after posting during two separate site inspections (6/29/15 and 7/14/2015). Why wasn't a violation assigned?	Notified of violation 6/12/2015 & 7/14/2015. County Health Department confirmed that the PN which had been posted was removed before RTC. Public complaints led to two separate site visits, plus county was closely monitoring situation and confirmed PN was removed. Issue was addressed in subsequent BCA in July.	PN violation was not issued. Partly, this is due to database limitations on reporting.	Discrepancy stands.
MI6120441	The Hop Childcare Center	NTNCWS	SOC	1/1/2013	System failed to resample during compliance period after sample was invalidated. Why wasn't a violation assigned?	2013 lab results have note "might not be able to be used for compliance purposes because sample pH did not meet method requirements". Hand-written note (pg 9), confirms cannot use SOC results for well 002.	No reason is available for LHD/DEQ failure to require resample in the next quarter. The commented or flagged SOC sample for which a replacement might have been requested was not needed anyway. The source (002) and building were not in use, and since have been sold. There may have been a delay in updating the monitoring schedule to reflect this. SOC sampling at the other building was completed successfully.	Discrepancy stands. Requirement is to resample in the compliance period after the sample was invalidated, and well 02 appears to have been active at that time.

PWSID	System Name	System Type	Rule	Date	FR Question	Supporting Details	MI Response	FR Resolution
MI0000470	Bay City, City Of	CWS	SWTR	9/1/2015	System failed to sample for entry point disinfectant residual during compliance period. Why wasn't a M/R violation assigned?	For September of 2015. No MOR submitted.	District confirmed results were not submitted.	**Not a Discrepancy.** The Bay City Treatment plant was decommissioned and a new regional Bay Area Water System was active as of August 31, 2. Therefore, sampling and submittal of an MOR for September of 2015 was not required from the Bay City plant since it was decommissioned.
MI0002310	Flint, City Of	CWS	SWTR	10/1/2014 - 9/30/2015	Why was no M/R violation issued for failing to submit the monthly operating report (MOR) by the 10th day of the following month?	The "date received" stamp on the MOR for each month in the review period was past the 10th date of the following month, which is the deadline for report submission.	Due to resource limitations, the DEQ must prioritize program activities. During the period reviewed, MDEQ. temporarily disinvested in reporting a M/R violation if the supply monitored as required, but reported late (after the due date), thus there may be no further action taken.	Discrepancy stands for late reporting.
MI0000470	Bay City, City Of	CWS	TCR	9/1/2015	System failed to sample during compliance period. Why wasn't a M/R violation assigned?		District staff confirmed that MOR with TCR summary was not in files and no samples were submitted.	**Not a Discrepancy.** The Bay City Treatment plant was decommissioned and a new regional Bay Area Water System was active as of August 31, 2. Therefore, sampling and in September of 2015 was not required from the Bay City plant since it was decommissioned.
MI0000470	Bay City, City Of	CWS	TCR	3/1/2015	No indication of when March of 2015 sampling results were received. Can you please provide documentation?		District staff confirmed they cannot determine date received.	Discrepancy stands. M/R violation should have been assigned.

PWSID	System Name	System Type	Rule	Date	FR Question	Supporting Details	MI Response	FR Resolution
MI0000510	Bear Lake, Village Of	CWS	TCR	8/1/2015	TCR sampling results were received late. Why wasn't a M/R violation assigned?	August results arrived 9/11/2015. (No response required - we know this is a temporary disinvestment.)	Due to resource limitations, DEQ must prioritize program activities. During the period reviewed, MDEQ. temporarily disinvested in reporting a M/R violation if the supply monitored as required, but reported late (after the due date.), thus there may be no further action taken. Sampling was conducted as required, but results were received 1 day late. No further action was taken.	Discrepancy stands.
MI0000518	Beaver Township	CWS	TCR	3/1/2015, 9/1/2015	No indication of when TCR sampling results were received. Can you please provide documentation?	For March and September of 2015 compliance periods	TCR results are reported on seller's MORs. March of 2015 MOR is from Bay City and includes email w/ date received (last page of file titled "MI0000518_BeaverTwpTCR-BayCityMOR_Mar2015_date receipt"). Sept 2015 MOR is from Bay Area Water and includes email w/ date received (last page of file titled "MI0000518_BeaverTwpTCR-BayAreaMOR_ Sep2015_date receipt").	Not a discrepancy for March of 2015 but M/R violation stands for September of 2015 as report was submitted late, on October 13, 2015.
MI0002310	Flint, City Of	CWS	TCR	10/1/2014 - 9/30/2015	No indication of when sampling results were received. Can you please provide documentation?	Although not a required reporting field, the date summary received column is blank in DWW.	Date stamp is on MOR. Due to resource limitations, the DEQ must prioritize program activities. During the period reviewed, MDEQ. temporarily disinvested in reporting a M/R violation if the supply monitored as required, but reported late (after the due date), thus there may be no further action taken.	Discrepancy stands. M/R should have been assigned for late reporting.

PWSID	System Name	System Type	Rule	Date	FR Question	Supporting Details	MI Response	FR Resolution
MI1320157	Battle Creek Baptist Temple	TNCWS	TCR	10/1/2014, 1/1/2015, 4/1/2015, 7/1/2015	System is on annual sampling schedule (according to WaterTrack) and quarterly (according to letter in file) and sampling results were not found for 2014 or 2015. Why wasn't an M/R violation assigned?	System last sampled on 12/17/2013 and had a positive total coliform. System did not sample again until January of 2016, and did not collect 5 routine samples as required in the month following a positive.	PWS was placed on quarterly after FY15 LHD program review. The 12/3/2014 letter says quarterly: WaterTrack was not updated and system did not receive quarterly monitoring reminders or violations.Violation was generated very late in WaterTrack on 1/7/2016 and not submitted to SDWIS until February of 2016.	Discrepancies remain. The EV report also notes that GWR triggered source water samples were not taken within 24 hours in December of 2013, and a violation was not issued (this is outside of the FR review period.)
MI6322569	KOA Bathhouse	TNCWS	TCR	10/1/2014, 1/1/2015	System failed to sample during compliance period. Why wasn't a M/R violation assigned?	System is listed as open year-round in WaterTrack, with schedule for quarterly sampling, but no sample in 4th quarter 2014 or first quarter 2015. Letters provided suggest camp is seasonal. Is this a TCR or inventory/season discrepancy?	LHD changed system from seasonal to year-round sometime Nov-Dec 2015. This is an inventory issue, not a TCR issue. WaterTrack does not capture historical operational periods. The system was seasonal until Nov-Dec 2015. No quarterly samples were required while closed in Oct-Dec 2014 and Jan-Mar 2015.	**Not a discrepancy for TCR**, but is a discrepancy for inventory due to database limitations (see listing above).
MI6322569	KOA Bathhouse	TNCWS	TCR	6/1/2015, 7/1/2015	Pattern of total coliform positives indicates a monthly MCL occurred - why wasn't one assigned?	Only an acute MCL was reported for June, when a monthly MCL also occurred. No MCL was reported for July when both acute and monthly MCLs occurred.	Separate Acute MCL violations were reported for June and July of 2015, although the latter may not have been available at the time of review. WaterTrack is not capable of generating more than one MCL violation per month, and what gets generated is the most egregious of violations per period.	Discrepancy stands. Both monthly and acute MCLs should have been reported for each month, instead of just acute violations. In addition, the EV in Chapter 3 noted that the LHD should have issued the system a TCR minor repeat M/R Type 26 violation for only collecting 2 of the 4 required repeat samples in 6/2015.

PWSID	System Name	System Type	Rule	Date	FR Question	Supporting Details	MI Response	FR Resolution
MI6322569	KOA Bathhouse	TNCWS	TCR	7/1/2015	Acute MCL violation was assigned, but was not reported to SDWIS/Fed - why not?	For July of 2015.	June and July MCL violations are in SDWIS/Fed. Both violations were generated the day after they occurred, and were submitted to SDWIS during the ensuing routine, quarterly update. For the June violation, the ensuing quarterly submittal was 8/27/2015, while for the July violation, the ensuing submittal was 11/25/2015.	**Not a discrepancy**. The end of the quarter for the June violation was June 30, with EPA Region 5 expecting data by August 30, 2015; the end of the quarter for the July violation is September 30, 2015; and EPA Region 5 expected the submittal to SDWIS-FED by November 30, 2015, which was met.
MI7720376	Manistique Ice	TNCWS	TCR	7/1/2015-9/30/2015	No indication of when sampling results were received. Can you please provide documentation?	For quarter 7/1/2015-9/30/2015.	There is no sample for the July – Sept. 2015 time frame, but this violation can be closed out with the 1/22/16 sample (City of Manistique), with a date stamp showing "RECEIVED Jan. 26 2016 LMAS" and sanitarian's initials and internal review date	Major M/R stands for 7/1/2015-9/30/2015, as it was not reported to EPA. (System was RTC in January of 2016.)
MI7020186	Sandy Point Beach House	TNCWS	TCR	10/1/2014	Violation for major routine M/R was assigned, but why was violation not reported to SDWIS/Fed?	For fourth quarter 2014.	There was one assigned by the LHD for December of 2014. However, the notification for December of 2014 was not sent until 2/5/2015.	Discrepancy stands for late reporting of violation. The EV report also notes that GWR triggered source water samples were not taken within 24 hours in June of 2014, and a violation was not issued (this was outside of the review period of the FR.)

PWSID	System Name	System Type	Rule	Date	FR Question	Supporting Details	MI Response	FR Resolution
MI7020186	Sandy Point Beach House	TNCWS	TCR	1/1/2015, 4/1/2015	System failed to sample during compliance periods. Why wasn't a routine M/R violation assigned?	For first and second quarters 2015. (Note State already responded to EV question that no M/R violation was assigned for March of 2015. So DV only has question for second quarter 2015.)	LHD agreed violations should have been issued. Two staffing changes in this window led to overlooked violations. When second person reviewed history, violation was noted, and visit occurred on 8/10/2015. Also rescinded permission for reduced monitoring - permitted in January of 2016 - and placed back on quarterly monitoring in April of 2016.	Discrepancies stand.

Appendix 1-E: Community Water Supply File Checklist

Community Water Supply File Checklist

CWS Name _____ WSSN _____

Completed By _____ Date _____

Retention time (district/total) and Records Retention Schedule item number in parentheses.	Yes	No	N/A
Correspondence – Brown Folder General (12 years 37057A)	☐	☐	☐
PN Records. Invalidate TC sample (6 years 37057B)	☐	☐	☐
Chemical Monitoring Results – Green Folder (12 years 37061)	☐	☐	☐
Annual Reports – Blue Folder (6 years, 37057B)			
Cross Connection Annual Report	☐	☐	☐
Annual Pumpage Report	☐	☐	☐
Optional additional folder may be used for CCR records.			
Consumer Confidence Report	☐	☐	☐
Consumer Confidence Report Certificate	☐	☐	☐
Construction Permits – Manila Folder (10 years in district/50 years total 37599)	☐	☐	☐
Basic Data – Brown Folder (Until superseded 37055, unless otherwise noted)			
Optional additional folder may be used for these frequently accessed items.			
Sanitary Survey – Letter and data gathering form (12 years 37057A)	☐	☐	☐
Sample Siting Plan – Total Coliform	☐	☐	☐
Sample Siting Plan – Disinfection Byproducts	☐	☐	☐
Emergency Response Plan (Not required to be submitted to DEQ)	☐	☐	☐
General Plan (large size plans may be kept elsewhere in the district office)	☐	☐	☐
Reliability Study	☐	☐	☐
Decisions and determinations that are basis of requirements (37056 superseded+1 year)	☐	☐	☐
Capacity Development Checklist, Financial Capacity Documents	☐	☐	☐
Cross Connection Control Program	☐	☐	☐
Well Head Protection Program/Hydrogeological Study (3 years/permanently 37139)	☐	☐	☐
Source Water Assessment Records (3 years/permanently 37139)	☐	☐	☐
Aquifer Analyses (3 years/permanently 37139)	☐	☐	☐
Engineering Reports Used for Permit or Evaluation (10/50 years 37599)	☐	☐	☐
As Built Plans for Unique Facilities (10/50 years 37599)	☐	☐	☐
Well Logs (permanently 37171)	☐	☐	☐
ISO Report(s)	☐	☐	☐
Lead and Copper – Red Folder (12 years 37057A, unless otherwise noted)			
Monitoring Results (discard if L&C Report form includes pertinent info) (12 years 37061)	☐	☐	☐
Lead and Copper Report Form & Consumer Notice of Lead Result Certificate	☐	☐	☐
90th %tile determination letters	☐	☐	☐
Action Level Exceedance Notification & Request for Study	☐	☐	☐
Corrosion Control Study, Accept study, Set WQP (Until superseded 37055)	☐	☐	☐
WQP Monitoring Results (may submit and retain with MOR) (12 years 37061)	☐	☐	☐
Lead Service Line Replacement Letter	☐	☐	☐
Lead Public Education Materials and Certificate of Distribution	☐	☐	☐
Invalidate Sample	☐	☐	☐
Located Elsewhere in District Office			
Monthly Operation Reports (3 years in district/12 years total 37060)	☐	☐	☐
Microbial, Turbidity, and Disinfection Monitoring Results (3 years 37059)	☐	☐	☐
Construction Plans (paper 1 year 37597, non-paper 50 years 37598)	☐	☐	☐
Construction Specs (small projects 6 months and large projects 10 years in district/50 years 37599)	☐	☐	☐

Missing Items _____

S:\Drinking Water and Environmental Health\Community Drinking Water\Standard Documents and Forms\CWS File Checklist\CWS File Checklist - OFFICIAL 2015.docxx
Updated September 2015

Appendix 1-F: Summary of PWSS Data Management Limitation FY 2013 – 2016

FY2013 FINAL GENERAL ARDP

Summary of Public Water Supply Supervision Program (PWSS)
Data Management Limitations for Fiscal Year 2013

Michigan's PWSS program utilizes several data management tools for tracking and reporting program activities. SDWIS/State is the primary database for the Community Water Supply (CWS) program and WaterTrack is the primary database for the Noncommunity Water Supply (NCWS) program. While these databases provide adequate tracking and reporting capabilities for most program requirements, a few data management challenges remain. Both the CWS and NCWS programs recognize the need to address these limitations and are working towards solutions. Below is a summary of the program's current data management limitations.

OVERALL PUBLIC WATER SUPPLY PROGRAM

Electronic Reporting
MDEQ does not currently have adequate electronic reporting capabilities. While the NCWS program does have electronic reporting of samples run by the state lab, most other reporting remains a largely manual process. MDEQ has been developing an electronic reporting system for several years, but competing priorities and resource limitations have delayed the project. MDEQ continues to work towards this goal.

IT Support
Adequate IT support is a continuing challenge. Financial and staff limitations within the PWSS program and the Department of Technology, Management and Budget are an ongoing obstacle. The extent to which MDEQ can address the data management limitations described in this document is strongly impacted by this issue.

COMMUNITY WATER SUPPLY PROGRAM

Entry Point Chemical Monitoring (Inorganics, VOC, SOC, Rad)
The CWS program does not track entry point chemical monitoring in SDWIS/State at this time. This is primarily because SDWIS/State does not handle schedules the same way the MDEQ does and because electronic reporting is still unavailable. As a result, data entry and compliance determination for this monitoring is not fully automated. However, SDWIS/State is used to track and report violations.

Ground Water Rule Sanitary Survey Tracking & Reporting
The CWS program has not yet reported GWR sanitary surveys to SDWIS/Fed. Now that SDWIS/State 3.1 is installed, the program will transition sanitary survey tracking from an add-on database to SDWIS/State in early FY13.

NONCOMMUNITY WATER SUPPLY PROGRAM

Lead and Copper Rule:
WaterTrack does not support all recent requirements of the revised rule.

90^{th} percentile calculations
WaterTrack only allows the calculation of a 90^{th} percentile where, within a group of samples collected at a water system, at least one of the sample results exceeds the action level.

Otherwise, there is no opportunity for the user to calculate a 90th percentile and store the result as a record to be included in Federal reporting.

LCR Consumer Notification
The current database does not support tracking and reporting compliance with this rule requirement. During FY13, this requirement will be tracked only for schools and daycares, and tracking will take place outside WaterTrack.

Ground Water Rule:
WaterTrack only partially supports tracking and reporting compliance with this rule.

Inventory
Sanitary surveys: Most of the required elements are being captured in the database and reported to SDWIS. Deficiency corrective actions are captured in comment fields, but are not capable of being reported to SDWIS.

Violations
Health-based violations can be tracked in the database, although not conveniently; one cannot generate a violation record from within the database. External, manual handling and reporting of violation records is beginning to be implemented.

M/R violations can be tracked in the database, but one cannot generate a violation record from within the database. External, manual handling and reporting of violation records is beginning to be implemented.

Disinfectants and Disinfection Byproducts Rule:
WaterTrack only partially supports tracking and reporting compliance with this rule.

Violations
MCL violations for bromate, TTHM, and HAA5 can be tracked in the database; violation records will soon be generated and reported from within the database.

M/R violations for bromate, TTHM, and HAA5 can be tracked in the database; violation records will soon be generated and reported from within the database.

MRDL violations cannot be tracked in the database. External, manual handling and reporting of MRDLs is not even being considered at this point.

Summary of Public Water Supply Supervision Program (PWSS) Data Management Limitations for Fiscal Year 2014

Michigan's PWSS program utilizes several data management tools for tracking and reporting program activities. SDWIS/State is the primary database for the Community Water Supply (CWS) program and WaterTrack is the primary database for the Noncommunity Water Supply (NCWS) program. While these databases provide adequate tracking and reporting capabilities for most program requirements, a few data management challenges remain. Both the CWS and NCWS programs recognize the need to address these limitations and are working towards solutions. Below is a summary of the program's current data management limitations.

OVERALL PUBLIC WATER SUPPLY PROGRAM

Electronic Reporting of Sample Data
MDEQ does not currently have adequate electronic sample data reporting capabilities. While the NCWS program does have electronic reporting of samples run by the state lab, most other reporting remains a largely manual process. MDEQ has been developing an electronic reporting system for several years, but competing priorities and resource limitations have delayed the project. MDEQ continues to work towards this goal.

IT Support
Adequate IT support is a continuing challenge. Financial and staff limitations within the PWSS program and the Department of Technology, Management and Budget are an ongoing obstacle. The extent to which MDEQ can address the data management limitations described in this document is strongly impacted by this issue.

COMMUNITY WATER SUPPLY PROGRAM

Entry Point Chemical Monitoring (Inorganics, VOC, SOC, Rad)
The CWS program does not track entry point chemical monitoring in SDWIS/State at this time. This is primarily because SDWIS/State does not handle schedules the same way the MDEQ does and because electronic reporting is still unavailable. As a result, data entry and compliance determination for this monitoring is not fully automated. However, SDWIS/State is used to track and report violations for all rules.

NONCOMMUNITY WATER SUPPLY PROGRAM

Overall NCWS Program Compliance Determination and Violation Reporting Limitations
Below are the Rules for which the Program's electronic tracking and reporting capabilities are limited. In the first part of Fiscal Year 2014, the Program will continue devising a means to accomplish, on an interim basis, much of what is listed as a limitation.

Lead and Copper Rule:
WaterTrack does not support all recent requirements of the revised rule.

90^{th} percentile calculations
WaterTrack only allows the calculation of a 90^{th} percentile where, within a group of samples collected at a water system, at least one of the sample results exceeds the action level. Otherwise, there is no opportunity for the user to calculate a 90^{th} percentile and store the result as a record to be included in Federal reporting.

LCR Consumer Notification
The current database does not support tracking and reporting compliance with this rule requirement. During FY14, this requirement will be tracked only for schools and daycares, and tracking will take place outside WaterTrack.

Ground Water Rule:
WaterTrack only partially supports tracking and reporting compliance with this rule.

Inventory
Sanitary surveys: Most of the required elements are being captured in the database and reported to SDWIS. Deficiency corrective actions are captured in comment fields, but are not capable of being reported to SDWIS.

Violations
Health-based violations can be tracked in the database, although not conveniently; one cannot generate a violation record from within the database. External, manual handling and reporting of violation records is being implemented.

M/R violations can be tracked in the database, but one cannot generate a violation record from within the database. External, manual handling and reporting of violation records is being implemented.

Disinfectants and Disinfection Byproducts Rule:
WaterTrack only partially supports tracking and reporting compliance with this rule.

Violations
MCL violations for bromate, TTHM, and HAA5 can be tracked in the database; violation records can be generated and reported from within the database.

M/R violations for bromate, TTHM, and HAA5 can be tracked in the database; violation records can be generated and reported from within the database.

MRDL violations cannot be tracked in the database. External, manual handling and reporting of MRDLs is not even being considered at this point.

FY2015 GENERAL ARDP

Summary of Public Water Supply Supervision Program (PWSS)
Data Management Limitations for Fiscal Year 2015

Michigan's PWSS program utilizes several data management tools for tracking and reporting program activities. SDWIS/State is the primary database for the Community Water Supply (CWS) program and WaterTrack is the primary database for the Noncommunity Water Supply (NCWS) program. While these databases provide adequate tracking and reporting capabilities for most program requirements, a few data management challenges remain. Both the CWS and NCWS programs recognize the need to address these limitations and are working towards solutions. Below is a summary of the program's current data management limitations.

OVERALL PUBLIC WATER SUPPLY PROGRAM

Electronic Reporting of Sample Data
MDEQ does not currently have adequate electronic sample data reporting capabilities. While the NCWS program does have electronic reporting of samples run by the state lab, most other reporting remains a largely manual process. MDEQ has been developing an electronic reporting system for several years, but competing priorities and resource limitations have delayed the project. MDEQ continues to work towards this goal.

IT Support
Adequate IT support is a continuing challenge. Financial and staff limitations within the PWSS program and the Department of Technology, Management and Budget are an ongoing obstacle. The extent to which MDEQ can address the data management limitations described in this document is strongly impacted by this issue.

COMMUNITY WATER SUPPLY PROGRAM

Entry Point Chemical Monitoring (Inorganics, VOC, SOC, Rad)
The CWS program does not track entry point chemical monitoring in SDWIS/State at this time. This is primarily because SDWIS/State does not handle schedules the same way the MDEQ does and because electronic reporting is still unavailable. As a result, data entry and compliance determination for this monitoring is not fully automated. However, in an effort to consolidate data tracking and prepare for future transition to SDWIS/Prime, the CWS program will re-evaluate this issue and expects to transition entry point tracking to SDWIS/State.

NONCOMMUNITY WATER SUPPLY PROGRAM

Overall NCWS Program Compliance Determination and Violation Reporting Limitations
Below are the Rules for which the Program's electronic tracking and reporting capabilities are limited. In the first part of Fiscal Year 2015, the Program will work with DTMB on devising a means to accomplish, on an interim basis, much of what is listed as a limitation. The proposal that DTMB is evaluating is to set up a flow of data from WaterTrack into SDWIS-State, and to maintain both databases, using the latter to cover much of what cannot be accomplished in WaterTrack.

FY2015 GENERAL ARDP

Lead and Copper Rule:
WaterTrack does not support all recent requirements of the revised rule.

90th percentile calculations
WaterTrack only allows the calculation of a 90th percentile where, within a group of samples collected at a water system, at least one of the sample results exceeds the action level. Otherwise, there is no opportunity for the user to calculate a 90th percentile and store the result as a record to be included in Federal reporting.

LCR Consumer Notification
The current database does not support tracking and reporting compliance with this rule requirement. During FY15, this requirement will be tracked only for schools and daycares, and tracking will take place outside WaterTrack.

Ground Water Rule:
WaterTrack only partially supports tracking and reporting compliance with this rule.

Inventory
Sanitary surveys: Most of the required elements are being captured in the database and reported to SDWIS. Deficiency corrective actions are captured in comment fields, but are not capable of being reported to SDWIS.

Violations
Health-based violations can be tracked in the database, although not conveniently; one cannot generate a violation record from within the database. External, manual handling and reporting of violation records is being implemented.

M/R violations can be tracked in the database, but one cannot generate a violation record from within the database. External, manual handling and reporting of violation records is being implemented.

Disinfectants and Disinfection Byproducts Rule:
WaterTrack only partially supports tracking and reporting compliance with this rule.

Violations
MCL violations for bromate, TTHM, and HAA5 can be tracked in the database; violation records can be generated and reported from within the database.

M/R violations for bromate, TTHM, and HAA5 can be tracked in the database; violation records can be generated and reported from within the database.

MRDL violations cannot be tracked in the database. External, manual handling and reporting of MRDLs is not being considered at this point.

Summary of Public Water Supply Supervision Program (PWSS) Data Management Limitations for Fiscal Year 2016

Michigan's PWSS program utilizes several data management tools for tracking and reporting program activities. SDWIS/State is the primary database for the Community Water Supply (CWS) program and WaterTrack is the primary database for the Noncommunity Water Supply (NCWS) program. While these databases provide adequate tracking and reporting capabilities for most program requirements, a few data management challenges remain. Both the CWS and NCWS programs recognize the need to address these limitations and are working towards solutions. Below is a summary of the program's current data management limitations.

OVERALL PUBLIC WATER SUPPLY PROGRAM

Electronic Reporting of Sample Data
MDEQ does not currently have adequate electronic sample data reporting capabilities. While the NCWS program does have electronic reporting of samples run by the state lab, most other reporting remains a largely manual process. MDEQ has been developing an electronic reporting system for several years, but competing priorities and resource limitations have delayed the project. MDEQ continues to work towards this goal.

IT Support
Adequate IT support is a continuing challenge. Financial and staff limitations within the PWSS program and the Department of Technology, Management and Budget are an ongoing obstacle. The extent to which MDEQ can address the data management limitations described in this document is strongly impacted by this issue.

COMMUNITY WATER SUPPLY PROGRAM

Entry Point Chemical Monitoring (Inorganics, VOC, SOC, Rad)
The CWS program does not track entry point chemical monitoring in SDWIS/State at this time. This is primarily because SDWIS/State does not handle schedules the same way the MDEQ does and because electronic reporting is still unavailable. As a result, data entry and compliance determination for this monitoring is not fully automated. However, in an effort to consolidate data tracking and prepare for future transition to SDWIS/Prime, the CWS program plans to transition entry point tracking to SDWIS/State.

NONCOMMUNITY WATER SUPPLY PROGRAM

Overall NCWS Program Compliance Determination and Violation Reporting Limitations
Below are rules for which the NCWS Program's electronic tracking and reporting capabilities are limited. In the first part of Fiscal Year 2016, the program will work with DTMB, EPA-HQ, and SAIC on establishing a means to accomplish, on an interim basis, much of what is listed as a limitation. A second instance of SDWIS/State (SDWIS/State-NC) will be deployed allowing flow of data from WaterTrack to SDWIS/State. The plan is to maintain both databases, using the latter to submit the program's quarterly data to SDWIS/ODS, and to include many of the violation types that cannot be reported by WaterTrack. There will be limited SDWIS/State-NC users at the State level, while all local health department (LHD) staff will continue using only WaterTrack.

Lead and Copper Rule:
WaterTrack does not support all recent requirements of the revised rule.

90th percentile calculations
WaterTrack only allows the calculation of a 90th percentile where, within a group of samples collected at a water system, at least one of the sample results exceeds the action level. Otherwise, there is no opportunity for the user to calculate a 90th percentile and store the result as a record to be included in Federal reporting.

LCR Consumer Notification
The current database does not support tracking and reporting compliance with this rule requirement. During FY16, this requirement will be tracked for nontransient supplies, but tracking will take place outside WaterTrack.

Ground Water Rule:
WaterTrack only partially supports tracking and reporting compliance with this rule.

Inventory
Sanitary surveys: Most of the required elements are being captured in the database and reported to SDWIS. Deficiency corrective actions are captured in comment fields, but are not capable of being reported to SDWIS.

Violations
Health-based violations can be tracked in the database, although not conveniently, but one cannot generate a violation record from within the database. External, manual handling and reporting of violation records is being implemented.

M/R violations can be tracked in the database, but one cannot generate a violation record from within the database. External, manual handling and reporting of violation records is being implemented.

Disinfectants and Disinfection Byproducts Rule:
WaterTrack only partially supports tracking and reporting compliance with this rule.

Violations
MCL violations for bromate, TTHM, and HAA5 can be tracked in the database; violation records can be generated and reported from within the database.

M/R violations for bromate, TTHM, and HAA5 can be tracked in the database; violation records can be generated and reported from within the database.

MRDL violations cannot be tracked in the database. External, manual handling and reporting of MRDLs is not being considered at this point.

Revised Total Coliform Rule (RTCR):
WaterTrack will not be able to accommodate most tracking and reporting under the RTCR. MDEQ plans to provide guidance and templates, where possible, for LHDs to use for tracking and reporting to the extent resources allow. During FY16, the NCWS Program plans to establish a separate, noncommunity version of SDWIS/State for DEQ staff to use for as much federal reporting as possible.

Appendix 1-G: Phase II/V Waiver Policies

January 2014

Distribution Monitoring			
		GW Sources	SW Sources (including GWUDI)
Bacteriological		Required # / month	Required # / month
Lead / Copper	Initial	Required # of sites / 6 months for 1 year	Required # of sites / 6 months for 1 year
	Routine	Required reduced # of sites / 1, 3, or 9 years[1]	Required reduced # of sites / 1, 3, or 9 years[1]
Water Quality Parameters[2]	Initial	WQP of Rule 710b(4)(a): 2 / # of sites / 6 mnths	WQP of Rule 710b(4)(a): 2 / # of sites / 6 mnths
	Reduced	WQPs of Rule 710b(5)(a): 2 / reduced # of sites / 6 months, 1 year, or 3 years	WQPs of Rule 710b(5)(a): 2 / reduced # of sites / 6 months, 1 year, or 3 years
Chlorine or Chloramines Residual		Same time & place as bacteriological sampling	Same time & place as bacteriological sampling[3]
TTHM & HAA5 (if adding chemical disinfectant)	Routine	Required # of sites / quarter or 1 year	Required # of sites / quarter or 1 year
	Reduced[7]	Required reduced # of sites / quarter, 1 year, or 3 years	Required reduced # of sites / quarter or 1 year
Chlorite (if adding ClO_2)	Routine	1 set of 3 samples[8] / month / plant and 1 set of 3 samples[8] on day following a daily sample > MCL at EPTDS	1 set of 3 samples[8] / month / plant and 1 set of 3 samples[8] on day following a daily sample > MCL at EPTDS
	Reduced[9]	1 set of 3 samples[8] / quarter / plant	1 set of 3 samples[8] / quarter / plant
Chlorine Dioxide (if adding ClO_2)		If chlorine dioxide at the entry point >MRDL, then monitor according to footnote 10.	If chlorine dioxide at the entry point >MRDL, then monitor according to footnote 10.

Footnotes:

[1] Samples must be collected during June, July, August or September.

[2] Required for all systems > 50,000. Required for all systems ≤ 50,000 during any monitoring period the lead and/or copper action level is exceeded.

[3] System with a heterotrophic plate count ≤ 500 /mL is considered to have a detectable disinfectant residual.

[4] Collect annual samples during month of warmest water temperature.

[5] Collect samples at a locations representing maximum residence time.

[6] Collect 25% of samples at locations representing maximum residence time and 75% at locations representing at least average residence time.

[7] May not reduce TTHM & HAA5 if source water TOC > 4.0 mg/l.

[8] Collect 1 sample near first customer, 1 at location representing average residence time, and 1 at location representing maximum residence time.

[9] Applies if all samples of the 3-sample set <1.0 mg/l (MCL) for 1 year and supply is not required to monitor due to an exceedance at the EPTDS. Resume routine if 1 or more chlorite samples from 3-sample set >MCL or EPTDS sample >MCL.

[10] If chlorine dioxide at the entry point >MRDL, then monitor according to the following table:

If maintaining a residual in the distribution system using ...	Then sample for chlorine dioxide at the following distribution locations:
chlorine dioxide or chloramines ...	3 as close to the first customer as possible at intervals of at least 6 hours.
chlorine, and one or more disinfection addition points after the EPTDS are not present ...	
chlorine, and one or more disinfection addition points after the EPTDS are present...	1 sample near the first customer, 1 each at locations representing average and maximum resident time.

Note: Some contaminants (asbestos, dioxin, etc.) are waived in part or in full per 1992/93 monitoring waiver program.

January 2014

Entry Point Monitoring			
		GW Sources	SW Sources (including GWUDI)
Partial Chemistry[1]	Initial	1 / year	Quarterly for 1 year
	Routine		1 / year
Metals[2]	Initial	1 / 3 years (3 sets)	1 / year (3 sets)
	Routine	1 / 9 years	1 / 9 years
Volatile Organic Compounds[5]	Initial	Quarterly for 1 year[6]	Quarterly for 1 year[6]
	Routine	1 / 3 years	1 / year
Synthetic Organic Compounds (CXPT, CXHB, CXLP)	Initial	Quarterly for 1 year[6]	Quarterly for 1 year[6]
	Routine	With WHPP[7] / Tritium[8]: Waived Without WHPP / Tritium: 1 / 3 years	Least Vulnerable[9]: 1 / 3 years Moderately Vulnerable[9]: 2 / 3 years[10] Highly Vulnerable[9]: Quarterly[11]
Expanded SOC (EDB, DBCP, Endothal, Diquat, Glyphosate if unchlorinated, Dalapon)		Vulnerable aquifers (karst, gravel/cobble): 1 / 3 years All others: Waived	Least Vulnerable and a majority of Moderately Vulnerable[9]: Waived Select Moderately Vulnerable[12]: 1 / 3 years[13] Highly Vulnerable[9]: 1 / year[13]
Cyanide	Initial	1 / 3 years (3 sets)	1 / year (3 sets)
	Routine	1 / 9 years	1 / 9 years
Radionuclides[14]	Initial	Quarterly for 1 year[15]	Quarterly for 1 year[15]
	Routine	< Detection Limit: 1 / 9 years ≥ Detection Limit but ≤ 1/2 MCL: 1 / 6 years > 1/2 MCL but ≤ MCL: 1 / 3 years > MCL: Quarterly	< Detection Limit: 1 / 9 years ≥ Detection Limit but ≤ 1/2 MCL: 1 / 6 years > 1/2 MCL but ≤ MCL: 1 / 3 years > MCL: Quarterly
Water Quality Parameters[16]	Initial	WQPs of Rule 710b(4)(b): 2 / 6 months	WQPs of Rule 710b(4)(b): 2 / 6 months
	OCCT	WQPs of Rule 710b(5)(b): 1 / 2 weeks	WQPs of Rule 710b(5)(b): 1 / 2 weeks
Bromate	Initial	1 / month / plant that uses ozone	1 / month / plant that uses ozone
	Reduced	1/ quarter / plant if RAA ≤ 0.0025 mg/L	1/ quarter / plant if RAA ≤ 0.0025 mg/L
Chlorite		1 / day / plant if disinfecting with ClO_2	1 / day / plant if disinfecting with ClO_2
Chlorine Dioxide		1 / day / plant if disinfecting with ClO_2	1 / day / plant if disinfecting with ClO_2
TOC & Alkalinity	Initial	NA	1 set source alkalinity, source TOC, & treated TOC / month / conventional filtration plant
	Reduced	NA	1 set / quarter if average treated TOC < 2.0 mg/L for 2 cons years, or <1.0 mg/L for 1 year

Footnotes:

[1] Partial Chemistry scan (at MDEQ laboratory only) includes contaminants with varying monitoring frequencies as follows:

		GW Sources	SW Sources (including GWUDI)
Nitrate	Initial	1 / year	Quarterly for 1 year
	Routine	1 / year if <50% MCL Quarterly if any sample ≥50% MCL[3]	1 / year if all quarters <50% MCL Quarterly if any sample ≥50% MCL[4]
Nitrite	Initial	1 / 3 years	1 / 3 years
	Routine	1 / 3 years if <50% MCL Qrtrly for 1 yr if any 1 sample ≥50% MCL[3]	1 / 3 years if <50% MCL Qrtrly for 1 yr if any 1 sample ≥50% MCL[3]
Fluoride		1 / 3 years	1 / year
Sodium		1 / 3 years	1 / year

[2] For detailed arsenic monitoring information, see Water Division policy WD-03-020 dated October 20, 2003.

[3] If all samples from 4 consecutive quarters <MCL, return to 1/year and monitor during quarter that had highest result.

[4] If all samples from 4 consecutive quarters <50% of the MCL, return to 1/year and monitor during quarter that had highest result.

[5] If VOCs are confirmed detected, monitor quarterly for VOCs and monitor once for EDB and DBCP.

[6] If no detects in first quarter, waive remaining quarterly monitoring and go directly to routine monitoring.

[7] A Contaminant Source Inventory must be completed, with no indication of vulnerability, to be eligible for this waiver.

[8] Tritium in lieu of WHPP: Waiver requires initial/confirmation tritium samples <1.0 and sampling 1 / 3 years thereafter.

[9] Least Vulnerable: SW systems and GWUDI systems that are not moderately or highly vulnerable.
Moderately Vulnerable: Bay City, Lake St Clair, St Clair & Detroit Rivers, Monroe, Frenchtown, St Joseph, Benton Harbor, Alpena.
Highly Vulnerable: All inland river supplies.

[10] Collect one sample in the 2nd quarter AND one sample in the 3rd quarter of every 3rd calendar year.

[11] With sufficient historical data, may reduce frequency of non-detect contaminants to 1 / year, to be taken during 2nd OR 3rd quarter.

[12] Select moderately vulnerable systems include: Alpena, Bay City, Monroe, Mt Clemens, St Joseph, Wyandotte

[13] Collect sample during the 2nd OR 3rd quarter of year due.

[14] Gross Alpha may be substituted for radium 226 and/or uranium if results ≤ 5 pCi/L or ≤ 15 pCi/L, respectively.

[15] If first 2 quarters are below the detection limit, waive remaining quarterly monitoring and go directly to routine monitoring.

[16] Required for systems > 50,000. Required for systems ≤ 50,000 during any monitoring period the Pb and/or Cu AL is exceeded.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

DEQ

AUG 1 2 2013

RESOURCE MANAGEMENT DIVISION

JUL 3 0 2013

REPLY TO THE ATTENTION OF:
WG-15J

Liane Shekter Smith, Chief
Office of Drinking Water and Municipal Assistance
Michigan Department of Environmental Quality
P.O. Box 30241
Lansing, Michigan 48909-7741

RE: Cyanide Waivers under the State's Approved Phase 2/5 Waiver Program

Dear Ms. Smith:

During a review of waivers given for various inorganic contaminants, it came to our attention that several Region 5 States, including Michigan, are granting waivers for the monitoring of cyanide based on continuous chlorination. Upon closer review, we found a May 5, 1993 letter from Region 5 that stated that the Region would respect the States' approval of susceptibility waivers for cyanide, based on the Public Water System's ability to maintain a detectable chlorine residual within the distribution system.

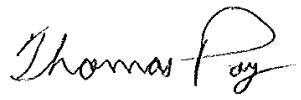
However, we received research information from the U.S. Environmental Protection Agency, which alerted us to a potential public health concern that could result when a public water supply used chlorination to oxidize cyanide. The danger of chlorinating water with cyanide comes when cyanide is at or above the maximum contaminant level. Complete oxidation of cyanide by chlorine occurs at pH of 8.5+; called alkaline chlorination. Incomplete oxidation of cyanide at lower pHs will form a toxic gas, cyanogen chloride. EPA followed up with the Water Supply guidance document 79 (enclosed), and amended the rule under 40 CFR§ 141.62(c) to state that the Best Available Technology for cyanide is alkaline chlorination.

We discussed this again in 2003, but changes to Federal rules had not yet been made at that time, so we could only recommend that waivers for cyanide not be granted based on the system's ability to maintain a detectable chlorine residual.

At this time, we must rescind our approval of the State's practice of granting waivers for cyanide monitoring based upon the system using continuous chlorination. We request that the State revise its waiver program, so that a waiver for cyanide monitoring is not based upon continuous chlorination. We also ask that the State review the levels of cyanide at its public water supplies which were granted waivers, to determine if cyanide monitoring is warranted in Fiscal Year 2014.

If you have questions regarding this letter, please do not hesitate to call me. Thank you for your prompt attention to this matter.

Sincerely,



Thomas Poy, Chief
Ground Water and Drinking Water Branch

Enclosure

cc: Richard Benzie, MDEQ
Carrie Monosmith, MDEQ

Appendix 1-H: Findings and Recommendations from EPA Discussions with MDEQ

Appendix written by EPA Region 5

Table of Contents for Michigan's Implementation of the Drinking Water Program: Findings and Recommendations from EPA Discussions with Michigan Department of Environmental Quality (MDEQ) Managers and Staff, April 4-8, 2016

Introduction: EPA conducted an in-depth review of Michigan's implementation of the drinking water program on April 4-8, 2016, which included a Program File Review (FR), Enforcement Verification, and Lead Rule implementation and Flint review. The FR included meetings with staff and managers to discuss

administration and implementation practices in the drinking water program. This attachment includes findings and recommendations from those discussions. However, this is not a comprehensive list of all recommendations that EPA has made to the State through its program oversight; for example, other documents such as EPA Region 5's annual review of the operator certification and capacity development programs, the Public Water System Supervision grant and End of Year evaluation for the grant, State lab and lab certification audit reports, Drinking Water State Revolving Fund Performance Evaluation Reviews, and previous data and enforcement verifications, also include specific recommendations.

Summary: Based on this review, MDEQ faces many challenges in effectively implementing the drinking water program, most of which appear to stem from inadequate resources, an inefficient data management system, the State's decentralized structure, and repetitive organization restructuring policies. Specific State recommendations for each of the program areas examined are included below, as well as in the text of the FR report.

Program Organization and Administration Recommendations:

1. Work with the ASDWA, EPA, and stakeholders regarding approaches for identifying core primacy and other public health priority work, organizational structure options, and alternative funding/ full time equivalent (FTE) needs and sources. It appears that much work has been done by the State already in terms of identifying possible new program functions, organizations of work, the need for more timely action on lapsed functions (work that needs to be done that is not assigned), and options for funding; however, as of April of 2016 none of these initiatives have come to fruition. EPA encourages, as part of this process, that MDEQ look to the future and embrace data management technologies which will streamline data management transaction, improve staff efficiencies, and further enhance transparency and public access to compliance data. MDEQ should try to overcome public health vulnerabilities, involve all stakeholders, carefully consider options for how resources are deployed (for example, by working with ASDWA or other organizations), and weigh whether increased public health protection will result from any changes.

2. Continue to offer and expand training to LHDs, other partners, and laboratories, as needed, on new regulatory requirements. Consider staff suggestions:

    a. Certain review courses are scheduled and offered on an ongoing recurring basis, and;

    b. A training coordinator position is established to facilitate training and outreach. For any new rules, MDEQ may want to consider that the training on RTCR be used as a model, as a resource analysis was performed, and the trainings appeared to result in laboratories and PWSs becoming aware of regulatory requirements, and they were ultimately better prepared to implement the RTCR, effective April 1, 2016.

3. Consider the recommendations made by the review FR teams for the program file review, enforcement verification, and lead rule implementation and Flint review for suggestions on modifications needed to existing policies and procedures.

4. Provide cross-training so staff can better interface, for example between the program and data staff (as discussed in the Data Management Section of this Appendix). It may be helpful to have a QA/QC staff person to assist with program administration; for example, to ensure follow-up on audit findings, to identify inconsistencies in data (such as unusual violation types and missing return to compliance dates in database), and to ensure that policies are being consistently implemented.

5. Conduct a resource needs and "staff time study" for any new initiatives or legislation, similar to what was done to estimate resource needs and staff time for the RTCR.

6. Consider suggesting CWSs use both the reported units and the CCR units in their consumer confidence reports (µg/L and mg/L) for lead and copper, so the public is aware of the equivalency of the data, and can easily understand and compare numbers that they may be receiving from other sources, such as other State and federal agencies.

Program Resources Recommendations:

1. Focus on efficient use of resources, for example by streamlining reporting and eliminating manual data entry, such as by improving electronic reporting capabilities and working toward upgrading or replacing data systems. EPA fully acknowledges MDEQ's efforts over the past five years in trying to overcome some of its data management limitations. Managers recognize that even if MDEQ had funding for new and improved data systems, the State would still need additional staff with the knowledge and experience, to be dedicated to operating these new data systems. For example, the State has been planning the transition from WaterTrack to SDWIS/Prime for several years. The State needs sufficient dedicated staff or contractors with specific expertise in this area, which it does not have. On the NCWS side, EPA and the State thought that SDWIS/Prime would be available by now, but release has been delayed. MDEQ has also had issues with SDWIS 3.3 working in their Structured Query Language (SQL) environment for CWS data management.
2. Determine more precisely how staff currently allocate their time, and make adjustments as needed. The ASDWA resources tool may also be helpful in assisting with identifying resource needs for running the core primacy program.
3. Obtain long-term source(s) of funding. MDEQ had been working on an overall water strategy and the funding needed to support it, and management should evaluate this effort. Potential increases in funding needs to be further explored; EPA Region 5 acknowledges MDEQ's past attempts to secure additional program funding. EPA Region 5 supports MDEQ, at the Department level, continuing to evaluate whether federal Section 106 grant funds should be used for ground water protection activities, as we recognize that the decision to utilize this funding source is not under the control of the drinking water program. State staff mentioned the administrative costs of managing their current public water supply fee program, where a significant portion of the fees being collected go to administering the program; therefore, staff may consider it advantageous for a third party to administer the program if a different fee program was enacted.
4. Continue to reduce the level of Unliquidated Obligations (ULO) for the DWSRF set-asides by ensuring timely draws of set-aside funds, as described in the recommendations in the DWSRF Program Evaluation Report dated July of 2016.

5. Consider implementing a plan to increase cross-training of staff, such as dual enrollment (hiring trainee before retirements for purposes of training). If state laws are changed to allow such practices, phased retirements that include a mentoring component (e.g., a phased retirement program that allows full-time employees to work part-time schedules while beginning to draw retirement benefits).

Policies and State Initiatives Recommendations

1. Ensure that all policies related to drinking water are consistently publicly available for the PWSs (only three policies were accessible in mid-April of 2016 due to problems with the State's website), so that PWSs understand how rules are being implemented by the State.

2. Continue to consider public health protection prioritization for State-only rules and policies. Consider re-evaluating existing policies for their burden on the State and PWSs relative to public health risk and benefits.
3. Continue to work with EPA, Centers for Disease Control and Prevention, the State Department of Health and Human Services, and LHDs regarding any potential future requirements related to *Legionella* control.

Primacy Status and Rule Implementation Recommendations:

1. Continue to work with EPA related to best practices for the LCR which are outside of the current regulations.
2. Continue to re-invest in review of content of Consumer Confidence Reports.
3. Re-invest in reporting PN violations for Tier 1 and 2 violations (at a minimum, in the short-term) at NCWSs. By ensuring that PN is issued and enforced for Tier 1 and Tier 2 violations, public health is better protected. In addition, prepare a schedule/plan for implementing Tier 3 PN as well. All M/R violations for PN must be reported to EPA. Failure to properly notify could lead to public health consequences, such as increased or extended exposures (for example, when monitoring is not completed on time so the quality of the water is unknown).

Data Management and Compliance Determination Recommendations:

1. Move the NCWS data management to SDWIS/Prime as soon as possible, once EPA makes it available. The NCWS program should move to SDWIS/State to ease the transition to SDWIS/Prime, and to take advantage of the Compliance Monitoring Data Portal (CMDP).
2. Plan for the CWS Program to fully utilize SDWIS/Prime in order to have one place to store official compliance schedules and data. Dedicated State or contract IT staff are needed to do this planning.
3. Cross-train staff so that more than one staff person has a working knowledge and understands how data flows, understands limitations of data systems, and how to query and use management reports. In addition, staff should QA data and examine it for outliers, anomalies, and trends to ensure data quality.
4. Review policies of the State's Department of Technology, Management and Budget (DTMB) (which is located in a different department) to determine how to allow for increased use of web services and to assess the current DTMB structure which limits the ability of the drinking water program to obtain prompt necessary assistance.
5. Examine best practices nationally for CWS and NCWS data management, such as electronic reporting from the laboratory to the State drinking water database. The State should consider a State regulation or laboratory certification requirement to require electronic reporting from all laboratories, including private laboratories, to the State. EPA released the CMDP in October 2016 to ensure that data is transferred from the laboratory to the State database in a complete and efficient manner. EPA encourages the State and labs to implement the CMDP, as well as carefully follow the development of SDWIS/Prime.
6. Prepare a written SOP to outline how source treated flag and facility flow data should be entered into SDWIS/State so staff can complete this task as new source water system facilities are added to SDWIS/State.
7. Work with the labs conducting drinking water compliance analyses to ensure that all data is being given appropriate QA flags and qualifiers are clearly defined, so that situations are clear as to when flagged data may not be appropriate for including in a compliance determination.

8. Ensure that PN is being posted with appropriate messages for TNCWSs utilizing the alternate nitrate MCL of 20 mg/L.
9. Work with EPA regarding whether certain data should be excluded from compliance calculations due to QA concerns. The program did not appear to have a set procedure for handling all QA flagged data as part of their compliance determination process for CWSs or NCWSs. It is also unclear if the lab is reporting all QA flags to the drinking water program or if this is a deficiency with WaterTrack. For example, for NCWSs, WaterTrack didn't include any samples flagged for not being received at the proper temperature, and it is unclear if this is because no such samples exist, if the State lab is not capturing this information, or if it is not being transmitted to the drinking water program. For the CWS program, data qualifiers are not typically entered into SDWIS/State, since it is entered as summary data. The qualifiers may appear on hard copy forms.
10. Seek cross-training for staff on the process of moving data from SDWIS/State to SDWIS/Fed, why timeliness of data submittals by water systems is important, and the use and limitations of SDWIS data on the web for the public so that staff have a broader understanding of the uses of compliance data. (The State experienced some unnecessary work with federal reporting services data available for the public because EPA allowed the public to pull data that was out of date and that did not reflect corrections that had been made by the State.)
11. Weigh State-specific public health priorities, including those which may extend beyond the federal requirements in deciding which initiatives, such as monitoring requirements for stand-by wells, are implementable and able to be funded/staffed and have the highest priority to protect public health.

Laboratory and Sample Analysis Recommendations:

1. Consider making it a laboratory certification requirement for all laboratories to report electronically directly to the State in a manner that will directly feed the State drinking water database; the efficiencies achieved with this process are immense in that 50 labs will report to the State, instead of thousands of individual systems reporting independently. Staff noted that requiring electronic reporting via the lab certification program, which is not currently required, could alleviate the lengthy State rule development process related to electronic reporting by individual water systems, and could allow for a phase-in of lab e-Reporting implementation.
2. Work closely with the State laboratory LIMS data management staff to ensure electronic reporting begins as soon as possible.
3. Devise ways for the drinking water program and laboratory staff to examine data for QA issues or potential fraud, when considering electronic reporting (fraud was mentioned by State staff as a concern with moving from hard copy to electronic reporting). This may take several years to accomplish; consider it a long term goal.
4. Ensure coordination between drinking water lab staff and drinking water data staff to ensure compatibility of any new LIMS with EPA's CMDP, SDWIS/State, and SDWIS/Prime. (EPA released the CMDP in October 2016 to ensure that data is transferred from the laboratory to the State database.)
5. Participate in national discussions related to the use of qualified data for drinking water compliance purposes, if possible, to understand expectations of laboratory and drinking water program staff.

Sanitary Surveys Recommendations:

1. Include an explicit checklist of common deficiencies as an enhancement to the sanitary survey form, so that the inspector can easily recall them and quickly indicate if they exist.

2. Evaluate the frequency of sanitary survey visits as it pertains to the specific types of compliance assistance provided during the visits, as part of an overall resource evaluation. Also evaluate whether the current sanitary survey frequency is providing the optimal value to the systems, and to what extent, if at all, the decentralized structure creates issues with quality and timeliness of sanitary surveys.
3. Consider follow-through on State plans to have fewer staff perform large system sanitary surveys, instead of spreading out this work among many staff as part of their responsibilities. This plan may be beneficial in ensuring a greater level of consistency and quality control.

Capacity Development Recommendations:

1. Ensure that training of staff on existing policies and regulations is conducted regularly to ensure all staff are aware of procedures and requirements to promote consistent implementation. In addition, submit to EPA Region 5 any changes/revisions made to policies and procedures which are referenced as part of your EPA-approved capacity development strategy. This information could be submitted as part of or as an attachment to your annual Capacity Development Report.
2. Pursue training on both the ETT and ETT Scores Tracker for use in prioritizing work, working proactively with systems, and identifying necessary training by PWSs.
3. Continue to move toward sharing with PWSs electronically, for example by posting annual monitoring schedules to the web or using a publicly accessible version of Drinking Water Watch. Certain forms, such as the NCWSs capacity analysis, are already available as an electronically fillable document on the MDEQ website. Enhancing PWSs access to their monitoring schedules on the web may save staff time, and would be readily accessible to LHD staff in the field.
4. Consider dedicating a position for a training/outreach coordinator. This position would be helpful in planning training for PWSs and LHDs, as well as for State staff. The coordinator in this position could help ensure that trainings are occurring regularly on a set schedule, verify that content such as short YouTube videos is accessible to the appropriate audience, write articles for newsletters, conduct PE programs, and update operator certification training for new rules, etc. The area of expanding training needs is an emerging issue, with turnover of staff.
5. Continue follow-up on recommendations included in EPA's capacity development approval letter for the 2015 annual capacity development report. In the approval letter, EPA discusses providing extra technical, financial and managerial assistance to existing systems which have new sources, and recommends MDEQ continue including systems which change classification from a TNCWS to a NTNCWS on the list of new systems for which capacity is tracked in the annual reports. EPA recommends that, in most cases, the system could be treated like a new system and the State should put it through the same capacity evaluation as it does with the brand new systems. Michigan requires approval of a financial plan and an operations plan that address financial and managerial capacity before a new system, except transient systems, can start operation. An updated financial and operational plan from a system with a new source may prevent future noncompliance problems.

Operator Certification Recommendations:

1. Consider funding options for the operator certification program. The use of DWSRF set-asides are allowable to support the operator certification program, but the operator certification program *could* be self-sustaining if it were fully funded by fees. That would allow for more focus on program improvements and operator training, and leave more resources for other critical drinking water program needs.
2. Consider any adverse impacts of offering certification exams only twice per year. By restricting the number of times per year to take the exam, the State is restricting the number of operators that are

available to be hired each year, as well as the timeliness of operators gaining certification at the appropriate level if the system is reclassified to a higher level. As part of this effort, MDEQ should carefully evaluate the extent (in terms of how many months, as well as how many systems) to which systems are not operating with operators at the appropriate certification level.

3. Provide resources to follow-up on lapsed operator certifications and carry out a stakeholder process to examine possible program inefficiencies and process improvements.
4. Plan for potential operator shortages in the future, for example by considering innovative approaches or possibly new classifications such as operator-in-training, which are being used successfully in other states in order to get more interest in the field.

Plan Review Recommendation:

1. Fill the vacant treatment engineer positions, and take into consideration specialized technical expertise needs to effectively implement the drinking water program when hiring staff.

I. Public water system regulation in Michigan: History and background

The Michigan Department of Environmental Quality (MDEQ) is the primacy agency for the Public Water System Supervision (PWSS) program responsible for overseeing the State's public water systems (PWSs). Michigan has 1,386 community water systems (CWSs) serving a population of 7,389,527, and 9,394 non-community water systems (NCWSs) serving a population of 1,367,200, according to the April of 2016 Safe Drinking Water Information System–Federal version (SDWIS/Fed) database.

Michigan began regulating public water systems in 1913 under the Waterworks and Sewerage Systems Act 98, which placed responsibility for construction and inspection of publicly owned drinking water systems on the State health department. Amendments to Act 98 in 1931 required permitting, and in 1941 allowed the State to classify systems and establish operator certification requirements. One of the world's first cities to fluoridate drinking water was Grand Rapids, Michigan, in 1945.

In 1974, the federal Safe Drinking Water Act (SDWA) was enacted, and implementing regulations that went well beyond the previous federal Public Health Service codes were issued. Michigan subsequently adopted equivalent safe drinking rules under the State Safe Drinking Water statute. Michigan received initial primacy from the EPA for the drinking water program in February of 1978, and is currently up to date with all drinking water primacy rules, except the Revised Total Coliform rule (RTCR), for which Michigan is fully implementing under an extension agreement and submitted a final application to EPA Region 5 for approval on April 18, 2016.

Considerable organizational change in Michigan's drinking water program has occurred in the past 20 years:

1996:

In January of 1996, the drinking water program was moved from the Department of Public Health to the MDEQ. At that time, some of the policies that were in place (which had a more stringent interpretation of the regulations) were rescinded, which was part of a larger effort by MDEQ to ensure that the drinking water program was regulated by rules, and not by policy.

When the 1996 Michigan program organizational change was made, the existing decentralized structure of the MDEQ for the new drinking water program was retained. This was a change for the drinking water program, from the existing central office structure located in Lansing. MDEQ staff indicated that at the time of this move, some staff were left

with the choice of having to move to a different location in the State or possibly lose their positions. To this date, the structure of the drinking water program is decentralized with district offices directly implementing the community program and overseeing implementation of the non-community program which is conducted by LHDs. MDEQ managers noted advantages and disadvantages to a decentralized structure with the primary advantage being the ability to quickly respond to specific issues at PWSs, and the primary disadvantages being more inconsistency in implementation and difficulties with mentoring and training staff that require more experienced oversight. MDEQ managers noted that there have been some suggestions that are currently being discussed at the State to try to improve consistency of CWS implementation, for example by: 1) decreasing the number of staff doing surface water system sanitary surveys, so that there are not a large number of different staff doing sanitary surveys at surface water PWSs; and 2) centralizing lead rule compliance so this focused activity is performed by a smaller group of staff.

2002-2004:

In 2002, the drinking water program moved to a new building. In 2004, due to funding considerations, there was no longer a distinct PWSS program chain of command due to the drinking water program merging with other MDEQ water programs.

2010-2011:

In January of 2010, the governor consolidated State government by combining the Department of Natural Resources and the Department of Environmental Quality into one agency called the Department of Natural Resources and Environment, and the two parent departments were abolished. The drinking water program was taken out of the Division with water-related programs. The drinking water staff were located in an organization that included industrial waste oversight and the landfills program, which merged supervisors from these programs with the drinking water program. MDEQ staff said that major organizational changes that occurred in 2010-2011, combined with a considerable number of retirements and not replacing staff after departures, has greatly decreased staff and been very disruptive to the drinking water program.

2011-2015:

In spring 2011, the MDEQ was re-created, and the environmental and drinking water regulation and oversight programs were moved back to MDEQ. The natural resources programs were moved to the re-created Michigan Department of Natural Resources. As a result of a re-organization in 2012-2013, the direct chain of command for the PWSS program was re-aligned under the new structure; however, resource issues were not addressed. Due to downsizing, FTE position limits, retirements, and significantly reduced funding, resources became increasingly tight. Again, several more stringent State requirements were rescinded under regulatory reinvention efforts. During this timeframe, a water strategy was developed to provide a comprehensive picture of water resource needs. Although a valuable step, work on the strategy may have delayed progress on other efforts to obtain a comprehensive funding mechanism. MDEQ managers believed that the chances of legislature approval of a fee program were small with upcoming elections in 2014. Thus, a fee proposal was drafted but not put forward to the Legislature.

The drinking water program, which encompasses the federal safe drinking water program (with the exception of the Underground Injection Control program, for which MDEQ does not have, and apparently is

not currently interested in acquiring, primacy) has had relatively few permanent Michigan directors overseeing the program. Past administrators of Michigan's drinking water program under the SDWA were as follows: William Kelley, 1975-1988; James Cleland, 1988-2010; and Liane Shekter Smith, 2010-2015. Jim Sygo, Deputy Director of MDEQ, acted as Interim Chief of the Office of Drinking Water & Municipal Assistance (ODWMA) from October of 2015 to January of 2016 when Mary Ann Dolehanty became the Interim Drinking Water Program Chief. Ms. Dolehanty was the Interim Chief at the time of this review, and remained in that position until July 31, 2016. Bryce Feighner was permanently assigned to this position from August 1, 2016 through June 30, 2017 when he retired. Eric Oswald has held this position since June of 2017.

Major shifts in staff work occurred during the first half of 2016 partly to staff departures and increased departmental emphasis on Flint; for example, the previous Field Operations Supervisor and Lab Director are both focusing exclusively on efforts related to Flint. New appointments were made to cover Field Operations oversight, an acting manager is performing the Lansing District Supervisor duties, and a new manager is temporarily assuming supervisory responsibility for the Jackson district office.

II. Program Organization and Administration

All drinking water functions are housed in the Office of Drinking Water & Municipal Assistance (ODWMA), except laboratory certification which is in the Remediation and Redevelopment Division (RRD). MDEQ's ODWMA technical support and data staff are housed in Lansing. The CWS Program is managed through five District Supervisors for the following districts:

1. Upper Peninsula district office,
2. Bay City and Cadillac offices,
3. South East Michigan district office,
4. Lansing and Jackson district offices, and
5. Kalamazoo and Grand Rapids district offices.

Please see Figure 1, for an organizational chart. On a temporary basis, the South East Michigan District Office Supervisor is currently supervising the Jackson district Office.

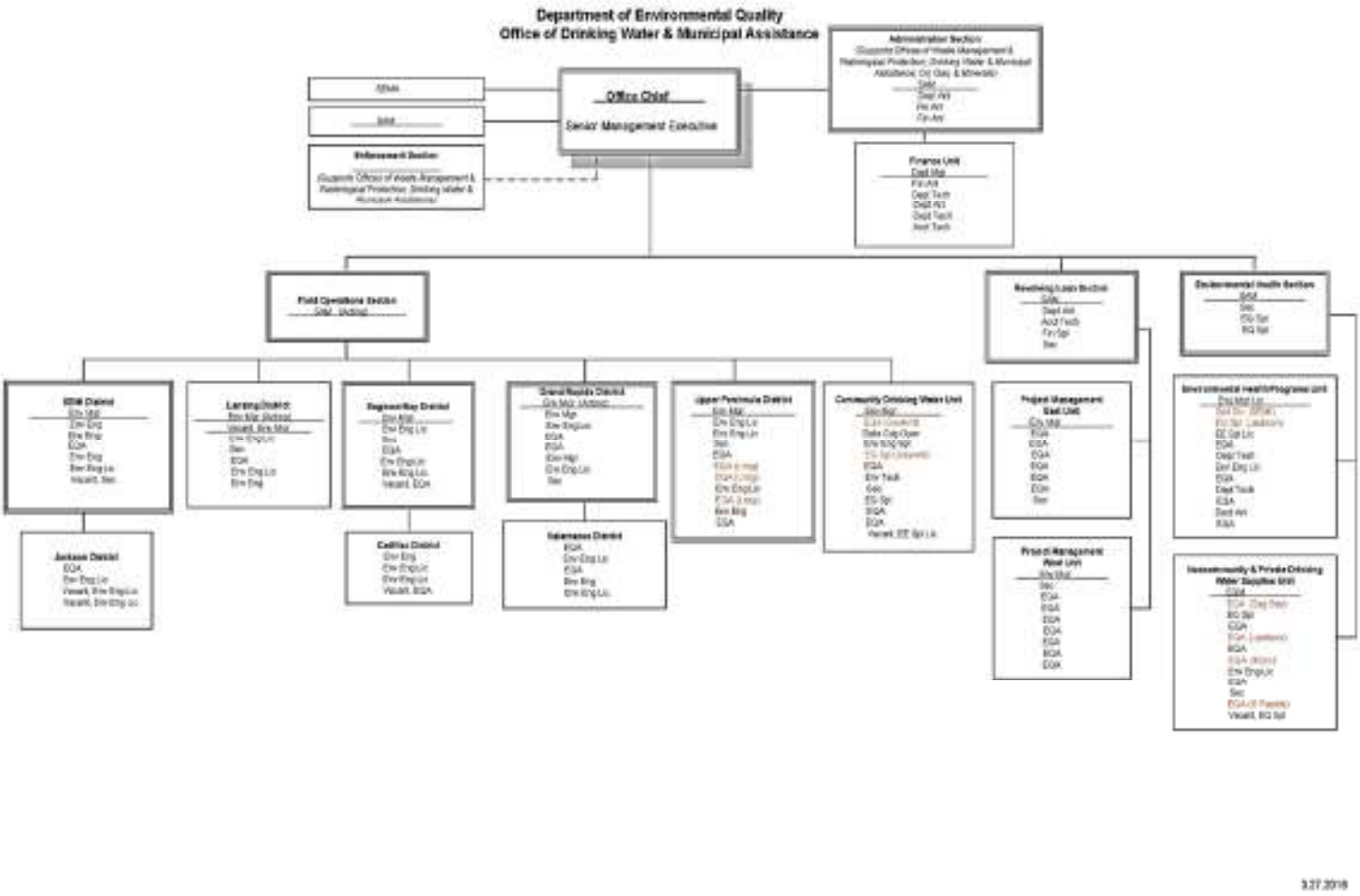


Figure 1. MDEQ Office of Drinking Water & Municipal Assistance Organization chart, as of March, 2016.

Key:
SEMA: Senior executive management assistant; SAM: State Administrative Manager
EQA: Environmental Quality Analyst; SPL: Specialist

The non-community program is also decentralized, with State staff in the Non-community and Private Drinking Water Supplies Unit in Lansing and in district offices that oversee the 44 LHDs. About eight non-community State staff provide assistance and oversight to the 44 LHDs that implement the non-community program under contract with MDEQ. One non-community State staff person is located in each of the following district offices: Kalamazoo, Grand Rapids, Bay City, and Jackson. The Upper Peninsula district office has two State staff working in the non-community program.

Oversight activities by MDEQ of LHDs includes the following:

1. Annual contracts with the LHDs detail performance expectations;
2. Quarterly reports of LHD activities;

3. Annual on-site evaluations of LHD performance which includes a file review [18]; and
4. Direct technical assistance to LHDs, including identifying problems, clarifying regulations, addressing compliance issues, and conducting training and outreach.

Program administration best practices noted by MDEQ staff include establishing committees for engineers and analysts; standardized forms/templates for certain activities to ensure consistency; sending systems an annual letter early in the calendar year that details monitoring required for the year; establishing a close relationship with the well construction program; having an on-site wastewater program; working with other licensing agencies; and establishing joint funding with the Michigan section of the American Water Works Association (AWWA) to train operators, with MDEQ oversight (allows a certain number of MDEQ staff to attend at no charge, and then the attendees teach the material to others, including operators).

One of the benefits expressed by MDEQ of having a central office structure (with the exception of the Upper Peninsula, where geographical distance may necessitate a district office) includes backfilling of staff functions, for example when staff are on leave. In addition, a central office structure would allow for more consistent, efficient and flexible resource deployment. In the District office structure, there may be insufficient or no back-up staff available.

Although there are potentially more concerns about ensuring consistent implementation in a decentralized structure, as well as providing opportunities for mentoring and cross training, the advantage of a decentralized structure is that staff are geographically accessible to PWSs that may be experiencing issues. Of note is that the Upper Peninsula was decentralized (it is in its own district office) even when the drinking water program resided in the health department and was centrally located in Lansing.

Legislative initiatives mentioned by MDEQ staff that could potentially have significant impacts on program administration and resources include a State-specific Lead and Copper Rule (LCR), attempts to prevent the implementation of cross-connection control programs, attempts to move the drinking water program to the licensing department or elsewhere, and possible new supplemental "secondary" treatment requirements (which could result in potentially 1000 newly regulated entities). (Related to this effort, the State requested EPA input on defining treatment, and what can be excluded from treatment. There is an outdated agreement with at least one facility saying that sodium silicate would not be considered treatment, which needs to be revisited. However, MDEQ would not consider softening as treatment). Additional legislative initiatives include several draft bills responding to the Flint situation, and $9 million dedicated to school sampling. MDEQ staff stated that AWWA, ASDWA, large utilities, LHDs, and other stakeholders could provide credible insight and are all appropriate stakeholders to include in any State-specific initiatives.

The biggest challenges noted by staff in implementing the PWSS program are:

1. Resources. The regulations have expanded and the scope of what the State has to track have continued to expand over the years. Consequently, there is a need for increased staff and more advanced technology to manage the additional work. Currently, staff say that there is a loss of general funds, long-term dependence on unsustainable funding sources, variability of funds received from public water supply fees, and the federal PWSS grant has not increased. Despite all of these changes, the work required to implement the drinking water regulations has increased dramatically;

[18] As of April 2016, a NCWS treatment engineer is helping to perform annual on-site evaluations at LHDs. MDEQ is hoping to hire a person to do LHD evaluations, so that the engineer's time can be fully dedicated to providing treatment assistance to non-community public water systems.

2. Organizational structure which is de-centralized and therefore more difficult to maintain consistency and oversee;
3. Lack of readily available access to IT services;
4. Ever-expanding regulations (with lots of extra layers of reporting deadlines, for example 30 days, 60 days, and 120 days are used throughout a single regulation), and minor requirements that cause unnecessary extra staff work. (For example, some MDEQ staff believe that the CCR content is dense and not user friendly, and following the federal requirement to have CWSs convert the lead units to CCR units, but not the copper units, adds to the confusion. The CCR should be limited in scope and kept simple so it is understandable by the public.)

As discussed elsewhere in this report, activities given a lower priority, for which MDEQ had a temporary disinvestment acknowledgement in 2016 with EPA, included: Tier 3 PN, late reporting, thorough CCR content reviews, and calculating Running Annual Averages (RAA) for systems with no detects (although SDWIS/State will do this calculation automatically, so CWSs should have this calculated value). MDEQ states that the temporary disinvestment acknowledgement is a form of transparency, and an attempt to prioritize the ODWMA's work; even without a disinvestment acknowledgement for these activities, some State staff believe that they still would not be able to conduct these activities. The program does not want to sacrifice on-site visits, which are the first line of public health protection, for administrative items with low, if any, public health gain. As discussed previously, the EPA Region 5 is including a requirement in the 2017 PWSS grant work plan to submit to EPA a plan and schedule for fully implementing all of the regulations.

Implementation is prioritized for new rules, emerging issues, current issues (such as the Lead and Copper Rule), and health related rules. As an example, if a CCR certification form is received late, it has a lower priority for staff follow-up than the aforementioned items.

The State staff discussed that more training would be helpful, both in terms of training provided to systems, and training for State staff. A highlight of MDEQ's program is the extensive training plan that they have for new resource analysts and engineers. State staff participate in EPA sanitary surveys and other training, webinars, conferences, and meetings throughout the year.

A. CWS Program:
The state uses a multitude of approaches to manage the CWS program. For example, the State uses surveillance reports for oversight, and makes extensive use of SOPs in managing the program. There are standing committees, such as the District Analyst committee and the Water Treatment committee to help guide the need for new or revised policies. A specific workgroup of one engineer from each district office meets as needed to review 10-States' Standards that are in need of revision (every state gets a specific portion to review).

MDEQ also maintains a document, *"Suggested Practices for Water Works"* which details the intent behind the drinking water rules. Over the years, this document has been pared down so that it does not duplicate the material in 10-States' Standards. Also, instead of repeating policies, they are incorporated by reference.

The Field Operations Supervisor oversees and evaluates the performance of the district supervisors. Employee performance standards include specific metrics, for example, one metric considers the number of sanitary surveys and site visits performed.

The State uses a variety of tools to ensure capability of PWSs. For systems with financial capacity issues, a successful State program has been established to develop a system-specific Financial Action Plan (FAP), which is administered by State DWSRF staff in the Lansing office. The FAP helps systems examine their finances, solve issues, and look at rates/ordinances, etc. for long-term resolution. The program also does financial assessments of new CWSs.

The DWSRF program coordinates with district offices in to score project submittals for potential DWSRF funding. The District Engineers issues the construction permits.

B. NCWS Program:
As stated previously, the MDEQ contracts with LHDs to implement the drinking water program at NCWSs. MDEQ staff interpret current State regulations, and LHDs must conduct all related drinking water program activities. There is concern by LHDs of the increased burden with the new RTCR rule. Some, but not all, counties charge additional fees for sanitary surveys. With nearly 9,500 NCWSs overseen by 44 LHDs, there are some consistency issues.

There has been some internal discussion at MDEQ as to whether the LHDs should continue to lead implementation oversight of the NTNCWS; similarly, a recommendation of the 2010 FR conducted by EPA was to consider moving the NTNCWSs program to the CWS program. As of 2016, the State is again discussing directly overseeing the NTNCWSs. However, to accomplish this, MDEQ managers believe that significantly more staff would be needed to manage the program. The non-community program met to discuss the additional workload involved with the RTCR based on a staff time study conducted by the State, to see what could potentially be given a lower priority. In the end, the NCWS program did not find any activities that could be temporarily disinvested.

MDEQ makes extensive use of policies and procedures in the CWS and NCWS programs to help ensure consistent implementation. The State's non-community program manual was just updated with new SOPs, and is again being revised to incorporate the RTCR, which became effective on April 1, 2016. MDEQ has developed many fact sheets and training materials for the RTCR. SOPs are referenced in the 2015 Noncommunity Program Staff Reference Manual, and applicable new policies are provided in trainings for LHDs. However, although policies are supposed to be revisited every five years, this deadline is not always met. The NCWS program tracks training provided to LHDs, as well as NCWS staff attendance. The NCWS staff provide considerable one-on-one training, especially on how to track new rules. In addition, the State uses approximately $9,000 per year from set-aside funds to sponsor LHD training.

Program Organization and Administration Recommendations:

1. Work with the ASDWA, EPA, and stakeholders regarding approaches for identifying core primacy and other public health priority work, organizational structure options, and alternative funding/FTE needs and sources. It appears that much work has been done by the State already in terms of identifying possible new program functions, organizations of work, the need for more timely action on lapsed functions (work that needs to be done that is not assigned), and options for funding; however, as of April of 2016 none of these initiatives have come to fruition. EPA encourages, as part of this process, that MDEQ look to the future and embrace data management technologies which will streamline data management transaction, improve staff efficiencies, and further enhance transparency and public access to compliance data. MDEQ should try to overcome public health vulnerabilities, involve all stakeholders, carefully consider options for how resources are deployed (for example, by working with ASDWA or other organizations), and weigh whether increased public health protection will result from any changes.

2. Continue to offer and expand training to LHDs, other partners, and laboratories, as needed, on new regulatory requirements. Consider staff suggestions:

    a. Certain review courses are scheduled and offered on an ongoing recurring basis, and;

    b. A training coordinator position is established to facilitate training and outreach. For any new rules, MDEQ may want to consider that the training on RTCR be used as a model, as a resource analysis was performed, and the trainings appeared to result in laboratories and PWSs becoming aware of regulatory requirements, and they were ultimately better prepared to implement the RTCR, effective April 1, 2016.

3. Consider the recommendations made by the review FR teams for the program file review, enforcement verification, and lead rule implementation and Flint review for suggestions on modifications needed to existing policies and procedures.

4. Provide cross-training so staff can better interface, for example between the program and data staff (as discussed in the Data Management Section of this Appendix). It may be helpful to have a QA/QC staff person to assist with program administration; for example, to ensure follow-up on audit findings, to identify inconsistencies in data (such as unusual violation types and missing return to compliance dates in database), and to ensure that policies are being consistently implemented.

5. Conduct a resource needs and "staff time study" for any new initiatives or legislation, similar to what was done to estimate resource needs and staff time for the RTCR.

6. Consider suggesting CWSs use both the reported units and the "CCR units" in their CCRs (µg/L and mg/L) for lead and copper, so the public is aware of the equivalency of the data, and can easily understand and compare numbers that they may be receiving from other sources, such as other State and federal agencies.

III. Program Resources

Funding sources for the ODWMA include Drinking Water State Revolving Loan Fund (DWSRF) set-asides, which provide considerable funding for the CWS program, with some general funds and fee revenue. Federal Section 106 funds are used for ground water protection work done by drinking water program staff. Specifically, the drinking water program salaries (85 FTE, in Grant Year 2016) are funded by:

Table 1-2. Sources of Funding for MDEQ Drinking Water Program staffing

	% By Source	% By Source Type		FTEs
General Funds	**8%**	8%		10
Federal Funds	**63%**			
Public Water Supply Supervision Grant		27%		25
Drinking Water Revolving Fund Set Asides		36%		33
Fees	**29%**			
Public Water Supply Fees		28%		16
Operator Training and Certification Fees		1%		1
Full Time Equivalent Positions				85*

*MDEQ contracts with LHDs to implement the drinking water program at NCWS which is funded by State fees, so FTE related to LHD implementation of the non-community program is not included in the numbers above. LHDs get a certain % of the Public Water Supply Fees, and they get some federal funding 1) when a new NTNCWS is added to the inventory (which is rare), 2) for systems that have treatment, and 3) for NTNCWS Source Water Assessments.

A. Current revenue sources for salaries

1. General funds. There has been some uncertainty in the budget process as to whether the State will have the general funds to match the DWSRF grant set-aside funding. About 99% of the general funds received by the program are used as match for federal funding. General funds are adjusted annually.
2. PWSS grant. The federal PWSS grant has not increased significantly in the past 10 years, despite increased program requirements. The State is only providing the minimum State match allowed by law for the PWSS grant. At the time of the review, MDEQ did not have the final FY16 PWSS grant amount from EPA yet, due to EPA's budget not being final. However, final State grant allotments were released on April 19, 2016. Historically, the PWSS program was a part of a Performance Partnership Grant (PPG) (when the drinking water and surface water programs were combined and could share funding), but in 2011, the PWSS program pulled out of the PPG as part of the MDEQ reorganization. The PWSS program received its full allotment when under a PPG, and continues to receive its full allotment as a stand-alone grant.
3. Drinking Water Revolving Fund set-asides. MDEQ's drinking water program staff funding trends show an increase in taking set-aside funds in the last 5-10 years as the program has lost general funds that supported FTEs. MDEQ has a very heavy reliance on this revenue source; the DWSRF set-asides currently support 33 FTE. Many states are concerned that this is not a guaranteed source of ongoing funding, and EPA cautions on over-reliance for state salaries.

   An accountability system to ensure financial integrity of grants was developed in 1994, called the Michigan Administration Information System (MAIN). This is used to validate match for drinking water program grants.

   The drinking water program does not do financial draws for the DWSRF set-asides; draws are completed by a different program. Set-aside financial draws are recorded in MAIN, which includes

accounting codes to identify funding sources; expenses are also verified through MAIN reports. MAIN is in the process of being replaced by a SIGMA system in October of 2017.

EPA conducted its annual Performance Evaluation Review of MDEQ's DWSRF program in late May of 2016, with a follow-up call with the State to specifically discuss set-aside expenditures. Additional findings from that review are referenced in a separate report dated July 27, 2016, prepared by EPA Region 5's State and Tribal Programs Branch, which administers the DWSRF program.

MDEQ mentioned that the State has changed practices related to a previous concern of EPA Region 5 as to the number of years a DWSRF grant is open. The State is following EPA's guidance by having no more than two years of grant funds open; the FY 13 grant will be closed out by the end of 2016.

Under the program DWSRF set-asides, MDEQ is streamlining by only taking the PWSS set-aside, but conducting activities previously conducted under the Source Water Protection, Operator Certification, and Capacity Development set-asides. MDEQ will also take Wellhead Protection (WHP), Administration, and the Small Systems Technical Assistance set-asides in FY17. For the past several years, the State has been flagged by EPA HQ and EPA Region 5 for having a relatively high level of Unliquidated Obligations under DWSRF set-asides. The primary issue is that although the drinking water program is spending the funds, the MDEQ Executive Division has been slow to take the draws. The Executive Division used to take draws quarterly, but they are now drawing funds monthly, so EPA expects to see improvement in this area.

4. Public water supply annual fees for CWSs and NCWSs. This source of funding averages about $4 million/year with the exact amount not entirely predictable. A recent State audit corroborates the conclusion that the drinking water program is underfunded; one reason is that not enough fees are collected.
5. Operator certification fees. The State operator certification fees are required by State statute and total about $200,000 per year.

B. Factors contributing to resource deficiencies

In 2010-11, there were a significant number of retirements and a reorganization. Replacements of staff who left were at a rate of 1 to 4. During that time, the program lost a large number of PWS staff.

Each year, there is uncertainty as to whether the required match for the federal grants will be approved. The State struggles every year to ensure the entire match is provided, so the grant can be awarded to the State.

An additional factor that has affected drinking water staffing at MDEQ is the FTE cap that has been in place on and off throughout the 2000's, which has made it difficult to hire even when funding was available. MDEQ has recently discussed the need to hire an additional 20 staff, which includes field engineers and resource analysts for compliance tracking.

There have been recent discussions on the need for additional resources, which State staff commented were highlighted in the Auditor General's recent report (December of 2015). The State is not aware of major changes to revenue sources, though. Flint might obtain additional funding for various work, including conducting school monitoring.

While both the EPA and State continue to promote Clean Water Act (CWA)-SDWA integration, funding of some programs was questioned by MDEQ staff. For example, funding of certain other programs using DWSRF set-asides was originally intended to be a stop gap measure, such as the on-site wastewater treatment program, septage programs (ground application), and campgrounds programs. Staff would like to pursue other long-term funding mechanisms for these programs, including fees. While there is a drinking water protection component to these programs, the same could be said for many other waste programs, which are not funded via set-asides. Some managers support continued use of set-aside funds for the campground program, but less so for on-site and other waste programs. Since funding of these waste programs is an allowable cost under source water protection, EPA does not have a specific recommendation for the State regarding funding sources for these programs which contribute to protection of ground water sources of drinking water, other than to repeat the caution that DWSRF set-asides are not a guaranteed source of long-term funding for any activity.

C. Shortfalls in work performed due to resources

There are many examples of work throughout this report that the staff is behind on, or for which there is limited staff expertise on, or that staff and managers would like to do to improve the program but cannot be done due to resource shortfalls. A few examples:

1. Challenges to the program include fewer resources for operator certification and source water protection. The State has not put resources into source water protection because of the need to do regular core primacy work and source water protection is voluntary in Michigan. However, the State plans to take the full allowable amount for the WHP set-aside in Grant year 2016. MDEQ managers have said that the program has asked for additional funding in order to update source water assessments. There has been some recent planning by the State to re-institute a source water protection unit in the future, which would provide more focus on source water protection activities. This unit would cover well construction, contamination investigations, and source water protection.
2. Consolidation of managerial positions has resulted in staff being spread thin with fewer managers to oversee work and a potential for quality issues. Managers, in some cases, are filling in for staff work, particularly for new rules.
3. It is difficult to learn new regulations and adequately train LHDs due in part to the complexity and implementability of regulations, decentralization of staff, different expertise levels, time commitment involved in training.
4. EPA has been promulgating many new regulations over the past 10-15 years, so the program was not able to fully implement in areas that had lower public health risk. MDEQ was transparent with EPA about non-public health activities that were termed "temporary disinvestments". For example, since it takes time to get violation notices out for certain non-public health related activities, the State decided it needed to focus on higher priority public health issues. MDEQ also temporarily disinvested in Tier 3 PN enforcement.
5. The drinking water program has not been able to fund or focus on electronic reporting and improving data systems.
6. LHDs lack sufficient funding. LHDs are concerned about implementation of the RTCR, such as the increase to monthly sampling. Certain counties have very high non-compliance rates as compared to the others. The State does not have more resources to offer the LHDs.
7. The State has had to send individual spreadsheets to LHDs to complete information about RTCR implementation, such as level 1 and level 2 assessments. The LHDs will submit 44 spreadsheets to the State, and the State doesn't have a designated staff person to review and consolidate the information. While this was a necessary step, due to lack of a central data system that could manage

this process, it is not an efficient way to do business in the long-term. The program has asked for additional funding for implementation of the RTCR.

8. There has been a large increase in work and staff involved with Flint work. Also, some staff have been re-assigned to work on Flint. Thus, fewer staff are available to work on public health protection activities at other PWSs in the State.

Program Resources Recommendations:

1. Focus on efficient use of resources, for example by streamlining reporting and eliminating manual data entry, such as by improving electronic reporting capabilities and working toward upgrading or replacing data systems. EPA fully acknowledges MDEQ's efforts over the past five years in trying to overcome some of its data management limitations. Managers recognize that even if MDEQ had funding for new and improved data systems, the State would still need additional staff with the knowledge and experience, to be dedicated to operating these new data systems. For example, the State has been planning the transition from WaterTrack to SDWIS/Prime for several years. The State needs sufficient dedicated staff or contractors with specific expertise in this area, which it does not have. On the NCWS side, EPA and the State thought that SDWIS/Prime would be available by now, but release has been delayed. MDEQ has also had issues with SDWIS 3.3 working in their Structured Query Language (SQL) environment for CWS data management.
2. Determine more precisely how staff currently allocate their time, and make adjustments as needed. The ASDWA resources tool may also be helpful in assisting with identifying resource needs for running the core primacy program.
3. Obtain long-term source(s) of funding. MDEQ had been working on an overall water strategy and the funding needed to support it, and management should evaluate this effort. Potential increases in funding needs to be further explored; EPA Region 5 acknowledges MDEQ's past attempts to secure additional program funding. EPA Region 5 supports MDEQ, at the Department level, continuing to evaluate whether federal Section 106 grant funds should be used for ground water protection activities, as we recognize that the decision to utilize this funding source is not under the control of the drinking water program. State staff mentioned the administrative costs of managing their current public water supply fee program, where a significant portion of the fees being collected go to administering the program; therefore, staff may consider it advantageous for a third party to administer the program if a different fee program was enacted.
4. Continue to reduce the level of Unliquidated Obligations (ULO) for the DWSRF set-asides by ensuring timely draws of set-aside funds, as described in the recommendations in the DWSRF Program Evaluation Report dated July of 2016.
5. Consider implementing a plan to increase cross-training of staff, such as dual enrollment (hiring trainee before retirements for purposes of training). If state laws are changed to allow such practices, phased retirements that include a mentoring component (e.g., a phased retirement program that allows full-time employees to work part-time schedules while beginning to draw retirement benefits).

IV. Policies and State initiatives

MDEQ has about two dozen formal policies related to the State's oversight of PWSs; however, in April of 2016 only three policies were accessible to the public because the State was having problems with their website. Both the State and EPA recognize that there are many emerging potential drinking water issues not currently mandated with a health-based standard by primacy under the federal program.

MDEQ is currently developing a policy regarding facilities, such as hospitals, which provide secondary treatment (with the exception of softening or iron removal treatment). Hospitals are beginning to install additional disinfection treatment due to concerns about *Legionella,* and the State wants to ensure proper installation, maintenance and operation that is protective of public health. MDEQ is interested in EPA's approach to regulating these systems. EPA notes that existing PWSs that provide treatment would be regulated and required to monitor to demonstrate compliance under existing federal and state regulations. EPA released "Technologies for Legionella Control in Premise Plumbing Systems: Scientific Literature Review" in September 2016.

Legislative updates that could impact implementation of the drinking water program include the asset management and capability improvement program, and the cross-connection control program. The recent asset management rules will help strengthen the financial capability of systems. There have been some attempts to weaken the cross-connection control program in the State, with concerns about requiring backflow devices on home sprinkler systems—this is of concern to EPA Region 5, as many reported bacteria outbreaks have been linked to cross-connection control issues. Also, the program has challenges with unregulated monitoring for Pharmaceuticals & Personal Care Products (PPCPs), 1-4-dioxane, and PFCs, such as different messaging for the public from different federal, State and local agencies. Some of the specific items being discussed for the new Michigan Lead and Copper Rule include mandating an advisory committee for every PWS (it is uncertain how the State would provide oversight of these committees, and whether it would be a violation for not having an advisory committee). While this rule is still in the draft stage, the final product could likely be resource intensive for the ODWMA.

MDEQ has regulations in addition to federal rules that pertain to well construction, new surface water source requirements, requirements for ground water supplies, requirements for distribution systems and pumping stations, reliability studies, system demands in comparison to capacity, cross connection rules, master plans and planning documents to build asset management, capacity improvement plans, operator training and certification, emergency response plans (some of which pre-date federal requirements), water haulers, bottled water, and the WHP grant program.

A more stringent State requirement pertains to the Surface Water Treatment Rule (SWTR), which requires a primary coagulant for direct filtration and conventional plants and does not allow surface water systems to avoid filtration. Also, a federal requirement that is in abeyance for the three aldicarb Synthetic Organic Contaminants was not removed from the Michigan regulations. New ground water sources are required to have analytical results for a suite of contaminant monitoring, including radionuclides.

MDEQ program staff said that resources are the primary hindrance which impedes the State's ability to go beyond the federal requirements in policy, practices, guidance, or law. However, it appears that there are also government-wide regulatory reinvention or downsizing efforts which also impact the State's ability to go beyond the federal requirements. For example, ODWMA had a more stringent State regulation that required schools and daycares that are PWSs to issue an annual water quality report. However, this requirement was removed from the State regulations under a regulatory reinvention exercise to reduce more stringent State efforts about 5 years ago.

When the federal Arsenic Rule was promulgated in 2004, a state was allowed to issue a waiver to a small system if it had low levels of arsenic historically, that would reduce a system's monitoring frequency for arsenic. Michigan never adopted small system waivers for arsenic. Also, the State has a more stringent deadline for monitoring for Phase II/V contaminants, which requires monitoring by September 30 of the year, instead of December 31. The system is fined if it misses the deadline two times or more. These State-

only violations are not reported to SDWIS/Fed. MDEQ holds some monitoring violations until the end of the 3-year monitoring period. EPA Region 5 verified that this is appropriate for compliance samples that only require monitoring once every 3 years; SDWIS/Fed will not accept this monitoring violation data until the end of the 3-year monitoring compliance period.

The State has a draft policy regarding CWSs continuing to regularly monitor stand-by wells (defined as wells that are not needed but still physically connected). The NCWS program does not have specific written guidance related to stand-by wells at NCWS. The NCWS program and LHDs try to ensure that water wells that no longer serve as their primary potable source(s) are properly plugged or separated from the potable supply. If there was a NCWS that was interested in maintaining a stand-by well for potable use, the NCWS program would reference the CWS draft stand by well policy. The State will need to determine whether this is a program area that requires formal policy or rules, when prioritizing work, because although other States have found this to be of concern, federal regulations do not yet require stand-by or back-up wells to be regularly monitored.

Policies and State Initiatives Recommendations:

1. Ensure that all policies related to drinking water are consistently publicly available for the PWSs (only three policies were accessible in mid-April of 2016 due to problems with the State's website), so that PWSs understand how rules are being implemented by the State.
2. Continue to consider public health protection prioritization for State-only rules and policies. Consider re-evaluating existing policies for their burden on the State and PWSs relative to public health risk and benefits.
3. Continue to work with EPA, Centers for Disease Control and Prevention, the State Department of Health and Human Services, and LHDs regarding any potential future requirements related to *Legionella* control.

V. Primacy Status and Rule implementation

A. Primacy Status

MDEQ is commended for being up-to-date with all primacy rules. MDEQ is currently operating under an extension agreement for the RTCR. At the time of this review, MDEQ staff were checking on the status of the RTCR primacy application, and when it will be submitted to EPA Region 5, since the State's rule adoption staff position was recently vacated. EPA Region 5 subsequently received MDEQ's RTCR primacy application on April 18, 2016. MDEQ's RTCR preparations for PWSs, which were thorough and used innovative methods such as a YouTube video for training purposes, were led by a manager; however, it is unclear if staff-level technical contact leads for the RTCR have been designated.

The 2017 MDEQ grant work plan includes the following: "A State with primacy is expected to fully implement all aspects of the regulations. State actions and policies must be at least as stringent as the federal regulations. For any portion of a regulation that the State can't implement, the State must submit a plan with schedule describing the steps the State will take to fully implement the provision. This plan must be submitted within 90 days of the award of this grant."

B. Rule implementation

The top rules for violations for the non-community water system program, based on violation counts only (as opposed to systems in violation), are Total Coliform Rule (TCR) (9% of all violations), Inorganics, Volatile Organics (VOCs) and Synthetic Organics (SOCs) (Phase II/V rule) (4.1%), and Lead and Copper

Rule (LCR) (2.3% of violations). Based on violation counts only, the top health-based (monitoring violations are not included) rules in violation for CWSs (using the January of 2016 SDWIS/Fed data set) were TCR, Stage 2 Disinfectants and Disinfection Byproducts (Stage 2 DBPR), and the Arsenic Rule. Some MDEQ staff believe that the complexity of the monitoring site requirements of the DBP rule led to the significant number of monitoring violations. The CWS program had some increasing trends in DBP monitoring violations due to systems sampling anytime during the year, instead of sampling in a specific month as required by the rule. The rule also expanded the regulated systems to include consecutive systems which had never conducted sampling in the past. The CWS program also had issues with chlorine residuals not always being monitored as required at the same time and location as repeat total coliform samples.

The State anticipates that monitoring violations, as well as reporting violations, may increase with implementation of the RTCR which began April 1, 2016. The State believes that having separate RTCR reporting and monitoring violations, although more burdensome, is helpful to the public in understanding when monitoring was or was not performed. For example, the public may see that the State has 50 "monitoring and reporting (M/R)" violations and assume that monitoring was not performed for 50 systems, when in reality, the majority of these just did not report on-time, and thus they had a reporting violation.

The responsibility for all National Primary Drinking Water Regulations rule implementation is with Michigan; the region has no responsibility to partially implement rules. However, the region has assisted with providing compliance assistance by notifying NTNCWS schools and daycares of lead consumer notification requirements and following up to ensure compliance. The region is also planning to follow-up with systems in the State that have not monitored in the summer months of June through September, as required by the LCR.

Items that the State thought EPA should be aware of related to drinking water rules, include: needing SDWIS/Prime to go on-line in a timely manner; providing technical tools, such as data entry instructions and guidance quickly for new rules; ensuring rules do not become overly burdensome with many different reporting deadlines; and emphasizing the importance of public health protection.

The State mentioned several compliance determination scenarios with which the State experiences difficulties:

1. Resources for on-site verification of data provided on various forms from the PWSs. For example, the State said that going into homes to verify LSLs is not practical for the State to do for all CWSs the State has to rely on systems to verify this information.
2. The State still occasionally has discussions related to whether certain violations should be classified as significant deficiencies. Some are case-by-case evaluations and qualitative decisions.
3. Federal and State rules were written with municipalities in mind, not non-community systems. Sampling sites for non-community systems for the LCR are not clear. The State has assisted small systems that exceed the lead action level at certain taps, and is also conducting investigative lead sampling at Flint schools. (MDEQ developed its own school lead sampling protocol in March/April of 2016.)
4. The State still has questions about public messaging related to investigative LCR samples. For example, if a system is designated to do LCR compliance sampling in 2017, but the system takes 5 samples in 2016 that come back extremely high, the State mentioned that it seems as though consumer notification and PE might still be expected, even if they can't be used as compliance samples.

Public Right-to-know Rule Implementation: Consumer Confidence Report Rule (CCR)
The non-community program had previously required schools and daycares to prepare annual water quality reports, which notify the public (families with children at the school or daycare) of drinking water quality results. However, the State did not have the time or resources to enforce this. In addition, about five years ago, under State regulatory reinvention efforts, the program was asked for ways to reduce regulatory burden, so this provision was removed from the rules—it had been more stringent than federal rules.

Currently, the State determines whether or not the CCR was completed by CWSs, but does not enforce the deadline to submit the certification, which is a temporarily disinvested activity for FY 2016. As discussed previously, EPA Region 5 is including a requirement in the 2017 PWSS grant work plan to submit to EPA a plan and schedule for fully implementing all of the regulations. The State does a limited review of draft CCRs, as requested by CWSs. The State has had to limit time spent on this activity because every year, much of the month of June each year was spent reviewing CCRs that are due by July 1 annually. The State has had to make review of CCRs and enforcement of content requirements a lower priority. However, the State does plan to spot check CCRs for correct 90th percentile levels in summer 2016. The City of Lansing, Michigan was part of the national pilot effort in 2012 related to EPA's policy to allow electronic delivery of CCRs. When e-delivery of CCRs first started, the State checked links in the submitted CCRs to make sure that they directed customers to the web page directly, and that the links worked. The State did have some systems re-issue postcards with revised links if the wrong link was used or if it did not bring the customer directly to the system's CCR. The State database does not currently track systems that are electronically delivering CCRs.

Public Right-to-know Rule Implementation: Public Notification (PN)
As discussed in the Data Systems and Compliance Determinations Section of this report (in Appendix H), the State temporarily disinvested in issuing violations and enforcing for failure to perform PN for Tier 3 violations (M/R violations) due to WaterTrack database limitations. As discussed previously, EPA Region 5 is including a requirement in the 2017 PWSS grant work plan to submit to EPA a plan and schedule for fully implementing all of the regulations. The non-community program does not track Tier 3 PN but does track Tier 1 and 2 PN violations; the CWS program tracks all tiers of PN violations. The CWS program has issued, and continues to issue, fines for failure to do PN. The NC program requires PN, and provides templates, but neither the MDEQ nor LHDs are enforcing whether PN for Tier 1, 2, or 3 violations are issued. If there was escalated enforcement conducted by the State (not LHD) against a non-community water system for contaminant violations, PN violations would be included. PN violations cannot be reported to SDWIS/Fed by WaterTrack.

Primacy Status and Rule Implementation Recommendations:

1. Continue to work with EPA related to best practices for the LCR which are outside of the current regulations.
2. Continue to re-invest in review of content of Consumer Confidence Reports.
3. Re-invest in reporting PN violations for Tier 1 and 2 violations (at a minimum, in the short-term) at NCWSs. By ensuring that PN is issued and enforced for Tier 1 and Tier 2 violations, public health is better protected. In addition, prepare a schedule/plan for implementing Tier 3 PN as well. All M/R violations for PN must be reported to EPA. Failure to properly notify could lead to public health consequences, such as increased or extended exposures (for example, when monitoring is not completed on time so the quality of the water is unknown).

VI. Data Systems and Compliance Determinations

A. CWS Data management

MDEQ's CWS program currently uses SDWIS/State, version 3.22, for much of their data management needs. For CWS data management, there is not an electronic or automatic data flow from the State lab's WaterChem database or from private labs into SDWIS/State. Data is re-entered as summary data, and hardcopies are retained. The lack of a "bridge" from WaterChem to SDWIS/State for CWS data, which would alleviate the need for manual data entry, is a significant data management deficiency. MDEQ had started building an electronic reporting tool to serve as the "bridge". However, new releases of SDWIS/State changed how the "bridge" works, and the State lacked resources to keep up with the continuing updates to SDWIS/State versions. In addition, during the file review the FR team noted that some CWS information was found in numerous places, including separate electronic documents and hard copy documents. This arrangement resulted in some data flow errors in the FR report, and does not encourage a holistic review of the PWS data and operations.

The CWS program can utilize SDWIS/State to report to SDWIS/Fed for all rules, although some violations are manually entered into SDWIS/State. The State is using the SDWIS/State Compliance Decision System (CDS), except for contaminants that require monitoring at the entry point to the distribution system. Part of the reason that CDS is not used for entry point monitoring is due to the State's more stringent deadline (September 30 instead of December 31) for monitoring. This timeframe allows for laboratory hold times and also helps the State to develop schedules for missed monitoring early in the next calendar year. The State would eventually like to have the entry point monitoring moved to CDS, as data management is improved.

The CWS program has not taken timely action in getting complete and accurate source treated flag and facility flow information into SDWIS/State for about 50 of the State's 3,600 wells. This issue has been identified in the State's quarterly inventory Operational Data System error reports since October of 2005. Periodic corrections to clean up the source treated flags and facility flow data have been done. However, the underlying issue of entering the required facility flow information and corrected source treated flags on a regular basis still remains a concern.

B. NCWS Data management

MDEQ's NCWS program has been using a separate drinking water data management system, WaterTrack, since 2004. The outdated LIMS data system, which is used by the MDEQ Laboratory, uses Labworks to link to WaterChem, which stores all chemical contaminant data analyzed by the MDEQ laboratory. WaterTrack reads from WaterChem nightly, and determines violations, but the WaterTrack system does not allow the system administrator or other users to independently add violations. The LHDs perform manual data entry to WaterTrack. Due to the 30 hour hold time, there are only certain LHDs that are geographically close to Lansing that use the MDEQ laboratory for coliform analyses, thus these LHDs do not need to manually enter the data into WaterTrack. For the NCWS analytical data, MDEQ and LHDs would be very interested in having data flow directly from private labs into a State drinking water database.
MDEQ recognized the limitations of WaterTrack as early as 2011, as the system cannot be used to report all federally required violations to SDWIS/Fed, and began taking steps to move toward SDWIS/State.
Reporting deficiencies for the NCWS Program include:

<u>NCWS Program Non-reported Violation Types That Are Enforced</u>

1. Type 58, LCR treatment installation/ demonstration
2. Type 27, DBP M/R

3. Type 25, Failure to collect repeat TCR samples

NCWS Program Non-reported Violation Types That Are Not Enforced

1. Type 11, Maximum Residual Disinfectant Level
2. Type 12, Failure to have a Certified Operator at a system that chlorinates (tracked)
3. Type 34, Triggered source water M/R (tracked)
4. Type 56, LCR source water M/R
5. Type 66, Lead consumer notice M/R (tracked)
6. Type 75, PN violations (Tier 1 and 2 PN verifications are carried out in the field by the LHDs).

Generally, PN is verified with a required site visit within five days (within three days for *E. coli*) of becoming aware of the violation. Receipt of signed PN is tracked (SDWIS code SIF) in WaterTrack. PN violations are not generally issued by LHDs, relying instead on verification with a site visit and, if necessary, LHD issuance of PN (SDWIS code SFG). The NCWS program provides templates for PN to systems with Tier 1, Tier 2, and Tier 3 violations. However, WaterTrack is unable to generate and report to SDWIS/Fed a PN violation record and associated follow-up actions.)

The NCWS program is currently becoming familiar with SDWIS/State, in order to more easily transition to SDWIS/Prime; and, so that the program can get up to-date on reporting deficiencies. However, resources are extremely limited as only one person currently manages the database and is able to pull reports from WaterTrack.

However, with EPA's planned imminent release of SDWIS/Prime, the MDEQ drinking water program decided to wait until SDWIS/Prime was on-line before converting. Unfortunately, EPA has not yet released SDWIS/Prime, and the actual release may still be several years in the future. EPA hopes to release SDWIS/Prime in the fall of 2017. The State and LHDs spend a lot of time re-entering data and do not have the financial resources to upgrade their data systems, nor do they believe that it makes sense to continue to independently run their own systems.

Nonetheless, MDEQ can take several interim steps toward the eventual move to SDWIS/Prime, such as converting to SDWIS/State for the non-community program, which will make for a relatively easier transition to SDWIS/Prime. There is HQ support to aid the transition from SDWIS/State to SDWIS/Prime.

C. CWS and NCWS Data Management Practices for Specific Situations

1. Reporting of Tier 3 Public Notification violations. The State temporarily disinvested in reporting Tier 3 violations for NCWSs, and not fully enforcing compliance with Tier 3 PN for CWS. The State noted that it may undermine public confidence if the public does not hear about a violation until one year after it happened, as is required by Tier 3 PN violations. EPA R5 acknowledged that issues have been raised regarding the federal Tier 3 PN requirements. As discussed previously, the EPA Region 5 is including a requirement in the 2017 PWSS grant work plan to submit to EPA a plan and schedule for fully implementing all of the regulations.
2. Monitoring requirements for "found" systems. For newly "found" systems (systems which existed, but were not previously regulated as PWSs), the State is following the capacity development policy/process. The State or LHD works with the system on a plan to ensure the new water supply meets requirements.

3. Changes to population or service connections. When population changes for a CWS or NCWS, and the water system drops below the PWS definition of 15 service connections or 25 people, the State inactivates the system, and gives oversight responsibility to the LHD (the LHD still regulates construction at these systems, known as State Type III systems, which are not a federally-regulated PWSs). However, the NCWS program would not inactivate a system until there is a significant drop below the 15 service connections or 25 people, because there can be some fluctuation in population served due to the economy. In addition, the State considers capacity when determining whether a facility is a regulated PWS. For example, if a facility currently has 30 beds, even if only 17 are currently filled, the State would keep the system on the inventory since there is a potential to go above 25 persons. Also, the State can designate systems as "proposed" even if the PWS drops below serving 25 people or 15 service connections so that the State and county can continue to monitor the systems.
4. Changes which result in a system status change (active, inactive, or a different PWS classification, change in source). The non-community program uses an inactivation form for changes in system status, which is provided to the database manager to make updates in WaterTrack. The CWS program sends a letter to the system if it is inactivated, which would typically involve coordination with the District Engineer. If a source is permanently taken out of service, the State would require a source abandonment log. For non-community systems, if the well is not being plugged, it could be used as a backup source. If it is intended to be used, it has to be maintained but not monitored. Startup procedures would need to be followed if it were used. For CWSs and NCWSs, the State would expect full sampling before a new source of drinking water is served to the public.

D. Compliance Determinations

The State regulations generally follow the federal National Primary Drinking Water Regulations; the only more stringent State MCLs are for the three aldicarbs: aldicarb, aldicarb sulfoxide, and aldicarb sulfone, which were stayed (with the effect of not requiring a state rule) at the federal level. However, the State is not requiring NTNCWSs to monitor for these three compounds. The CWS and NCWS programs do not report State-only (not in federal regulations) violations to SDWIS/Fed (for example, violations of the State's more stringent deadline of September 30 for triennial monitoring would not be reported to SDWIS/Fed). Both NCWS and CWS programs report violations by system, not entry point.

- **Operator Certification**: The CWS program reports Type 12 violations, for failure to have a certified operator at systems that chlorinate.
- **Nitrate:** The non-community program has about 8-10 systems using the alternate MCL of 20 mg/L for nitrate which are TNCWS, but none are schools, churches or daycares.
- **Coliform**: The State does not allow CWSs to monitor for coliform less frequently than monthly. The CWS and NCWS programs require total coliform samples to have a less than 30 hour hold time prior to analyses, which is appropriate. The State indicated that the Auditor General's recent report examined the holding time issue, and found the State procedures were appropriate. MDEQ's policy number 09-004 includes assuring samples meet EPA's recommended hold times.
- **Inorganics, Volatile Organics, and Synthetic Organics**: Under the State's Phase II/V waiver program for VOC monitoring, a system can go directly to reduced monitoring if the system has a non-detect; thus the system does not have to do four quarterly samples. The CWSs will sample before a new well is approved. There has been no change to prior implementation of waivers, except that the State, at the region's request to all applicable R5 states, revoked waivers for cyanide

monitoring where systems previously received the waivers on the basis of continuous chlorination. In addition, the State conducted waived SOC monitoring in 2005 to ensure that a subset of systems that received waivers did not have contamination problems.

The drinking water program did not appear to have a set procedure for handling all QA-flagged data as part of their compliance determination process. It is also unclear if the lab is reporting all QA flags to the drinking water program. For example, WaterTrack didn't include any samples flagged for not being received at the proper temperature, and it is unclear if this is because no such samples exist, if the State laboratory is not capturing this information, or if it is not being transmitted to the drinking water program. The NCWS program stated that while the State laboratory provides a comment on the analysis report when the sample is received at room temperature, the particular comment field where it is stored in the laboratory's database is not included in the nightly download of sample data to WaterChem. Therefore, the comment is not seen in WaterTrack. The only opportunity LHDs would have to see this comment is if they are looking carefully at the PDF reports that are emailed to them from the State laboratory. MDEQ did not know whether all certified private laboratories are including a comment when samples arrive at room temperature.

- **State-only violations**: The State has a few State-only violation codes, for example for failure to submit cross-connection control forms, which would not be federally reported.

Data Management and Compliance Determination Recommendations:

1. Move the NCWS data management to SDWIS/Prime as soon as possible, once EPA makes it available. The NCWS program should move to SDWIS/State to ease the transition to SDWIS/Prime, and to take advantage of the CMDP. This will allow for more complete violation reporting for the NCWS program.
2. Plan for the CWS Program to fully utilize SDWIS/Prime so as to have one place to store official compliance schedules and data. Dedicated State or contract IT staff are needed to do this planning.
3. Cross-train staff so that more than one staff person has a working knowledge and understands how data flows, understands limitations of data systems, and how to query and use management reports. In addition, staff should QA data and examine it for outliers, anomalies, and trends to ensure data quality.
4. Review policies of the State's Department of Technology, Management and Budget (DTMB) (which is located in a different department) to determine how to allow for increased use of web services and to assess the current DTMB structure which limits the ability of the drinking water program to obtain prompt necessary assistance.
5. Examine best practices nationally for CWS and NCWS data management, such as electronic reporting from the laboratory to the State drinking water database. The State should consider a State regulation or laboratory certification requirement to require electronic reporting from all laboratories, including private laboratories, to the State. EPA released the CMDP in October 2016, to ensure that data is transferred from the laboratory to the State database in a complete and efficient manner. EPA encourages the State and labs to implement the CMDP and to carefully follow the development of SDWIS/Prime.
6. Prepare a written SOP to outline how source treated flag and facility flow data should be entered into SDWIS/State so staff can complete this task as new source water system facilities are added to SDWIS/State.

7. Work with the labs conducting drinking water compliance analyses to ensure that all data is being given appropriate QA flags and qualifiers are clearly defined, so that situations are clear as to when flagged data may not be appropriate for including in a compliance determination.
8. Ensure that PN is being posted with appropriate messages for TNCWSs utilizing the alternate nitrate MCL of 20 mg/L.
9. Work with EPA regarding whether certain data should be excluded from compliance calculations due to QA concerns. The program did not appear to have a set procedure for handling all QA flagged data as part of their compliance determination process for CWSs or NCWSs. It is also unclear if the lab is reporting all QA flags to the drinking water program or if this is a deficiency with WaterTrack. For example, for NCWSs, WaterTrack didn't include any samples flagged for not being received at the proper temperature, and it is unclear if this is because no such samples exist, if the State lab is not capturing this information, or if it is not being transmitted to the drinking water program. For the CWS program, data qualifiers are not typically entered into SDWIS/State, since it is entered as summary data. The qualifiers may appear on hard copy forms.
10. Seek cross-training for staff on the process of moving data from SDWIS/State to SDWIS/Fed, why timeliness of data submittals by water systems is important, and the use and limitations of SDWIS data on the web for the public so that staff have a broader understanding of the uses of compliance data. (The State experienced some unnecessary work with federal reporting services data available for the public because EPA allowed the public to pull data that was out of date and that did not reflect corrections that had been made by the State.)
11. Weigh State-specific public health priorities, including those which may extend beyond the federal requirements in deciding which initiatives, such as monitoring requirements for stand-by wells, are implementable and able to be funded/staffed and have the highest priority to protect public health.

VII. Laboratory Operations and Sample Analysis

A. Laboratory Operations

The lab certification function is not under direct control of ODWMA. Although the State laboratory analyzes both environmental and drinking water samples, there are dedicated staff and equipment for each program. The laboratory certification officer is expected to have hands-on experience with the laboratory equipment and issues at laboratories, which is best gained by being physically located at the laboratory. The State laboratory currently holds interim certification, since the region was delayed in visiting the laboratory for full certification prior to December 31, 2015, when the full certification expired. EPA Region 5 visited the laboratory for certification in May of 2016. The laboratory has planned to ensure adequate capacity for new rules, such as the RTCR. The laboratory staff has had to be well organized in planning schedules to ensure that the approximately 170 audits of private labs over a 3-year period are completed on-time, at a rate of about 60 audits/year.

A previous challenge for the State laboratory was gearing up for lead sample analysis for Flint, but according to laboratory staff, this has successfully been achieved. However, this sampling effort is diverting resources and requiring overtime work. The laboratory has six open positions that it is approved to fill.

One challenge that the laboratory staff indicated they are facing is the slow, archaic LIMS data management system. It is time consuming to put data in and get data out of it.
The laboratory staff follow-up on complaints, and work closely with the drinking water program in interpreting analytical results. A concern of laboratory staff is that all QA requirements need to be in the

Federal Register, not in guidance or the laboratory certification manual. Lab staff said that currently some EPA guidance documents have inconsistent QA requirements. Any inconsistent QA requirements should be addressed with the EPA Region 5 Lab Certification Program Manager.

The State drinking water program sends monitoring schedules early in the year to systems to notify them of their monitoring responsibilities. The State/LHD do not collect compliance samples, except in rare situations (for example, if sampling is grossly overdue, to ensure safety, or if there is a special investigation). For CWSs, operators, contractors, or owners collect samples, and for NCWSs, resident owners or operators collect all samples, including lead and copper samples.

The State laboratory gives detailed instructions to PWSs on how to collect samples. State staff in district offices or data staff in Lansing provide systems with technical guidance on monitoring, and such assistance is most often requested by small systems. Questions from NCWSs are usually responded to by the LHD, who will call the State if they have any questions regarding sampling and monitoring.

B. Sample Analysis

Samples are analyzed for CWSs and NCWSs by MDEQ's State laboratory and private laboratories; the MDEQ State laboratory is generally used by supplies that are geographically closer to Lansing. All radionuclide analyses are done be other certified laboratories, since the MDEQ laboratory is not certified for radionuclide analyses. For total coliform analyses, the NCWS program estimates roughly 60% of all samples are analyzed by a private lab, and 40% of all samples are analyzed by the MDEQ State laboratory. About half of the NC nitrate samples are analyzed by the State laboratory, and 90% of other contaminants (such as VOC, SOC, IOC) are analyzed by the State laboratory for NTNCWSs. About half of the CWSs use the MDEQ laboratory for all required analyses (but this may not equate to half of all of the samples, since some of the large PWSs, which are required to take more samples than the smaller systems, have their own laboratory and do not use the MDEQ laboratory).

Sampling is not typically required beyond the federal requirements, but no reduction options are available for CWSs total coliform monitoring, which is a more protective practice since more sampling is required. Staff may ask for raw source water samples if the sample results detect a contaminant, even if entry point results are below the health standard or non-detect. The staff put wells on "watch" if a known contaminant plume is in the area, and the wells can be put on quarterly monitoring. The State has some TNCWS conducting VOC monitoring because its source is near a plume, but sample results are not reported to EPA, since VOC monitoring at TNCWS is not a federal requirement.

Laboratory reporting is very inefficient. CWSs receive data in PDFs from the State laboratory, but it is not an electronic file and it does not automatically upload to the CWS drinking water database, so the data must be entered manually into SDWIS/State. However, the State laboratory does report chemical results electronically to WaterChem; and WaterTrack pulls chemical data from WaterChem for any NCWS that uses the State laboratory. CWS chemical data from WaterChem must be entered manually to SDWIS/State. The CWS program and Local Health Departments (LHD) also obtain hard copy data via U.S. Postal Service, emailed results, and occasional fax results from private laboratories, at a rate of up to 5,000 separate submittals per month, which also must be entered manually into SDWIS/State.

In addition to the LHDs getting data in PDFs from the State laboratory, there is a daily transfer of the State-generated data from the State laboratory to WaterChem and WaterTrack. However, this efficiency of having data transferred is not currently available from the private laboratories.

The CWS and NCWS managers indicated that they are appropriately requiring no more than the 30-hour hold time for total coliform samples. In terms of checking hold times, WaterTrack requires the input of the date and time fields from the chain of custody form. It was thought by the MDEQ staff, and verified by EPA Region 5, that SDWIS/State did not require inclusion of the sample collection time as a required field, so the CWS process for ensuring whether hold times were not exceeded was unclear. The sample collection date is a required field in SDWIS/State.

The drinking water program did not appear to have a set procedure for handling all QA flagged data, such as if a sample arrives at the laboratory that is not at the required chilled temperature. MDEQ provided a Quality Assurance Program Plan to EPA in April of 2016, which includes the following lab procedure:

> **"5.3 Sample Receipt Protocols**
>
> Upon receipt, the condition of the sample is recorded in the comment area of LIMS or on the chain of custody (COC) if there are any abnormalities or departures from standard conditions. All samples which require thermal preservation are considered acceptable if they arrive with ice, cold blue icepacks, or the arrival temperature is either within ± 2ºC of the required temperature or the method specified range. For samples with a specified temperature of 4°C, samples with a temperature ranging from just above freezing temperature of water to 6°C are considered acceptable. Samples that are hand delivered to the laboratory immediately after collection may not meet these criteria. In these cases, the samples will be considered acceptable if there is evidence that the chilling process has begun, such as arrival on ice."

This is a topic that may require further investigation as to how flagged data is reflected in WaterTrack and SDWIS/State, and under what circumstances the program will consider a result unsuitable for compliance purposes. This issue will require further national discussion.

Laboratory and Sample Analysis Recommendations:

1. Consider making it a laboratory certification requirement for all laboratories to report electronically directly to the State in a manner that will directly feed the State drinking water database; the efficiencies achieved with this process are immense in that 50 labs will report to the State, instead of thousands of individual systems reporting independently. Staff noted that requiring electronic reporting via the lab certification program, which is not currently required, could alleviate the lengthy State rule development process related to electronic reporting by individual water systems, and could allow for a phase-in of lab e-Reporting implementation.
2. Work closely with the State laboratory LIMS data management staff to ensure electronic reporting begins as soon as possible.
3. Devise ways for the drinking water program and laboratory staff to examine data for QA issues or potential fraud, when considering electronic reporting (fraud was mentioned by State staff as a concern with moving from hard copy to electronic reporting). This may take several years to accomplish; consider it a long-term goal.
4. Ensure coordination between drinking water lab staff and drinking water data staff to ensure compatibility of any new LIMS with EPA's CMDP, SDWIS/State, and SDWIS/Prime.
5. Participate in national discussions related to the use of qualified data for drinking water compliance purposes, if possible, to understand expectations of laboratory and drinking water program staff.

VIII. Sanitary Surveys

Based on calendar year 2013-2015 data, MDEQ had performed sanitary surveys on time for 93.3% of community water systems utilizing surface or ground water.

Sanitary surveys were performed at the required frequency by system type as follows:

- 92.9% (276/297) of CWS surface water systems,
- 100% (11/11) of TNCWS surface water systems,
- 93.4% of CWS ground water systems (999/1070),
- 98.1% (1206/1229) of NTNCWS ground water systems, and
- 98.3% (7531/7661) of TNCWS ground water systems.

These completion rates are very similar to those reported by MDEQ for the 2012-2014 timeframe, and meet the national targets.

MDEQ district staff perform CWS sanitary surveys, and LHDs conduct NCWS sanitary surveys. There are no specific State requirements for sanitary surveys, but the federally-required elements are addressed. The CWS and NCWS forms used for sanitary surveys do not explicitly list common deficiencies. The CWS program includes a summary form which identifies all eight elements of a sanitary survey. This form (hard copy) includes sub-categories to assess, from which deficiencies may be derived. The non-community form includes the federally-required elements, but also does not list common deficiencies. The State does not use the outstanding performers designation to allow a decreased frequency of sanitary surveys, and the State questions the appropriateness of the label name of this designation since systems could still have issues even if they meet the "outstanding performer" criteria, and likewise, systems that don't meet the criteria may still have very strong programs.

For NCWSs, completeness of sanitary surveys is assured and evaluated largely through the use of WaterTrack. A WaterTrack report, 'Sanitary Surveys Not Completed', lists water systems for which survey data entry has been initiated, but not completed. On the Sanitary Survey data entry screens, the SAVE function requires that fields for source, pump, treatment, storage, and distribution are populated, and a corresponding approval status for each survey element is selected, in order for the sanitary survey record to be saved as a complete record. The sanitarian records significant deficiencies under the GWR by selecting "High Risk" in the approval field of the survey element in question and placing details in the associated comment field. Guidance for what to call a significant deficiency is provided in written materials designed for the sanitarian.

The non-community program has noted a pattern of concerns at certain LHDs in terms of performing quality and timely sanitary surveys, due to lack of staffing. MDEQ staff has found that these resource-deficient LHDs will begin catching up with sanitary surveys, and then staff will be reassigned and they will fall behind schedule again. LHD resources are not spread evenly among LHDs, and LHDs sometimes have problems getting qualified applicants. The decentralized organizational structure of MDEQ district offices makes it difficult geographically to fill-in or redistribute resources on a long-term basis.

The CWS program has noted that designating deficiencies during sanitary surveys has resulted in resolution of several source capacity (not enough water) issues. The State believes that this new program under the GWR was worth the investment of time for long-term public health protection.

Staff do not specifically consider ETT scores when deciding on schedules for conducting sanitary surveys, but systems with identified issues may be scheduled for a sanitary survey sooner because of problems. For example, a NCWS with a Maximum Contaminant Level (MCL) violation, that needs a Level 2 assessment, or has an Action Level Exceedance (ALE) could increase the priority of a sanitary survey conducted at that system.

Also, the State prioritizes surveillance visits for CWSs with problems. The State tries to visit each CWS at least once a year, and tries to visit water systems with complete treatment plants four times per year (limited treatment plants are twice a year).

Sanitary Surveys Recommendations:

1. Include an explicit checklist of common deficiencies as an enhancement to the sanitary survey form, so that the inspector can easily recall them and quickly indicate if they exist.
2. Evaluate the frequency of sanitary survey visits as it pertains to the specific types of compliance assistance provided during the visits, as part of an overall resource evaluation. Also evaluate whether the current sanitary survey frequency providing the optimal value to the systems, and to what extent, if at all, the decentralized structure creating issues with quality and timeliness of sanitary surveys.
3. Consider follow through on State plans to have fewer staff perform large system sanitary surveys, instead of spreading out this work among many staff as part of their responsibilities, if it may be beneficial in ensuring a greater level of consistency and quality control.

IX. Capacity Development, Operator Certification, and Plan Review

A. Capacity Development

Capacity Development refers to the technical, managerial and financial capacity to operate a PWS. A new NTNCWS must follow the capacity process indicated in the 2014 Noncommunity Program Staff Reference Manual and Policy ODWMA-399-014, "New Systems Capacity Assessment for Non-Transient Non-Community Public Water Systems," http://www.michigan.gov/documents/deq/deq-odwma-ehs-ncws-capdevguide_402837_7.pdf.

CWSs must follow the State capacity strategy which was approved by EPA Region 5. The State capacity strategy includes a checklist for new CWS and NTNCWS supplies. The State capacity development strategy has not been updated recently, but the policies and procedures have been updated.

If a CWS is found to have a financial capacity issue, the system will be referred to the DWSRF Section of the ODWMA that can assist with this issue. LHDs provide financial management guidance for NTNCWS.

State staff must keep up-to-date with requirements and best practices in order to assist systems with capacity development. Capacity development is interwoven into many staff and manager responsibilities in the ODWMA. MDEQ staff use the Capacity Development 101 training, and many other trainings are taken by staff to help keep up to date with PWS best practices and regulatory requirements. MDEQ suggests that EPA offer a continuing cycle of rule refresher training, as older rules tend to get pushed off when a new rule is promulgated. Knowledge is being lost due to staff turnover and retirements. (Also, State staff may not be able to keep up with rule-specific water supply guidance or if EPA changes implementation guidance or expectations over time.) Non-community program managers would like to offer more training to LHDs on a set schedule, so the LHDs can plan ahead. For example, LHDs could count on a basics course to be held every November, or a sanitary survey training to happen every January. In addition, the non-community

program suggests the need to conduct training for LHDs regarding the content of the annual reports that LHDs prepare for the State to help ensure consistency and ensure that public health is protected.

Many trainings are available to PWSs: EPA webinars, Operator Certification Program offerings, Rural Community Assistance Program courses, Rural Water Association courses, and other privately offered training. The State operator certification program approves specific courses for continuing education requirements for operators. AWWA is one of the largest providers of training in Michigan, sometimes in conjunction with local universities. LHDs provide some training. MDEQ is currently providing two RTCR webinars on YouTube, which have been well-received. As resources become available, MDEQ would like to develop 15-minute refresher training videos on sampling, completing forms, and other topics via YouTube that would be helpful in ensuring system capacity and are easily accessible to the operators. MDEQ conducts some training directly to water suppliers, such as on the Stage 2 DBPR, where consecutive systems were not previously subject to the rule. The State also did some training on the Michigan Ground Water Management Tool for source water assessments. Over a two-year period, MDEQ did mailings for RTCR, and also gave presentations at regional AWWA meetings (four meetings are held every spring and every fall). MDEQ staff and managers are often on the agenda for other organizations' meetings, and the AWWA Michigan Section publishes the Water Works Newsletter, to which the State provides content. The State has not had the resources to specifically track whether the trainings have improved compliance for specific water systems; however, evaluations of meetings have confirmed an increased understanding of requirements by PWS personnel.

MDEQ staff have used the ETT tracker as a tool to determine when a water system no longer has the priority points to be listed as a "priority" system on the ETT list. If ODWMA had more resources, the program would use the ETT more proactively to work with water systems on an ongoing basis. The program would like to better understand what is causing compliance issues to reoccur so that training could be better targeted. The program needs resources to work on better use of the ETT in order to prioritize work and needed training.

If the State observes a system with increasing non-compliance, that is an indicator of capacity issues. The State does not use an ongoing capacity checklist, but does ask questions as part of the sanitary survey. The program uses significant deficiencies, failure to correct a significant deficiency in a timely fashion, and financial management metrics to assess the capacity of systems. The State is commended for having new rules in place for CWS asset management, and capital improvement planning for all PWSs. These rules were promulgated in October of 2015 requiring Capital Improvement Plans for publicly-owned water supplies by 2016, and requiring asset management for CWSs serving greater than 1,000 people by 2018. MDEQ has begun providing guidance on asset management requirements for CWSs with a population of more than 1,000. All asset management plans will be in place by January 1, 2018.

MDEQ has a significant investment in compliance assistance. MDEQ's ODWMA has most of their policies on-line, which is helpful to PWSs. As previously discussed, MDEQ should ensure that consistent access to all of the policies is available via the State's website. An estimated 25-50% of staff time is dedicated to compliance assistance activities for CWSs, and about 20 FTEs at LHDs are devoted to providing compliance assistance.

Under the RTCR, the State required systems to submit new sample site plans. State engineers send out the monitoring schedules to all CWSs. For NCWSs, LHD staff maintain the database, setting the monitoring schedule for the systems. LHD staff notifies NCWSs of sampling requirements and compares the actual monitoring against the monitoring schedule. The State would eventually like to send these annual

monitoring schedules electronically if the State invests in a publicly accessible version of Drinking Water Watch, and be able to resolve in SDWIS/State the previously described issue of being able to reflect the State compliance period end date of September 30 instead of the federal December 31, for certain monitoring. The CWS program sends out reminders of required submittals (i.e., reports, analyses) that are due. LHDs do similar reminders via phone calls and email reminders to non-community systems. Other compliance assistance activities include webinars, LHDs visits to the system if a total coliform positive is reported, and on-site visits for CWSs. Site visits are typically conducted if *E. coli* is detected, significant deficiencies or MCL violations exist, if treatment is being installed, to verify if PN is posted at NCs, when an alternate source of water is being used, or a system has conducted a Level 1 assessment under RTCR.

Capacity Development Recommendations:

1. Ensure that training of staff on existing policies and regulations is conducted regularly to ensure all staff are aware of procedures and requirements to promote consistent implementation. In addition, please submit to the region any changes/revisions made to policies and procedures which are referenced as part of your EPA-approved capacity development strategy. This information could be submitted as part of or as an attachment to your annual Capacity Development Report.
2. Pursue training on both the ETT and ETT Scores Tracker for use in prioritizing work, working proactively with systems, and identifying necessary training by PWSs.
3. Continue to move toward sharing with PWSs electronically, for example by posting annual monitoring schedules to the web or using a publicly accessible version of Drinking Water Watch. Certain forms, such as the NCWSs capacity analysis, are already available as an electronically fillable document on the MDEQ website. Enhancing PWSs access to their monitoring schedules on the web may save staff time, and would be readily accessible to LHD staff in the field.
4. Consider dedicating a position for a training/outreach coordinator. This position would be helpful in planning not only trainings for PWSs and LHDs, but also for State staff. This position could help ensure that trainings are occurring regularly on a set schedule, verify that content such as short YouTube videos is accessible to the appropriate audience, write articles for newsletters, conduct PE programs, and update operator certification training for new rules, etc. The area of expanding training needs is an emerging issue, with staff turnover.
5. Continue follow-up on recommendations included in EPA's capacity development approval letter for the 2015 annual capacity development report. In the approval letter, EPA discusses providing extra technical, financial and managerial assistance to existing systems which have new sources, and recommends MDEQ continue including systems which change classification from a TNCWS to a NTNCWS on the list of new systems for which capacity is tracked in the annual reports. EPA recommends that, in most cases, the system could be treated like a new system and the State should put it through the same capacity evaluation as it does with the brand new systems. Michigan requires approval of a financial plan and an operations plan that address financial and managerial capacity before a new system, except a transient system, can start operation. An updated financial and operational plan from a system with a new source may prevent future noncompliance problems.

B. Operator Certification

Annually, MDEQ prepares a report on the status of its operator certification program, and the program is reviewed by EPA Region 5 annually. Although not required to maintain primacy, a State is subject to 20% withholding of DWSRF if an adequate operator certification program is not maintained. MDEQ also prepares an annual report to the governor on the numbers of operator training courses offered, the number of exams given, the number of certifications made, and the number of renewals made. During EPA Region 5's review of the state's September of 2015 submittal of its Annual Operator Certification Report, the Region questioned whether recent renewal rates with recent new operator certifications will be sufficient to meet future staffing and compliance needs at Michigan water systems.

The drinking water operator training and certification program is funded by a combination of operator certification fees and federal drinking water state revolving fund set-aside funds. Due to resources and recent staff turnover, it has been a challenge for the State to keep up with demand to process the operator applications for certifications. In FY 2014, MDEQ administered about 1,380 exams and processed about 1,240 renewals for drinking water operators.

The State administers the operator certification exams in Michigan; the State previously contracted out this service, but wanted the exams to be more specific to Michigan. The State uses a committee to determine questions, and an external advising board oversees the process. Questions are reviewed during every exam cycle; for example, the questions were just reviewed to take out the TCR-specific questions because this rule was superseded by the RTCR as of April 1, 2016. Proposed new exam questions with the regulatory citation are sent in to the Subject Matter Expert Committees as new regulations emerge. In addition, the State updates operator certification training on an ongoing basis, and especially after new rules are promulgated. MDEQ has recently provided specific training on DBP and LCR rules. Updating operator certification training has been difficult to accomplish with tight resources.

The operator certification program does not use non-compliance information to determine operator qualifications. Staff in the field (district office or LHD) enforce the requirement of a CWS and NTNCWS having a certified operator, if a system needs an operator. If an operator's certification needs to be revoked, the Advisory Board of Examiners would provide a recommendation to MDEQ. By policy titled "Community and Non-community Water Supply Systems—Required Operations Oversight", MDEQ has established requirements for a minimum number of hours an operator needs to be on-site for different classifications of PWSs. However, it appears that this policy has only the effect of guidance, rather than being enforceable, because it is not in State rules.

According to a data pull conducted from WaterTrack in early April of 2016, 14% of NTNCWSs have no operator or an expired operator. As of the end of FY 2014, the State reported non-compliance rates of 3.4% for NTNCWSs and 4.8% for TNCWSs. According to this data, the non-compliance rate has grown between December of 2014 and April of 2016. The MDEQ FY 2014 Operator Certification Report indicated that LHDs require action by the PWS within 30 days of notice, then if there is no satisfactory response, the State/LHD pursues an informal hearing / Bilateral Compliance Agreement. However, this process does not appear to be happening in a timely manner due to delays in the notification of LHDs of lapsed operators. A resource issue identified is that the State used to have staff keeping up with certified operators by running queries of the database and sending lists of expired operators to the LHDs requesting follow-up. This task is behind schedule due to other more pressing priorities.

In the NCWS program, operator compliance is verified on the WaterTrack address maintenance screen, which displays current operator certification status and expiration date from the Operator Training and

Certification Program's database of record. The final two required elements, Monitoring/Reporting status (based on the most recent ETT) and Management/Operation, are evaluated at the time of quarterly data processing just prior to submittal to SDWIS/Fed.

The State has recently changed practices for NCWSs from offering an exam three times per year to two times per year; EPA is interested if MDEQ has found an adverse impact on the program due to this reduction. When a system changes classification, MDEQ rules at R 325.11904 allow a system to be without an operator of the appropriate level until six months after the next exam. So, under the State rules, theoretically a system that changes classification could be without an operator of the appropriate level for almost a year, with the current practice of offering exams only twice per year.

EPA appreciates the work that the State is doing tracking operator certification status for all systems, not just the systems that filter and chlorinate which are federal requirements. (The only required federally-reportable violation is for systems that chlorinate without operators, and MDEQ is reporting these violations to the federal database.) The State uses a State-only violation code for systems that do not filter and chlorinate, and it is not reported to SDWIS/Fed. The State would consider reporting State-only violations to SDWIS if there was a way to easily distinguish between State and federal violations.

Lack of resources is hindering the State's ability to pursue simplification of the operator certification application and other options such as allowing reciprocity with other states. The current application takes considerable time for the operator to complete and the State to review. Some managers at MDEQ would like to pursue the idea of different licenses for specific different types of plants, such as conventional treatment, lime softening and microfiltration. The current exams for operator certification requires the operator to know about all of these types of treatment systems on the exam, and there have been some complaints from operators about this not being directly applicable to their day-to-day work. MDEQ plans to start a stakeholder process to get more feedback on this issue. In addition, current MDEQ regulations require operators to have experience and two years of college education or equivalent for certain classifications, as detailed at http://www.michigan.gov/documents/deq/deq-ess-otu-dw-part19_252853_7.pdf.

State operator certification rules and policies indicate that when a system's treatment change occurs, the operator has six months after the date of the next applicable exam to come into compliance with the higher level of certification. Both the CWS and NC programs would consider it a significant deficiency if a PWS is taking no action to hire or train an operator to the proper level of certification, as there is a risk to public health, but this is not a preventative approach.

The State does not currently impose a maximum number of systems that a single operator can operate as a contract operator. However, the State does not allow a single operator to be in charge of more than two filtration plants. The maximum number of water systems that a single operator is currently in charge of is about 100 systems, but this individual has staff help in managing the workload. This may be an area that the State needs to consider in the future.

Operator Certification Recommendations:

1. Consider funding options for the operator certification program. The use of DWSRF set-asides are allowable to support the operator certification program, but the operator certification program could be self-sustaining if it were fully funded by fees. That would allow for more focus on program improvements and operator training, and leave more resources for other critical drinking water program needs.
2. Consider any adverse impacts of offering certification exams only twice per year. By restricting the number of times per year to take the exam, the State is restricting the number of operators that are available to be hired each year, as well as the timeliness of operators gaining certification at the appropriate level if the system is reclassified to a higher level. As part of this effort, MDEQ should carefully evaluate the extent (in terms of how many months, as well as how many systems) to which systems are not operating with operators at the appropriate certification level.
3. Provide resources to follow up on lapsed operator certifications and carry out a stakeholder process to examine possible program inefficiencies and process improvements.
4. Plan for potential operator shortages in the future, for example by considering innovative approaches or possibly new classifications such as operator-in-training, which are being used successfully in other states in order to get more interest in the field.

C. Plan Review

Construction permits are regulatory requirements for any addition of treatment, construction, water mains, and new sources. The State has revised the permit application form and designed a new review checklist. In Michigan, permits are reviewed and stamped by Professional Engineers.

The LHDs work with an engineer in the Lansing office regarding treatment and design/construction permit review. The LHDs do their own well permitting.
MDEQ does assist the LHDs with reviews for systems with treatment installations or that utilize surface water sources, but the LHDs issue approvals after working with MDEQ (some LHDs charge a fee for this work).

As part of the plan review process, engineers assess the capability of the water system to comply with standards. MDEQ indicated that their central treatment engineer position is currently vacant, but it will be backfilled. MDEQ will also try to hire a corrosion control specialist.

Plan Review Recommendation:

1. Fill the vacant treatment engineer positions, and take into consideration specialized technical expertise needs to effectively implement the drinking water program when hiring staff.

Appendix 2-A: Flint PWS

File Review for Lead and Copper Rule
For the Michigan File Review, Cadmus reviewed the two most recent rounds of samples, using a cutoff date of September 2015. This cutoff date was determined by the date the data were pulled from SDWIS. The data were pulled from SDWIS in 1st quarter 2016 and included information reported through September 30, 2015. For the file review, Cadmus reviewed monitoring data for July to December 2014 and January to June 2015.

After the Flint PWS began using the Flint River source, it was required to conduct LCR monitoring on a standard monitoring schedule. The first monitoring period was July to December 2014.

July to December 2014 Monitoring Period

- 100 samples were taken from the end of November to the end of December.
- Number of samples taken = 100.
- Number of required samples = 100.
- The cover sheet to the Lead and Copper Reporting form did not indicate the PWS's population at that time.
- The documentation sent to MDEQ stated that all samples were not Tier 1 samples.
- No samples were invalidated.
- The File Review confirmed that all samples used in the State's 90th percentile calculation were marked as routine monitoring.
- Lead 90th percentile: 6 µg/L.
- Copper 90th percentile: 110 µg/L.

January to June 2015 Monitoring Period
MDEQ provided two sets of lead and copper results for this time period. One set of sample results was stamped as "draft."

Draft Summary Results

- 71 samples were taken from February 10 to June 30, 2015.
- Number of samples taken = 71, changed by hand to 69.
- Number of required samples = 100, changed by hand to 60.
- PWS Population = 99,763. Based on this population the LCR would require 60 samples, but it was unclear when the PWS's population changed.

  NOTE: Documentation provided by MDEQ on March 22, 2017 indicates that the change in population served by the City of Flint's PWS was documented in an email between MDEQ staff dated April 1, 2015, which was during the compliance period. This documentation should have been in the System file. The population for Flint was not changed in SDWIS-State until July 9, 2015.
- The documentation sent to MDEQ indicated that all samples were not Tier 1 samples.

Invalidated Sample

- The 1xxx Washington Ave sample was invalidated (see Table 2-2). It appears that this site was resampled on March 19, 2015, and the results for Lead (6 µg/L) and copper (170 µg/L) were included in their respective 90th percentile calculations (e.g., 1 of the 71 or 1 of the 69 samples).

Table 2-2. Invalidated Samples-1xxx Washington Ave

Sample Number	LF57732	
Sample collected	3/9/2015	8:00
Date Received	3/24/2015	11:05
Address:	1xxx Washington Ave, Flint	
Collector:	(private citizen)	
Handwritten Note:	Past 14 day hold time for Preservative	
Lead	0.007 mg/L	
Copper	0.16 mg/L	

Excluded Samples

- The tables below summarize the information for two samples that were included in the draft summary results, but were subsequently crossed out by hand on the draft, and not submitted with revised results:

Table 2-3. Excluded Sample –2xx Browning Ave

Sample Number	LLF54945	
Sample collected	2/18/2015	7:15 AM
Date Received	2/19/2015	11:13 AM
Address:	2xx Browning Ave	
Collector:	(private citizen)	
Handwritten Note:	Has Whole house filter	
Purpose:	Routine Monitoring	
Lead	0.104 mg/L	
Copper	ND	

Table 2-4. Excluded Sample –6xx S. Grand Traverse

Sample Number	LF64284	
Sample collected	5/18/2015	8:30 AM
Date Received	5/20/2015	11:24 AM
Address:	6xx S. Grand Traverse, Flint	
Collector:	(Private Citizen)	
Handwritten Note:	Not Tier 1 Business Not for compliance	
Purpose:	Other	
Lead	0.020 mg/L	
Copper	0.14 mg/L	

Revised Summary Results

- 69 samples were taken from February 10 to June 30, 2015.
- Number of samples taken = 69.
- Number of required samples = 60.
- The PWS Population is 99,763.
- The documentation sent to the MDEQ indicated that all samples were not Tier 1 samples. Cover sheet: "Are all sites Tier 1?" the Flint PWS answered "No."
- The revised sample results were the same as the draft sample results (minus the two excluded samples described above).
- All samples used in the State's 90th percentile calculation were marked as routine monitoring.

Additional sample results for the two sites that were excluded

In addition, there were other lead and copper samples taken at the two excluded sites and lab slips were provided, but they were not included in the draft or revised sample summary results that were submitted.

Table 2-5. Excluded sample number LF56229 from the 90th percentile calculation

Sample Number	LF56229	
Sample collected	2/25/2015	10:26 AM
Date Received	3/6/2015	11:34 AM
Address:	2xx Browning Ave	
Collector:	Flint PWS operator	
Handwritten Note:		
Purpose:	Water Quality Problem	
Lead	ND	
Copper	Not included. Lab report addresses a suite of inorganic chemicals (IOCs) tested using method EPA 200.8, does not include copper, and only a limited list of other IOCs.	

Table 2-6. Excluded sample number LLF56224 from the 90th percentile calculation

Sample Number	LLF56224	
Sample collected	3/3/2015	6:00 AM
Date Received	3/6/2015	11:33 AM
Address:	2xx Browning Ave	
Collector:	private citizen	
Handwritten Note:	Has Whole house filter	
Purpose:	Other	
Lead	0.397 mg/L	
Copper	ND	

Table 2-7. Excluded sample number LF57729 from the 90th percentile calculation

Sample Number	LF57729	
Sample collected	3/18/2015	11:10 AM
Date Received	3/24/2015	11:05 AM
Address:	2xx Browning Ave	
Collector:	Flint PWS operator	
Handwritten Note:	Not 1st draw, Whole house filter	
Purpose:	Other	
Lead	0.397 mg/L	
Copper	ND	

Table 2-8. Excluded sample number LLF59748 from the 90th percentile calculation

Sample Number	LLF59748	
Sample collected	4/2/2015	8:00 AM
Date Received	4/14/2015	11:07 AM
Address:	2xx Browning Ave	
Collector:	private citizen	
Handwritten Note:	Basement Tap pre filter	
Purpose:	Other	
Lead	0.707 mg/L	
Copper	0.11 mg/L	

Table 2-9. Excluded sample number LF64282 from the 90th percentile calculation

Sample Number	LF64282	
Sample collected	5/15/2015	13:00
Date Received	5/20/2015	11:24 AM (note received date and time is identical to sample LF64284)
Address:	6xx S. Grand Traverse, Flint	
Collector:	Flint PWS operator	
Handwritten Note:	Business Basement Not Tier 1	
Purpose:	Other	
Lead	0.017 mg/L	
Copper	0.14 mg/L	

Appendix 2-B: History of Detroit Modified Consecutive System Approach

The Flint PWS is one of 115 consecutive PWSs served by the Detroit Water and Sewage District (Detroit PWS). As permitted, with EPA concurrence, by the NPDWRs at 40 CFR § 141.29, MDEQ proposed a reduced sampling schedule for the consecutive PWSs under what it termed a "Modified Consecutive System" (MCS) approach. The MCS approach was first presented to Edward Watters, Chief of the Safe Drinking Water Branch, EPA Region 5, by James Cleland, Chief of the Division of Water Supply for MDEQ, in a letter dated September 17, 1991. The letter pointed to inequities in the number of samples for the Detroit PWS and its 115 consecutive systems. If the Detroit PWS and its consecutive systems had to take all the samples required by the LCR under the standard monitoring schedule for each system, there would be over 5,000 samples for lead and copper representing approximately 4.2 million people. In comparison, the City of New York would only be required to take 100 samples for approximately 7 million people. Even if the Detroit PWS used the number of samples required for reduced monitoring, it would still be collecting over 2,500 samples.

MDEQ explained that its proposed approach was reasonable because Detroit PWS' five water treatment plants apply the same type of treatment and are supplied by three intakes on lower Lake Huron. So, water quality and treatment would be similar. Corrosion control chemicals could be added at each of Detroit's five water treatment plants (WTPs) and consistently applied. The Detroit PWS would take responsibility for water quality parameter monitoring at the plants and in its distribution system. Under the MCS approach, the Detroit PWS would take 100 samples and the consecutive PWSs would take approximately 700 samples divided based upon their population. No system would take fewer than five samples. Compliance would be judged on a per-system basis and would be determined based on each system's individual lead and copper levels. According to the letter, the Flint PWS would be required to collect 33 samples.
MDEQ's letter proposed that the WQP sampling locations would be the same as those used for bacterial sampling within most of the customer systems. The letter further stated, *"Detroit will accept responsibility for the water quality parameter monitoring carried out initially at the required frequencies from plant taps and distribution system bacteriologic sampling points in most communities."*

After two six-month rounds of monitoring in 1992, any system exceeding the AL would increase sampling to the standard number of samples for its population, and issue PE if it exceeded the action level for lead. If after corrosion control was installed and any system still exceeded the lead AL, the individual system would be responsible for LSL replacement. There were a number of systems that did exceed the AL during 1992 and did increase monitoring to the standard level. However, none of these systems were reviewed. The Flint PWS had a 90th percentile value of 15.4 ppb lead and could be rounded down to 15 ppb in accordance with EPA's procedures for rounding off analytical data (Water Supply Guidance 20). The Flint PWS did not exceed the AL and, therefore, stayed at 33 samples.

In a letter dated October 29, 1991, Charlene Denys, Chief of the Drinking Water Section, EPA Region 5, wrote to James Cleland that further explanation was needed. EPA Region 5 specifically asked whether each community system, Detroit PWS, or MDEQ would be responsible for completing the materials evaluations per 40 CFR § 141.86(a)(1), and whether a plan had been prepared to complete these materials evaluations prior to the initiation of sampling beginning in January 1992. EPA's letter further requested additional explanation for how the number of samples was calculated.

In a letter dated November 12, 1991, James Cleland wrote back to Charlene Denys explaining the limitations to material surveys. Mr. Cleland stated: "*Each of the 115 communities operating a public water supply within the Detroit service area is responsible for selecting their sampling locations. The materials*

evaluation mentioned in your letter need only be done, prior to initiation of sampling, to establish enough sites to conduct the sampling program. A complete materials evaluation would only be necessary if lead service line replacement is required following initial monitoring and installation of corrosion control treatment…It is our belief that the materials evaluation used to select sampling sites should not have to be approved prior to sampling, since the sites must be certified to the State by the public water supplies… The State does not have sufficient knowledge of service line materials and plumbing materials to second guess the sites certified by the public water supplies. As long as the certification is done correctly, including explanations for the use of any Tier 2 or Tier 3 sampling sites, reporting at the conclusion of each monitoring period would be satisfactory. This may seem like a small matter to U.S. EPA, but we will have 400 public water supplies reporting. Combining the materials evaluation with the monitoring results would save 4000 pieces of paper which would have to be received and tracked by the State. If the materials evaluation is not done properly, the system would be in violation following the initial monitoring period."

In a letter dated November 27, 1991, Edward Watters wrote to Robert Blanco explaining the MCS and stating that EPA Region 5 believes this proposal is sound and an innovative approach to implementing the LCR.

In a letter dated January 10, 1992, from Jeff Cohen, Chief of the Lead Task Force in the OGWDW, to Branch Chiefs in EPA's ten regions, Headquarters requested that prior to allowing consecutive systems to consolidate their sampling, each state must submit to its EPA regional office a written explanation of how the LCR will be implemented and enforced. The letter also requested explanations for how WQP monitoring will be modified to determine baseline values and to ensure that OCCT is properly installed and maintained. This memo was responding to several consecutive system agreements across the country.

In a letter dated January 30, 1992, Edward Watters wrote to Robert Blanco providing additional information clarifying the responsibilities of the Detroit PWS and its consecutive PWSs. The letter provided a list of where the WQP samples would be taken in Detroit and its customer service area. Two hundred and four samples would be taken twice each 6-month period. Twenty-five samples would be taken by the Detroit PWS within the City of Detroit and analyzed by the Detroit PWS. Detroit would identify 140 locations from the 70 communities where it collects coliform samples. One WQP sample would be taken at each location and analyzed by the Detroit PWS. Southeast Oakland Water Authority (SEOWA) would identify 25 sample locations in its 10 communities, Genesee County Water Authority (GCWA) would identify six sample locations, and the Flint PWS would identify eight locations. The samples for SEOWA, GCWA, and the Flint PWS would be analyzed by the respective systems, and the results of all analyses would be reported to the MDEQ.

In a letter dated February 5, 1992, Edward Watters wrote to James Cleland to say that EPA Region 5 had completed its review of MDEQ's MCS approach dated September 17, 1991, and granted its approval.

In 2007, MDEQ re-evaluated the MCS approach, and the Flint PWS's sample requirements were reduced to 23 samples due to a decrease in the City's population.

Appendix 3-A: Summary of Enforcement Verification Recommendations

The EV review team recommends that MDEQ address the following:

1. EPA expects MDEQ to ensure that data systems are in place so that the State can report all federally reportable violations to SDWIS/Fed. It is critical that Michigan allocate program resources to effectively manage data and fully utilize SDWIS/State for all PWSs.
2. MDEQ should use EPA's 2009 Drinking Water Enforcement Response Policy (ERP) as a model for developing its drinking water program compliance and enforcement strategy.
3. MDEQ should focus on timely reporting. MDEQ should have reported two TTHM MCL violations for Flint, for the first and second quarters of 2015. Not reporting these violations affected enforcement targeting tool (ETT) scoring, preventing Flint from becoming a priority system sooner (on October 2015 ETT).
4. MDEQ should issue a violation notice for all violations, once they are determined, in order to provide the PWS with public notice documentation and return to compliance information in a timely manner. These notices should be kept in the PWS file and reported to SDWIS/State and SDWIS/Fed as SIA enforcement actions.
5. MDEQ should ensure that all LHDs are tracking PWS compliance with total coliform routine monitoring requirements by updating WaterTrack in a timely manner when LHDs instruct systems to increase routine monitoring to quarterly, so that systems receive quarterly monitoring reminders and are issued violations when they fail to monitor at the required frequency.
6. MDEQ should ensure that all LHDs contact systems that had a total coliform-positive routine sample in a timely manner to remind them to collect repeat samples within the required 24-hours.
7. MDEQ should ensure that all LHDs instruct groundwater PWSs that do not provide at least 4-log treatment of viruses to collect, within 24 hours of notification of the total coliform positive sample, at least one groundwater source sample from each groundwater source in use at the time the total coliform positive sample was collected.
8. MDEQ should follow up with systems that fail to conduct GWR-triggered source water monitoring and report all triggered source water M/R violations at NCWSs after it is able to generate and submit these violations to SDWIS/Fed.
9. MDEQ should initiate formal enforcement action at all PWSs that were previously on bottled water agreements for exceeding the arsenic MCL when the MCL went from 50 µg/L to 10 µg/L and have not yet returned to compliance. MDEQ should require these systems to monitor for arsenic on a quarterly basis, provide alternative water, and provide public notice until an alternate source is found or treatment is installed and the systems return to compliance.
10. Additional Recommendations for NCWSs:
    - The EV review team found NTNCWSs with non-transient populations between 50 and 70 people served that had State lead and copper tap monitoring schedules requiring fewer than five samples. Site visits are recommended to confirm that there are fewer than five taps used for human consumption.
    - MDEQ should ensure that LHDs only accept first-draw samples for lead and copper compliance and that systems on reduced monitoring collect at least their required number of compliance samples between June and September.

- MDEQ should ensure that all lead and copper action level exceedances (ALEs) are reported to SDWIS/Fed and that LHDs and/or MDEQ follow up on them in a timely manner.
- LHDs/MDEQ need to escalate enforcement for lead ALEs when systems fail to follow LHD recommendations for resolving the lead ALEs, including the possible use of the State's emergency authority under MI SDWA Section 15 (Section 325.1003).

11. MDEQ should expand compliance and enforcement follow-up procedures to include procedures for PN requirements as well as Stage 1 and Stage 2 DBPR M/R and MCL violations.
12. All LHDs should adopt ODWMA policy and procedures for administrative fines for M/R violations as well as violations of State Drinking Water Standards.
13. LHDs should maintain the use of standard compliance periods for quarterly total coliform compliance monitoring rather than setting new due dates for monitoring.
14. LHDs should contact NCWSs that have a nitrate routine sample that exceeds 10 mg/L to remind them to collect a confirmation sample within 24 hours of the system's receipt of the sample results, and, if the system is unable to comply with the 24-hour sampling requirement, to instruct it to immediately provide PN to persons served by the water system in accordance with Tier 1 PN requirements.
15. MDEQ should require LHD staff to conduct an immediate field inspection following nitrate MCL violations at childcare facilities serving infants to ensure that PN is posted and bottled water is being used.
16. The LHD should have notified the Michigan Department of Health and Human Services (MDHHS), the licensing agency responsible for overseeing the system, about the nitrate MCL violation as required by the 2014 Non-community Program Staff Reference Manual.
17. EPA recommends that the LHD place The Hop Childcare Center PWS back on quarterly nitrate monitoring as long as it continues to use Well 001 because the infant/toddler program was moved from the building served by Well 002 to the building served by Well 001 (per a March 10, 2015 fax from the system to the LHD) and Well 001's history of periodic nitrate levels over or near the MCL.
18. MDEQ should maintain complete State files with written documentation of exchanges with the PWS and track the progress of the systems in returning to compliance including appropriate follow-up after a lead ALE. There was little evidence in the file that appropriate follow-up was conducted for the three lead ALEs that occurred during the review period.
19. An administrative fine for failure to submit a corrosion control proposal, and two administrative fines for LCR M/R violations could have been issued per ODWMA's policy and procedures for administrative fines (see Appendix 3-E).
20. NTNCWSs that serve 25-100 people should be required to collect five lead and copper samples unless they have fewer than five drinking water taps that can be used for human consumption, in which case, they should be required to sample all the taps that can be used for human consumption. The EV review team found NTNCWSs with non-transient populations between 50 and 70 people served that had State lead and copper tap monitoring schedules requiring fewer than five samples. Site visits are recommended to confirm that there are fewer than five taps used for human consumption. Prior to these site visits, MDEQ should check the system's "Storage-Distribution" and "Bacteriological Sample Siting Plan" screens and lead and copper sample results in WaterTrack to identify any additional drinking water taps that can be used for human consumption that should be added to the system's lead and copper Sample Siting Plan screen.

MDEQ should also consult with the Michigan Department of Health and Human Services (MDHHS) prior to these site visits to daycare centers and/or make joint site visits with MDHHS to identify taps that are likely to be used for human consumption. *(NOTE: After the EV, MDEQ notified EPA that LHD staff visited two of these systems to verify the number of taps used for human consumption.)*

21. MDEQ should emphasize in certified operator and non-community program staff training that lead and copper samples must be first draw after the water has stagnated for at least 6 hours, as required by the LCR. LHDs and MDEQ should require systems that collect a non-first draw lead and copper sample(s) to collect another lead and copper sample(s) that is first-draw.
22. While not required per the Federal LCR or MDEQ SOPs, the letters issued by LHDs for lead ALEs to childcare centers and schools that serve children, especially those under six years of age, should quickly address the ALE by having the system shut off the tap(s) with high levels, replace the fixtures at those taps or provide bottled water until the lead ALE is resolved.
23. LHDs/MDEQ should escalate enforcement for LCR treatment technique violations following lead ALEs, including consideration of using MDEQ's emergency order authority.
24. The LHDs and MDEQ should report all lead and copper ALEs to SDWIS/Fed in a timely manner.
25. LHDs/MDEQ need to escalate enforcement for lead ALEs when systems fail to follow LHD recommendations for resolving the lead ALEs, including the possible use of the State's emergency authority under MI SDWA Section 15 (Section 325.1003).
26. MDEQ should have included written documentation in the system file that MDEQ had notified the Beaver Township PWS that it had TTHM MCL violations for CQ1 of 2015 and CQ3 of 2015 and required the system to provide PN for these violations.
27. MDEQ should have escalated the enforcement of Beaver Township as part of MDEQ's commitment to EPA's 2009 ERP to address or return to compliance PWSs with ETT scores of 11 or more within six month of a system becoming a priority.
28. EPA urges that MDEQ maintain more complete records of PNs received and issue violations to PWSs that fail to provide Tier 1 or Tier 2 PNs.
29. Chapter 6.8 Arsenic Monitoring of the 2014 Non-community Program Staff Reference Manual should be corrected on page 6-28 to state that public notice for the MCL violation is required within 30 days of the violation instead of within 60 days of the violation.
30. EPA urges MDEQ to develop an SOP for escalated enforcement action that highlights the need for documentation of compliance assistance communications and PWS follow-up in State enforcement files.

Appendix 3-B: List of Resources Used during the 2016 MDEQ Enforcement Verification

U.S. Environmental Protection Agency

- Safe Drinking Water Information System/Federal Version (S/F) Data as of the January 2016 Data Freeze
    - Pulled violations and enforcement actions that occurred between October 1, 2013, and September 30, 2015, and were reported to EPA by December 31, 2015.
- SDWA Enforcement Targeting Tool (ETT) and ETT Scores Tracker for January 2016 (reflects state data through September 30, 2015)
- Drinking Water Enforcement Response Policy, issued December 8, 2009
- Return to Compliance (RTC) Criteria Table for Federally Reportable Violations, issued on March 9, 2012
- EPA Region 5 Enforcement Verification Guidance (SOP-WD-GWDW-08, first revision issued August 30, 2005)

Michigan Department of Environmental Quality

- Paper and Electronic Communication and Enforcement Files, when applicable, from MDEQ Field Offices and Central Office accessed on-site April 4-8, 2016
- SDWIS/State and Water Track data accessed by EPA while on-site April 4-8, 2016
- MDEQ confirmed that during the EV review period its Community Water Supply Program was using the following:
    1) Monitoring and Reporting Violations Flowchart updated March 2002
    2) Total Coliform-Positive Flowchart, dated 7/15/2010
    3) Phase II/V Exceeds MCL Flowchart-Inorganics & Organics (other than Total Trihalomethanes), updated April 1, 2002
    4) Violation of State Drinking Water Standards Flowchart, updated April 1, 2002
    5) Enforcement Flowchart, updated March 2002
    6) Guidelines for Issuing Boil Water Advisories to Address Microbial Contamination of Community Water Supplies (Policy and Procedure Number ODWMA-399-022) reformatted 1/24/2013
    7) Significant Deficiencies (Policy and Procedure Number ODWMA-399-019) reformatted 12/28/2012
    8) Lead and Copper Rule Implementation (Policy and Procedure Number ODWMA-399-027) reformatted 1/17/2013
- Compliance and enforcement follow-up procedures and flow-charts in MDEQ's 2014 Non-community Program Staff Reference Manual, Chapter 6, Water Quality Standard and Monitoring, and associated Appendices, and Chapter 8, Compliance and Enforcement for the review of TCR

M/R and MCL violations, Nitrate M/R and MCL violations, Arsenic MCL violations, and Lead/Copper M/R violations and Lead Action Level Exceedance follow-up.

- MDEQ's Non-community Water Supply Program forwarded a copy of the 2015 version of the Staff Reference Manual for Non-community Water Supply Program and advised that it became available to LHDs in April 2015. EPA and MDEQ agreed that EPA should use the 2014 Non-community Program Staff Reference Manual to evaluate LHD compliance/enforcement during the EV review period.
- Example Enforcement Notices and ACOs for community and non-community water supplies
- Administrative Fines for Monitoring and Reporting Violations in Community and Non-community Water Supplies (Policy and Procedure Number ODWMA 399-001) reformatted 1/11/2013 and 8/25/2014
- Administrative Fines – Violations of State Drinking Water Standards (Policy and Procedure Number ODWMA-399-012) reformatted on 1/24/2013.

Appendix 3-C: Data Differences Among SDWIS/Fed and State Data Systems and State Paper Files

NOTE: Data for Violations that Occurred before October 1, 2015: SDWIS/Fed January 2016 Freeze Data

Community Water System Program

PWSID	PWS Name	Differences Between SDWIS/Fed (S/F) and SDWIS/State (S/S)	Differences Between Data Systems (S/F, S/S) and State Correspondence
MI0000518	Beaver Township	Q3 2015 TTHM MCL violation had PN received date of 9/28/2015 that was not linked to it in S/F. The PN was linked to the Q2 TTHM MCL violation instead.	There was no documentation of the PWS receiving notice of the Q1 2015 TTHM MCL violation. S/S only noted the date of a violation notice. State indicated that field staff spoke to the operator over the phone regarding this violation and that a letter did not need to be sent. State file did not have documentation of this call; however, State did produce a screen shot from S/S that did confirm the phone conversation. Documentation should have been included in the paper file in the absence of a written violation notice to the PWS; Violation notice (SIA) for Q2 2015 TTHM MCL violation dated 7/27/2015 in S/F and S/S, however the violation notice letter in the state file was dated 7/28/2015; Q3 2015 TTHM MCL does not have violation notice reported to S/F or S/S. MDEQ spoke to operator in person on 9/28/15 when the operator delivered the PN. Violation notice letter (SIA) not needed per MDEQ. Note made in S/S to document but not in state paper file; Q3 2014 TTHM MCL violation notice dated 9/11/2014 in S/F and S/S but state correspondence is dated 9/12/2014; Q4 2014 TTHM MCL violation notice dated 12/12/2014 in S/F and S/S but state correspondence is dated 12/15/2014.

PWSID	PWS Name	Differences Between SDWIS/Fed (S/F) and SDWIS/State (S/S)	Differences Between Data Systems (S/F, S/S) and State Correspondence
MI0001018	Butterfield Woods Subdivision	None	Violation notice in paper file had the subject of MCL for *E. coli* but *E. coli* was not mentioned in the body of the letter --just that 2 of 10 routine samples were TC+. Violation Notice (SIA) says PN required within 30 days of learning of violation which is true for TCR monthly MCL but not acute. Boil water notice attached to the violation letter does list that a follow-up sample was *E. coli*-positive. Concern that violation notice was not sent until 12/9/2014 for an acute MCL violation that occurred in October 2014. SIA dated the same as the return to compliance date (12/9/2014). State confirmed that DEQ communicated with water supply operator by phone. Boil water PN was issued within 24 hours as required. The boil water PN was not included with the violation notice because it had already been issued by the time the violation notice was mailed (the violation notice refers to the completed BW PN). DEQ confirms only the subject line of the violation notice specifically mentioned *E. coli*. Both type 21 & 22 violations were reported in SDWIS as required.
MI0002310	Flint, City Of	Q1 2015 TTHM MCL not reported to S/F **on time**; Q2 2015 TTHM MCL not reported to S/F **on time**; Both the Q1 and Q2 2015 TTHM MCL violations only have a return to compliance enforcement action linked to them in S/S and it was entered (violation validated) on 2/23/2016 when the violations were initially reported to EPA, which is almost a year after they were issued to the PWS.	State file had a copy of 3/5/2015 violation notice to PWS for Q1 2015 TTHM MCL violation but violation was not reported to S/F on time and notice (SIA) was not reported to S/S; State file had a copy of 4/13/2015 PN received from PWS for Q1 2015 TTHM MCL violation; State file had a copy of 6/9/2015 violation notice to PWS for Q2 2015 TTHM MCL violation but violation was not reported to S/F on time and notice (SIA) was not reported to S/S; State file did not have a copy of PN received for Q2 2015 TTHM MCL violation; Q4 2014 + Q1 and Q2 2015 TTHM MCL violations have return to compliance letter in file dated 9/2/2015 while date reported to S/S was 8/31/2015 for all 3 violations; S/F and S/S had two PN received (SIF) enforcement actions linked to the Q4 TTHM MCL violation. There was no copy of the 1/6/2015 notice in the file but there was a notice dated 1/13/2015. NOTE: 8/15/2014 violation notice (SIA) for August 2014 TCR Acute and Monthly MCL violations was not found in the state correspondence; however, after the review MDEQ provided a copy of an 8/15/2014 email outlining the violation so this discrepancy has been removed from the final report.

PWSID	PWS Name	Differences Between SDWIS/Fed (S/F) and SDWIS/State (S/S)	Differences Between Data Systems (S/F, S/S) and State Correspondence
MI0006232	Spring Lake Club Condominiums	None	4 violations (7/2013 LCR Type 53 M/R violation + 11/2013 LCR Type 66 M/R violation + 4/2014 LCR Type 56 M/R violation + 4/2014 LCR Type 57 TT violation) have a 5/28/2014 violation notice (SIA) and PN requested (SIE) enforcement actions in S/S and S/F but the state file did not contain an official copy of notice; however, 5/30/2014 was mentioned as the date of the violation letter in emails between the PWS and MDEQ.
MI0040477	Washburn Lake Village MHP -- Escalated Enforcement	None	Did not find any violation notice or PN requested (SIA/SIE) for July 2013 TCR Monthly MCL. MDEQ said they could not locate it either but know that it was issued because they had a discussion with customer about its contents. MDEQ continued to issue monthly TCR MCL violations in the absence of data. Rejected a TCR monthly M/R violation for the PWS failing to take a November TCR sample noting the on-going issue and that a boil water was still present. An M/R violation should have been issued. 10/30/2013 violation notice (SIA) linked to all TCR Monthly MCL violations from July thru December 2013 which is well after the July/Aug/Sept violations that required Tier 2 PN within 30 days of violation and before the Nov/December violations occurred; State could not locate a copy of the 7/25/2013 boil water notice (SFH); Could not locate a copy of 1/22/2014 termination letter (SOX) in state file. Per MDEQ SOP - Consent order is terminated by a written termination notice issued by the DEQ.

Non-Community Water System Program

PWSID	PWS Name	Differences Between SDWIS/Fed (S/F) and Water Track	Differences Between Data Systems (S/F, WaterTrack) and State Correspondence
MI0620435	Knollview Golf	None	Enf ID 142002306 SIF - Copy of PN in file from system with 3/3/2014 date stamp with owner's printed name (not signed) and dated 2/21/2014; Enf ID 142002367 SIF - Copy of PN in file from system with owner's printed name (not signed) and dated 3/25/2014.

PWSID	PWS Name	Differences Between SDWIS/Fed (S/F) and Water Track	Differences Between Data Systems (S/F, WaterTrack) and State Correspondence
MI1320157	Battle Creek Baptist Temple	System's 2014 TCR annual M/R violation was not in SDWIS/Fed as of the January 2016 data freeze. After the EV, MDEQ advised this violation was generated very late in WaterTrack on 12/30/2015 and was not submitted to SDWIS until February 2016. There is also a 12/3/2014 Monitoring Violation Notice letter the LHD issued the system that includes failure to collect any quarterly bacteriological samples during 2013, but the monitoring schedule in WaterTrack lists annual for 1/1/1997-10/1/2015. However, after the EV, in response to R5's question about system's TCR monitoring frequency, MDEQ advised that the PWS was placed on quarterly monitoring following a LHD program review for FY15. The 12/3/2014 letter says quarterly, but WaterTrack was not updated and the system did not receive quarterly monitoring reminders or violations. MDEQ also, advised that following their LHD program review of FY15, the LHD placed the system on quarterly nitrate monitoring beginning 1/1/2016.	The LHD issued a 12/3/2014 NOV very late to the system, almost a year after the violation, following an MDEQ review of the LHD program review for FY14. The LHD sent the system late reminder letters on 1/14/2014 and 1/30/2014 to collect 4 repeat samples from the original tap and three others in the distribution system within 24 hours of being notified of the 12/17/2013 routine positive sample. Therefore, the SIA reported to S/F dated 1/30/2014 was a reminder letter and not an NOV which was issued on 12/3/2014; There is a LHD Monitoring Violation Notice letter for a 2014 annual TCR and a Nitrate M/R violation that references the system's WSSN. However, it doesn't appear it was issued because it is undated, and does not include the system's name or the name of a LHD staff person as the other violation notices issued to the system do; The LHD issued numerous monitoring reminder letters that warn that failure sample may result in further enforcement including civil fines; There is a 12/3/2014 "Water Quality Monitoring" PN in the file apparently sent with the 12/3/2014 NOV for the system's failure to collect coliform bacteria samples within 24 hours of notification of a positive coliform result on 12/17/2013. There is no documentation the system posted this PN; LHD submitted a GWR violation reporting form to MDEQ ODWMA on 12/19/2013 for GWR TSWM M/R violation which was not in SDWIS or WaterTrack.
MI2520415	Michigan Community Svcs. Inc.- Bilateral Compliance Agreement	None	For Viol ID 1540192 - 3rd Quarter 2015 Arsenic MCL - Violation notice was not in state file and neither was PN. After the EV, the MDEQ advised: DEQ entered that violation into WaterTrack. The LHD did not. Therefore, a violation notice was not sent.
MI2820036	Fife Lake Elementary School	None	Enforcement ID 152001089 SIA is undated in the state file; Enforcement ID 152001090 SIE - There is no documentation in file that the system signed and returned the white copy of the PN as requested in the NOV letter.

PWSID	PWS Name	Differences Between SDWIS/Fed (S/F) and Water Track	Differences Between Data Systems (S/F, WaterTrack) and State Correspondence
MI3320169	Vlahakis Management Company	The LHD did not enter State PN requested (SIE) and State PN received (SIF) dates into SDWIS for the 1/1/2013 Type 51 LCR M/R violation ID 1310935.	LHD/MDEQ should have entered system's 6/1/2013 open ended PE TT violation into SDWIS instead of linking the 3/18/2013 SFG (State Notification Issued) to system's 1/1/2013 LCR M/R violation for the July-December 2012 CP. LHD should have entered an open-ended 2/18/2015 OCCT Study Recommendation (Type 57) TT violation into SDWIS after system failed to meet the extended 2/17/2015 deadline in MDEQ's 1/16/2015 letter to system. On 3/21/2014 the LHD issued system a $400 contributory category Civil/Administrative Penalty (SFM) for violation of State Drinking Water Standards on 3/21/2014 for failure to distribute PE. This SFM was not entered into SDWIS. LHD/MDEQ should have entered the 7/30/2015 SFK as a 7/30/2015 SFL because it is a signed ACO.
MI6120441	The Hop Childcare Center	None	Enforcement ID 151000895 SOX - There is nothing in the state file to indicate why PWS returned to compliance on this date. Enforcement ID 142002261 SIC - Documentation of technical assistance visit not found in state file. Enforcement ID 142002260 SFG - Should be coded SIE because PN was not posted by State.
MI6321444	Hour Kidz - Bilateral Compliance Agreement	None	July 2014 TCR Monthly MCL Violation - SIA Enforcement ID 144000628 - NOV in state file is dated 7/31/2014 and S/F and WaterTrack has 8/1/2014.

PWSID	PWS Name	Differences Between SDWIS/Fed (S/F) and Water Track	Differences Between Data Systems (S/F, WaterTrack) and State Correspondence
MI6322569	KOA Bathhouse	None	The 7/16/2015 compliance conference (SIB) was not entered into SDWIS. The system and the LHD signed a Bilateral Compliance Agreement on 7/17/2015 (SFK) whereby the system agreed to: A) appoint an individual that is responsible for following all requirements as described within Act 399; B) keep all Tier 1 PNs posted where the public can view them until the MCL violation is resolved and the LHD approves removal of the PNs; C) resolve the MCL violation by continuing to investigate probable causes of contamination beginning immediately and shall include quotes for abandonment and new construction; D) While working to resolve the MCL violation. 6/12/2015 SIA for its June 2015 TCR acute MCL violation: LHD should have issued system a TCR minor repeat M/R (Type 26) violation for only taking 2 of the 4 required repeat samples. 6/29/2016 SID (State Site Visit) for its June 2015 TCR acute MCL violation: The LHD should have issued system a PN violation.

PWSID	PWS Name	Differences Between SDWIS/Fed (S/F) and Water Track	Differences Between Data Systems (S/F, WaterTrack) and State Correspondence
MI7020186	Sandy Point Beach House	June 2014 TCR Repeat M/R Violation - Enforcement ID 144000105 - SOX documented by 6/17/2014 total coliform bacteria sample result in WaterTrack. S/F has SOX date of 7/10/2014.	2013 Nitrate M/R for Enforcement ID 142000280 - SFG -- PN was not posted by State so enforcement action should be coded as SIE and not SFG. NOV letter instructs system to post the enclosed PN and return a copy a signed copy to LHD. 2013 Nitrate M/R Violation for Enforcement ID 142000281 - SIA - letter in state file dated 1/14/2014 and SIA dated 1/10/2014 in S/F and WaterTrack. 2013 TCR M/R for Enforcement ID 142000380 - SFG -- PN was not posted by State so enforcement action should be coded as SIE and not SFG. NOV letter instructs system to post the enclosed PN and return a copy a signed copy to LHD. After the EV, MDEQ confirmed LHD could not locate a copy of the PN it reported as posted on 1/10/2014. 2013 TCR M/R Violation for Enforcement ID 142000381 - SIA - letter in state file dated 1/14/2014 and SIA dated 1/10/2014 in S/F and WaterTrack. Q4 2014 TCR M/R Violation - 2/5/2015 SFG - MDEQ confirmed LHD could not locate a copy of the PN it reported as posted on 2/5/2015. 2/5/2015 SIA for its CQ4/2014 Type 23 violation: The LHD should have also issued system TCR type 23 violations for CQ1 and CQ2 of 2015, and reported these violations to SDWIS because the system was on quarterly bacteriological monitoring and did not collect any bacteriological samples.

PWSID	PWS Name	Differences Between SDWIS/Fed (S/F) and Water Track	Differences Between Data Systems (S/F, WaterTrack) and State Correspondence
MI7720376	Manistique Ice -- Escalated Enforcement	None	Q3 2013 Routine TCR M/R (Viol ID: 1340305) - Another NOV dated 11/22/2013 was issued for system's failure to sample prior to 11/15/2013, which is the date the 10/22/2013 NOV instructed system to "collect sample/submit result prior to "to avoid further fines and/or other legal action." CQ 3 2015 TCR M/R violation was not reported to SDWIS until the April 2016 data freeze. The 3/24/2016 NOV for this violation and "Annual 2016 nitrate requested collection date" violation with enclosed PN for the Q3 3 2015 TCR M/R violation. 10/22/2013 SFG for Q3 2013 Routine TCR M/R should be an SIE because PN was not posted by State, and NOV letter instructs system to post the enclosed PN. 7/14/2014 document (Enf ID: 144000550) should not have been entered into SDWIS with State Administrative Order with penalty (SFO) enforcement code and should have entered into SDWIS with State Administrative Penalty Assessed (SFM). 7/14/2014 SFG for Q2 2014 Routine TCR M/R (Enf ID: 144000551) should be an SIE because PN was not posted by State, and NOV letter instructs system to post the enclosed PN. 4/9/2015 SFG for Q1 2015 Routine TCR M/R (Enf ID: 153000058) should be an SIE because PN was not posted by State, and NOV letter instructs system to post the enclosed PN.

Appendix 3-D: Summary of Discrepancies Identified by Rule

Rule	Compliance Determination (CD)			Data Flow (DF)			Enforcement Verification (EV)			TOTAL
	M/R	MCL/ TT	Other	M/R	MCL/ TT	Other	M/R	MCL/ TT	Other	
Total Coliform Rule	1						11	4		**16**
Ground Water Rule	3						1			**4**
Nitrate and Nitrite							1	4		**5**
Arsenic		2						2		**4**
Lead and Copper Rule	2		3			1	3	1	3	**13**
Stage 2 DBP Rule					2			2		**4**
Public Notification (Tier 1)										**0**
Public Notification (Tier 2)		6					6			**12**
TOTAL	**6**	**8**	**3**	**0**	**2**	**1**	**22**	**13**	**3**	**58**

Appendix 3-E: List of Compliance Determination, Data Flow, and Enforcement Verification Discrepancies by Rule

Total Coliform Rule

ID#	PWS ID	PWS Name	PWS Type	Rule and Violation Type	Violation or Compliance Begin Date(s)	TCR Discrepancy Description
Discrepancy removed in March 2017 based on follow-up documentation provided by the State.	MI6322569	KOA Bath House	TNCWS	TCR Acute MCL	6/1/2015	LHD did not contact KOA Bath House within 24 hours or the end of the next business of notification of system's June 9, 2015 positive *E. coli* result as required by the 2014 Non-community Program Staff Reference Manual. **UPDATE:** After the EV, the LHD provided documentation that it received the result for the June 9, 2015 routine sample on June 11, 2015, contacted the KOA Bath House system the next day with this result and the results for the two repeat samples the system collected on June 11, 2015, which were also *E. coli* positive. *Discrepancy removed due to follow-up documentation provided by the State.
CD-1	MI6322569	KOA Bath House	TNCWS	TCR Minor Repeat M/R	6/1/2015	The LHD should have issued the system a TCR minor repeat M/R (Type 26) violation for only collecting 2 of the 4 required repeat samples within the required 24-hour period.
EV-1	MI6321444	Hour Kidz	NTNCWS	TCR Monthly MCL	7/1/2014	4/24/2015 trilateral compliance agreement does not include the requirements of the 7/31/2014 NOV to have the well chlorinated by a registered well drilling contractor after necessary repairs are completed; chlorinate distribution system by turning on all taps and observing chlorine smell; allow chlorine to sit in distribution system undisturbed for at least 24 hours; and after sufficient contact time, pump the well to waste until no trace of chlorine is present as verified with the use of a chlorine test kit.
EV-2	MI6321444	Hour Kidz	NTNCWS	TCR Monthly MCL	7/1/2014	The LHD could have issued Hour Kidz a $200 civil fine for failing to collect the second of two consecutive (at least 24 hours apart) satisfactory coliform bacteria water samples after making necessary repairs to the distribution system as required by the NOV.
EV-3	MI6321444	Hour Kidz	NTNCWS	TCR Monthly MCL	7/1/2014	The LHD should have escalated enforcement sooner following July 2014 MCL violation and December 9, 2014 total coliform positive sample.

ID#	PWS ID	PWS Name	PWS Type	Rule and Violation Type	Violation or Compliance Begin Date(s)	TCR Discrepancy Description
EV-4	MI6321444	Hour Kidz	NTNCWS	TCR Monthly MCL	7/1/2014	The LHD should have notified MDHHS, the licensing agency responsible for overseeing Hour Kidz, about the MCL violation as required by 2014 Non-community Program Staff Reference Manual. Also, MDEQ may have been able to exercise its emergency authority under Michigan SDWA Section 15 (Section 325.1003) to implement emergency public health measures if a public water system posed "an imminent hazard to public health."
EV-5	MI320157	Battle Creek Baptist Temple	TNCWS	TCR Major Repeat M/R	12/1/2013	The LHD was late in contacting Battle Creek Baptist Temple regarding TCR repeat sample monitoring requirements. Repeat monitoring reminder letters were sent on January 14, 2014 and January 30, 2014 to collect four repeat samples required within 24 hours of being notified of the December 17, 2013 routine positive sample result.
EV-6	MI320157	Battle Creek Baptist Temple	TNCWS	TCR Major Repeat M/R	12/1/2013	The LHD issued Battle Creek Baptist Temple an NOV letter very late, on December 3, 2014, almost a year after the violation, following an MDEQ review of the LHD program for FY14. The LHD issued the NOV for an (assumed) MCL violation based on the system's continued failure to collect repeat samples following the December 17, 2013 total coliform bacteria positive annual routine sample.
Noted in File Review	MI320157	Battle Creek Baptist Temple	TNCWS	TCR Major Routine M/R	1/1/2014	There is an undated LHD Monitoring Violation Notice letter for an annual 2014 TCR Routine M/R violation and an annual 2014 nitrate M/R violation that references the system's WSSN in the Battle Creek Baptist Temple file. However, it doesn't appear that it was issued. After the EV, MDEQ advised this violation was not submitted to SDWIS/Fed until February 2016. The violation is in the July 2016 data freeze with January 5, 2015 SIA (State violation notice) and SIE (State PN requested) enforcement action codes. **This discrepancy was also found during the FR so it is counted in Chapter 1 of Report.**

ID#	PWS ID	PWS Name	PWS Type	Rule and Violation Type	Violation or Compliance Begin Date(s)	TCR Discrepancy Description
Three discrepancies removed in March 2017 based on follow-up documentation provided by the State.	MI7020186	Sandy Point Beach House	TNCWS	TCR Routine M/R	1/1/2013	The LHD issued January 14, 2014 NOV letter for system's failure to collect a TCR and nitrate sample by December 1, 2013. However, the LHD should have issued the system a TCR Major Routine M/R violation for each calendar quarter of 2013 because system was on quarterly TCR monitoring per the November 17, 2012 sanitary survey and WaterTrack. **This was outside of timeframe of the File Review.** **UPDATE:** After the EV, the State forwarded documentation from the LHD the reason the system's "Previous Frequency" "Monitoring Frequency" screen for Source Number 002 well in WaterTrack shows it was on quarterly coliform monitoring from 10/1/2012 to 12/31/2015 with "0" samples required is that it is interconnected with Source Number 001 well, but the older 002 well is valved off, and not used. ***These three CD discrepancies in draft report are removed due to follow-up documentation provided by the State in March 2017.**
EV-7	MI7020186	Sandy Point Beach House	TNCWS	TCR Routine M/R	1/1/2013	Per the ODWMA policy and procedures for administrative fines for M/R violations, the LHD should have issued a written annual total coliform reminder notice 30-90 days before the due date that warns of a $200 civil fine if it fails to sample by the due date.
EV-8	MI7020186	Sandy Point Beach House	TNCWS	TCR Routine M/R	CQ4/2014	The February 5, 2015 NOV letter the LHD issued Sandy Point Beach House for its CQ4 2014 TCR Major Routine M/R violation could have included a $200 civil fine because it was the system's second TCR M/R violation within 12 months. The NOV letter warns that a $100 civil fine for each failure to sample and report results, which is less stringent than ODWMA's administrative fines policy for M/R violations which specifies a $200 fine warning after the first violation of a sampling event, a $200 civil fine for a second missed TCR sampling event within 12 months of the previous violation, and a $400 civil fine for each additional missed TCR sampling event within 12 months of the previous violation.
EV-9	MI7020186	Sandy Point Beach House	TNCWS	TCR Major Repeat M/R	6/1/2014	The LHD should not have waived posting PN for the violation. ("The four repeat samples were taken on June 17, 2014, and as such public postings are not necessary at this time.")

ID#	PWS ID	PWS Name	PWS Type	Rule and Violation Type	Violation or Compliance Begin Date(s)	TCR Discrepancy Description
EV-10	MI7020186	Sandy Point Beach House	TNCWS	TCR Major Repeat M/R	6/1/2014	The LHD should have warned the system that it will be issued a $200 civil fine if it has another TCR M/R violation in the next 12 months.
EV-11	MI0620435	Knollview Golf	TNCWS	TCR Major Repeat M/R	12/1/2013	There was no documentation that the LHD provided timely written or verbal reminders to Knollview Golf to collect four repeat samples within 24 hours of notification of the positive December 2, 2013 routine sample result outlining sampling locations and protocol, or that the system was directed to implement precautionary measures until four non-detect repeat samples were collected per the 2014 Non-community Program Staff Reference Manual.
EV-12	MI0620435	Knollview Golf	TNCWS	TCR Major Repeat M/R	12/1/2013	The January 30, 2014 NOV letter could have included a warning that the system will be assessed a $200 fine if it has another TCR M/R violation within 12 months of the previous violation.
EV-13	MI0620435	Knollview Golf	TNCWS	TCR Routine M/R	2/1/2014	The March 20, 2014 Monitoring Violation Notice should have included a $200 civil fine for the system's February 2014 TCR Major Routine M/R violation because it was the system's second TCR M/R violation in 12-months.
EV-14	MI7720376	Manistique Ice	TNCWS	TCR Major Routine M/R	CQ2 2014	The July 2014 NOV letter should have warned that each additional missed TCR sampling event within 12 months of the previous violation results in a $400 fine.
EV-15	MI7720376	Manistique Ice	TNCWS	TCR Major Routine M/R	CQ3 2013	The LHD issued the second of the two NOV letters to Manistique Ice for TCR Major Routine M/R violations for CQ3 2013 on a November 22, 2013 for failing to sample prior to November 15, 2013 which is the date the October 22, 2013 NOV instructed the system to "collect sample/submit result prior to "to avoid further fines and/or other legal action." Both NOV letters violation enclosed $200 civil fines. The November 22, 2013 NOV and $200 civil fine are not in SDWIS/Fed. Per ODWMA policy and procedures for administrative fines for M/R violations: NOVs for quarterly M/R violations should not set a new sample due date, and should remind systems to sample by the end of the current calendar quarter and warn of a $200 fine for a 2nd missed quarterly sampling event in a 12-month period or $400 fine for each additional missed sampling event within 12 months of the previous violation.

Ground Water Rule

ID#	PWS ID	PWS Name	PWS Type	Rule and Violation Type	Violation or Compliance Begin Date(s)	GWR Discrepancy Description
Discrepancy removed in March 2017 based on follow-up documentation provided by the State.	MI0040477	Washburn Village PWS	CWS	GWR TT	10/29/2013	EPA could not find documentation of the GWR TT and TCR monthly MCL violations being returned to compliance on January 22, 2014. EPA did not find a written termination notice for MDEQ's ACO with the system in the state file even though a written termination notice (TN) is required per paragraph 4.15 of the ACO. Prior to the TN, the owner/operator was required to submit a request consisting of a written certification that they have fully complied with the consent order and paid all fines. There was no record that this certification was received in either the state file or S/S. **UPDATE:** After the EV, MDEQ clarified the ACO process and provided further documentation. Violations were assigned return to compliance dates that were the sample collection dates. *Discrepancy removed due to follow-up documentation provided by the State.
CD-2	MI0620435	Knollview Golf	TNCWS	GWR TSWM	12/4/2013	GWR-triggered source water samples were not taken within 24 hours in December 2013, and a violation was not issued on time. WaterTrack has not been upgraded to allow the generation and submittal of violations of the GWR. This was outside of timeframe of the File Review.
CD-3	MI1320157	Battle Creek Baptist Temple	TNCWS	GWR TSWM	12/19/2013	GWR-triggered source water samples were not taken within 24 hours in December 2013, and a violation was not issued on time. WaterTrack has not been upgraded to allow the generation and submittal of violations of the GWR. This was outside of timeframe of the File Review.
EV-16	MI1320157	Battle Creek Baptist Temple	TNCWS	GWR TSWM	12/19/2013	The January 14, 2014 and January 30, 2014 repeat reminder letters the LHD sent Battle Creek Baptist Temple did not include the requirement that one of the repeat samples be taken at the tap closest to the well per the 2014 Non-community Program Staff Reference Manual**.**

ID#	PWS ID	PWS Name	PWS Type	Rule and Violation Type	Violation or Compliance Begin Date(s)	GWR Discrepancy Description
CD-4	MI7020186	Sandy Point Beach House	TNCWS	GWR TSWM	6/3/2014	GWR triggered source water samples were not taken within 24 hours in June 2014, and a violation was not issued on time. WaterTrack has not been upgraded to allow the generation and submittal of violations of the GWR. This was outside of timeframe of the File Review. There was no “DEQ Reporting Form Groundwater Rule Violations" in the file for Sandy Point Beach House’s failure to collect a GWR-triggered source water sample within 24 hours of being notified of the June 2, 2014 routine total coliform-positive sample result. The LHD sent the system a June 13, 2014 "Initial Positive Bacteria Response" letter.

Nitrate

ID#	PWS ID	PWS Name	PWS Type	Rule and Violation Type	Violation or Compliance Begin Date(s)	Nitrate Discrepancy Description
EV-17	MI6120441	The Hop Childcare Center	NTNCWS	Nitrate MCL	Q1 2014	There is no documentation that the LHD followed-up with system after it failed to provide PN within 24 hours following the 11.2 mg/l routine nitrate sample on February 13, 2014; 12.4 mg/l confirmation sample on February 17, 2014; and/or the 10.9 mg/l sample collected on February 18, 2014 until it made a March 6, 2014 site visit and “observed alternate water (bottled) being used; informal postings at kitchen sink and restroom; discussed new well” per comment the LHD entered into WaterTrack for the site visit.
EV-18	MI6120441	The Hop Childcare Center	NTNCWS	Nitrate MCL	Q1 2014	The LHD should have notified MDHHS, the licensing agency responsible for overseeing the system, about the MCL violation as required by 2014 Non-community Program Staff Reference Manual.
EV-19	MI6120441	The Hop Childcare Center	NTNCWS	Nitrate MCL	Q1 2014	The July 8, 2015 LHD letter reducing system's nitrate monitoring frequency for the Well 001 system from quarterly to annual should have instructed system to sample during CQ1 of 2016 because this is the quarter the system had its highest nitrate result when it sampled for four calendar quarters after its February 20, 2010 sample was greater than 50% of the MCL (9.3 mg/l). The system collected its 2012, 2013, and 2014 annual during CQ1, and exceeded the nitrate MCL during CQ1 2014.

ID#	PWS ID	PWS Name	PWS Type	Rule and Violation Type	Violation or Compliance Begin Date(s)	Nitrate Discrepancy Description
EV-20	MI6120441	The Hop Childcare Center	NTNCWS	Nitrate MCL	Q1 2014	The LHD should have notified MDHHS, the licensing agency responsible for overseeing the system, about the MCL violation as required by 2014 Non-community Program Staff Reference Manual.
EV-21	MI7020186	Sandy Point Beach House	TNCWS	Nitrate M/R	1/1/2013	Per the ODWMA policy and procedures for administrative fines for M/R violations, the LHD should have issued system a written annual nitrate reminder notice 30-90 days before the due date that warn system of a $200 civil fine if fails to sample by the due date. There was also no documentation of any nitrate sampling reminder phone calls to the system.
Noted in File Review	MI1320157	Battle Creek Baptist Temple	TNCWS	Nitrate M/R	2014	There is an undated LHD Monitoring Violation Notice letter for an annual 2014 TCR Routine M/R violation and an annual 2014 nitrate M/R violation that references the system's WSSN in the Battle Creek Baptist Temple file. However, it doesn't appear that it was issued. After the EV, MDEQ advised these violations were not submitted to SDWIS/Fed until February 2016. These violations are in the July 2016 data freeze. The annual 2014 nitrate M/R violation has no enforcement actions linked to it. **This discrepancy was also found during the FR so it is counted in Chapter 1 of Report.**

Arsenic

ID#	PWS ID	PWS Name	PWS Type	Rule and Violation Type (S/F Codes)	Violation or Compliance Begin Date(s)	Arsenic Discrepancy Description
CD-5 and EV-22	MI2520415	Michigan Community Services, Inc.	NTNCWS	Arsenic MCL	1/1/2008-9/30/2014	All PWSs that were previously on BWAs and are not yet returned to compliance should be escalated to formal enforcement until an alternate source is found or treatment is installed in order to ensure that the system monitors for arsenic on a quarterly basis, provides alternate water, and provides public notice. No quarterly Arsenic MCL violations were reported to SDWIS/Fed.
CD-6 and EV-23	MI2520415	Michigan Community Services, Inc.	NTNCWS	Arsenic MCL	Q3 2015	All PWSs that were previously on BWAs and are not yet returned to compliance should be escalated to formal enforcement until an alternate source is found or treatment is installed in order to ensure that the system monitors for arsenic on a quarterly basis, provides alternate water, and provides public notice. No quarterly Arsenic MCL violations were reported to SDWIS Fed.

Lead and Copper Rule

ID#	PWS ID	PWS Name	PWS Type	Rule and Violation Type	Violation or Compliance Begin Date(s)	LCR Discrepancy Description
EV-24	MI0006232	Spring Lake Club Condominiums	CWS	LCR TT	7/1/13-4/1/2014	MDEQ could have issued Spring Lake Club a contributory category administrative fine of $400 for failure to submit a corrosion control proposal by 4/1/2014 per ODWMA Policy and Procedure 399-012 for Administrative Fines-Violation of State Drinking Water Standards, (Reformatted Date: 1/24/2013).
EV-25	MI0006232	Spring Lake Club Condominiums	CWS	LCR M/R	7/1/13-4/1/2014	MDEQ could have issued Spring Lake Club a $200 administrative fine for its LCR initial water quality parameter M/R violation and/or $200 administrative fine for its LCR initial source water M/R violation because they were an additional LCR M/R violation within 12 months per ODWMA policy and procedures for administrative fines for M/R violations.
CD-7	MI3320169	Vlahakis Management Company	NTNCWS	LCR M/R	1/1/2013	The PWS should have been required to collect 5 lead and copper samples if the system had at least 5 taps used for human consumption.
EV-26	MI3320169	Vlahakis Management Company	NTNCWS	LCR M/R	1/1/2013	The January 15, 2013 NOV letter should have warned the system will be issued a $200 civil fine if it has another LCR M/R violation in the next 12 months per ODWMA policy and procedures for administrative fines for M/R violations.
EV-27	MI3320169	Vlahakis Management Company	NTNCWS	LCR M/R	1/1/2013	The LHD's NOV letter should have required the system to date the white copy of the PN and post the PN for at least 7 days, and until the system receives satisfactory results. A signed and dated PN from the system was not in file.
EV-28	MI3320169	Vlahakis Management Company	NTNCWS	ALE follow-up requirements	January-June 2013	The LHD/MDEQ should have issued the January 21, 2014 NOV letter for the PE TT violation the letter says began June 1, 2013 much sooner.
CD-18	MI3320169	Vlahakis Management Company	NTNCWS	LCR Source Water M/R	January-June 2013	The LHD's March 18, 2013 Pb ALE letter should have also required system to collect a source water lead and copper sample by December 31, 2013. **This was outside of timeframe of the File Review.**
CD-9	MI3320169	Vlahakis Management Company	NTNCWS	ALE follow-up requirements	January-June 2013	The LHD should have entered an open-ended 2/18/2015 LCR OCCT Study Recommendation (Type 57) TT violation into SDWIS/Fed after system failed to meet the extended February 17, 2015 deadline in MDEQ's January 16, 2015 letter to system. **This was outside of timeframe of the File Review.**

ID#	PWS ID	PWS Name	PWS Type	Rule and Violation Type	Violation or Compliance Begin Date(s)	LCR Discrepancy Description
CD-10	MI3320169	Vlahakis Management Company	NTNCWS	ALE follow-up requirements after Unreported Lead and Copper ALEs	January – June, 2012	The LHD did not follow-up with the system regarding the unreported June 12, 2012 Pb and Cu ALEs until over eight months later when the LHD and MDEQ met with the system's certified operator on February 26, 2013 "to discuss recent lead exceedance and further action needed." after 3 lead and copper samples collected on February 21, 2013 exceeded the Pb and Cu ALs at the "pressure tank hard water" (83 µg/L Pb and 1.87 mg/l Cu) and Pb AL at the daycare bathroom sink (56 µg/L). The LHD/MDEQ noted that the system's certified operator did not properly allow for system to sit 6-8 hours prior to collection, did not sample at appropriate taps, and used improper collection techniques. LHD/MDEQ explained that there were elevated levels in previous monitoring that were never addressed and with the recent results LHD/MDEQ were going to issue this as an exceedance. LHD/MDEQ explained they would expect another set of samples collected at designated taps, using appropriate measures, and in addition a new sample at the pressure tank. The LHD did not issue system a Pb ALE letter until March 18, 2013 after the system collected another set of samples from the distribution system and the pressure tank on March 2, 2013 which exceeded the Pb AL at the daycare drinking fountain with a 32 µg/L Pb result. LHD's October 10, 2013 letter to the system certified operator acknowledging receipt of additional satisfactory lead and copper samples, and the letter the daycare center sent parents notifying them of the Pb ALE. The LHD's letter notes the four lead and copper samples collected on August 15, 2013 all appear to be taken at the appropriate sampling locations, and are all below the action levels for lead/copper. **This was outside of timeframe of the File Review.**

ID#	PWS ID	PWS Name	PWS Type	Rule and Violation Type	Violation or Compliance Begin Date(s)	LCR Discrepancy Description
DF-1 and EV-29	MI2820036	Fife Lake Elementary School	NTNCWS	ALE follow-up requirements after Unreported Lead ALE	2006-2008	The LHD should have escalated enforcement immediately after the system failed to collect the lead and copper samples requested in its March 6, 2009 letter to the system after it had a Pb ALE for the 2006-2008 compliance period (19 µg/L) based on one of the five samples it collected on February 4, 2008, (26 µg/L Pb at kitchen sink), and a repeat sample collected from the kitchen sink on February 26, 2008 (15 µg/L Pb). This Pb ALE was not reported to SDWIS/Fed so it is also counted as a data flow discrepancy. It appeared from the file that the LHD identified this as a Pb ALE and required system follow-up that the PWS failed to complete in a timely manner. **UPDATE:** These discrepancies were added to the EV in March 2017 since it is cited in the body of the final report and had been noted in earlier drafts of the report. **This was outside of timeframe of the File Review.**
DF and EV discrepancies removed in March 2017 since duplicative of discussion below.	MI2820036	Fife Lake Elementary School	NTNCWS	ALE follow-up requirements after Unreported Lead ALE	2009-2011	There is no documentation the LHD followed-up with Fife Lake Elementary School after it had an **unreported** Pb ALE for the 2009-2011 CP (24 µg/L) [(12 samples collected in June 2010 (10), December 2010 (1) and February 2011 (1) for over four years, when the LHD conducted a sanitary survey on July 29, 2015. **This was outside of timeframe of the File Review.** **UPDATE:** Further discussions with the State in March 2017 clarified that this EV discrepancy is counted in the explanation below and should not be counted here since its duplicative. In addition, the discussion below explains how the State failed to calculate the 90th percentile correctly thus missing the Pb ALE for the compliance period. Since the Pb ALE was not identified, there cannot be a DF discrepancy.

ID#	PWS ID	PWS Name	PWS Type	Rule and Violation Type	Violation or Compliance Begin Date(s)	LCR Discrepancy Description
CD-11 and EV-30	MI2820036	Fife Lake Elementary School	NTNCWS	ALE follow-up requirements after Unreported Lead ALE	2009-2011	LHDs/MDEQ need to escalate enforcement when systems fail to follow LHD recommendations for resolving Pb ALEs, including the possible use of the State's emergency authority under MI SDWA Section 15 (Section 325.1003). **UPDATE:** After the EV, MDEQ provided the lead sampling results. EPA found that t**he LHD did not count all samples collected during reduced LCR compliance monitoring periods in order to calculate the system's 90th percentile.** Taking re-samples at the high tap into account, made the 90th percentile value exceed the Pb AL in two compliance periods – 2006-2008 and 2009-2011. The system also had a Pb ALE for the 2009-2011 CP (24 µg/L) based on one of the ten samples it collected on June 11, 2010, (26 µg/L Pb at kitchen sink tap), and a repeat sample collected from the kitchen sink tap on December 6, 2010 (29 µg/L Pb). Another follow-up sample at the high kitchen tap was collected on February 21, 2011 (8 µg/L Pb). All 12 samples collected during this reduced LCR compliance monitoring period should have been used to calculate the system's 90th percentile value. It appeared from the file that the LHD did not use all of the sample results to calculate the 90th percentile and therefore missed this Pb ALE. This is being counted as a compliance determination discrepancy. **This was outside of timeframe of the File Review.**

Stage 1 and Stage 2 Disinfectants and Disinfection Byproducts Rules (DBPR)

ID#	PWS ID	PWS Name	PWS Type	Rule and Violation Type	Violation or Compliance Begin Date(s)	DBPR Discrepancy Description
EV-31	MI0000518	Beaver Township PWS	CWS	Stage 2 DBP MCL	Q1 2015	Violation did not have documentation in the state paper file. MDEQ staff indicated that there was no written violation notice since the violation was discussed with the PWS over the phone. DEQ SOP 04-003 "Compliance and Enforcement" requires compliance communications be documented in writing in state files and signed and dated by the DEQ staff member who provided the communication.
EV-32	MI0000518	Beaver Township PWS	CWS	Stage 2 DBP MCL	Q3 2015	Violation did not have documentation in the state paper file. MDEQ staff indicated that there was no written violation notice since the violation was discussed with the operator in person. DEQ SOP 04-003 "Compliance and Enforcement" requires compliance communications be documented in writing in state files and signed and dated by the DEQ staff member who provided the communication.
DF-2	MI0002310	Flint, City of	CWS	Stage 2 DBP MCL	Q1 2015	MDEQ should have reported two TTHM MCL violations for Flint on time, for the first and second quarters of 2015. Not reporting these violations on time affected ETT scoring, preventing Flint from becoming a priority system sooner (on October 2015 ETT). This was outside of timeframe of the File Review.
DF-3	MI0002310	Flint, City of	CWS	Stage 2 DBP MCL	Q2 2015	MDEQ should have reported two TTHM MCL violations for Flint, for the first and second quarters of 2015. Not reporting these violations affected ETT scoring, preventing Flint from becoming a priority system sooner (on October 2015 ETT). This was outside of timeframe of the File Review.

Public Notification

ID#	PWS ID	PWS Name	PWS Type	Violation or Compliance Begin Date(s)	PN Discrepancy Description **(Due within 30 days of receiving notice of violation)** ***Note: Per MDEQ's 2014 Non-community Program Staff Reference Manual, MDEQ has determined that a Tier 2 rather than a Tier 3 PN is required for a NCWS's failure to collect water samples at an established or assigned frequency.***
Noted in File Review	MI6322569	KOA Bath House	TNCWS	**June 2015 TCR Acute MCL**	The state file documents the LHD should have issued the system a PN violation for failure to cooperate with LHD efforts to help it provide PN. **This discrepancy was also found during the FR so it is counted in Chapter 1 of Report.**
CD-12	MI0006232	Spring Lake Club Condominiums	CWS	12/11/2013 LCR TT (Type 65)	PN not found in state file and no violation was reported to SDWIS. MDEQ followed up after the review to share that no violation was issued for failure to PN the type 65 violation because the supply provided certification to DEQ that PE was distributed to residents on time as required. Due to resource limitations, DEQ must prioritize activities. Lower priority is placed on enforcement of late reporting when proper actions were taken by the water supply. Because the supply did issue PE to residents on time, no further action was taken for late reporting. This was outside of the FR period. This was outside of timeframe of the File Review.
CD-13	MI0006232	Spring Lake Club Condominiums	CWS	4/1/2014 LCR TT (Type 57)	PN not found in state file and no violation was reported to SDWIS. MDEQ followed up after the review to share that no violation was issued for failure to PN the type 65 violation because the supply provided certification to DEQ that PE was distributed to residents on time as required. Due to resource limitations, DEQ must prioritize activities. Lower priority is placed on enforcement of late reporting when proper actions were taken by the water supply. Because the supply did issue PE to residents on time, no further action was taken for late reporting. This was outside of timeframe of the File Review.
CD-14	MI0040477	Washburn Lake Village MHP	CWS	Aug 2013 TCR Monthly MCL	PN received on 11/26/2013 which was more than three months after the violation. This was outside of timeframe of the File Review.
CD-15	MI0040477	Washburn Lake Village MHP	CWS	Sept 2013 TCR Monthly MCL	PN received on 11/26/2013 which was more than two months after the violation. This was outside of timeframe of the File Review.
CD-16	MI0040477	Washburn Lake Village MHP	CWS	Dec 2013 TCR Monthly MCL	PN was not found in the state file. SDWIS/Fed indicates PN received 11/26/2013, which is prior to the violation. This was outside of timeframe of the File Review.
CD-17	MI2520415	Michigan Community Svcs. Inc.	NTNCWS	Q3 2015 Arsenic MCL	PN was not found in the state file and not reported to SDWIS. This was outside of timeframe of the File Review.
EV-33	MI7020186	Sandy Point Beach House	TNCWS	June/2014 TCR Major Repeat M/R	The LHD should not have waived posting PN for the violation. ("The four repeat samples were taken on June 17, 2014, and as such public postings are not necessary at this time.")

ID#	PWS ID	PWS Name	PWS Type	Violation or Compliance Begin Date(s)	PN Discrepancy Description (Due within 30 days of receiving notice of violation) *Note: Per MDEQ's 2014 Non-community Program Staff Reference Manual, MDEQ has determined that a Tier 2 rather than a Tier 3 PN is required for a NCWS's failure to collect water samples at an established or assigned frequency.*
EV-34	MI7720376	Manistique Ice	TNCWS	CQ2 2014 TCR Major Routine M/R	The NOV letter does not instruct the system to send back a signed copy of the PN it posted.
EV-35	MI7720376	Manistique Ice	TNCWS	CQ1 2015 TCR Major Routine M/R	The NOV letter does not instruct the system to send back a signed copy of the PN it posted.
EV-36	MI7720376	Manistique Ice	TNCWS	CQ3 2015 TCR Major Routine M/R	The NOV letter does not instruct the system to send back a signed copy of the PN it posted.
EV-37	MI7720376	Manistique Ice	TNCWS	CQ3 2013 TCR Major Routine M/R	The NOV letter does not instruct the system to send back a signed copy of the PN it posted.
EV-38	MI2820036	Fife Lake Elementary School	NTNCWS	2012-2014 LCR M/R	The PN the LHD sent with the NOV it issued the system for its failure to sample for Lead/Copper during the 2012-2014 compliance period incorrectly states that previous sampling has demonstrated that water quality met State and Federal drinking water standards, the water is safe for drinking, and there is no need to seek an alternative water source. The above PN language should not have been used because the system had an ongoing unresolved and unreported Pb ALE.

Appendix 3-F: File Review Questions and State Responses

Community Water Systems

PWSID	PWS Name	District Office	PWS Type	U.S. EPA Questions/Comments	State Responses
MI0000518	Beaver Township	Saginaw Bay (Bay City)	CWS	(1) There was no SIE (or SIA) in the hard copy file for a Q1 2015 DBP MCL violation PN posted on 4/8/2015 that was received 4/9/2015 by DEQ. Compliance period end date was 3/31/2015 (Viol ID 3). Does this mean the PWS acted without being prompted? Could we have a copy of the 4/28/2015 violation notice? (2) Similarly, there was no SIE (or violation notice SIA) for a Q3 2015 DBP MCL violation PN posted and received by DEQ on 9/28/2015, two days before the compliance period end date of 9/30/2015 (Viol ID 6). Again, does this indicate that the PWS acted without being prompted? Could we have a copy of the violation notice? (3) Who initiated the phone calls/conversations that replaced the PN request letter -- the PWS or DEQ?	(1) Yes, the water supply understood expectations and acted proactively. SIA was done via phone (see provided screen-shot titled "MI0000518_BeaverTwp_SDWIS_ScreenShots"), so no violation notice was necessary. No SIE was necessary because supply proactively completed the PN on 4/8/15 without being asked. (2) Yes, the water supply again acted proactively. No SIE was necessary because supply issued the PN as required without prompting. The SIA was done in person on 9/28 when OIC hand-delivered PN to DEQ (see provided screen-shot titled "MI0000518_BeaverTwp_SDWIS_ScreenShots), so a written violation notice was not necessary. (3) Cannot confirm who initiated phone call for the Q1 violation. Supply initiated the Q3 face-to-face meeting.
MI0001018	Butterfield Woods Subdivision	Grand Rapids	CWS	Why did the violation notice omit mention of the positive *E. coli* repeat and indicate that the public must be notified of the two total coliform violations within 30 days? Violation Notice subject was MCL for *E. coli* but *E. coli* was not mentioned in the body of the letter--just that 2 of 10 routine samples that were TC+. SIA says PN required within 30 days of learning of violation which is true for TCR monthly MCL but not acute. Boil water notice does list a follow-up sample was EC+. Was the boil water PN enclosed with MDEQ's violation notice letter or was there a separate communication regarding the boil water PN and the need to provide to public within 24 hours of learning of the violation?	DEQ communicated with water supply operator by phone. Boil water PN was issued within 24 hours as required. The boil water PN was not included with the violation notice because it had already been issued by the time the violation notice was mailed (the violation notice refers to the completed BW PN). DEQ confirms only the subject line of the violation notice specifically mentioned *E. coli*. Both type 21 & 22 violations were reported in SDWIS as required.

PWSID	PWS Name	District Office	PWS Type	U.S. EPA Questions/Comments	State Responses
MI0002310	Flint, City Of	Lansing	CWS	I could not locate the following enforcement action files in the hard copy City of Flint PWS File: (1) 8/15/2014 Violation Notice for August 2014 TCR Acute MCL and Monthly MCL Violations (Viol IDs 206 and 207); (2) Copy of PN distributed and certification for Q2 2015 TTHM MCL violation (Viol not in SDWIS/Fed as of Jan 2016 Freeze); and (3) Copy of PN distributed and certification for Q4 2014 TTHM MCL violation (Viol ID 210). (4) Also, there was a return to compliance letter for the TTHM MCL violations, did MDEQ send a return to compliance letter for the bacti violations reviewed? (Viol IDs 206, 207, and 209)? (5) State file also contains a TCR PN posted and certified on 9/6/14 -- boil water notice. Was there a violation notice sent to the PWS by MDEQ for this violation? We could not locate one in the physical file.	(1) Must perform further file review to locate copy of violation notice. Copy of PN provided (titled "MI0002310_Flint_Aug 2014 TCR PN"). (2) Must perform further file review to locate copy of PN. (3) Q4 2014 TTHM MCL PN provided (see doc titled "MI0002310_Flint_Q4 2014 TTHM PN"). (4) DEQ does not typically send RTC letters for violations of the TCR. (5) violation notice was issued with a request for additional PN beyond the initial PN issued on 9/6 (see doc titled "MI0002310_Flint_Sep 2014 TCR VN").
MI0006232	Spring Lake Club Condominiums	Cadillac	CWS	Please provide us with the violation notices (PN requests) and copies of the PN and certifications for the following two Tier 2 violations at Spring Lake Club Condominiums -- Viol ID 4000217 (LCR TT Type 65) and Viol ID 4000219 (LCR TT Type 57 violation).	No violation was issued for failure to PN the type 65 violation because the supply provided certification to DEQ that PE was distributed to residents on time as required. Due to resource limitations, DEQ must prioritize activities. Lower priority is placed on enforcement of late reporting when proper actions were taken by the water supply. Because the supply did issue PE to residents on time, no further action was taken for late reporting. DEQ confirms no PN violation is in the file for the type 57 violation. Please note that SDWIS/State lists type 57 as a tier 3 reporting violation, which could lead users to not recognize this as a tier 2 TT violation.

PWSID	PWS Name	District Office	PWS Type	U.S. EPA Questions/Comments	State Responses
MI0040477	Washburn Lake Village MHP -- **Escalated Enforcement**	Kalamazoo	CWS	Did not find a violation notice in hard copy file for July 2013 TCR Monthly MCL (Viol ID 4003511). Violation notice (SIA enforcement action) dated 10/30/2013 in SDWIS/Fed but no notice in hard copy file with the exception of the GWR TT failure to address significant deficiency violation which references the bacti violations. No PN requests (SIE enforcement actions) reported to SDWIS/Fed as of January 2016 data freeze for the 6 TCR monthly MCL violations (Viol IDs 4003511, 4003513, 4003514, 4003515, 4003518, and 4003519). Was there ever any separate notification outside the GWR Sig Def letter dated 10/30/2013?	While individual violation notices were not generated each month, there was extensive compliance communication between DEQ and water supply throughout the event. Compliance communication was in person, by phone, and by email. The water supply indicated by phone that the boil water PN was issued in July after first MCL occurred. DEQ received a call from a resident in response to the PN, further confirming the PN was issued as required. The MCL event continued over several months and the boil water remained in effect throughout. violation notices were not generated each month due to the ongoing nature of the event and the continuous compliance communications throughout, as noted above. The October 2013 violation notice documented the ongoing MCLs and the type 45 violation generated by failing to address the underlying significant deficiency. The violation notice included SIE & PNs for both the 22 and 45. The 22 PN included "continue to BW" language in addition to regular type 22 language.

Non-Community Water Systems

PWSID	PWS Name	District Office	PWS Type	U.S. EPA Questions/Comments	State Responses
MI7020186	Sandy Point Beach House	Grand Rapids	TNCWS	(1) Does the State have copies of the PNs that it reported as posted on 1/10/2014 (2013 TCR Routine M/R) and 2/5/2015 (Q4 2014 TCR Routine M/R). They were not in the file. (2) Were TCR Routine M/R violations assigned as a result of the PWS failing to provide quarterly reports at the end of December 2014 and March 2015? (3) Has the PWS been notified that its appropriate monitoring frequency is quarterly, not annually as it was informed on 1/5/2016?	(1) The LHD could not locate in the file. (2) There was one assigned by the LHD for December 2014. However, the notification for December 2014 was not sent until 2/5/2015. There was not an M&R violation assigned for March 2015. (3) The LHD sent them a letter on December 8, 2015 outlining the requirements in anticipation for RTCR starting April 1, 2016. In this letter they were notified that they would be moved to quarterly sampling on April 1, 2016.

PWSID	PWS Name	District Office	PWS Type	U.S. EPA Questions/Comments	State Responses
MI2820036	Fife Lake Elementary School	Gaylord	NTNCWS	Could not locate the violation notice dated 1/15/2015 for the LCR M/R violation starting 1/1/2015 for failure to sample between 2012 and 2014. See a general memo from Eric Burt to PWSs with a tailored PN for Fife Lake Elementary for the violation. Is there another letter in the file or is the memo the reported 1/15/2015 violation notice?	The Public Notice located in the file material is the Public Notice for the violation that occurred for the monitoring period January 1 2012-December 31, 2014. There is no other letter documenting this monitoring violation.
MI2520415	Michigan Community Svcs. Inc.- **Bilateral Compliance Agreement**	Lansing	NTNCWS	(1) There was inconsistency in the name of the PWS as recorded in the files. Also, the WSSN used to identify the system was frequently corrected from 17543 to 20415-25. Does this reflect operational changes at the PWS? Is there documentation for name and/or WSSN change? (2) What is the basis for the Q3 2015 arsenic MCL violation (Viol ID 1540192)? Violation notice was not in state file neither was PN. (3) 1/29/2008 bottled water agreement requires that PWS still conduct arsenic monitoring as required -- what monitoring requirements were there? See arsenic sample results for 1/1/2008, 11/8/2010, 10/22/2013 in WaterTrack. Were they on triennial monitoring? Why not quarterly due to MCL exceedance per the arsenic rule. (4) Bottled Water Agreement expired 3 years after issuance in 2008. Why hasn't escalated enforcement been initiated to place PWS on an enforceable schedule? What assurances are there that public health is being protected per the agreement requirements? **EPA Lead/Copper Sampling Comment:** On 3/17/2016 WaterTrack showed the system was on triennial lead and copper monitoring starting 1/1/2002 with only 3 sample required. The PWS has a non-transient population of 70. It appears that additional taps should be added to	From MDEQ: (1) The official name for the PWS has been MICHIGAN COMMUNITY SVCS. INC. since at least 2007 and so has the WSSN 20415-25. This has not changed. The building is also commonly known as: (historically 1989)-Wolcott Elementary School Mid 1990s- MI Community Services and MCS the Cornerstone 1994- Cornerstone Day Activity Center and MI Community Services, Cornerstone Wolcott --17543 is the certified operator's unique ID number that he/she put on some bottled water reports for WSSN 20415-25. The LHD added the WSSN to these reports. (2) DEQ entered that violation into WaterTrack. The LHD did not. Therefore, a violation notice was not sent. (3) All of DEQ's BW facilities were on 3 year monitoring until 2015 when DEQ agreed with EPA to put them on quarterly. They were switched to quarterly on 7/1/2015. (4) All of the BWAs expired and we chose not to renew them. We chose not to renew those agreements because we agreed with EPA to move them all towards treatment if an alternate source was still not an option. Public health is protected because bottled water from an approved source is still being provided to the

PWSID	PWS Name	District Office	PWS Type	U.S. EPA Questions/Comments	State Responses
				the system's lead and copper Sample Siting Plan in WaterTrack which only lists the bathroom sink in the office bathroom, the sink in kitchen, and the 3 compartment sink in kitchen. The bathroom sink should be removed from the lead and copper Sample Siting Plan (unless it can be used for human consumption), and the Room 10 sink, and Room 4A classroom taps for which there are lead and copper sample results in WaterTrack and/or any taps in other classroom should be added to the lead and copper Sample Siting Plan.	public, as required in the agreements. DEQ is contacting and addressing those facilities on BW for Arsenic to get them on treatment.
MI7720376	Manistique Ice -- **Escalated Enforcement**	Upper Peninsula	TNCWS	All three TCR Routine M/R violations were handled via violation notice with PN requested and $200 fine assigned. (1) Two of the violations had the violation notices coded as SIA/SFM/SFG; however, the PN was requested in the notice and there is no evidence in the file of the state providing the PN which is SDWIS code SFG. Should the enforcement actions be coded as SIA/SIE/SFM with PN requested by PWS rather than posted by the state? (2) The 7/14/2014 notice was coded as SIA/SFO/SFG; however, the letter in the file is not an administrative order with penalty but rather a fine like the other two letters. Is there an administrative order with penalty missing in the file? (3) Why was the $200 fine issued for the Q3 2013 TCR Routine M/R twice with notices sent on both 10/22/2013 and 11/22/2013?	(1) Voluntary posting, the SFG code should have been used. SIA/SFM/SIE is correct. (2) There is no administrative action for this facility. SIA/SFM/SIE is the correct coding for 7/14/14. (3) The $200 fine issued 10/22/13 was for the EPA reportable violation (Q3 2013). The 10/22/2013 cover letter directed the facility to collect the next routine sample “prior to 11/15/13 to avoid further fines” (state requirement). The $200 fine issued on 11/22/13 was for failure to collect the next routine sample by the requested sample date. However, the 11/22/13 PN/fine did not include the missed sample event within the text, only referencing the original Q3 2013 missed sample. The 11/22/13 cover letter directed the next routine sample be collected “prior to 12/15/13 to avoid further fines”, but no M/R violation was generated when sample was collected on 12/18/13. The 11/22/13 SFM was not entered into WaterTrack. A comment for the 10/22/13 SFM (not entered) could have helped clarify this issue by specifying the escalated sample date and possible consequences as specified in the 10/22/13 cover letter.

PWSID	PWS Name	District Office	PWS Type	U.S. EPA Questions/Comments	State Responses
MI1320157	Battle Creek Baptist Temple	Kalamazoo	TNCWS	(1) There is a December 3, 2014 violation notice letter in the attached file that has the 4 crossed out in the year and replaced with a 3 (Page 8 of 18 in the pdf). **Could you confirm the date?** I think it must be 12/3/2014 since it references the 12/17/2013 TC+ routine sample. (2) If 12/3/2014 is the date of the letter why did it take almost a year to follow the failure to collect repeat samples SOP in the NCWS manual? (3) When was the PWS placed on quarterly monitoring for bacti? The 12/3/2014 letter lists quarterly bacti monitoring required for 2013 but the monitoring schedule in WaterTrack lists annual for 1/1/1997 thru 9/30/2015 with quarterly beginning 10/1/2015. (4) The state file contains a GWR violation reporting form for a SDWIS Type 34 M/R violation for failure to collect triggered source water samples after TC+ routine on 12/17/2013. Why isn't that violation in Water Track or SDWIS/Fed? (5) The 1/30/14 letter coded as an SIA notice of noncompliance does not mention the PN notice but there is a copy of a blank notice covering do not drink due to a TC+ sample after the letter in the scanned file. Was the PN enclosed with the letter? (6) The nitrate and TCR M/R violations from 2014 are not in SDWIS/Fed as of the January 2016 data freeze. Any idea as to why the data did not get into SDWIS?	(1) The letter was generated following a LHD program review of FY14 on December 3, 2014. (2) During the FY14 LHD program review, the lack of follow up was noted. (3) The PWS was placed on quarterly following a LHD program review of FY15. The 12/3/2014 letter says quarterly, but WaterTrack was not updated and the system did not receive quarterly monitoring reminders or violations. (4) Tracking and reporting Type 34 violations is not possible using WaterTrack. Email from DEQ that the form was received on January 15, 2014. (5) LHD delivered the PN in person and left at the church door. (6) These violations were generated very late in WaterTrack on 1/2/2016 and 12/30/2015, respectively. They weren't submitted to SDWIS until February 2016.

PWSID	PWS Name	District Office	PWS Type	U.S. EPA Questions/Comments	State Responses
MI6322569	KOA Bathhouse	Jackson	TNCWS	(1) The 7/24/2015 Order to Abandon Well refers to a 6/17/2015 inspection. The state file does not contain documentation of this inspection. **Can the state give us the inspection report?** (2) A 6/30/2015 e-mail from LHD to MDEQ, summarizes the 6/29/2015 site visit and indicates that PN requirements were not being met by PWS. I do not see a PN violation in the state file. **Was a PN violation found as a result of that site visit?** (3) There are references in the state file to LHD being on site almost daily during mid to late July 2015, as well as to a planned 7/16/2015 compliance conference, and there are records of samples she collected on 7/13/2015, but no confirming documentation was found in the file for a 7/14/205 technical assistance visit that was reported to SDWIS/Fed. **Can the state provide documentation for a technical assistance visit that occurred on that date?** (4) The state file contains a Bilateral Compliance Order signed on 7/17/2015 by both LHD and KOA. This enforcement action does not appear in SDWIS/Fed. **What is the state's practice with respect to reporting Bilateral Compliance Orders?** (5) The state file contains several sample results that do not appear in Water Track. **Does the state report all sample test results to WaterTrack?** (6) Has MDEQ received any information from the LHD about what the resample means on the bacterial forms for the KOA Bathhouse. Does it	(1) This date should be July 17, 2015. The Order to abandon references the inspection which was the downhole camera investigation on that date. The Bilateral Consent Agreement was created and delivered after the site visit on the dame day. (Comments provided by LHD). (2) The site had the correct public notice in their possession, but made signs and posted them at drinking water locations which did not contain the correct language. The LHD had the facility copy the original PN and post copies of it at all appropriate locations. They also had 2 RV units still connected to the EC MCL well. We had them disconnect the RV units, bag the outside spigots and post the PN. We did not issue a PN violation, so LHD made the continued site visits to confirm that signs were not removed or replaced and the RVs were not connected to the well with the EC MCL. (Comments from LHD) (3) LHD provided the field sanitarian's Workload Management Tool (WLMT) record for that date. WLMT is LHD's internal activity reporting program. Sanitarian performed 2 site visits at the KOA on that date. The purpose of her continued site visits was to verify that PNs were posted where needed, cabins served by this well were not rented or occupied and RVs were not connected to the outside spigots on this well. This document will be placed in the ftp file. (Comments from LHD) (4) The LHD used a Bilateral Consent Agreement (not a Compliance Order) We are looking to determine the proper code for this. (5) There were many "investigation samples" not used for compliance when the system was denying there was *E. coli* in the well. Those are

PWSID	PWS Name	District Office	PWS Type	U.S. EPA Questions/Comments	State Responses
				always mean repeat or may it have dual meanings?	most likely the extra samples in the facility file. The LHD collected some and ran them through the County lab, the supply collected some and ran them through a private lab. The State Lab results would be available in WaterTrack, but these samples were not taken to the State Lab. (6) MDEQ spoke with the health department late last night and they also explained that the sample results that are not in WaterTrack were "investigatory" in nature. The LHD recalls them being taken by both the LHD and the supply and others working for the supply to try to narrow down where the breach in the system was located.
MI0620435	Knollview Golf	Lansing	TNCWS	(1) Why don't the 4 TCR 1/14/2014 repeat samples have the same sample #s in the file and the WaterTrack Water Chem Results screen? (2) The second page of the 1/30/2014 NOV for TCR Type 25 violation, any subsequent pages, including the signature page are missing from the electronic file. (3) There is no NOV letter for 2/2014 TCR Type 23 violation, only a monitoring violation form. (4) There is no documentation LHD provided a written or verbal reminder to system to collect 4 repeat samples within 24 hours of being notified of the positive result outlining sampling locations and protocol or placed system on precautionary measures until 4 non-detect repeat samples were collected per DEQ Non-community Supply Program Manual.	(1) The samples were hand entered into WaterTrack and in the process the LHD had WaterTrack generate the sample number. (2) Signature is found on page 12, see attached. Second page of 1/30/14 NOV letter obtained and attached. (3) Do not believe LHDs send a cover letter and we do not have a template for routine M/R violations, i.e., monthly, quarterly, or annual. However, we have provided a template for LHDs to use for failure to collect repeats after a positive. (4) MDEQ has provided further information for EPA to review and determine if further information is needed.

PWSID	PWS Name	District Office	PWS Type	U.S. EPA Questions/Comments	State Responses
MI3320169	Vlahakis Management Company	Lansing	NTNCWS	(1) Please provide any documentation that the LHD checked if the drinking fountain at the daycare center was covered and/or posted with PE information and of what the LHD found.	(1) Comments in WaterTrack, Violations Maintenance, under 5/23/13 SID code reflect site visit and verification of drinking fountain being covered up. Comments under 9/29/15 SIC code indicate that the drinking fountain was removed.
MI6120441	The Hop Childcare Center	Grand Rapids	NTNCWS	(1) Could not find documentation in the file for the 3/6/2014 State technical assistance visit (SIC) linked to system's CQ1 2014 Nitrate MCL violation. Did I miss something? (2) Could not find documentation in file if/when system was allowed to continue using the well for all consumptive purposes, discontinue posting the PN sent with the 3/10/2014 NOV letter and providing a supply of bottled water for all consumptive uses. (3) Could not find documentation of system's past nitrate monitoring schedules for the Well 001 and Well 002 buildings in the file or WaterTrack. (4) Is The Hop Childcare Center required to have a food license from Muskegon LHD, and, if so, why didn't LHD work with food sanitarian to help gain compliance? **EPA Lead/Copper Sampling Comment:** On 3/17/2016 WaterTrack showed the system was on triennial lead and copper monitoring starting 1/1/2006 with only 1 sample required for the building served by well 001, and annual lead and copper monitoring starting 1/1/2008 with 1 sample required for the building served by well 002. The PWS has a non-transient population of 60. Per WaterTrack system is currently on triennial lead and copper monitoring with only 1 sample required for the building served by well 001. The building that was served by well 002 has closed. It appears that additional taps should be added to the system's lead and copper	(1) The comment in WaterTrack associated with the 3/6/2014 Tech Assist Visit states: "site visit - observed alternate water (bottled) being used; informal postings at kitchen sink and restroom; discussed new well." Also, the attached Time and Program report from the county sanitarian is meant to document that the site visit took place. (2) The attached letter is from the LHD to the owner regarding reduction in nitrate monitoring frequency marking the end of the MCL violation. (3) Past Sanitary Survey letters are where monitoring schedules are documented for the owner to use. The most recent survey was done on 2/15/2012. A copy of the regenerated survey is attached, but shows only a current nitrate frequency schedule. (4) The Hop does not carry a food license.

PWSID	PWS Name	District Office	PWS Type	U.S. EPA Questions/Comments	State Responses
				Sample Siting Plan in WaterTrack which only lists the kitchen sink. Per MI Department of Health and Human Services (MI DHHS) licensing study reports for the Hop Childcare available at ChildcareCenter.us, in addition to the kitchen sink there is a sink in the infant room which is used for minor food preparation, and another hand sink in the preschool child care use area. There are also sample results in WaterTrack for lead and copper samples from "hall sink."	
MI6321444	Hour Kidz - **Bilateral Compliance Agreement**	Jackson	NTNCWS	(1) Didn't see any documentation that the well and distribution system were chlorinated after Hour Kidz replaced the pressure tank, and fixed leaks from hot water tank and pipes. **EPA Lead/Copper Sampling Comment:** Hour Kidz serves a daycare center and other businesses. The PWS has a non-transient population of 50. On 3/17/2016 WaterTrack showed the system was on triennial lead and copper monitoring starting 1/1/2002 with only 1 sample required. On 9/14/2016 WaterTrack showed the system was on triennial lead and copper monitoring since 1/1/2014 with 3 samples required and no previous lead and copper monitoring frequencies. It appears that additional taps at Hour Kidz and Advance Urgent Care Clinic should be added to the system's lead and copper Sample Siting Plan in WaterTrack which only lists the Hour Kidz kitchen sink. However, WaterTrack also lists a drinking fountain on the Storage-Distribution screen, and nursery sink and a break room sink in the Urgent Care Clinic on the Bacteriologic Sample Siting Plan screen. Also, per MI Department of Human Services (MI DHS) 7/3/2013 original licensing study at Hour Kidz available at ChildcareCenter.us, in addition to the kitchen sink there are two sinks in the infant	(1) MDEQ doesn't see any documentation of chlorination, either. The water supply was required to collect two safe samples 24 hours apart (see Trilateral Consent Agreement, April 24, 2015; Email from LHD to Hour Kidz, May 1, 2015; RTC letter to Hour Kidz, June 11, 2015).

PWSID	PWS Name	District Office	PWS Type	U.S. EPA Questions/Comments	State Responses
				room, and one sink each in the toddler room, sleep room, preschool-kindergarten room, and the classroom. These are in addition to sinks in three bathrooms.	

Appendix 3-G: Michigan Enforcement Verification Analysis Excel Workbook

Tab Name	Tab Description
1a - Final 13 CWSs for Review	Basic information on CWSs to be reviewed
1b - Final 12 NCWSs for Review	Basic information on NCWSs to be reviewed
2a - Jan2016 CWS Viols for Review	Violation Data for CWSs to be reviewed from January 2016 SDWIS/Fed Data Freeze
2b - Jan2016 NCWS Viols for Review	Violation Data for NCWSs to be reviewed from January 2016 SDWIS/Fed Data Freeze
3a - Jan16 CWSFedViols and EnfAct	Violation and Enforcement Action Data for CWSs to be reviewed from January 2016 SDWIS/Fed Data Freeze
3b - Jan2016 NCWS Viols for Review	Violation and Enforcement Action Data for NCWSs to be reviewed from January 2016 SDWIS/Fed Data Freeze
4a - Tier 1 and 2 PN Summary CWS	Tier 1 and Tier 2 Public Notification Summary for CWSs Reviewed
4b - Tier 1 and 2 PN Summary NCWS	Tier 1 and Tier 2 Public Notification Summary for NCWSs Reviewed
5 - JAN 2016 ETT Violations	All Violations at the 16 PWSs Reviewed during the EV (SOURCE: January 2016 ETT, which reflects data reported to SDWIS/Fed through 9/30/2015)
6 - JAN 2016 ETT Scores Tracker	Quarterly ETT Scores from the January 2016 ETT Scores Tracker reflecting data reported to SDWIS/Fed through 9/30/2015
7 - SDWIS_Fed Codes	Federally-reportable Violation Code Reference Sheet (last updated 10/2014) and Enforcement Action Codes and Descriptions

1a - Final 13 CWSs for Review

PWSID	PWS Name	County Served	CWS District Number	CWS District Office	Population Served	PWS Type	Primary Source	School/ Daycare	#Viols to Review	Viol open between October 1, 2013 and September 30, 2015?	Why Selected?	Enf of Interest?	Potential Lead Service Line?	Jan 2016 ETT Score
MI0000470	Bay City, City Of	Bay	21	Saginaw Bay (Bay City)	34,932	CWS	SWP	N	0	None	Purchased surface water source, Recent Source Change, Potential LSL		Y	0
MI0000510	Bear Lake, Village Of	Manistee	71	Cadillac	318	CWS	GW	N	2	2 violations; 2013 CCR Due 7/1/2014 and Q3 2015 DBP Type 27 M&R	Lead levels around 15 ppb, DBP M&R, CCR violation			0
MI0000518	Beaver Township	Bay	21	Saginaw Bay (Bay City)	1,109	CWS	SWP	N	5	5 violations; Q3 2014 thru Q3 2015 TTHM MCL	3 quarters ETT Priority System, Purchased surface water source, DBP MCL			26
MI0000710	Big Rapids	Mecosta	61	Grand Rapids	10,894	CWS	GW	N	0	None	No violations, Potential LSL		Y	0
MI0001018	Butterfield Woods Subdivision	Muskegon	61	Grand Rapids	65	CWS	GW	N	2	2 violations; 10/2014 TCR Acute MCL and TCR Monthly MCL	TCR MCL			0
MI0002310	Flint, City Of	Genesee	11	Lansing	99,763	CWS	SW	N	4	4 violations; 8/2014 TCR Acute MCL and Monthly MCL, 9/2014 TCR Monthly MCL, and Q4 2014 TTHM MCL	Flint, TCR MCL and DBP MCL, Potential LSL		Y	0
MI0003420	Ironwood	Gogebic	81	Upper Peninsula (Marquette)	6,525	CWS	GW	N	0	None	No violations, Potential LSL, District Office		Y	0
MI0005290	Petersburg	Monroe	31	Jackson	1,278	CWS	SWP	N	0	None	No violations, District Office, Purchased surface water source			0

PWSID	PWS Name	County Served	CWS District Number	CWS District Office	Population Served	PWS Type	Primary Source	School/ Daycare	#Viols to Review	Viol open between October 1, 2013 and September 30, 2015?	Why Selected?	Enf of Interest?	Potential Lead Service Line?	Jan 2016 ETT Score
MI0005400	Plymouth	Wayne	41	Southeast Michigan (Warren)	9,132	CWS	SWP	N	0	None	No violations, Purchased surface water source, Potential LSL		Y	0
MI0005850	Saginaw, City Of	Saginaw	21	Saginaw Bay (Bay City)	51,508	CWS	SWP	N	0	None	Size, Purchased surface water source, Potential LSL		Y	0
MI0006232	Spring Lake Club Condominiums	Emmet	72	Cadillac	87	CWS	GW	N	6	6 violations; 7/2013 LCR Type 53 M&R, 11/2013 LCR Type 66 M&R, 12/2013 LCR Type 65 TT, 3/2014 TCR Routine M&R, 4/2014 LCR Type 56 M&R and LCR Type 57 TT	Lead action level exceedances in both 2014 6-month monitoring periods in SDWIS/Fed, LCR M&R and TT violations		No Info	0
MI0006640	Traverse City, City Of	Grand Traverse	72/73	Cadillac	14,674	CWS	SW	N	0	None	No violations, Potential LSL, System Size		Y	0
MI0040477	Washburn Lake Village MHP	St. Joseph	54	Kalamazoo	108	CWS	GW	N	4	7 violations; 10/2013 TCR Monthly MCL, 10/29/2013 GWR Type 45 TT, 11/2013 TCR Monthly MCL and 12/2013 TCR Monthly MCL	CWS with Escalated Enforcement, 2 quarters ETT Priority System, GWR TT, TCR MCL	Y		0

1b - Final 12 NCWSs for Review

PWSID	MDEQ WSSN (Non-Comm Only)	PWS Name	County Served	NCWS Office	Population Served	PWS Type	Primary Source	School/ Daycare	#Viols to Review	Viol open between October 1, 2013 and September 30, 2015?	Why Selected?	Enf of Interest?	Potential Lead Service Line?	Jan 2016 ETT Score
MI0620435	MI2043506	Knollview Golf	Arenac	Lansing	25	TNCWS	GW	N	2	2 violations; 12/2013 TCR M&R Type 25 and 2/2014 TCR Routine M&R	TCR M&R violations at GW PWS			0
MI1320157	MI2015713	Battle Creek Baptist Temple	Calhoun	Kalamazoo	100	TNCWS	GW	N	1	1 viol; 12/2013 TCR Type 25 M&R	District and TCR violations at GW PWS			0
MI2120212	MI2021221	Hyde Properties	Delta	Upper Peninsula	100	NTNCWS	GW	Y	0	None	No violations, School or Daycare			0
MI2520415	MI2041525	Michigan Community Svcs. Inc.	Genesee	Lansing	70	NTNCWS	GW	Y	2	2 violations; arsenic MCL 2008 - 2015	As MCL and School or Daycare, BCA	Y		5
MI2820036	MI2003628	Fife Lake Elementary School	Grand Traverse	Gaylord	166	NTNCWS	GW	Y	1	1 viol; 1/1/2015 LCR Type 52 M&R	School or Daycare, LCR M&R			2
MI3320169	MI2016933	Vlahakis Management Company	Ingham	Lansing	100	NTNCWS	GW	Y	1	1 viol; 1/1/2013 LCR Type 51 M&R not RTCd yet	BCA, LCR violations, School or Daycare; on state Pb ALE list	Y		4
MI3520208	MI2020835	Tawas Headstart	Iosco	Gaylord	40	TNCWS	GW	Y	0	None	School or Daycare, District, TNCWS with no violations			0

PWSID	MDEQ WSSN (Non-Comm Only)	PWS Name	County Served	NCWS Office	Population Served	PWS Type	Primary Source	School/ Daycare	#Viols to Review	Viol open between October 1, 2013 and September 30, 2015?	Why Selected?	Enf of Interest?	Potential Lead Service Line?	Jan 2016 ETT Score
MI6120441	MI2044161	The Hop Childcare Center	Muskegon	Grand Rapids	60	NTNCWS	GW	Y	1	1 viol; Q1 2014 Nitrate MCL	Nitrate MCL and School or Daycare			0
MI6321444	MI2144463	Hour Kidz	Oakland	Jackson	100	NTNCWS	GW	Y	1	1 viol; 7/2014 TCR Monthly MCL	BCA, School or Daycare, TCR MCL	Y		0
MI6322569	MI2256963	KOA Bathhouse	Oakland	Jackson	100	TNCWS	GW	N	2	2 violations; 6/2015 and 7/2015 TCR Acute MCLs	Acute MCLs			10
MI7020186	MI2018670	Sandy Point Beach House	Ottawa	Grand Rapids	200	TNCWS	GW	N	4	4 violations; 2013 Nitrate M&R, 2013 TCR Routine M&R, 6/2014 TCR Repeat M&R (25); Q4 2014 TCR Routine M&R	Nitrate and TCR M&R			0
MI7720376	MI2037677	Manistique Ice	Schoolcraft	Upper Peninsula	25	TNCWS	GW	N	2	2 violations; Q2 2014 and Q1 2015 TCR Routine M&R	Escalated Enforcement-Penalty and Order at NCWS	Y		0

2a - Jan2016 CWS Viols for Review

PWSID	PWS Name	Population Served	Primary Source	Contaminant Name	Violation Category Code	Violation Code	Violation Id	Compliance Period Begin Date	Compliance Period End Date	RTC Date	Viol open between October 1, 2013 and September 30, 2015?
MI0000510	Bear Lake, Village Of	318	GW	Consumer Confidence Rule	Other	71	4000309	7/1/2014		6/25/2015	Y
MI0000510	Bear Lake, Village Of	318	GW	Chlorine	MR	27	4000311	7/1/2015	9/30/2015	8/25/2015	Y
MI0000518	Beaver Township	1,109	SWP	TTHM	MCL	02	1	7/1/2014	9/30/2014		Y
MI0000518	Beaver Township	1,109	SWP	TTHM	MCL	02	2	10/1/2014	12/31/2014		Y
MI0000518	Beaver Township	1,109	SWP	TTHM	MCL	02	3	1/1/2015	3/31/2015		Y
MI0000518	Beaver Township	1,109	SWP	TTHM	MCL	02	5	4/1/2015	6/30/2015		Y
MI0000518	Beaver Township	1,109	SWP	TTHM	MCL	02	6	7/1/2015	9/30/2015		Y
MI0001018	Butterfield Woods Subdivision	65	GW	Coliform (TCR)	MCL	21	3	10/1/2014	10/31/2014	12/9/2014	Y
MI0001018	Butterfield Woods Subdivision	65	GW	Coliform (TCR)	MCL	22	4	10/1/2014	10/31/2014	12/9/2014	Y
MI0002310	Flint, City Of	99,763	SW	Coliform (TCR)	MCL	22	206	8/1/2014	8/31/2014	9/30/2014	Y
MI0002310	Flint, City Of	99,763	SW	Coliform (TCR)	MCL	21	207	8/1/2014	8/31/2014	9/30/2014	Y
MI0002310	Flint, City Of	99,763	SW	Coliform (TCR)	MCL	22	209	9/1/2014	9/30/2014	10/31/2014	Y
MI0002310	Flint, City Of	99,763	SW	TTHM	MCL	02	210	10/1/2014	12/31/2014	8/31/2015	Y

PWSID	PWS Name	Population Served	Primary Source	Contaminant Name	Violation Category Code	Violation Code	Violation Id	Compliance Period Begin Date	Compliance Period End Date	RTC Date	Viol open between October 1, 2013 and September 30, 2015?
MI0006232	Spring Lake Club Condominiums	87	GW	Lead and Copper Rule	MR	53	4000220	7/1/2013	12/31/2013	6/30/2014	Y
MI0006232	Spring Lake Club Condominiums	87	GW	Lead and Copper Rule	MR	66	4000218	11/1/2013		3/20/2014	Y
MI0006232	Spring Lake Club Condominiums	87	GW	Lead and Copper Rule	TT	65	4000217	12/11/2013		3/20/2014	Y
MI0006232	Spring Lake Club Condominiums	87	GW	Coliform (TCR)	MR	23	4000210	3/1/2014	3/31/2014	4/30/2014	Y
MI0006232	Spring Lake Club Condominiums	87	GW	Lead and Copper Rule	MR	56	4000216	4/1/2014		6/5/2014	Y
MI0006232	Spring Lake Club Condominiums	87	GW	Lead and Copper Rule	TT	57	4000219	4/1/2014		12/14/2014	Y
MI0040477	Washburn Lake Village MHP	108	GW	Coliform (TCR)	MCL	22	4003515	10/1/2013	10/31/2013	12/3/2013	Y
MI0040477	Washburn Lake Village MHP	108	GW	Groundwater Rule	TT	45	4003516	10/29/2013		1/22/2014	Y
MI0040477	Washburn Lake Village MHP	108	GW	Coliform (TCR)	MCL	22	4003518	11/1/2013	11/30/2013	12/3/2013	Y
MI0040477	Washburn Lake Village MHP	108	GW	Coliform (TCR)	MCL	22	4003519	12/1/2013	12/31/2013	12/3/2013	Y

2b - Jan2016 NCWS Viols for Review

PWSID	PWS Name	Population Served	PWS Type	Primary Source	Is School Or Daycare	Contaminant Name	Violation Category	Violation Code	Violation ID	Compliance Period Begin Date	Compliance Period End Date	RTC Date	Viol open between October 1, 2013 and September 30, 2015?
MI0620435	Knollview Golf	25	TNCWS	GW	N	Coliform (TCR)	MR	25	1411432	12/1/2013	12/31/2013	1/14/2014	Y
MI0620435	Knollview Golf	25	TNCWS	GW	N	Coliform (TCR)	MR	23	1420024	2/1/2014	2/28/2014	3/25/2014	Y
MI1320157	Battle Creek Baptist Temple	100	TNCWS	GW	N	Coliform (TCR)	MR	25	1410549	12/1/2013	12/31/2013		Y
MI2520415	Michigan Community Svcs. Inc.	70	NTNCWS	GW	Y	Arsenic	MCL	02	0820196	1/1/2008	9/30/2014		Y
MI2520415	Michigan Community Svcs. Inc.	70	NTNCWS	GW	Y	Arsenic	MCL	02	1540192	7/1/2015	9/30/2015		Y
MI2820036	Fife Lake Elementary School	166	NTNCWS	GW	Y	Lead and Copper Rule	MR	52	1510680	1/1/2015			Y
MI3320169	Vlahakis Management Company	100	NTNCWS	GW	Y	Lead and Copper Rule	MR	51	1310935	1/1/2013			Y
MI6120441	The Hop Childcare Center	60	NTNCWS	GW	Y	Nitrate	MCL	02	1420020	1/1/2014	3/31/2014	12/5/2014	Y
MI7020186	Sandy Point Beach House	200	TNCWS	GW	N	Nitrate	MR	03	1410244	1/1/2013	12/31/2013	2/21/2014	Y
MI7020186	Sandy Point Beach House	200	TNCWS	GW	N	Coliform (TCR)	MR	23	1410230	1/1/2013	12/31/2013	2/21/2014	Y
MI7020186	Sandy Point Beach House	200	TNCWS	GW	N	Coliform (TCR)	MR	25	1430109	6/1/2014	6/30/2014	7/10/2014	Y
MI7020186	Sandy Point Beach House	200	TNCWS	GW	N	Coliform (TCR)	MR	23	1510907	10/1/2014	12/31/2014	8/5/2015	Y

PWSID	PWS Name	Population Served	PWS Type	Primary Source	Is School Or Daycare	Contaminant Name	Violation Category	Violation Code	Violation ID	Compliance Period Begin Date	Compliance Period End Date	RTC Date	Viol open between October 1, 2013 and September 30, 2015?
MI6321444	Hour Kidz	100	NTNCWS	GW	Y	Coliform (TCR)	MCL	22	1440036	7/1/2014	7/31/2014	6/10/2015	Y
MI6322569	KOA Bathhouse	100	TNCWS	GW	N	Coliform (TCR)	MCL	21	1530031	6/1/2015	6/30/2015	7/7/2015	Y
MI6322569	KOA Bathhouse	100	TNCWS	GW	N	Coliform (TCR)	MCL	21	1540013	7/1/2015	7/31/2015		Y
MI7720376	Manistique Ice	25	TNCWS	GW	N	Coliform (TCR)	MR	23	1430134	4/1/2014	6/30/2014	7/23/2014	Y
MI7720376	Manistique Ice	25	TNCWS	GW	N	Coliform (TCR)	MR	23	1520057	1/1/2015	3/31/2015	4/21/2015	Y

3a - Jan16 CWSFedViols and EnfAct

PWSID	PWS Name	POP CAT 5 Description	Rule Name	Contaminant Code	Contaminant Name	Violation Category	Violation Code	Violation Measure	Unit of Measure	Violation ID	Compliance Period Begin Date	Compliance Period End Date	RTC Date	Enforcement ID	Enforcement Date	Enforcement Action Type Code	Viol open between October 1, 2013 and September 30, 2015?
MI0000510	Bear Lake, Village Of	<=500	CCR	7000	Consumer Confidence Rule	Other	71			4000309	7/1/2014		6/25/2015	4000407	1/16/2015	SIA	Y
MI0000510	Bear Lake, Village Of	<=500	CCR	7000	Consumer Confidence Rule	Other	71			4000309	7/1/2014		6/25/2015	4000408	6/25/2015	SOX	Y
MI0000510	Bear Lake, Village Of	<=500	Stage 1 DBPR	0999	Chlorine	MR	27			4000311	7/1/2015	9/30/2015	8/25/2015	4000409	9/16/2015	SIA	Y
MI0000510	Bear Lake, Village Of	<=500	Stage 1 DBPR	0999	Chlorine	MR	27			4000311	7/1/2015	9/30/2015	8/25/2015	4000410	9/16/2015	SIE	Y
MI0000510	Bear Lake, Village Of	<=500	Stage 1 DBPR	0999	Chlorine	MR	27			4000311	7/1/2015	9/30/2015	8/25/2015	4000411	8/25/2015	SOX	Y
MI0000518	Beaver Township	501-3,300	Stage 2 DBPR	2950	TTHM	MCL	02	0.088	MG/L	1	7/1/2014	9/30/2014		1	9/11/2014	SIA	Y
MI0000518	Beaver Township	501-3,300	Stage 2 DBPR	2950	TTHM	MCL	02	0.088	MG/L	1	7/1/2014	9/30/2014		2	9/11/2014	SIE	Y
MI0000518	Beaver Township	501-3,300	Stage 2 DBPR	2950	TTHM	MCL	02	0.088	MG/L	1	7/1/2014	9/30/2014		3	10/10/2014	SIF	Y
MI0000518	Beaver Township	501-3,300	Stage 2 DBPR	2950	TTHM	MCL	02	0.082	MG/L	2	10/1/2014	12/31/2014		5	12/12/2014	SIA	Y
MI0000518	Beaver Township	501-3,300	Stage 2 DBPR	2950	TTHM	MCL	02	0.082	MG/L	2	10/1/2014	12/31/2014		6	12/12/2014	SIE	Y
MI0000518	Beaver Township	501-3,300	Stage 2 DBPR	2950	TTHM	MCL	02	0.082	MG/L	2	10/1/2014	12/31/2014		7	1/15/2015	SIF	Y
MI0000518	Beaver Township	501-3,300	Stage 2 DBPR	2950	TTHM	MCL	02	0.085	MG/L	3	1/1/2015	3/31/2015		11	4/9/2015	SIF	Y
MI0000518	Beaver Township	501-3,300	Stage 2 DBPR	2950	TTHM	MCL	02	0.085	MG/L	3	1/1/2015	3/31/2015		9	4/28/2015	SIA	Y
MI0000518	Beaver Township	501-3,300	Stage 2 DBPR	2950	TTHM	MCL	02	0.081	MG/L	5	4/1/2015	6/30/2015		13	7/27/2015	SIA	Y

PWSID	PWS Name	POP CAT 5 Description	Rule Name	Contaminant Code	Contaminant Name	Violation Category	Violation Code	Violation Measure	Unit of Measure	Violation ID	Compliance Period Begin Date	Compliance Period End Date	RTC Date	Enforcement ID	Enforcement Date	Enforcement Action Type Code	Viol open between October 1, 2013 and September 30, 2015?
MI0000518	Beaver Township	501-3,300	Stage 2 DBPR	2950	TTHM	MCL	02	0.081	MG/L	5	4/1/2015	6/30/2015		15	7/16/2015	SIF	Y
MI0000518	Beaver Township	501-3,300	Stage 2 DBPR	2950	TTHM	MCL	02	0.081	MG/L	5	4/1/2015	6/30/2015		17	9/28/2015	SIF	Y
MI0000518	Beaver Township	501-3,300	Stage 2 DBPR	2950	TTHM	MCL	02	0.082	MG/L	6	7/1/2015	9/30/2015					Y
MI0001018	Butterfield Woods Subdivision	<=500	TCR	3100	Coliform (TCR)	MCL	21			3	10/1/2014	10/31/2014	12/9/2014	10	10/31/2014	SIF	Y
MI0001018	Butterfield Woods Subdivision	<=500	TCR	3100	Coliform (TCR)	MCL	21			3	10/1/2014	10/31/2014	12/9/2014	11	12/9/2014	SOX	Y
MI0001018	Butterfield Woods Subdivision	<=500	TCR	3100	Coliform (TCR)	MCL	21			3	10/1/2014	10/31/2014	12/9/2014	8	12/9/2014	SIA	Y
MI0001018	Butterfield Woods Subdivision	<=500	TCR	3100	Coliform (TCR)	MCL	21			3	10/1/2014	10/31/2014	12/9/2014	9	10/24/2014	SIE	Y
MI0001018	Butterfield Woods Subdivision	<=500	TCR	3100	Coliform (TCR)	MCL	22			4	10/1/2014	10/31/2014	12/9/2014	10	10/31/2014	SIF	Y
MI0001018	Butterfield Woods Subdivision	<=500	TCR	3100	Coliform (TCR)	MCL	22			4	10/1/2014	10/31/2014	12/9/2014	11	12/9/2014	SOX	Y
MI0001018	Butterfield Woods Subdivision	<=500	TCR	3100	Coliform (TCR)	MCL	22			4	10/1/2014	10/31/2014	12/9/2014	8	12/9/2014	SIA	Y
MI0001018	Butterfield Woods Subdivision	<=500	TCR	3100	Coliform (TCR)	MCL	22			4	10/1/2014	10/31/2014	12/9/2014	9	10/24/2014	SIE	Y
MI0002310	Flint, City Of	10,001-100,000	TCR	3100	Coliform (TCR)	MCL	22			206	8/1/2014	8/31/2014	9/30/2014	711	8/15/2014	SIA	Y
MI0002310	Flint, City Of	10,001-100,000	TCR	3100	Coliform (TCR)	MCL	22			206	8/1/2014	8/31/2014	9/30/2014	712	8/15/2014	SIE	Y
MI0002310	Flint, City Of	10,001-100,000	TCR	3100	Coliform (TCR)	MCL	22			206	8/1/2014	8/31/2014	9/30/2014	713	8/25/2014	SIF	Y
MI0002310	Flint, City Of	10,001-100,000	TCR	3100	Coliform (TCR)	MCL	22			206	8/1/2014	8/31/2014	9/30/2014	714	9/30/2014	SOX	Y
MI0002310	Flint, City Of	10,001-100,000	TCR	3100	Coliform (TCR)	MCL	21			207	8/1/2014	8/31/2014	9/30/2014	707	8/15/2014	SIA	Y
MI0002310	Flint, City Of	10,001-100,000	TCR	3100	Coliform (TCR)	MCL	21			207	8/1/2014	8/31/2014	9/30/2014	708	8/15/2014	SIE	Y
MI0002310	Flint, City Of	10,001-100,000	TCR	3100	Coliform (TCR)	MCL	21			207	8/1/2014	8/31/2014	9/30/2014	709	8/15/2014	SIF	Y
MI0002310	Flint, City Of	10,001-100,000	TCR	3100	Coliform (TCR)	MCL	21			207	8/1/2014	8/31/2014	9/30/2014	710	9/30/2014	SOX	Y

PWSID	PWS Name	POP CAT 5 Description	Rule Name	Contaminant Code	Contaminant Name	Violation Category	Violation Code	Violation Measure	Unit of Measure	Violation ID	Compliance Period Begin Date	Compliance Period End Date	RTC Date	Enforcement ID	Enforcement Date	Enforcement Action Type Code	Viol open between October 1, 2013 and September 30, 2015?
MI0002310	Flint, City Of	10,001-100,000	TCR	3100	Coliform (TCR)	MCL	22			209	9/1/2014	9/30/2014	10/31/2014	715	10/7/2014	SIA	Y
MI0002310	Flint, City Of	10,001-100,000	TCR	3100	Coliform (TCR)	MCL	22			209	9/1/2014	9/30/2014	10/31/2014	716	10/7/2014	SIE	Y
MI0002310	Flint, City Of	10,001-100,000	TCR	3100	Coliform (TCR)	MCL	22			209	9/1/2014	9/30/2014	10/31/2014	717	11/3/2014	SIF	Y
MI0002310	Flint, City Of	10,001-100,000	TCR	3100	Coliform (TCR)	MCL	22			209	9/1/2014	9/30/2014	10/31/2014	718	10/31/2014	SOX	Y
MI0002310	Flint, City Of	10,001-100,000	Stage 2 DBPR	2950	TTHM	MCL	02	0.099	MG/L	210	10/1/2014	12/31/2014	8/31/2015	719	12/12/2014	SIA	Y
MI0002310	Flint, City Of	10,001-100,000	Stage 2 DBPR	2950	TTHM	MCL	02	0.099	MG/L	210	10/1/2014	12/31/2014	8/31/2015	720	12/12/2014	SIE	Y
MI0002310	Flint, City Of	10,001-100,000	Stage 2 DBPR	2950	TTHM	MCL	02	0.099	MG/L	210	10/1/2014	12/31/2014	8/31/2015	721	1/6/2015	SIF	Y
MI0002310	Flint, City Of	10,001-100,000	Stage 2 DBPR	2950	TTHM	MCL	02	0.099	MG/L	210	10/1/2014	12/31/2014	8/31/2015	722	8/31/2015	SOX	Y
MI0002310	Flint, City Of	10,001-100,000	Stage 2 DBPR	2950	TTHM	MCL	02	0.099	MG/L	210	10/1/2014	12/31/2014	8/31/2015	723	1/13/2015	SIF	Y
MI0002310	Flint, City Of	10,001-100,000	Stage 2 DBPR	2950	TTHM	MCL	02	0.099	MG/L	210	10/1/2014	12/31/2014	8/31/2015	724	4/13/2015	SIF	Y
MI0006232	Spring Lake Club Condominiums	<=500	LCR	5000	Lead and Copper Rule	MR	53			4000220	7/1/2013	12/31/2013	6/30/2014	4000602	5/28/2014	SIA	Y
MI0006232	Spring Lake Club Condominiums	<=500	LCR	5000	Lead and Copper Rule	MR	53			4000220	7/1/2013	12/31/2013	6/30/2014	4000603	5/28/2014	SIE	Y
MI0006232	Spring Lake Club Condominiums	<=500	LCR	5000	Lead and Copper Rule	MR	53			4000220	7/1/2013	12/31/2013	6/30/2014	4000608	6/30/2014	SOX	Y
MI0006232	Spring Lake Club Condominiums	<=500	LCR	5000	Lead and Copper Rule	MR	66			4000218	11/1/2013		3/20/2014	4000602	5/28/2014	SIA	Y
MI0006232	Spring Lake Club Condominiums	<=500	LCR	5000	Lead and Copper Rule	MR	66			4000218	11/1/2013		3/20/2014	4000603	5/28/2014	SIE	Y
MI0006232	Spring Lake Club Condominiums	<=500	LCR	5000	Lead and Copper Rule	MR	66			4000218	11/1/2013		3/20/2014	4000606	3/20/2014	SOX	Y

PWSID	PWS Name	POP CAT 5 Description	Rule Name	Contaminant Code	Contaminant Name	Violation Category	Violation Code	Violation Measure	Unit of Measure	Violation ID	Compliance Period Begin Date	Compliance Period End Date	RTC Date	Enforcement ID	Enforcement Date	Enforcement Action Type Code	Viol open between October 1, 2013 and September 30, 2015?
MI0006232	Spring Lake Club Condominiums	<=500	LCR	5000	Lead and Copper Rule	TT	65			4000217	12/11/2013		3/20/2014	4000602	5/28/2014	SIA	Y
MI0006232	Spring Lake Club Condominiums	<=500	LCR	5000	Lead and Copper Rule	TT	65			4000217	12/11/2013		3/20/2014	4000603	5/28/2014	SIE	Y
MI0006232	Spring Lake Club Condominiums	<=500	LCR	5000	Lead and Copper Rule	TT	65			4000217	12/11/2013		3/20/2014	4000606	3/20/2014	SOX	Y
MI0006232	Spring Lake Club Condominiums	<=500	TCR	3100	Coliform (TCR)	MR	23			4000210	3/1/2014	3/31/2014	4/30/2014	4000599	4/15/2014	SIA	Y
MI0006232	Spring Lake Club Condominiums	<=500	TCR	3100	Coliform (TCR)	MR	23			4000210	3/1/2014	3/31/2014	4/30/2014	4000600	4/14/2014	SIE	Y
MI0006232	Spring Lake Club Condominiums	<=500	TCR	3100	Coliform (TCR)	MR	23			4000210	3/1/2014	3/31/2014	4/30/2014	4000601	4/30/2014	SOX	Y
MI0006232	Spring Lake Club Condominiums	<=500	LCR	5000	Lead and Copper Rule	MR	56			4000216	4/1/2014		6/5/2014	4000602	5/28/2014	SIA	Y
MI0006232	Spring Lake Club Condominiums	<=500	LCR	5000	Lead and Copper Rule	MR	56			4000216	4/1/2014		6/5/2014	4000603	5/28/2014	SIE	Y
MI0006232	Spring Lake Club Condominiums	<=500	LCR	5000	Lead and Copper Rule	MR	56			4000216	4/1/2014		6/5/2014	4000607	6/5/2014	SOX	Y
MI0006232	Spring Lake Club Condominiums	<=500	LCR	5000	Lead and Copper Rule	TT	57			4000219	4/1/2014		12/14/2014	4000602	5/28/2014	SIA	Y
MI0006232	Spring Lake Club Condominiums	<=500	LCR	5000	Lead and Copper Rule	TT	57			4000219	4/1/2014		12/14/2014	4000613	12/14/2014	SOX	Y
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003511	7/1/2013	7/31/2013	12/3/2013	4000812	10/30/2013	SIA	N
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003511	7/1/2013	7/31/2013	12/3/2013	4000813	7/25/2013	SFH	N
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003511	7/1/2013	7/31/2013	12/3/2013	4000816	1/22/2014	SFL	N
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003511	7/1/2013	7/31/2013	12/3/2013	4000818	11/26/2013	SIF	N

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MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003511	7/1/2013	7/31/2013	12/3/2013	4000819	12/3/2013	SOX	N
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003513	8/1/2013	8/31/2013	12/3/2013	4000812	10/30/2013	SIA	N
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003513	8/1/2013	8/31/2013	12/3/2013	4000813	7/25/2013	SFH	N
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003513	8/1/2013	8/31/2013	12/3/2013	4000816	1/22/2014	SFL	N
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003513	8/1/2013	8/31/2013	12/3/2013	4000818	11/26/2013	SIF	N
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003513	8/1/2013	8/31/2013	12/3/2013	4000819	12/3/2013	SOX	N
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003514	9/1/2013	9/30/2013	12/3/2013	4000812	10/30/2013	SIA	N
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003514	9/1/2013	9/30/2013	12/3/2013	4000813	7/25/2013	SFH	N
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003514	9/1/2013	9/30/2013	12/3/2013	4000816	1/22/2014	SFL	N
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003514	9/1/2013	9/30/2013	12/3/2013	4000818	11/26/2013	SIF	N
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003514	9/1/2013	9/30/2013	12/3/2013	4000819	12/3/2013	SOX	N
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003515	10/1/2013	10/31/2013	12/3/2013	4000812	10/30/2013	SIA	Y
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003515	10/1/2013	10/31/2013	12/3/2013	4000814	10/30/2013	SFH	Y
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003515	10/1/2013	10/31/2013	12/3/2013	4000816	1/22/2014	SFL	Y
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003515	10/1/2013	10/31/2013	12/3/2013	4000818	11/26/2013	SIF	Y
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003515	10/1/2013	10/31/2013	12/3/2013	4000819	12/3/2013	SOX	Y
MI0040477	Washburn Lake Village MHP	<=500	GWR	0700	Ground Water Rule	TT	45			4003516	10/29/2013		1/22/2014	4000812	10/30/2013	SIA	Y

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MI0040477	Washburn Lake Village MHP	<=500	GWR	0700	Ground Water Rule	TT	45			4003516	10/29/2013		1/22/2014	4000815	11/20/2013	SIC	Y
MI0040477	Washburn Lake Village MHP	<=500	GWR	0700	Ground Water Rule	TT	45			4003516	10/29/2013		1/22/2014	4000816	1/22/2014	SFL	Y
MI0040477	Washburn Lake Village MHP	<=500	GWR	0700	Ground Water Rule	TT	45			4003516	10/29/2013		1/22/2014	4000817	1/22/2014	SOX	Y
MI0040477	Washburn Lake Village MHP	<=500	GWR	0700	Ground Water Rule	TT	45			4003516	10/29/2013		1/22/2014	4000818	11/26/2013	SIF	Y
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003518	11/1/2013	11/30/2013	12/3/2013	4000812	10/30/2013	SIA	Y
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003518	11/1/2013	11/30/2013	12/3/2013	4000816	1/22/2014	SFL	Y
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003518	11/1/2013	11/30/2013	12/3/2013	4000818	11/26/2013	SIF	Y
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003518	11/1/2013	11/30/2013	12/3/2013	4000819	12/3/2013	SOX	Y
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003519	12/1/2013	12/31/2013	12/3/2013	4000812	10/30/2013	SIA	Y
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003519	12/1/2013	12/31/2013	12/3/2013	4000816	1/22/2014	SFL	Y
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003519	12/1/2013	12/31/2013	12/3/2013	4000818	11/26/2013	SIF	Y
MI0040477	Washburn Lake Village MHP	<=500	TCR	3100	Coliform (TCR)	MCL	22			4003519	12/1/2013	12/31/2013	12/3/2013	4000819	12/3/2013	SOX	Y

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MI0620435	Knollview Golf	TCR	3100	Coliform (TCR)	MR	25			1411432	12/1/2013	12/31/2013	1/14/2014	142001575	1/30/2014	SIA	Y
MI0620435	Knollview Golf	TCR	3100	Coliform (TCR)	MR	25			1411432	12/1/2013	12/31/2013	1/14/2014	142002177	3/3/2014	SIF	Y
MI0620435	Knollview Golf	TCR	3100	Coliform (TCR)	MR	25			1411432	12/1/2013	12/31/2013	1/14/2014	142002306	1/14/2014	SOX	Y
MI0620435	Knollview Golf	TCR	3100	Coliform (TCR)	MR	23			1420024	2/1/2014	2/28/2014	3/25/2014	142002346	3/20/2014	SIA	Y
MI0620435	Knollview Golf	TCR	3100	Coliform (TCR)	MR	23			1420024	2/1/2014	2/28/2014	3/25/2014	142002367	3/25/2014	SIF	Y
MI0620435	Knollview Golf	TCR	3100	Coliform (TCR)	MR	23			1420024	2/1/2014	2/28/2014	3/25/2014	142002374	3/25/2014	SOX	Y
MI1320157	Battle Creek Baptist Temple	TCR	3100	Coliform (TCR)	MR	25			1410549	12/1/2013	12/31/2013		142001608	1/30/2014	SIA	Y
MI1320157	Battle Creek Baptist Temple	TCR	3100	Coliform (TCR)	MR	25			1410549	12/1/2013	12/31/2013		142001609	1/30/2014	SIE	Y
MI2520415	Michigan Community Svcs. Inc.	Arsenic	1005	Arsenic	MCL	02	0.0305	MG/L	0820196	1/1/2008	9/30/2014		082002966	1/29/2008	SFK	Y
MI2520415	Michigan Community Svcs. Inc.	Arsenic	1005	Arsenic	MCL	02	0.0305	MG/L	0820196	1/1/2008	9/30/2014		082002967	1/29/2008	SIF	Y
MI2520415	Michigan Community Svcs. Inc.	Arsenic	1005	Arsenic	MCL	02	0.0305	MG/L	0820196	1/1/2008	9/30/2014		082003338	1/29/2008	SIA	Y
MI2520415	Michigan Community Svcs. Inc.	Arsenic	1005	Arsenic	MCL	02	0.0305	MG/L	0820196	1/1/2008	9/30/2014		151000809	11/24/2014	SO7	Y
MI2520415	Michigan Community Svcs. Inc.	Arsenic	1005	Arsenic	MCL	02	0.0305	MG/L	0820196	1/1/2008	9/30/2014		152001982	2/18/2015	SO7	Y
MI2520415	Michigan Community Svcs. Inc.	Arsenic	1005	Arsenic	MCL	02	0.021	MG/L	1540192	7/1/2015	9/30/2015					Y
MI2820036	Fife Lake Elementary School	LCR	5000	Lead and Copper Rule	MR	52			1510680	1/1/2015			152001089	1/15/2015	SIA	Y
MI2820036	Fife Lake Elementary School	LCR	5000	Lead and Copper Rule	MR	52			1510680	1/1/2015			152001090	1/15/2015	SIE	Y
MI3320169	Vlahakis Management Company	TCR	3100	Coliform (TCR)	MR	23			1130231	4/1/2011	6/30/2011	9/30/2011	114000248	7/15/2011	SIA	N
MI3320169	Vlahakis Management Company	TCR	3100	Coliform (TCR)	MR	23			1130231	4/1/2011	6/30/2011	9/30/2011	114001211	9/30/2011	SOX	N

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MI3320169	Vlahakis Management Company	Nitrates	1040	Nitrate	MR	03			1310931	1/1/2012	12/31/2012	3/4/2013	132001228	1/15/2013	SIA	N
MI3320169	Vlahakis Management Company	Nitrates	1040	Nitrate	MR	03			1310931	1/1/2012	12/31/2012	3/4/2013	132001888	3/4/2013	SOX	N
MI3320169	Vlahakis Management Company	LCR	5000	Lead and Copper Rule	MR	51			1310935	1/1/2013			132001227	1/15/2013	SIA	Y
MI3320169	Vlahakis Management Company	LCR	5000	Lead and Copper Rule	MR	51			1310935	1/1/2013			132002053	3/18/2013	SFG	Y
MI3320169	Vlahakis Management Company	LCR	5000	Lead and Copper Rule	MR	51			1310935	1/1/2013			142002650	1/21/2014	SFJ	Y
MI3320169	Vlahakis Management Company	LCR	5000	Lead and Copper Rule	MR	51			1310935	1/1/2013			154001142	7/30/2015	SFK	Y
MI6120441	The Hop Childcare Center	Nitrates	1040	Nitrate	MCL	02	11.5	MG/L	1420020	1/1/2014	3/31/2014	12/5/2014	142002259	3/10/2014	SIA	Y
MI6120441	The Hop Childcare Center	Nitrates	1040	Nitrate	MCL	02	11.5	MG/L	1420020	1/1/2014	3/31/2014	12/5/2014	142002260	3/10/2014	SFG	Y
MI6120441	The Hop Childcare Center	Nitrates	1040	Nitrate	MCL	02	11.5	MG/L	1420020	1/1/2014	3/31/2014	12/5/2014	142002261	3/6/2014	SIC	Y
MI6120441	The Hop Childcare Center	Nitrates	1040	Nitrate	MCL	02	11.5	MG/L	1420020	1/1/2014	3/31/2014	12/5/2014	142002536	3/12/2014	SIF	Y
MI6120441	The Hop Childcare Center	Nitrates	1040	Nitrate	MCL	02	11.5	MG/L	1420020	1/1/2014	3/31/2014	12/5/2014	151000895	12/5/2014	SOX	Y
MI6321444	Hour Kidz	TCR	3100	Coliform (TCR)	MCL	22			1440036	7/1/2014	7/31/2014	6/10/2015	144000625	8/1/2014	SIF	Y
MI6321444	Hour Kidz	TCR	3100	Coliform (TCR)	MCL	22			1440036	7/1/2014	7/31/2014	6/10/2015	144000626	8/1/2014	SIE	Y
MI6321444	Hour Kidz	TCR	3100	Coliform (TCR)	MCL	22			1440036	7/1/2014	7/31/2014	6/10/2015	144000627	8/1/2014	SIC	Y
MI6321444	Hour Kidz	TCR	3100	Coliform (TCR)	MCL	22			1440036	7/1/2014	7/31/2014	6/10/2015	144000628	8/1/2014	SIA	Y
MI6321444	Hour Kidz	TCR	3100	Coliform (TCR)	MCL	22			1440036	7/1/2014	7/31/2014	6/10/2015	144001304	9/26/2014	SO7	Y
MI6321444	Hour Kidz	TCR	3100	Coliform (TCR)	MCL	22			1440036	7/1/2014	7/31/2014	6/10/2015	152002304	3/31/2015	SIC	Y
MI6321444	Hour Kidz	TCR	3100	Coliform (TCR)	MCL	22			1440036	7/1/2014	7/31/2014	6/10/2015	153000278	4/24/2015	SIB	Y
MI6321444	Hour Kidz	TCR	3100	Coliform (TCR)	MCL	22			1440036	7/1/2014	7/31/2014	6/10/2015	153000279	4/24/2015	SFK	Y

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MI6321444	Hour Kidz	TCR	3100	Coliform (TCR)	MCL	22			1440036	7/1/2014	7/31/2014	6/10/2015	153000426	6/10/2015	SOX	Y
MI6322569	KOA Bathhouse	TCR	3100	Coliform (TCR)	MCL	21			1530031	6/1/2015	6/30/2015	7/7/2015	153000441	6/12/2015	SIE	Y
MI6322569	KOA Bathhouse	TCR	3100	Coliform (TCR)	MCL	21			1530031	6/1/2015	6/30/2015	7/7/2015	153000442	6/12/2015	SIC	Y
MI6322569	KOA Bathhouse	TCR	3100	Coliform (TCR)	MCL	21			1530031	6/1/2015	6/30/2015	7/7/2015	153000443	6/12/2015	SIF	Y
MI6322569	KOA Bathhouse	TCR	3100	Coliform (TCR)	MCL	21			1530031	6/1/2015	6/30/2015	7/7/2015	153000444	6/12/2015	SIA	Y
MI6322569	KOA Bathhouse	TCR	3100	Coliform (TCR)	MCL	21			1530031	6/1/2015	6/30/2015	7/7/2015	153000561	6/29/2015	SID	Y
MI6322569	KOA Bathhouse	TCR	3100	Coliform (TCR)	MCL	21			1530031	6/1/2015	6/30/2015	7/7/2015	154000050	7/7/2015	SOX	Y
MI6322569	KOA Bathhouse	TCR	3100	Coliform (TCR)	MCL	21			1540013	7/1/2015	7/31/2015		154000235	7/14/2015	SIF	Y
MI6322569	KOA Bathhouse	TCR	3100	Coliform (TCR)	MCL	21			1540013	7/1/2015	7/31/2015		154000236	7/14/2015	SIC	Y
MI6322569	KOA Bathhouse	TCR	3100	Coliform (TCR)	MCL	21			1540013	7/1/2015	7/31/2015		154000237	7/14/2015	SIE	Y
MI6322569	KOA Bathhouse	TCR	3100	Coliform (TCR)	MCL	21			1540013	7/1/2015	7/31/2015		154000238	7/14/2015	SIA	Y
MI6322569	KOA Bathhouse	TCR	3100	Coliform (TCR)	MCL	22			1340041	7/1/2013	7/31/2013	8/27/2013	134000565	8/1/2013	SIA	N
MI6322569	KOA Bathhouse	TCR	3100	Coliform (TCR)	MCL	22			1340041	7/1/2013	7/31/2013	8/27/2013	134000566	8/1/2013	SIE	N
MI6322569	KOA Bathhouse	TCR	3100	Coliform (TCR)	MCL	22			1340041	7/1/2013	7/31/2013	8/27/2013	134000567	8/1/2013	SIC	N
MI6322569	KOA Bathhouse	TCR	3100	Coliform (TCR)	MCL	22			1340041	7/1/2013	7/31/2013	8/27/2013	134000568	8/1/2013	SIF	N
MI6322569	KOA Bathhouse	TCR	3100	Coliform (TCR)	MCL	22			1340041	7/1/2013	7/31/2013	8/27/2013	134000788	8/27/2013	SOX	N
MI7020186	Sandy Point Beach House	Nitrates	1040	Nitrate	MR	03			1410244	1/1/2013	12/31/2013	2/21/2014	142000280	1/10/2014	SFG	Y
MI7020186	Sandy Point Beach House	Nitrates	1040	Nitrate	MR	03			1410244	1/1/2013	12/31/2013	2/21/2014	142000281	1/10/2014	SIA	Y
MI7020186	Sandy Point Beach House	Nitrates	1040	Nitrate	MR	03			1410244	1/1/2013	12/31/2013	2/21/2014	142002016	2/21/2014	SOX	Y
MI7020186	Sandy Point Beach House	TCR	3100	Coliform (TCR)	MR	23			1410230	1/1/2013	12/31/2013	2/21/2014	142000380	1/10/2014	SFG	Y
MI7020186	Sandy Point Beach House	TCR	3100	Coliform (TCR)	MR	23			1410230	1/1/2013	12/31/2013	2/21/2014	142000381	1/10/2014	SIA	Y
MI7020186	Sandy Point Beach House	TCR	3100	Coliform (TCR)	MR	23			1410230	1/1/2013	12/31/2013	2/21/2014	142002015	2/21/2014	SOX	Y
MI7020186	Sandy Point Beach House	TCR	3100	Coliform (TCR)	MR	25			1430109	6/1/2014	6/30/2014	7/10/2014	144000104	7/10/2014	SIA	Y
MI7020186	Sandy Point Beach House	TCR	3100	Coliform (TCR)	MR	25			1430109	6/1/2014	6/30/2014	7/10/2014	144000105	7/10/2014	SOX	Y

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MI7020186	Sandy Point Beach House	TCR	3100	Coliform (TCR)	MR	23			1510907	10/1/2014	12/31/2014	8/5/2015	152001688	2/5/2015	SIA	Y
MI7020186	Sandy Point Beach House	TCR	3100	Coliform (TCR)	MR	23			1510907	10/1/2014	12/31/2014	8/5/2015	152001689	2/5/2015	SFG	Y
MI7020186	Sandy Point Beach House	TCR	3100	Coliform (TCR)	MR	23			1510907	10/1/2014	12/31/2014	8/5/2015	154000883	8/5/2015	SOX	Y
MI7720376	Manistique Ice	TCR	3100	Coliform (TCR)	MR	23			1340305	7/1/2013	9/30/2013	12/18/2013	141000363	10/22/2013	SIA	N
MI7720376	Manistique Ice	TCR	3100	Coliform (TCR)	MR	23			1340305	7/1/2013	9/30/2013	12/18/2013	141000364	10/22/2013	SFM	N
MI7720376	Manistique Ice	TCR	3100	Coliform (TCR)	MR	23			1340305	7/1/2013	9/30/2013	12/18/2013	141000365	10/22/2013	SFG	N
MI7720376	Manistique Ice	TCR	3100	Coliform (TCR)	MR	23			1340305	7/1/2013	9/30/2013	12/18/2013	141000760	12/18/2013	SOX	N
MI7720376	Manistique Ice	TCR	3100	Coliform (TCR)	MR	23			1430134	4/1/2014	6/30/2014	7/23/2014	144000549	7/14/2014	SIA	Y
MI7720376	Manistique Ice	TCR	3100	Coliform (TCR)	MR	23			1430134	4/1/2014	6/30/2014	7/23/2014	144000550	7/14/2014	SFO	Y
MI7720376	Manistique Ice	TCR	3100	Coliform (TCR)	MR	23			1430134	4/1/2014	6/30/2014	7/23/2014	144000551	7/14/2014	SFG	Y
MI7720376	Manistique Ice	TCR	3100	Coliform (TCR)	MR	23			1430134	4/1/2014	6/30/2014	7/23/2014	144000552	7/23/2014	SOX	Y
MI7720376	Manistique Ice	TCR	3100	Coliform (TCR)	MR	23			1520057	1/1/2015	3/31/2015	4/21/2015	153000057	4/9/2015	SIA	Y
MI7720376	Manistique Ice	TCR	3100	Coliform (TCR)	MR	23			1520057	1/1/2015	3/31/2015	4/21/2015	153000058	4/9/2015	SFG	Y
MI7720376	Manistique Ice	TCR	3100	Coliform (TCR)	MR	23			1520057	1/1/2015	3/31/2015	4/21/2015	153000060	4/9/2015	SFM	Y
MI7720376	Manistique Ice	TCR	3100	Coliform (TCR)	MR	23			1520057	1/1/2015	3/31/2015	4/21/2015	153000252	4/21/2015	SOX	Y

4a - Tier 1 and 2 PN Summary CWS

Total Number of Tier 1 and Tier 2 Violations Reviewed During EV = 28 --> 5 Tier 1 and 23 Tier 2

PWSID	PWS Name	Rule Name	Contaminant Code	Violation Category	Violation Code	Violation ID	Compliance Period Begin Date	Compliance Period End Date	Date PN Requested (SIE)	Date PN Posted or Mailed (per copy of PN cert)	Date PN Certified/ Signed (per copy of PN cert)	Date PN Received by State (SIF)	# Days between PN Request and PN Posted/ Delivered	PN Tier	Timely PN? (Tier 1 posted within 24 hours and Tier 2 within 30 days)	PN Details Captured by Reviewer	EV Reviewer Comments
MI0000518	Beaver Township	Stage 2 DBPR	2950	MCL	02	1	7/1/2014	9/30/2014	9/12/2014	10/10/2014	10/10/2014	10/11/2014	28	2	yes		
MI0000518	Beaver Township	Stage 2 DBPR	2950	MCL	02	2	10/1/2014	12/31/2014	12/15/2014	1/13/2015	1/13/2015	1/15/2015	29	2	yes	December 15, 2014 Violation Notice requested PN by 1/2/2015.	
MI0000518	Beaver Township	Stage 2 DBPR	2950	MCL	02	3	1/1/2015	3/31/2015	Telephone contact with operator. Date not recorded.	4/8/2015	4/8/2015	4/9/2015	PN request not in file.	2	yes	April 8 PN was 8 days after the CPED, following telephone contact with operator. Request was not made by letter.	
MI0000518	Beaver Township	Stage 2 DBPR	2950	MCL	02	5	4/1/2015	6/30/2015	7/28/2015	7/14/2015	7/14/2015	7/16/2015	PN preceded the request.	2	yes	PN posted and certified before the request.	
MI0000518	Beaver Township	Stage 2 DBPR	2950	MCL	02	6	7/1/2015	9/30/2015	Telephone contact with operator on 9/28/2015.	9/28/2015	9/28/2015	9/28/2015	PN request not in file.	2	yes	PN posted and certified before the CPED, following a 2/28 telephone call with DEQ. Request was not made by letter.	
MI0001018	Butterfield Woods Subdivision	TCR	3100	MCL	21	3	10/1/2014	10/31/2014	12/9/2014	10/24/2014	10/24/2014	10/31/2014	Notice preceded request.	1	yes	The 12/9/ 2014 Violation Notice does not refer to the positive repeat sample. It mentions only two samples that were positive for total coliform. Violation notice says public notice must be provided within 30 days. Violation notice indicates that MDEQ was aware of the timely boil water notice, but file does not confirm when state received PN certification.	SDWIS/Fed indicates PN request was made 10/24/2014.
MI0001018	Butterfield Woods Subdivision	TCR	3100	MCL	22	4	10/1/2014	10/31/2014	12/9/2014	10/24/2014	10/24/2014	10/31/2014	Notice preceded request.	2	yes	The 12/9/2014 Violation Notice indicates that MDEQ was aware of the timely boil water notice, but file does not confirm when state received PN certification.	SDWIS/Fed indicates that PN request was made on 10/31/2014.

PWSID	PWS Name	Rule Name	Contaminant Code	Violation Category	Violation Code	Violation ID	Compliance Period Begin Date	Compliance Period End Date	Date PN Requested (SIE)	Date PN Posted or Mailed (per copy of PN cert)	Date PN Certified/ Signed (per copy of PN cert)	Date PN Received by State (SIF)	# Days between PN Request and PN Posted/ Delivered	PN Tier	Timely PN? (Tier 1 posted within 24 hours and Tier 2 within 30 days)	PN Details Captured by Reviewer	EV Reviewer Comments
MI0002310	Flint, City Of	TCR	3100	MCL	22	206	8/1/2014	8/31/2014	Not in file.	8/15/2014	8/15/2014	8/25/2014	Request not in file.	2	yes	After the review MDEQ provided a copy of an 8/15/2014 email outlining the violation and stating that MDEQ was issuing a boil water notice and also the City needed to issue one as well.	SDWIS/Fed indicates request made on 8/15/2014, but letter not found in state file.
MI0002310	Flint, City Of	TCR	3100	MCL	21	207	8/1/2014	8/31/2014	8/15/2014	8/15/2014	8/15/2014	8/25/2014	Request not found in file.	1	Yes	After the review MDEQ provided a copy of an 8/15/2014 email outlining the violation and stating that MDEQ was issuing a boil water notice and also the City needed to issue one as well.	SDWIS/Fed indicates request for PN made on 8/15/2014, but letter not found in state file. State produced email after review.
MI0002310	Flint, City Of	TCR	3100	MCL	22	209	9/1/2014	9/30/2014	10/7/2014	10/23/2014	10/23/2014	11/3/2014	13	2	yes		State file also contains a TCR PN posted and certified on 9/6/14. No related request for PN or receipt of PN was found in state file.
MI0002310	Flint, City Of	Stage 2 DBPR	2950	MCL	02	210	10/1/2014	12/31/2014	12/12/2014	1/2/2015	1/2/2015	1/13/2015	21	2	yes		Copy of PN received provided by MDEQ after review.
MI0002310	Flint, City Of	Stage 2 DBPR	2950	MCL	02		1/1/2015	3/31/2015	3/5/2015	4/1/2015	4/1/2015	4/10/2015	27	2	yes	Violation notice dated 3/5/2015 in state file.	Viol not in S/F. There were two copies of the PN certification in the state file. One was marked received 4/10/2015. The other was marked received 4/13/2015.
MI0002310	Flint, City Of	Stage 2 DBPR	2950	MCL	02		4/1/2015	6/30/2015	6/9/2015	Not found in state file. State produced it to EPA after review. PN posted on 7/1/15	7/1/2015	Record of date received not found in state file.	22	2	yes	Violation notice dated 6/9/2015 in state file. PN not found in state file but emailed to EPA after the review. PN certified on 7/1/2015 but no record of when PN was received by the state.	Viol not in S/F

PWSID	PWS Name	Rule Name	Contaminant Code	Violation Category	Violation Code	Violation ID	Compliance Period Begin Date	Compliance Period End Date	Date PN Requested (SIE)	Date PN Posted or Mailed (per copy of PN cert)	Date PN Certified/ Signed (per copy of PN cert)	Date PN Received by State (SIF)	# Days between PN Request and PN Posted/ Delivered	PN Tier	Timely PN? (Tier 1 posted within 24 hours and Tier 2 within 30 days)	PN Details Captured by Reviewer	EV Reviewer Comments
MI0006232	Spring Lake Club Condominiums	LCR	5000	TT	65	4000217	12/11/2013		5/28/2014					2	PN not found in state file.	MDEQ followed up after the review to share that no violation was issued for failure to PN the type 65 violation because the supply provided certification to DEQ that PE was distributed to residents on time as required. Due to resource limitations, DEQ must prioritize activities. Lower priority is placed on enforcement of late reporting when proper actions were taken by the water supply. Because the supply did issue PE to residents on time, no further action was taken for late reporting.	
MI0006232	Spring Lake Club Condominiums	LCR	5000	TT	57	4000219	4/1/2014		5/28/2014					2	PN not found in state file.		
MI0040477	Washburn Lake Village MHP	TCR	3100	MCL	22	4003511	7/1/2013	7/31/2013	Phone call.	7/25/2013	State issued. No certification found.	11/26/2013		2	yes	Boil Water Order issued by State on 7/25/2013. MDEQ could not locate a copy of the notice. Date PN received was not noted in the hard copy file but entered into S/S.	
MI0040477	Washburn Lake Village MHP	TCR	3100	MCL	22	4003513	8/1/2013	8/31/2013		11/22/2013	11/22/2013	11/26/2013		2	No		
MI0040477	Washburn Lake Village MHP	TCR	3100	MCL	22	4003514	9/1/2013	9/30/2013		11/22/2013	11/22/2013	11/26/2013		2	No		
MI0040477	Washburn Lake Village MHP	TCR	3100	MCL	22	4003515	10/1/2013	10/31/2013	Not found in state file.	11/22/2013	11/22/2013	Not found in state file.	Not found in state file.	2	yes	PN faxed to DEQ on 11/26/2013 is signed, but does not contain certification language.	SDWIS/Fed indicates PN received 11/26/2013.
MI0040477	Washburn Lake Village MHP	GWR	0700	TT	45	4003516	10/29/2013		Not found in state file	11/22/2013	11/22/2013	11/26/2013	Not found in state File	2	yes	PN faxed to DEQ on 11/26/2013 is signed, but does not contain certification language.	

PWSID	PWS Name	Rule Name	Contaminant Code	Violation Category	Violation Code	Violation ID	Compliance Period Begin Date	Compliance Period End Date	Date PN Requested (SIE)	Date PN Posted or Mailed (per copy of PN cert)	Date PN Certified/ Signed (per copy of PN cert)	Date PN Received by State (SIF)	# Days between PN Request and PN Posted/ Delivered	PN Tier	Timely PN? (Tier 1 posted within 24 hours and Tier 2 within 30 days)	PN Details Captured by Reviewer	EV Reviewer Comments
MI0040477	Washburn Lake Village MHP	TCR	3100	MCL	22	4003518	11/1/2013	11/30/2013	Not found in state file	11/22/2013	11/22/2013	11/26/2013	Request not in file.	2	yes	DEQ notes from 7/25/2013 indicate Boil Water Notice was issued at Washburn. Facility Surveillance Report indicates that DEQ was onsite 11/20/13. PN continuing BWN was posted 11/22/2013, and faxed to DEQ 11/26/2013.	
MI0040477	Washburn Lake Village MHP	TCR	3100	MCL	22	4003519	12/1/2013	12/31/2013	Not found in state file.	Not in file.	Not found in state file.	Not found in state file.	Request not in file.	2	PN request not found in state file.	File Contains a 12/4/2013 lab report indicating that bacti results were negative, and a 12/1/2013 PN from the owner indicating that it was no longer necessary to boil the water.	SDWIS/Fed indicates PN received 11/26/2013.

4b - Tier 1 and 2 PN Summary NCWS

Total Number of Tier 1 and Tier 2 Violations Reviewed During EV = 28 --> 5 Tier 1 and 23 Tier 2

PWSID	PWS Name	Rule Name	Contaminant Code	Violation Category	Violation Code	Violation ID	Compliance Period Begin Date	Compliance Period End Date	Date PN Requested (SIE)	Date PN Posted or Mailed (per copy of PN cert)	Date PN Certified/ Signed (per copy of PN cert)	Date PN Received by State (SIF)	# Days between PN Request and PN Posted/ Delivered	PN Tier	Timely PN? (Tier 1 posted within 24 hours and Tier 2 within 30 days)	PN Details Captured by Reviewer	EV Reviewer Comments
MI2520415	Michigan Community Svcs. Inc.	Arsenic	1005	MCL	02	0820196	1/1/2008	9/30/2014	1/25/2008	1/25/2008	1/25/2008	1/29/2008	0	2	yes	This is a continuation of PN initiated 3/4/2005.	Inconsistency in how PWS name appears on documents. WSSN frequently corrected from 17543.
MI2520415	Michigan Community Svcs. Inc.	Arsenic	1005	MCL	02	1540192	7/1/2015	9/30/2015	Not found in state file.	Not found in state file.	Not found in state file.	Not found in state file.		2	Not found in state file.	Only 1/29/2008 violation is listed on Tab 5.	Where did this violation come from?
MI6120441	The Hop Childcare Center	Nitrates	1040	MCL	02	1420020	1/1/2014	3/31/2014	3/10/2014	3/10/2014	3/10/2014	3/14/2014	0	1	yes		SDWIS/Fed indicates PN received 3/12/2014.
MI6321444	Hour Kidz	TCR	3100	MCL	22	1440036	7/1/2014	7/31/2014	7/31/2014	8/1/2014	8/1/2014	8/1/2014	1	2	yes	File does not confirm when state received PN certification.	
MI6322569	KOA Bathhouse	TCR	3100	MCL	21	1530031	6/1/2015	6/30/2015	6/12/2015	6/12/2015	6/12/2015	6/12/2015	0	1	yes	File does not confirm when state received PN certification.	
MI6322569	KOA Bathhouse	TCR	3100	MCL	21	1540013	7/1/2015	7/31/2015	7/14/2015	7/14/2015	7/14/2015	7/14/2015	0	1	yes	File does not confirm when state received PN certification.	

5 - JAN 2016 ETT Violations

PWSID	PWS Name	Jan 2016 ETT Score	Violation Code	Violation Type	Rule Name	Compliance Period Begin Date	Compliance Period End Date	Severity Points	RTCd Points	Formal Action Points	First Formal Action Date	Informal Action Points	n	Violation IDs	Contaminant Codes
MI1320157	Battle Creek Baptist Temple	0	25	MR	TCR	12/1/2013	12/31/2013	5	5			5		1410549	3100
MI0000510	Bear Lake, Village Of	0	71	Other	CCR	7/1/2014		1	1			1		4000309	7000
MI0000510	Bear Lake, Village Of	0	27	MR	Stage 1 DBPR	7/1/2015	9/30/2015	1	1			1		4000311	0999
MI0000510	Bear Lake, Village Of	0	22	MCL	TCR	10/1/2011	10/31/2011	5	5			5		4000308	3100
MI0000518	Beaver Township	26	02	MCL	Stage 2 DBPR	7/1/2015	9/30/2015	5					0	6	2950
MI0000518	Beaver Township	26	02	MCL	Stage 2 DBPR	4/1/2015	6/30/2015	5				5	0	5	2950
MI0000518	Beaver Township	26	02	MCL	Stage 2 DBPR	1/1/2015	3/31/2015	5				5	0	3	2950
MI0000518	Beaver Township	26	02	MCL	Stage 2 DBPR	10/1/2014	12/31/2014	5				5	1	2	2950
MI0000518	Beaver Township	26	02	MCL	Stage 2 DBPR	7/1/2014	9/30/2014	5				5	1	1	2950
MI0001018	Butterfield Woods Subdivision	0	71	Other	CCR	7/1/2012		1	1			1		2	7000
MI0001018	Butterfield Woods Subdivision	0	22	MCL	TCR	10/1/2014	10/31/2014	5	5			5		4	3100
MI0001018	Butterfield Woods Subdivision	0	21	MCL	TCR	10/1/2014	10/31/2014	10	10			10		3	3100
MI2820036	Fife Lake Elementary School	2	52	MR	LCR	1/1/2015		1				1	1	1510680	5000
MI2820036	Fife Lake Elementary School	2	03	MR	Nitrates	1/1/2011	12/31/2011	5	5			5		1210977	1040
MI0002310	Flint, City Of	0	02	MCL	Stage 2 DBPR	10/1/2014	12/31/2014	5	5			5		210	2950
MI0002310	Flint, City Of	0	22	MCL	TCR	9/1/2014	9/30/2014	5	5			5		209	3100
MI0002310	Flint, City Of	0	22	MCL	TCR	8/1/2014	8/31/2014	5	5			5		206	3100
MI0002310	Flint, City Of	0	21	MCL	TCR	8/1/2014	8/31/2014	10	10			10		207	3100
MI6321444	Hour Kidz	0	22	MCL	TCR	7/1/2014	7/31/2014	5	5			5		1440036	3100

PWSID	PWS Name	Jan 2016 ETT Score	Violation Code	Violation Type	Rule Name	Compliance Period Begin Date	Compliance Period End Date	Severity Points	RTCd Points	Formal Action Points	First Formal Action Date	Informal Action Points	n	Violation IDs	Contaminant Codes
MI0620435	Knollview Golf	0	23	MR	TCR	2/1/2014	2/28/2014	1	1			1		1420024	3100
MI0620435	Knollview Golf	0	25	MR	TCR	12/1/2013	12/31/2013	5	5			5		1411432	3100
MI6322569	KOA Bathhouse	10	22	MCL	TCR	7/1/2013	7/31/2013	5	5			5		1340041	3100
MI6322569	KOA Bathhouse	10	21	MCL	TCR	7/1/2015	7/31/2015	10				10	0	1540013	3100
MI6322569	KOA Bathhouse	10	21	MCL	TCR	6/1/2015	6/30/2015	10	10			10		1530031	3100
MI7720376	Manistique Ice	0	23	MR	TCR	1/1/2015	3/31/2015	1	1	1	09-APR-15	1		1520057	3100
MI7720376	Manistique Ice	0	23	MR	TCR	4/1/2014	6/30/2014	1	1	1	14-JUL-14	1		1430134	3100
MI7720376	Manistique Ice	0	23	MR	TCR	7/1/2013	9/30/2013	1	1	1	22-OCT-13	1		1340305	3100
MI7720376	Manistique Ice	0	23	MR	TCR	4/1/2011	6/30/2011	1	1	1	15-JUL-11	1		1130192	3100
MI2520415	Michigan Community Svcs. Inc.	5	02	MCL	Arsenic	7/1/2015	9/30/2015	5					0	1540192	1005
MI2520415	Michigan Community Svcs. Inc.	5	02	MCL	Arsenic	1/1/2008	9/30/2014	5		5	29-JAN-08	5		0820196	1005
MI7020186	Sandy Point Beach House	0	23	MR	TCR	10/1/2014	12/31/2014	1	1			1		1510907	3100
MI7020186	Sandy Point Beach House	0	23	MR	TCR	1/1/2013	12/31/2013	1	1			1		1410230	3100
MI7020186	Sandy Point Beach House	0	03	MR	Nitrates	1/1/2013	12/31/2013	5	5			5		1410244	1040
MI7020186	Sandy Point Beach House	0	25	MR	TCR	6/1/2014	6/30/2014	5	5			5		1430109	3100
MI0006232	Spring Lake Club Condominiums	0	56	MR	LCR	4/1/2014		1	1			1		4000216	5000
MI0006232	Spring Lake Club Condominiums	0	66	MR	LCR	11/1/2013		1	1			1		4000218	5000
MI0006232	Spring Lake Club Condominiums	0	53	MR	LCR	7/1/2013	12/31/2013	1	1			1		4000220	5000
MI0006232	Spring Lake Club Condominiums	0	52	MR	LCR	10/1/2012		1	1			1		4000209	5000

PWSID	PWS Name	Jan 2016 ETT Score	Violation Code	Violation Type	Rule Name	Compliance Period Begin Date	Compliance Period End Date	Severity Points	RTCd Points	Formal Action Points	First Formal Action Date	Informal Action Points	n	Violation IDs	Contaminant Codes
MI0006232	Spring Lake Club Condominiums	0	23	MR	TCR	3/1/2014	3/31/2014	1	1			1		4000210	3100
MI0006232	Spring Lake Club Condominiums	0	57	TT	LCR	4/1/2014		5	5			5		4000219	5000
MI0006232	Spring Lake Club Condominiums	0	65	TT	LCR	12/11/2013		5	5			5		4000217	5000
MI6120441	The Hop Childcare Center	0	02	MCL	Nitrates	1/1/2014	3/31/2014	10	10			10		1420020	1040
MI3320169	Vlahakis Management Company	4	51	MR	LCR	1/1/2013		1				1	3	1310935	5000
MI3320169	Vlahakis Management Company	4	23	MR	TCR	4/1/2011	6/30/2011	1	1			1		1130231	3100
MI3320169	Vlahakis Management Company	4	03	MR	Nitrates	1/1/2012	12/31/2012	5	5			5		1310931	1040
MI0040477	Washburn Lake Village MHP	0	45	TT	GWR	10/29/2013		5	5	5	22-JAN-14	5		4003516	0700
MI0040477	Washburn Lake Village MHP	0	22	MCL	TCR	12/1/2013	12/31/2013	5	5	5	22-JAN-14	5		4003519	3100
MI0040477	Washburn Lake Village MHP	0	22	MCL	TCR	11/1/2013	11/30/2013	5	5	5	22-JAN-14	5		4003518	3100
MI0040477	Washburn Lake Village MHP	0	22	MCL	TCR	10/1/2013	10/31/2013	5	5	5	22-JAN-14	5		4003515	3100
MI0040477	Washburn Lake Village MHP	0	22	MCL	TCR	9/1/2013	9/30/2013	5	5	5	22-JAN-14	5		4003514	3100
MI0040477	Washburn Lake Village MHP	0	22	MCL	TCR	8/1/2013	8/31/2013	5	5	5	22-JAN-14	5		4003513	3100
MI0040477	Washburn Lake Village MHP	0	22	MCL	TCR	7/1/2013	7/31/2013	5	5	5	22-JAN-14	5		4003511	3100

6 - JAN 2016 ETT Scores Tracker

Color-coding Key:

- Systems with orange shading in PWSID and PWS Name column were priority systems with ETT scores of 11 or more during the EV Review Period (At sometime between Q4 2013 and Q3 2015)
- Systems with green shading in the ETT quarterly score columns have ETT scores of 0; those with yellow shading have ETT scores between 1 and 10; and those with orange shading have ETT scores of 11 or more (priority systems).
- Quarters shaded in blue are within the EV review period: April 2012 through March 2014 (quarter data lag so July-July)

								Quarterly ETT Scores from the January 2015 ETT Scores Tracker reflecting data reported to SDWIS/Fed through 9/30/2015																			
PWSID	**PWS Name**	**PWS Type**	**Primary Source**	**Pop Served**	**First Reported Date to SDWIS**	**School or Childcare**	**Total Quarters Priority Sys (of 19)**	**Jan 2016**	**Oct 2015**	**Jul 2015**	**Apr 2015**	**Jan 2015**	**Oct 2014**	**Jul 2014**	**Apr 2014**	**Jan 2014**	**Oct 2013**	**Jul 2013**	**Apr 2013**	**Jan 2013**	**Oct 2012**	**Jul 2012**	**Apr 2012**	**Jan 2012**	**Oct 2011**	**Jul 2011**	**Apr 2011**
MI0000470	Bay City, City Of	CWS	SWP	34,932	1/30/81	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MI0000510	Bear Lake, Village Of	CWS	GW	318	1/30/81	N	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MI0000518	Beaver Township	CWS	SWP	1109	8/22/91	N	3	26	21	15	10	5	0	0	0												
MI0000710	Big Rapids	CWS	GW	10,894	1/30/81	N	0	0	0	0	0	0	0	0	0												
MI0001018	Butterfield Woods Subdivision	CWS	GW	65	1/18/83	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MI0002310	Flint, City Of	CWS	SW	99,763	1/30/81	N	0	0	5	5	5	5	0	0	0												
MI0003420	Ironwood	CWS	GW	6,525	12/4/87	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5		
MI0005290	Petersburg	CWS	SWP	1,278	1/30/81	N	0	0	0	0	0	0	0	0	0												
MI0005400	Plymouth	CWS	SWP	9,132	5/30/99	N	0	0	0	0	0	0	0	0	0												
MI0005850	Saginaw, City Of	CWS	SWP	51,508	1/30/81	N	0	0	0	0	0	0	0	0	0												
MI0006232	Spring Lake Club Condominiums	CWS	GW	87	1/30/81	N	0	0	0	5	0	6	7	2	0	2	2	1	1	0	0	0	0	0	0	0	
MI0006640	Traverse City, City Of	CWS	SW	14,674	5/28/05	N	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1					
MI0040477	Washburn Lake Village MHP	CWS	GW	108	2/15/11	N	2	0	0	0	0	0	0	0	35	15	0	0	0	0	0	0	0	0	0	0	
MI0620435	Knollview Golf	TNCWS	GW	25	12/3/96	N	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	6	6
MI1320157	Battle Creek Baptist Temple	TNCWS	GW	100	11/23/09	N	0	0	0	0	0	0	5	5	5										0	0	

								Quarterly ETT Scores from the January 2015 ETT Scores Tracker reflecting data reported to SDWIS/Fed through 9/30/2015																			
PWSID	**PWS Name**	**PWS Type**	**Primary Source**	**Pop Served**	**First Reported Date to SDWIS**	**School or Childcare**	**Total Quarters Priority Sys (of 19)**	**Jan 2016**	**Oct 2015**	**Jul 2015**	**Apr 2015**	**Jan 2015**	**Oct 2014**	**Jul 2014**	**Apr 2014**	**Jan 2014**	**Oct 2013**	**Jul 2013**	**Apr 2013**	**Jan 2013**	**Oct 2012**	**Jul 2012**	**Apr 2012**	**Jan 2012**	**Oct 2011**	**Jul 2011**	**Apr 2011**
MI2120212	Hyde Properties	NTNCWS	GW	100	1/30/81	Y	0	0	0	0	0	0	0	0	0	3	3	2	2	2	1	1					
MI2520415	Michigan Community Svcs. Inc.	NTNCWS	GW	70	1/30/81	Y	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MI2820036	Fife Lake Elementary School	NTNCWS	GW	166	1/30/81	Y	0	2	1	1	0	0	0	0	0	0	0	0	0	6	10	10	10	7	7	7	7
MI3320169	Vlahakis Management Company	NTNCWS	GW	100	1/30/81	Y	0	4	3	3	3	3	2	2	2	2	1	1	5	0	0	0	0	0	1		
MI3520208	Tawas Headstart	TNCWS	GW	40	5/30/98	Y	0	0	0	0	0	0	0	0	0												
MI6120441	The Hop Childcare Center	NTNCWS	GW	60	1/30/81	Y	0	0	0	0	0	10	10	10	0												
MI6321444	Hour Kidz	NTNCWS	GW	100	1/30/81	Y	0	0	0	0	5	5	0	0	0												
MI6322569	KOA Bathhouse	TNCWS	GW	100	11/22/93	N	0	10	10	0	0	0	0	0	0	0											
MI7020186	Sandy Point Beach House	TNCWS	GW	200	1/30/81	N	0	0	1	1	1	0	5	0	6		9								0	0	
MI7720376	Manistique Ice	TNCWS	GW	25	1/30/81	N	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1		

7 - SDWIS_Fed Codes

VCode	Violation Name	Vtype	Applicable rules and contaminant codes (CCodes)
1	MCL, Single Sample	MCL	
2	MCL, Average	MCL	**DBP Stage 2** 2456, 2950
3	Monitoring, Regular	MR	
4	Monitoring, Check/Repeat/Confirmation	MR	
5	Notification, State	Other	**GW Rule** 0700
6	Notification, Public	Other	
7	Treatment Techniques	TT	**SOC** 2257,2265
8	Variance/Exemption/Other Compliance	Other	
9	Record Keeping	Other	**FBR** 0500
10	Operations Report	Other	**Various**
11	Non-Acute MRDL	MRDL	**DBP Stage 1** 0999, 1006/08
12	Treatment Technique No Certif. Operator	TT	**DBP Stage 1** 0400
13	Acute MRDL	MRDL	**DBP Stage 1** 1008
19	Monitoring, GWR Assessment Source Water	MR	**GW Rule** 3002, 3014,3028
20	Failure to Respond/Consult with State	Other	**GW Rule** 0700
21	MCL, Acute (TCR)	MCL	**TCR** 3100
22	MCL, Monthly (TCR)	MCL	
23	Monitoring, Routine Major (TCR)	MR	
24	Monitoring, Routine Minor (TCR)	MR	
25	Monitoring, Repeat Major (TCR)	MR	
26	Monitoring, Repeat Minor (TCR)	MR	
27	Monitoring and Reporting Stage 1	MR	**DBP Stage 1** 0400, 0999, 1006/ 08/ 09/ 11, 2456, 2920, 2950
28	Sanitary Survey (TCR)	Other	**TCR - No Code**
29	M&R Filter Profile/CPE Failure	MR	**IESWTR/LT1** 0300
30	Failure to submit monitoring plan or collect monitoring data (DBP2)	MR	**DBP Stage 2** 0600, 2456, 2950

DBP Stage 1 1009, 1011, 2456, 2950

Rads 4000/ 06/ 10,4100*/ 01/02*/ 74*, 4264*

Nitrates 1038, 1040, 1041

Nitrates 1038, 1040, 1041

IOCs 1005/ 10/ 15/ 20/ 24/ 25/ 35/ 36*/ 45/ 74/ 75/ 85/ 94

VOCs 2378/ 80, 2955/ 64/ 68/ 69/ 76/ 77/ 79/ 80/ 81/ 82/ 83/ 84/ 85/ 87/ 89/ 90/ 91/ 92/ 96

SOCs 2005/ 10/ 15/ 20/ 31/ 32/ 33/ 34/ 35/ 36/ 37/ 39/ 40/ 41/ 42/ 46/ 50/ 51/ 63/ 65/ 67, 2105/ 10, 2274/ 98, 2306/ 26/ 83/ 88/ 90/ 92/ 94/ 96/ 98, 2400, 2931/ 46/ 59

IESWTR/LT1 0300

GW Rule 0700

LCR 5000

DBP Stage 2 2456, 2950

DBP Stage 2 2456, 2950

GW Rule 0700

Specific rule and contaminant codes shown here are for general reference. For full information on federally reportable violations please see official reporting guidance.

* codes in red are required for monitoring only

Violations will add to a PWS's ETT score if they are: (1) not RTCd; (2) not addressed through formal enforcement; and (3) either have a compliance period end date within the last five years or no compliance period end date

10 points* – Acute violations are highlighted in Purple (including Nitrates MCLs)

5 points* -- Other health-based violations (Vtype = MCL, MRDL, TT), plus TCR MR Repeats, are in Yellow. Nitrates MRs are also 5 points

1 point* -- violations include all MR and Other Vtypes

VCode	Violation Name	Vtype	Applicable rules and contaminant codes (CCodes)					
31	Monitoring (UNFILTERED), Routine/Repeat (SWTR-Unfilt and GWR-Unfiltered) - Major & Minor	MR	**SWTR** 0200	**GW Rule** 0700				
32	Failure to submit source water monitoring plan (LT2/GWR) and Failure to conduct source water monitoring	MR	**LT2ESWTR** 0100, 0800, 3014, 3015					
33	Failure to submit Bin Determination Report	TT	**LT2ESWTR** 0800					
34	Source Monitoring, M&R (GWR)	MR	**GW Rule** 0700, 3002, 3014, 3028					
35	Failure to Submit Stage 2 DBPR Report (DPB2)	MR	**DBP Stage 2** 0600, 2456,2950					
36	Monitoring, Routine/Repeat (SWTR) - Major & Minor; Residual Disinfectant (all) & Filter Turbidity Reporting (slow sand and diatomaceous earth only)	MR	**SWTR** 0200	**LT2ESWTR** 0800				
37	Treatment Technique State Prior Approval	TT, (MR for 0800)	**IESWTR/LT1** 0300	**DBP Stage 1** 0400	**LT2ESWTR** 0800			
38	M&R Filter Turbidity Reporting	MR	**IESWTR/LT1** 0300					
39	M&R (FBRR)	MR	**FBR** 0500					
40	Treatment Technique (FBRR)	TT						
41	Failure to Maintain Microbial Treatment	TT	**SWTR** 0200	**LT2ESWTR** 0800	**GW Rule** 0700			
42	Failure to Filter (SWTR)/ Failure to Provide Treatment (LT2)	TT		**LT2ESWTR** 0800	**GW Rule** 0700			
43	Treatment Technique Exceeds Turb 1 NTU	TT	**IESWTR/LT1** 0300					
44	Treatment Technique Exceeds Turb 0.3 NTU	TT						
45	Failure to Address Deficiency	TT	**IESWTR/LT1** 0300	**LT2ESWTR** 0800	**GW Rule** 0700			
46	Treatment Technique Precursor Removal	TT	**DBP Stage 1** 2920					
47	Treatment Technique Uncovered Reservoir	TT	**IESWTR/LT1** 0300	**LT2ESWTR** 0800				
48	Failure to Address Contamination (GWR)	TT	**GW Rule** 0700					
51	Initial Tap Sampling for Pb and Cu	MR	**LCR** 5000					
52	Follow-up and Routine Tap Sampling	MR						
53	Initial Water Quality Parameter WQP M&R	MR						
56	Initial, Follow-up, or Routine SOWT M&R	MR						
57	OCCT Study Recommendation	TT						
58	OCCT Installation/Demonstration	TT						
59	WQP Entry Point Non-Compliance	TT						
63	MPL Non-Compliance	TT	**LCR** 1022,1030					
64	Lead Service Line Replacement (LSLR)	TT	**LCR** 5000					
65	Public Education	TT						
66	Lead Consumer Notification	MR	**LCR-STR** 5000					
71	CCR Complete Failure to Report	Other	**CCR** 7000					
72	CCR INADEQUATE REPORTING	Other						
73	Failure to Notify Other PWS (GWR)	Other	**GW Rule** 0700					
75	PN Violation for NPDWR Violation	Other	**PN** 7500					
76	Other Non-NPDWR Potential Health Risks	Other						

* Note that for purposes of assigning "ETT Points", the Enforcement Targeting Tool, groups violations at a PWS under the same rule, with the same compliance period begin date and end date and violation code. For example, if a system fails to monitor for the entire group of 21 Volatile Organic Contaminants, 1 point is assigned for the entire VOC group, instead of a point for each contaminant. Other examples of contaminants that could be grouped include: Stage 1 TTHM and HAA5 M/R; Radium Gross Alpha and Combined Radium MCL, IOC M/R, SOC M/R, etc. Note that this methodology will also "group" like violations that occur at multple entry points.

Enforcement Action Codes and Descriptions

Code	Short Description	Long Description
SIA	ST VIOLATION/REMINDER NOTICE	Informal written or oral notification to PWS from state that a violation has occurred, explaining what the violation was. It may specify that PN should occur and what actions may occur if the system does not return to compliance. (FRDS-DED 1/93)
SIB	ST COMPLIANCE MEETING CONDUCTED	Meeting between state officials and representatives of the PWS to discuss violation(s) and to explain the requirements for compliance. This is an informal meeting as opposed to an enforcement meeting. (FRDS-DED 1/93)
SIC	ST TECH ASSISTANCE VISIT	Meeting between state and PWS to discuss the PWS's status, the requirements for M/R and operational problems. The state usually provides assistance of a technical nature to return the PWS to compliance. (FRDS-DED 1/93)
SID	ST SITE VISIT (ENFORCEMENT)	Site visit for enforcement purposes. A visit to the PWS to attempt to confirm or discover additional regulatory violations. A site visit can be considered a preliminary step for a formal enforcement action. (FRDS-DED 1/93)
SIE	ST PUBLIC NOTIF REQUESTED	Request by the state for a PWS to give public notification that a violation of the regulations has occurred. This request can be oral or written and would generally follow the violation notice. (FRDS-DED 1/93)
SIF	ST PUBLIC NOTIF RECEIVED	Public Notification received from PWS. State receipt of public notification issued by the PWS in response to a violation. (FRDS-DED 1/93)
SII	STATE CCR FOLLOW-UP NOTICE	Notice of Violation for PWS's failure to prepare or deliver a CCR to its consumers
SF%	ST CIVIL CASE CONCLUDED	State Civil Case concluded. State civil case resolved through verdict, pleas, injunction, etc. (FRDS-DED 1/93)
SF&	ST CRIM CASE REFERRED TO AG	State Criminal Case referred to the state Attorney General. The sending of required litigation report and other documents to the state Attorney General for the filing of a criminal case in state court. (FRDS-DED 1/93)
SF3	ST CASE APPEALED	The PWS has filed an appeal relating to the decision in or outcome of a previous state administrative, civil or criminal action. (FRDS-DED 1/93)
SF4	ST CASE DROPPED	Civil or criminal action against the PWS has been discontinued by the primacy agency. This code should only be used where actions concerning civil or criminal cases have been reported. (FRDS-DED 1/93)
SF5	ST HOOK-UP/EXTENSION BAN	An order by the state, county, or local health agency that bans further connections to the water system, extensions of water system to serve new customers, or bans issuance of septic tank/building permit/occupancy permits. (FRDS-DED 1/93)
SF9	ST CIVIL CASE REFERRED TO AG	State Civil Case referred to state Attorney General. The sending of the required litigation report and other documents to the state Attorney General for the filing of a civil case in state court. (FRDS-DED 1/93)
SFG	ST PUBLIC NOTIF ISSUED	Public notification issued by the primacy agency. It may be issued in response to violations about which the supplier did not notify the public or where the state feels there is a risk to health. May be issued with a Boil Water Order. (FRDS-DED 1/93)
SFH	ST BOIL WATER ORDER	State issued Boil Water Order. Order which notifies the system's customers of a deficiency that could result in an acute risk to health, and that they should boil the water before using it (for drinking, cooking, possibly bodily contact). (FRDS-DED 1/93)
SFJ	ST FORMAL NOV ISSUED	State issued Formal Notice of Violation. A formal notification to a PWS that it is in violation of a drinking water regulation, that it must take some action to rectify its problem and that formal legal action may follow if they don't. (FRDS-DED 1/93)
SFK	ST BCA SIGNED	State Bilateral Compliance Agreement signed. An agreement signed by both the state and the PWS that contains a schedule to return the system to compliance. The agreement should comport with OGWDW guidance on the use of BCAs. (FRDS-DED 1/93)

Code	Short Description	Long Description
SFL	ST AO (W/O PENALTY) ISSUED	State Administrative Order/Compliance Order issued without penalty. An order issued by the Executive branch of the state government that orders the PWS to come into compliance or to undertake remedial actions. No penalty is assessed. (FRDS-DED 1/93)
SFM	ST ADMIN PENALTY ASSESSED	State Administrative Penalty assessed. A penalty assessed by a non-judicial body in response to a violation of the regulations or failure to take actions ordered by the primacy agency to achieve compliance. (FRDS-DED 1/93)
SFN	ST SHOW-CAUSE HEARING	A hearing held to provide opportunity for the violator to present information to the state and the public on its reasons for not complying with the state SDWA. Such hearings often result in compliance agreements or other formal actions. (FRDS-DED 1/93)
SFO	ST AO (W/PENALTY) ISSUED	State Administrative Order/Compliance Order issued with Penalty. An order issued by the Executive branch of the state government that orders the PWS to come into compliance or to undertake remedial actions. A penalty is assessed. (FRDS-DED 1/93)
SFP	ST CIVIL CASE UNDER DEVELOPMENT	State Civil Case under development. Technical/legal staff are preparing documents to refer a civil case to the state Attorney General. (FRDS-DED 1/93)
SFQ	ST CIVIL CASE FILED	State Civil Case filed in state court. The action by the state Attorney General to place the civil case on the docket on the appropriate state court. (FRDS-DED 1/93)
SFR	ST CONSENT DECREE/JUDGEMENT	State Consent Decree or Consent Judgment. A formal agreement filed in a state court between the PWS and the primacy agency that settles a civil case and that specifies the actions that must be taken by the PWS to achieve compliance. (FRDS-DED 1/93)
SFS	ST DEFAULT JUDGEMENT	State Default Judgment. A state court judgment that is rendered, in accordance with state civil procedure, generally as a consequence of the non-appearance of the system owner/operator. (FRDS-DED 1/93)
SFT	ST INJUNCTION	State Injunction. A final order issued by the state court that directs the PWS to take certain actions (or forbids the PWS to take certain actions). An injunction usually contains penalties for violations of its terms. (FRDS-DED 1/93)
SFU	ST TEMP RESTRAIN ORDER/PRELIM INJUNC	State Temporary Restraining Order/Preliminary Injunction. An immediate, non-final order issued by the state court that forbids the PWS to take certain actions, or orders the PWS to take certain actions. Often used in emergency situations. (FRDS-DED 1/93)
SFV	ST CRIM CASE FILED	State Criminal Case filed in state court. The action by the state Attorney General to place a criminal case on the docket of the appropriate state court. (FRDS-DED 1/93)
SFW	ST CRIM CASE CONCLUDED	State Criminal Case concluded. state criminal case resolved through verdict, pleas, injunction, etc. (FRDS-DED 1/93)
SO+	ST NO ADDTL FORMAL ACTION NEEDED	Additional Formal Action unnecessary. The state has determined that no additional formal state action will be needed to bring a PWS back into compliance. (FRDS-DED 1/93)
SO0	ST NO LONGER SUBJECT TO RULE	
SO6	ST INTENTIONAL NO-ACTION	The state has reviewed the PWS's compliance history and has decided to take no enforcement action in response to this specific violation. (FRDS-DED 1/93)

Code	Short Description	Long Description
SO7	ST UNRESOLVED	No action has been taken by the state in response to this violation. There has been no general review of the PWS's compliance history, and no decision not to proceed. (FRDS-DED 1/93)
SO8	ST OTHER	An action has been taken by the state that cannot be placed into one of the other categories. This code should rarely be used. (FRDS-DED 1/93)
SOX	ST COMPLIANCE ACHIEVED	For M/R violations, SOX indicates that the state has determined that the system is monitoring & reporting properly. For MCL violations, SOX means that the system is now operating below the MCL. Only required for Chem/Rad violations. (FRDS-DED 1/93)
SOY	ST VARIANCE/EXEMPTION ISSUED	State Variance or Exemption issued. The issuance to a PWS by a state of a variance or an exemption as allowed by the federal SDWA. (FRDS-DED 1/93)
SOZ	ST TURBIDITY WAIVER ISSUED	The issuance to the PWS by a state of a waiver that increases the allowable turbidity limit for the system, as allowed by 40 CFR § 141.13. (FRDS-DED 1/93)