



Introduction to the Revised Total Coliform Rule for Michigan Noncommunity Water Supply Owners and Operators

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Michigan Department of Environmental Quality
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Good day, my name is Carrie Monosmith and I am the supervisor of the Environmental Health Section in the Michigan Department of Environmental Quality's Office of Drinking Water and Municipal Assistance. Staff within my Section and staff at Michigan's local health departments are responsible for overseeing compliance with drinking water rules at all of Michigan's noncommunity water supplies, or Type II water supplies.

The goal of this presentation is to provide information on the Revised Total Coliform Rule to Michigan noncommunity water supply owners and operators. By mid-July another presentation will be available on the DEQ Web site describing specific requirements for public water supplies defined as Seasonal Systems by the Revised Total Coliform Rule.

Outline

- Public Water Supply Regulations
 - Principles
 - Definitions
 - Federal Role
 - Michigan's Requirements
- The Revised Total Coliform Rule



In this presentation I will give you a brief introduction on public water supply regulations in the United States and Michigan and an introduction to the requirements in the Revised Total Coliform Rule.



Public Water Supply Regulations



Principles of Providing Safe Drinking Water

- Provide a safe, reliable and adequate supply of water to the public.
- Assure multiple barriers of protection are in place, if one fails will not adversely impact public health:
 - Source water/groundwater protection
 - Well construction
 - Treatment
 - Distribution system integrity
 - Cross connection control program
 - Operator certification and training
- Collection of drinking water samples on a routine basis is required to insure the water meets all applicable drinking water standards that are established based on risk to human health.



The regulations for drinking water exist to ensure that people receive a safe, reliable and adequate supply of water. They exist to prevent illness from disease causing bacteria that could be in the water, from metals or chemicals that could be present, and to ensure there is an adequate supply of water for all needs including fire fighting.

In the United States, many of us take drinking water issues for granted. Most of us simply turn on a faucet and never give a thought about whether or not the water is safe to drink. This is largely due to the regulations in place that help keep that water safe.

In Michigan, we use what is called a multiple barrier approach to protecting drinking water. Multibarrier provides several layers of protection so that if one fails, the others in place will reduce the chance of anyone drinking contaminated water. Examples of barriers include selecting a good water source, and protecting it from potential

contamination. If water is obtained from a well, the well must be properly constructed and maintained. Another example of a barrier is ensuring that the pipes that carry the treated water through out the system do not leak and are constructed from materials that meet drinking water standards.

Finally, the most important barrier is conducting a monitoring program that routinely samples and tests the drinking water quality. Without it, there is no way to know if the water is truly safe to drink. Monitoring the quality of a supply's drinking water is is a key part of the entire public water supply regulatory program at the federal level and in Michigan.

What is a Public Water Supply?

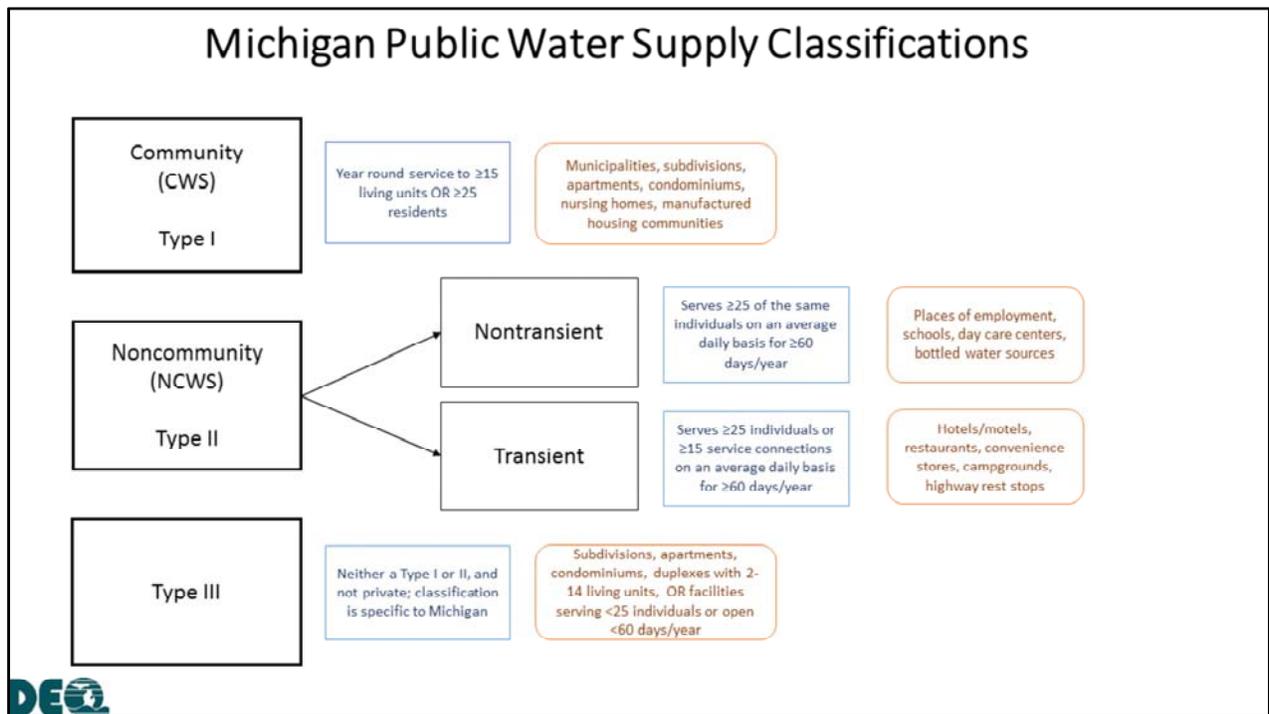
A facility that provides water for drinking or household purposes to persons other than the supplier of the water, and serves more than one living unit.

Serving water means water that can be used for:

- Drinking
- Food preparation
- Hand washing
- Bathing
- Tooth brushing
- Dishwashing



So, what is a public water supply? The legal definition in Michigan is a facility or business that provides water for drinking or household purposes to persons other than the supplier, or owner of the water supply and the water is served to more than one living unit. Simply put, the only water supplies that are not defined as a public water supplies in Michigan are residential drinking water wells only used by the family that lives there. In Michigan, we refer to those as private drinking water supplies. Also, it is important to understand that water must not only be safe for drinking but also safe to use for food preparation, hand and dish washing, tooth brushing and bathing.



Federal regulations define 2 major types of public water supplies, noncommunity and community. Community water supplies serve the same people at their residences year round. They typically are municipal systems, such as the Lansing Board of Water and Light or the Detroit Water and Sewerage Department, however manufactured housing communities and apartments with their own drinking water supplies are also community water supplies because they serve people that generally reside there year round.

Noncommunity water supplies are classified either as nontransient or transient. Transient or nontransient describe the type of population served based on the type of business or facility they are. Transient means that the people served come and go without staying for long periods of time. Restaurants, motels, and campgrounds are classified as transient noncommunity water supplies. Nontransient means that the people served are there for a much longer period of time. These include

schools, daycares, office buildings and manufacturing facilities.

Michigan's regulations include a definition of a Type III public water supply. Type III facilities are not defined or regulated by the federal government, so Type III public water supplies are unique to Michigan.

Federal Role

- Safe Drinking Water Act of 1974 – Authorized the Environmental Protection Agency (EPA) to regulate all public drinking water supplies.
- EPA is authorized to set National Primary Drinking Water Standards.
- Standards are legally enforceable, there are two types of standards: Maximum Contaminant Levels (MCLs) and Treatment Techniques (TTs).
- EPA grants authority to states to implement the SDWA and the drinking water standards; called PRIMACY.



Over 40 years ago, Congress passed the Safe Drinking Water Act. It authorized the United States Environmental Protection Agency, EPA, with the regulation of all public drinking water supplies in the country. EPA was authorized to set National Primary Drinking Water Standards—these are the regulations that all public water supplies must comply with. There are generally two types of standards: Maximum Contaminant Levels or MCLs and Treatment Techniques. MCLs are set numbers or a value that if exceeded result in a violation of a drinking water standard. A Treatment Technique standard is an action that must be done to ensure that water is safe, failure to do the action would be a violation of a Treatment Technique standard.

In the Safe Drinking Water Act, Congress allowed EPA to grant authority to the states to implement the federal Safe Drinking Water Act and the National Primary Drinking Water Standards; this is called Primacy. All of the states in the country, including Michigan, have Primacy except for the

state of Wyoming.

Michigan's Primacy Requirements



- Must adopt all federal drinking water rules within 2 years of promulgation.**
- Regulations must be no less stringent than the federal requirements.
- Must have an adequate compliance and enforcement program.
- Must have legal authority to compel compliance with standards, assess and collect fines and penalties.

**Revisions to Michigan's Public Act 399 of 1976 are currently underway.



For a state to receive Primacy for a federal drinking water standard, it must meet the criteria listed on this slide. Last year, Department of Environmental Quality staff began revising Michigan's Safe Drinking Water Act, Act 399, to adopt the federal Revised Total Coliform Rule. A Primacy application for the Revised Total Coliform Rule will soon be submitted to EPA for review and approval. EPA may not formally grant Primacy to Michigan for the Revised Total Coliform Rule for several years, but it will not affect the date the Rule will become law in Michigan which is April 1, 2016.



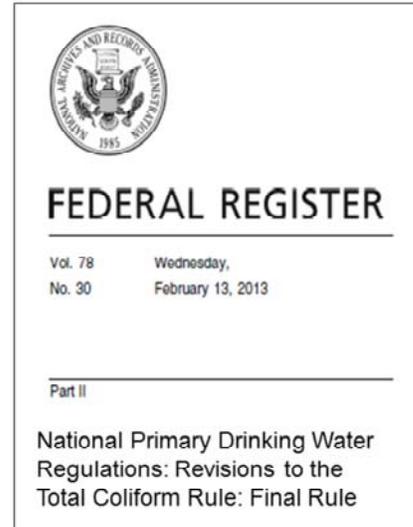
REVISED TOTAL COLIFORM RULE



The remainder of my presentation will be an introduction to the Revised Total Coliform Rule.

Revised Total Coliform Rule (RTCR)

- Revision of the current Total Coliform Rule
- Published in Federal Register on February 13, 2013
- Applies to all Public Water Supplies
- Compliance date is April 1, 2016; it will replace the current Total Coliform Rule



The Revised Total Coliform Rule (RTCR) was published in the Federal Register on February 13, 2013. The Rule will replace the existing Total Coliform Rule and will be in effect on April 1, 2016. It applies to all public water supplies--community, and nontransient and transient noncommunity supplies.



What Changes Are Coming with the RTCR?

- Replaces the current MCL for Total Coliform with an *E. coli* MCL; changes in public notice content.
- Requires that Assessments be performed if triggered.
- If the Assessments are not completed, or known problems with the supply are not fixed, the supply will be cited with a Treatment Technique Violation.
- Supplies must all have an approved sample siting plan and it must be followed.
- If certain criteria are triggered, the supply must increase monitoring frequency.
- Reductions in monitoring are allowed but certain criteria must be met.
- There are increased requirements for seasonal systems.



In many aspects, the Revised Total Coliform Rule is similar to the Total Coliform Rule that is in effect today. But, in a few areas there are some significant changes. There no longer will be an MCL for a positive total coliform result, the MCL will be for a positive *E. coli* result. However, even though the MCL is based on a positive *E. coli* result; a certain number of positive total coliform results will trigger a requirement to assess the supply to ensure there is not a sanitary defect present that could further threaten the safety of the drinking water. These Assessments must be performed within 30 days, and if problems are found, corrections must be made to avoid a Treatment Technique violation.

Supplies must have an approved sample siting plan that designates where routine samples and repeat samples are collected and it must be followed.

If a noncommunity water supply triggers one of the criteria in the Revised Total Coliform Rule, the supply must increase monitoring frequency immediately. A supply can request a reduction in monitoring frequency, but the criteria that must be met to reduce monitoring are more difficult to achieve.

Any noncommunity water supply defined as a “seasonal system” per the Rule will have additional requirements to meet. Seasonal system requirements will be discussed in another presentation that will be available on the DEQ web site by mid-July 2015.

***E. coli* MCL Violation**

An *E. coli* MCL Violation occurs with any of these sampling set combinations

Routine Sample	Repeat Sample
<i>E. Coli</i> positive	Total coliform positive
<i>E. Coli</i> positive	Any missed repeat sample
Total coliform positive	<i>E. Coli</i> positive
Total coliform positive	Total coliform positive (no <i>E. coli</i> analyzed)

All total coliform positive samples must be tested for *E. coli*.

E. coli MCL violations occur from any one of the following sampling scenarios. All total coliform positive samples must be tested for *E. coli*.



Level 1 Assessments



Level 1 Trigger

- Repeat(s) total coliform positive
- Failure to collect required repeat sample(s) after a total coliform positive routine sample

Level 1 Assessment

- Basic examination of the source water, treatment, distribution system and relevant operational practices.
- Can be done by owner/operator, registered well driller, or licensed plumber.



As I mentioned earlier, Assessments are required by the Revised Total Coliform Rule if certain Rule criteria are triggered. The triggers are having a certain number of total coliform positive samples or failing to collect the required repeat samples after a total coliform positive repeat sample.

If the requirement to perform a Level 1 Assessment is triggered, the owner or operator of a noncommunity water supply must inspect all components of their water supply to make sure there is not a sanitary defect present that could increase the risk of the water becoming contaminated with a more dangerous microorganism such as *E. coli*. If a sanitary defect is found, it must be corrected promptly. The Level 1 Assessment is more basic than a Level 2 Assessment and it can be performed by the owner or operator.

Level 1 Assessment Form



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF DRINKING WATER AND MUNICIPAL ASSISTANCE

LEVEL 1 ASSESSMENT FORM FOR NONCOMMUNITY PUBLIC WATER SUPPLIES
Issued under authority of the Safe Drinking Water Act, 1978 P.A. 350, as amended, MCL 325.1001 et seq., and its Administrative Rules (Act 200).
Failure to submit certification is a violation of Act 350 and may subject the water supply to enforcement actions.

This assessment is intended to review general water system infrastructure and operating and sampling protocols. This form should be completed by a knowledgeable representative of the water system. To avoid a violation, this form must be completed and returned to the local health department (LHD) no later than _____.

Noncommunity Water System Name:		Water Supply Serial Number:	Source ID (if applicable):	Date Completed:	Form returned in response to: Total Coliform Positive(s): <input type="checkbox"/>
Name/Title of Person Completing Onsite Assessment:		Telephone Number:	E-mail Address:		Failure to Collect Repeat Samples After Initial Routine Positive: <input type="checkbox"/>
Issues		Check	Description (attach additional sheets if necessary)		
1.	Has anything unusual occurred prior to sample collection? Loss of pressure, power outage, operation and maintenance activities, vandalism, visible indicators of sanitary conditions, heavy rainfall, etc.	Yes <input type="checkbox"/> No <input type="checkbox"/>	Describe all issues identified along with the approximate date of the occurrence (e.g., replaced well pump on May 1, samples taken next day, results were positive for total coliform, etc.)		
2.	Have there been any recent changes to the water system? New plumbing installed, pump replacement, pressure tank replacement, treatment system operational changes, issues with, or new potential sources of	Yes <input type="checkbox"/> No <input type="checkbox"/>			
3.	Sampling Site/Protocol: Sample tap damaged or inaccessible, improper sampling techniques, improper sample location, failure to collect repeat samples after initial routine positive, etc.	Yes <input type="checkbox"/> No <input type="checkbox"/>			
4.	Well: Damaged, loose, or missing well cap, vent screen, conduit; problem with wellhead; evidence of flooding, etc.	Yes <input type="checkbox"/> No <input type="checkbox"/>			
5.	Treatment Process (if applicable): Interruptions, chemical refill overdue, filter change due, incorrect chemical solution concentration, dosage adjustment needed, other operations and maintenance issues, etc.	Yes <input type="checkbox"/> No <input type="checkbox"/>			
6.	Pressure Tank: Recent work performed, pressure tank issues, pump runs more often than normal, etc.	Yes <input type="checkbox"/> No <input type="checkbox"/>			
7.	Distribution System: Plumbing in disrepair, leaking joints, pressure loss, cross connections, dead-end plumbing, frozen pipes, etc.	Yes <input type="checkbox"/> No <input type="checkbox"/>			
8.	Other: Check applicable box and, if yes, describe event or condition in "Description" box.	Yes <input type="checkbox"/> No <input type="checkbox"/>			
Corrective Action (attach additional sheets if necessary)					
<input type="checkbox"/> Supply will be following Level 1 Corrective Action Plan (CAP) provided by the local health department (LHD); e.g., chlorination, flushing, sampling, etc., on or before: _____ (date). OR <input type="checkbox"/> A detailed CAP proposal and timeline is attached. OR <input type="checkbox"/> No sanitary defect(s) identified – No CAP proposed.					
Local Health Department Use Only					
<input type="checkbox"/> LHD collected assessment information (above) via phone					
Date of Trigger:	Date Reviewed:	Reviewed By:			
<input type="checkbox"/> CAP Paperwork Complete	Date System Notified CAP Approved:	<input type="checkbox"/> Corrections completed within approved timeline			
Submit to LHD:					

DEQ Environmental Assistance Center
Telephone: 1-800-662-9278

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www.michigan.gov/deq
EQP 6558 (Rev. 5/2015)

This is the Level 1 Assessment form created by the Department of Environmental Quality for use by all noncommunity water supplies. The form can be obtained from the DEQ Web site. When a Level 1 Assessment must be performed, the owner or operator will complete all areas of the form and return it to their local health department. There are 8 areas of the supply to be inspected or evaluated and each requires a yes or no response based on the findings.

Please do not be intimidated by the form. Complete it to the best of your ability and contact your local health department if you need help. It should be viewed as a tool to help you record Assessment findings and discuss any problems found during the Assessment with your health department sanitarian.



Level 1 Assessment Requirements

- Must complete and submit form to the LHD within 30 days of notification that a Level 1 Assessment must be done.
- If problems are found that could potentially lead to contamination of the drinking water supply, they must be fixed.
 - Easier, less costly corrections must be done immediately.
 - Complex, expensive corrections can be established in a corrective action plan with set dates for completion.

It is important to return the completed Level 1 Assessment form within 30 days of triggering the requirement for it to be done. Not returning the form within 30 days is a Treatment Technique violation. Any problem found during the Assessment must be corrected within a reasonable amount of time as negotiated with your local health department sanitarian.

Level 2 Assessments

Level 2 Trigger

- An *E. coli* MCL violation
- A second level 1 within a rolling 12-month period
- A second level 1 within 2 consecutive years for systems on annual coliform monitoring

Level 2 Assessment

- An in-depth examination of the system and its monitoring and operational practices.
- Conducted by the local health department.



The Level 2 Assessment is more in-depth and comprehensive than the Level 1 Assessment is. The requirement to perform a Level 2 Assessment is triggered by more serious events such as an *E. coli* MCL. The Level 2 Assessment will be conducted by the local health department at all Michigan noncommunity water supplies.



Level 2 Assessment Requirements

- Conducted by the local health department.
- If problems are found that could potentially lead to contamination of the drinking water supply, they must be fixed.
 - Easier, less costly corrections must be done immediately.
 - Complex, expensive corrections can be established in a corrective action plan with set dates for completion.

The responsibilities for promptly correcting any sanitary defects found during the Level 2 Assessment are identical to the Level 1 Assessment requirements. Owners or operators will be expected to immediately fix simple, less costly corrections; such as replacing a cracked well cap with a new one. For complex, or more expensive corrections, the owner or operator will be required to establish a corrective action plan, or negotiated agreement that contains firm dates that the work will be completed by.

Corrective Action Examples



- Repair or replace well components
- Repair or replace distribution system components
- Flush well and/or distribution system
- Disinfect well and/or distribution system
- Training on proper sampling technique
- Eliminate cross connections

Water supply must inform the local health department when a correction has been completed.



This slide lists some of the corrective actions that may be required depending on Assessment findings. Some of these may require more time to correct, such as replacing distribution system components. Those corrections may require the establishment of a corrective action plan with the local health department.



RTCR Monitoring Transitioning on April 1, 2016

- All noncommunity water supplies using groundwater, serving 1000 or less people per day, and not defined as a seasonal system may be allowed to transition into the RTCR on April 1, 2016 at their **current** monitoring frequency.
- The local health departments have the authority to determine a noncommunity water supply's monitoring frequency based on many factors. If a supply is required to increase their monitoring frequency when the RTCR is in effect, they will be notified of such by their local health department.

The next several slides are on the Revised Total Coliform Rule monitoring requirements. The Revised Total Coliform Rule allows noncommunity water supplies using a groundwater water source, that serve 1000 or less people per day and are NOT defined by the Rule as a seasonal system to transition into the Rule at their current monitoring frequency when the Rule is in effect on April 1, 2016.

However, Michigan's local health departments have the authority to determine the proper monitoring frequency of the noncommunity water supplies within their jurisdictions. Some noncommunity water supplies will be required by their health department to monitor more frequently when the Rule becomes effective. If so, the local health department will directly notify the supply.

RTCR Monitoring Requirements

- Number of routine samples collected is dependent upon the number of people served by the supply:
 - Up to 1000 – 1 routine sample/per collection period.
 - From 1001 to 2500 – 2 routine samples/per collection period.
 - The number of required routine samples continues to increase as the population served increases.
- Annual or Quarterly Monitoring:
 - For each total coliform positive routine sample, four repeat samples must be collected.
 - Also must collect at least 3 routine samples during the next month.
- Monthly Monitoring:
 - For each total coliform positive routine sample, four repeat samples must be collected.
 - No additional routine monitoring required.
- All Monitoring Frequencies
 - Sets of repeat samples are collected until total coliform is not detected or an Assessment is triggered. If the Assessment is triggered from the first routine and/or set of repeat samples, only one set of repeats for each positive sample is required.
- All total coliform positive samples must be tested for *E. coli*.



This slide lists the Revised Total Coliform Rule monitoring requirements, you may notice that some are identical to those under the current Total Coliform Rule.

The number of samples collected in a monitoring period--annual, quarterly or monthly, is based on the number of people served per day. If 1000 or less are served, 1 routine sample is collected. If 1001 to 2500 people are served per day, 2 routine samples must be collected. The number of samples collected increases as the population served increases.

Noncommunity water supplies on any monitoring frequency--annual, quarterly or monthly—are required to collect 4 repeat samples for each total coliform positive routine sample. For those monitoring annually or quarterly, another 3 routine samples must be collected the following month. For those monitoring monthly, there are no additional routine

samples required the following month after a positive, because they will already be collecting a routine sample that month.

Repeat samples are collected until they are all negative for total coliform or the requirement to perform an Assessment has been triggered. For most of the noncommunity water supplies in Michigan, a positive total coliform routine sample and one total coliform positive sample within the set of 4 repeat samples will trigger the requirement to perform an Assessment.

When Increased Monitoring is Required

Annual to Quarterly

- Failure to monitor

Annual to Monthly

- Triggered Level 2 Assessment
- Triggered Level 1 Assessment in 2 consecutive years
- *E. coli* MCL violation
- Coliform Treatment Technique violation



There are several requirements in the Revised Total Coliform Rule, that if triggered, will increase the monitoring frequency of a noncommunity water supply.

If a supply on annual monitoring fails to collect their annual routine sample, they will be required to increase monitoring to quarterly.

If an system on annual monitoring triggers a Level 2 Assessment, or triggers 2 Level 1 Assessments in 2 consecutive years, is cited with a coliform Treatment Technique violation, or has an *E. coli* MCL violation; they must immediately increase monitoring frequency to monthly.

When Increased Monitoring is Required

Quarterly to Monthly

- Triggered Level 2 Assessment
- Second Level 1 Assessment in a rolling 12 month period
- *E. coli* MCL violation
- Coliform Treatment Technique violation
- Two coliform monitoring violations
- One coliform monitoring violation and one Level 1 Assessment in a rolling 12 month period



A noncommunity water supply on quarterly monitoring will be required to immediately increase to monthly monitoring if a Level 2 Assessment is triggered, if the supply has had a 2nd Level 1 Assessment within the last rolling 12 month period, if there has been an *E. coli* MCL violation or Treatment Technique violation, or if there have been 2 coliform monitoring violations or 1 coliform monitoring violation and 1 Level 1 Assessment within the last rolling 12 month period. For example, not submitting a Level 1 Assessment form within 30 days of triggering the requirement for the assessment is a Treatment Technique violation. The supply will be required to increase monitoring frequency from quarterly to monthly the next month.

Reduced Monitoring

Monthly to Quarterly

1. Have a sanitary survey or Level 2 Assessment performed within the last 12 months
2. Be free of sanitary defects
3. Have a protected source
4. Have a clean compliance history for minimum 12 months

Quarterly to Annual (one additional requirement)

5. Institute one additional enhancement
 - a) Cross-connection control program
 - b) Certified operator
 - c) Other equivalent enhancements



Reduction from monthly not applicable for systems >1000 population served.

These are the criteria that must be achieved for a supply to receive approval to reduce their monitoring frequency. To reduce monitoring from monthly to quarterly or annual, the supply must have a clean compliance history for a minimum of 12 months prior to the request for monitoring reduction. Supplies that trigger a requirement to increase their monitoring must remain at the increased frequency for a minimum of 12 months before a reduction in monitoring frequency can be approved.

Other RTCR Information

- DEQ Web site:
www.michigan.gov/deqnoncommunitywatersupply
Click on “Laws and Rules” then on “Revised Total Coliform Rule”
- Register for free email news updates
Click on the red envelope symbol at the bottom of the DEQ Web site, register for “Environmental Health Programs” under the “Drinking Water and Municipal Assistance” on the “Subscription Topics” page



This is the conclusion of the presentation. There is much more information on the Revised Total Coliform Rule available on the DEQ Web site including fact sheets, forms and by mid-July, a presentation on the Revised Total Coliform Rule requirements for seasonal systems. Also, you can register for free email news updates from the DEQ by clicking on the red envelope symbol at the bottom of the DEQ Web page. Thank you.