# Internal Monitoring Report

**Policy #**: O-2B Water Quality **Date**: April 25, 2017

I certify that the following information is true.

## Policy Language:

Madison Water Utility consumers will receive high quality water that meets or is better than all primary and secondary drinking water standards, including their public notification requirements, and complies with board-adopted water quality goals, incorporated by attachment.

The Madison Water Utility recognizes that drinking water standards are subject to revision and that new compounds of concern will be determined. This dynamic is a result of health studies being conducted by health organizations and government agencies on the state, national and international level. The technology to quantify compounds at increasingly minute levels is constantly improving.

The Madison Water Utility shall maintain and promulgate a Watch List of compounds of concern by unit well of compounds that are increasing and may approach the primary and secondary drinking water standards. The Watch List shall identify which wells require action.

## CEO's interpretation and its justification:

Few things are more vital to a community than the availability of high quality drinking water. It promotes public health, public safety, and the economic interests of our community. To that end, the water utility will consistently deliver water that meets the primary, health-based drinking water standards, the secondary (aesthetic) standards, and the additional policy goals established by the Board.

Water Utility Board Procedural Guideline GUIDE 8 – Executive Summary of Water Quality Treatment Policies – establishes monitoring requirements and the utility's approach for responding to increasing contaminant levels. Generally, the policy establishes two thresholds – one when a contaminant exceeds 50% of a maximum contaminant level (MCL), secondary MCL, or other numerical guideline, and two when it surpasses 80% of this mark.

The first triggers increased monitoring and an investigation into treatment alternatives, operational changes, or other actions to reduce contaminant levels while the second leads to implementation of a mitigation strategy.

The policy applies to any contaminant, regulated or not, that is capable of impairing the health, safety, or aesthetic quality of drinking water. Utility staff will remain vigilant in following developments related to currently unregulated and emerging contaminants like pharmaceuticals, endocrine disruptors, and chromium-6 that may pose challenges in the future.

The utility will use multiple communication methods to adequately inform consumers of the safety and quality of their drinking water including the federally-required Consumer Confidence Report (CCR), the water utility website, e-mail distribution lists, neighborhood listservs, citizen meetings, and through direct staff contact in the field and office.

**Data directly addressing the CEO'S interpretation:**

Contaminants with a primary MCL or Enforcement Standard

**Coliform Bacteria** - Between October 2016 and March 2017, 1750 water samples were collected from routine monitoring points in the system including the entry point at the well houses (368 samples). No sample tested positive for coliform bacteria. Thirty-seven raw water samples were also collected during this reporting period. All were found to be free of coliform bacteria.

**Volatile Organic Compounds** - Fourteen wells were tested for volatile organic compounds (VOC) during the period from October to March. PCE is the most commonly detected VOC. Maximum detections are shown in **Table 1**. None of the over forty VOCs were found at nine wells, including treated water at Well 15.

Quarterly monitoring occurs at any well in which PCE exceeds 0.5 µg/L; otherwise, annual samples are collected at each well. The table below does not include results for disinfection by-products such as trihalomethanes.

**Radium** - In accordance with GUIDE 8, seven wells are tested quarterly for radium because previous tests show that combined radium (radium 226 + 228) exceeds 2.5 pCi/L, or one half the MCL. Compliance with the MCL is based on running annual average of quarterly samples rather than a single test result. Results for samples collected during the monitoring period are summarized in **Table 2**. Well 29 was tested in December 2016; combined radium measured 1.5 pCi/L.

Contaminants with a secondary MCL

**Iron and Manganese** - Monthly well samples are collected when iron and manganese are elevated. During the period from October to March, one sample from Well 30 exceeded the secondary MCL for iron [0.3 mg/L] and two samples from Well 19 were at or exceeded the standard for manganese [50 µg/L]. Test results are shown in **Tables 3 and 4**.

Any well operating in December was also sampled and tested for iron and manganese. For each of these eleven wells, manganese was below 5 µg/L and iron was less than 0.04 mg/L.

Iron and manganese monitoring occurs in the distribution system at all coliform sample locations. Test results, summarized in the **Table 5**, show iron and manganese infrequently exceed the established benchmarks and over 95% of the samples are below one half the policy goals.

**Chloride** - Chloride levels have been steadily rising at a number of wells, especially those that are not cased through the Eau Claire shale layer. The increase has been attributed to road salt use on roadways and parking lots. Routine chloride monitoring continues at Well 14. Six samples were collected between October and January. The chloride level ranged from 135 to 138 mg/L compared to the secondary MCL – 250 mg/L.

The pump at Well 14 was pulled in January for maintenance. With the pump removed, the borehole was televised and geophysical logging completed. In addition, a stressed pump test was performed to identify formation intervals contributing water to the well. During the televising, fill was encountered at a depth of 545 feet. There was a downward gradient observed across the Eau Claire shale; water moves from the upper to lower aquifer when the pump is not running. The flow rate is estimated

at 100 gpm. Two significant contributing intervals were identified – one at the base of the casing (117') and a second at the contact between the Wonewoc and Eau Claire formations (230'). Water quality grab samples were collected at several discrete depths. The results are summarized in **Table 6**. Overall, chloride, sodium, calcium, and magnesium levels were lower in grab samples at depths ranging from 140 to 400 feet compared to the pump discharge; iron and manganese levels were higher. These initial measurements provide a starting point for understanding general chloride and sodium distribution in the aquifer supplying Well 14. A more refined conceptual model would require an extended period pumping test with a packer to isolate specific intervals.

Currently, the 2016 Groundwater Flow Model is being used to determine the recharge area for Well 14. The delineated area will be inspected to identify areas that are most susceptible to infiltration by salt-contaminated runoff. An alternatives evaluation study is being planned for inclusion in the 2018 Capital Budget. This study will identify and compare treatment solutions to the increasing chloride and sodium levels at Well 14.

Unregulated and Emerging Contaminants

**Sodium** - In accordance with GUIDE 8, monthly sodium testing continued at Well 14. Four samples were collected between October and January with samples measuring between 45 and 49 mg/L sodium. The US EPA recommends that drinking water not exceed 20 mg/L. These guidelines are intended for high risk populations including individuals with high blood pressure or those on severe sodium-restricted diets.

**1,4-Dioxane** – Well 11 was tested in March for 1,4-dioxane. The result was 0.26 µg/L. Dioxane often co-exists with chlorinated solvents; however, it is not as readily removed from water. Air stripping is mostly ineffective.

2017 Monitoring Requirements

Monitoring requirements for 2017 include full inorganic, volatile organic (VOC) and synthetic organic compound (SOC) panels at each well, lead and copper sampling, and radionuclide testing at a subset of wells – ones that are already being monitored on a quarterly basis.

Water Quality Watch List

The Water Quality Watch List has been updated with current test results for organic and radiological contaminants. Action plans for various wells will be updated to reflect changes in the proposed 2018 Capital Budget and Capital Improvement Program (2019-2023).

Water Quality Technical Advisory Committee

This committee met once (January 11) since the last monitoring report. The group reviewed and provided feedback on the nearly complete Wellhead Protection Plan for Well 31, was presented an update on upcoming water quality studies at Well 14 and Well 27, and learned about the monitoring plans for the period from 2017 through 2019 including the next round of unregulated contaminants monitoring (UCMR4). Details are provided in the meeting notes as an attachment.

*Wellhead Protection Activities*

Water quality staff recently completed the Wellhead Protection Plan for Unit Well 31 and submitted the plan to Department of Natural Resources for approval. The final plan incorporated feedback and recommendations from the Technical Advisory Committee. A Wellhead Protection Plan Supplement was also submitted with the Well 31 plan. The Supplement contains wellhead protection resources including local, state, and county regulations; information on the regional hydrogeology; and management strategies that are common to all Madison wellhead protection plans.

A request was made for Traffic Engineering to install wellhead protection signs at the entrances to the Well 31 wellhead protection area. These signs are identical to ones installed in the Well 14 and Well 18 areas in recent years. The purpose of the signs is to draw attention to the importance of wellhead protection.

*Outreach – Lead in Madison Schools*

In February, Water Quality Manager Joe Grande and John Hausbeck from Public Health Madison and Dane County met with Facilities Management staff from Madison Metropolitan School District to discuss strategies for assessing and mitigating lead exposure risk from drinking water in district

facilities. High-use fountains and sinks used for drinking or food prep were recommended for routine monitoring. Sampling protocols and the various causes of elevated lead including high water age following breaks (weekends, vacations, etc.) were discussed. An interim lead action level was proposed by Public Health. There was agreement that results above 15 ppb were unacceptable but whether this number should be lower was not resolved. Previously, refrigeration-style bubblers had been tested in the early 1990's and those with high lead were removed and/or replaced. No additional testing had been conducted since that earlier effort.

*Annual Water Quality Report – Consumer Confidence Report*

Water Utility staff has been preparing this year's consumer confidence report (CCR) with an anticipated release in mid-May. The report will have the same layout and format as in previous years. New this year is a section on the impact of road salt on Madison-area lakes and our aquifer. Updated water quality data for each well will also be available through our website.

Postcards again will be sent to all mailing addresses in the City of Madison and they will direct water users to an electronic version that will be posted to our website. A similar notice will be included on the Municipal Services Bill in the coming months. Paper copies of the report will be available at the Water Utility and all branches of the Madison Public Library.

Attachments:

Tables 1-6
Water Quality Watch List
Water Quality Technical Advisory Committee Meeting Notes

## Table 1. Summary of VOC Detections (in µg/L), October to March

| | Samples | DCE, cis | PCE | TCFM |
|---|---|---|---|---|
| MCL | | 70 | 5 | NA |
| Well 6 | 2 | <0.30 | **1.2** | <0.30 |
| Well 9 | 2 | <0.30 | **1.6** | <0.30 |
| Well 11 | 2 | **0.44** | **0.60** | **0.96** |
| Well 14 | 2 | <0.30 | **0.54** | <0.30 |
| Well 18 | 2 | <0.30 | **2.1** | <0.30 |
| | TCFM = Trichlorofluoromethane | | | |

## Table 2. Combined Radium Results (226+228) measured in pCi/L

| | Dec 2016 | Feb 2017 | Annual Average of Quarterly Samples |
|---|---|---|---|
| Well 7 | **1.47** | **2.2** | **2.0** |
| Well 8 | Inactive | Inactive | **NA** |
| Well 19 | **3.7** | **3.8** | **3.6** |
| Well 24 | **2.8** | **3.4** | **3.2** |
| Well 27 | Inactive | Inactive | **NA** |
| Well 28 | 3.0 | **3.2** | **2.8** |
| Well 30 | **2.7** | **2.3** | **3.1** |

## Table 3. Monthly Iron Test Results, in mg/L

| **Source** | Oct | Nov | Dec | Jan | Feb | Mar |
|---|---|---|---|---|---|---|
| Well 7 - filtered | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 |
| Well 8 | n/s | n/s | n/s | n/s | n/s | n/s |
| Well 17 | n/s | n/s | n/s | n/s | n/s | n/s |
| Well 19 | 0.21 | 0.20 | 0.18 | 0.20 | 0.24 | 0.24 |
| Well 23 | n/s | n/s | n/s | n/s | n/s | n/s |
| Well 24 | 0.21 | 0.28 | 0.22 | 0.21 | 0.21 | 0.20 |
| Well 26 – deep well | <0.02 | 0.04 | <0.02 | <0.02 | n/s | <0.02 |
| Well 27 | n/s | n/s | n/s | n/s | n/s | n/s |
| Well 28 | 0.18 | 0.17 | 0.18 | 0.16 | 0.15 | 0.14 |
| Well 29 - filtered | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 |
| Well 30 | 0.20 | **0.34** | 0.21 | n/s | 0.21 | 0.21 |

## Table 4. Monthly Manganese Test Results, in µg/L

| Source | Oct | Nov | Dec | Jan | Feb | Mar |
|---|---|---|---|---|---|---|
| Well 7 - filtered | <1.0 | 2.6 | <1.0 | <1.0 | <1.0 | <1.0 |
| Well 8 | n/s | n/s | n/s | n/s | n/s | n/s |
| Well 17 | n/s | n/s | n/s | n/s | n/s | n/s |
| Well 19 | 45 | **50** | 41 | 40 | **50** | 49 |
| Well 23 | n/s | n/s | n/s | n/s | n/s | n/s |
| Well 24 | 32 | 41 | 34 | 33 | 34 | 34 |
| Well 26 – deep well | 1.1 | <1.0 | 14 | 7.1 | n/s | 12 |
| Well 27 | n/s | n/s | n/s | n/s | n/s | n/s |
| Well 28 | 23 | 22 | 22 | 22 | 23 | 22 |
| Well 29 - filtered | 1.8 | 4.1 | <1.0 | <1.0 | <1.0 | <1.0 |
| Well 30 | 14 | 20 | 14 | n/s | 15 | 14 |

## Table 5. Summary of iron and manganese levels in the distribution system.

**Manganese, µg/L**

| | Oct - Mar | 2016 |
|---|---|---|
| **Policy Goal** | **50** | **50** |
| Median | 1.5 | 1.4 |
| Average | 2.7 | 3.3 |
| ***95th Percentile*** | ***9.2*** | ***9.3*** |
| Maximum | 18 | 101 |
| Number of Samples | 168 | 340 |
| >50 | 0 | 3 |

**Iron, mg/L**

| | Oct - Mar | 2016 |
|---|---|---|
| **Policy Goal** | **0.3** | **0.3** |
| Median | <0.02 | <0.02 |
| Average | 0.03 | 0.03 |
| ***95th Percentile*** | ***0.10*** | ***0.08*** |
| Maximum | 0.32 | 1.8 |
| Number of Samples | 168 | 340 |
| >0.3 | 2 | 4 |

**Table 6. Grab sample results for Well 14 pump test.**

| Analyte | Units | Grab Sample Depth | | | | |
|---|---|---|---|---|---|---|
| | | Discharge | 140' | 150' | 225' | 400' |
| Chloride | mg/L | 140 | 72 | 66 | 77 | 79 |
| Sodium | mg/L | 53 | 34 | 27 | 29 | 31 |
| Calcium | mg/L | 100 | 89 | 82 | 84 | 86 |
| Magnesium | mg/L | 51 | 45 | 42 | 42 | 44 |
| Iron | mg/L | 0.08 | 0.13 | 0.38 | 0.23 | 0.18 |
| Manganese | µg/L | 2 | 16 | 54 | 20 | 42 |
| Chromium | µg/L | 3.5 | 5.4 | 24 | 13 | 6.1 |
| Chromium (VI) | µg/L | -- | 1.3 | 1.2 | 1.5 | 1.5 |
| Conductivity | µmho/cm | 1100 | 820 | 760 | 870 | 820 |

# MADISON WATER UTILITY
## WATER QUALITY WATCH LIST

### Organics - Regulated

| Contaminant | Maximum* | Units | MCLG | PAL | MCL | Detects Below PAL% | Watch List | Action Plan | Reference |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dichloroethane | 0.20 | µg/L | zero | 0.5 | 5 | #17 | none | | NR 809.24 |
| 1,2-Dichloroethylene (cis) | 0.54 | µg/L | 70 | 7 | 70 | #8, #11 | none | | NR 809.24 |
| Tetrachloroethylene [PCE] | 3.5 | µg/L | zero | 0.5 | 5 | #27 | #6, #9, #11, #14, #18 | Quarterly Monitoring | NR 809.24 |
| 1,1,1-Trichloroethane | 0.28 | µg/L | 200 | 40 | 200 | #18 | none | | NR 809.24 |
| Trichloroethylene [TCE] | 0.40 | µg/L | zero | 0.5 | 5 | #11, #14, #18, #27 | none | | NR 809.24 |
| Xylene, Total | 1.3 | µg/L | 10000 | 400 | 10000 | #225 | none | | NR 809.24 |

* Maximum detection observed at any Madison well from 2013 through 2017

% Detected in at least one sample collected from 2013 through 2017

### Organics - Unregulated

| Contaminant | Maximum* | Units | MCLG | PAL | ES | Detects Below PAL% | Watch List | Action Plan | Reference |
|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.08 | µg/L | n/a | 85 | 850 | #9 | none | | NR 140.10 |
| 1,4-Dioxane | 0.63 | µg/L | n/a | 0.3 | 3 | #9, #14, #15, #17, #18 | #11 | Monitor | NR 140.10 |
| Trichlorofluoromethane | 1.0 | µg/L | n/a | 698 | 3490 | #11 | none | | NR 140.10 |

* Maximum detection observed at any Madison well from 2013 through 2017

% Detected in at least one sample collected from 2013 through 2017

### Radionuclides (2016)

| Contaminant | Maximum | Units | MCLG | Watch | MCL | Wells with Detects | Watch List | Action Plan | Reference |
|---|---|---|---|---|---|---|---|---|---|
| Gross alpha | 11.5 | pCi/L | zero | 5 | 15 | All Except Well#14 | #7, #8, #19, #24, #27, #28, #30 | Monitor | NR 809.50 |
| Gross beta | 36.5 | pCi/L | zero | 10 | 50 | All Except Well#14 | #27 | Monitor | NR 809.50 |
| Combined Radium | 5.2 | pCi/L | zero | 2.5 | 5 | All Wells | #7, #8, #19, #24 #27, #28, #30 | Quarterly Monitoring | NR 809.50 |
| Uranium | 2.0 | µg/L | zero | 3 | 30 | All Wells | none | | NR 809.50 |

ES - Enforcement Standard (NR 140 - Groundwater Quality) MCL - Maximum Contaminant Level Legal Limit MCLG - MCL Goal (Public Health Goal) PAL - Preventive Action Limit (NR 140 - Groundwater Quality)

# MADISON WATER UTILITY
## WATER QUALITY WATCH LIST

### Inorganics - Regulated

| Substance | Maximum* | Units | MCLG | PAL | MCL | Detects Below PAL | Watch List | Action Plan | Reference |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.7 | µg/l | zero | 1 | 10 | #8, #12, #19, #23, #24, #28, #30 | none | | NR 809.11 |
| Barium | 59 | µg/l | 2000 | 400 | 2000 | All Wells | none | | NR 809.11 |
| Chromium, Total | 2.0 | µg/l | 100 | 10 | 100 | All Except #7, #17, #24, #27, #28, #29, #30 | none | | NR 809.11 |
| Nickel | 2.9 | µg/l | 100 | 20 | 100 | All Except #12 & #19 | none | | NR 809.11 |
| Nitrogen-Nitrate | 4.0 | mg/l | 10 | 2 | 10 | All Wells | #6, #11, #13, #14, #15, #16, #23 | Monitor | NR 809.11 |
| Selenium | 1.5 | µg/l | 50 | 10 | 50 | All Except #8, #12, #18, #19, #20, #24, #28 | none | | NR 809.11 |
| Thallium | 0.5 | µg/l | 0.5 | 0.4 | 2 | #19 | #23 | Monitor | NR 809.11 |

* Based on 2016 annual test data

### Inorganics - Unregulated

| Substance | Maximum* | Units | MCLG | Watch | SMCL | Wells with Detects | Watch List | Action Plan | Reference |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 0.9 | µg/l | n/a | 50 | 200 | All Except #8, #12, #15, #19, #23, #29 | none | | NR 809.70 |
| Chloride | 126 | mg/l | n/a | 125 | 250 | All Wells | #14 | GW Investigation | NR 809.70 |
| Iron | 0.61 | mg/l | n/a | 0.15 | 0.3 | All Except #7, #9, #14, #15, #16, #18, #20, #26 | #8, #19, #24, #28 #30 | Install Filtration: Well #8 (2026) Well #19 (2018) Well #28 (2021) Well #30 (2022) | NR 809.70 |
| Manganese | 50 | µg/l | n/a | 25 | 50 | All Except #7 & #16 | #8, #17, #19, #23, #24, #27 | | NR 809.70 |
| Sodium | 46 | mg/l | n/a | 20 | n/a | All Wells | #6, #11, #14, #15, #16, #23 | Monitor | EPA DWEL |
| Sulfate | 45 | mg/l | n/a | 125 | 250 | All Wells | none | | NR 809.70 |
| Zinc | 39 | µg/l | n/a | 2500 | 5000 | All Wells | none | | NR 809.70 |

* Based on 2016 annual test data

MCL - Maximum Contaminant Level (Legal Limit) MCLG - MCL Goal Public Health Goal PAL - Preventive Action Limit (NR 140 - Groundwater Quality) SMCL - Secondary MCL (Aesthetic Guideline)
DWEL - Drinking Water Equivalency Level

# Water Quality Technical Advisory Committee - DRAFT

Meeting Notes
Olin Avenue Conference Room
January 17, 2017 – 1:00 p.m.

**Attending:** Henry Anderson, Amy Barrilleaux, Janet Battista, , Joseph Grande Greg Harrington, Jocelyn Hemming, Gary Krinke, Al Larson, Sharon Long

**Absent:** Tom Heikkinen, Joe DeMorett

**Guests:** 1 member of the general public

**1. Agenda Repair/Announcements**

The committee welcomed Dr. Henry Anderson as the newest member of the committee. Dr. Anderson recently retired from the Wisconsin Department of Public Health where he served as Chief Medical Officer.

Updated contact information was gathered to provide access to a Sharepoint site that will be used for sharing and storing documents that support committee activities.

**2. Review of Meeting Notes -** No changes to the October 11, 2016 notes were proposed.

**3. Wellhead Protection Plan Review – Well 31**

Construction of Unit Well 31 will begin in 2017 and the unit should be operational by summer 2018. Prior to the well going on-line, a Wellhead Protection Plan (WHPP) must be reviewed and approved by the Wisconsin DNR. A Wellhead Protection Plan Supplement will be submitted with the current plan. The WHPP Supplement includes documents common to all wellhead protection plans including information on local hydrogeology, regulations, and other wellhead protection resources including a variety of management strategies.

After reviewing the plan, the committee offered the following suggestions:

- Add the underground oil/gas pipelines to Figure 4-1
- Consider the installation of a sentinel well between the well and high-risk potential contamination sites. The committee specifically identified the petroleum terminals and bulk fuel storage facilities (S/SW) and the Dane County landfill.
- Continue communication/relationship building with neighboring municipalities (Village of McFarland, City of Monona, and Town of Blooming Grove), Dane County, and the DNR.
- Include relevant DATCP information related to herbicide and pesticide spills
- Determine petroleum fuel transport requirements for the petroleum terminals
- Inquire about how the Dane County Humane Society disposes of its animal waste.

**4. Project Updates**

**a. Well 14 – Chloride Study**

The level of sodium and chloride continues to increase at Well 14. The well pump is scheduled to be removed in a few weeks for maintenance. It will allow for the completion of geophysical and stressed flow logging of the well. The objective of the study is to identify contributing interval(s) and associate sodium and chloride levels with those intervals. If the level of sodium and chloride continues to increase at the current rate (1 mg/L of sodium and 5 – 6 mg/L of chloride), wellhead treatment or some other alternative will be required within the next 15 to 20 years.

**b. Well 27 – Radium Study**

The Parks Department granted permission for the water utility to install a monitoring well in Klief Park. Cuttings from this well, in addition to the rock cuttings from UW4 and UW27 (UW4's replacement), will be evaluated for radium pre-cursors (thorium and uranium). Geophysical tools will be used to characterize the borehole, compare to UW 27, and identify potential radium contributing intervals. Packer testing will be performed to collect water quality samples from identified intervals.

A laboratory comparison study was conducted in December and involved collecting duplicate split samples that were sent to three different laboratories. Results from two of the labs were recently received; results from the third lab should be received shortly. In general, the initial review of the results shows relatively large variability between duplicate samples analyzed by the same lab.

**c. Other Projects of Note**

Five wells will be sampled twice in 2017 for Perfluorooctanoic acid (PFOA) and Perflyorooctanesulfonic acid (PFOS). The detection limits for these samples will be an order of magnitude lower than the detection limits of UCMR3 samples collected in 2016. The wells that will be sampled are located near the Dane County Airport or near a former or current landfill giving them the highest potential for detections of PFOA and/or PFOS. The wells that will be sampled include wells 7, 15, 16, 18 and 29. All COM municipal wells were sampled in 2016 as part of UCMR3 and there were no detections of either PFOS or PFOA. It was recommended that the laboratory scan for all PFCs covered by the method.

**5. Water Quality Monitoring Update – 2016 through 2019**

All monitoring requirements for 2016 were fulfilled with no violations. A brief summary of the 2016 monitoring was presented covering routine coliform testing, iron and manganese removal results, VOC testing, and investigative sampling for sodium, chloride, and radium.

Required sampling in 2017 will include inorganic compounds, volatile organic compounds, synthetic organic compounds (including pesticides), radium, lead & copper, and Disinfection-by-Products. UCMR4 testing is scheduled for 2018 – 2019.

The group discussed the recent changes to the Total Coliform Rule. One of the more significant changes is the adoption of a "Find and Fix" approach to determine the cause/source of contamination when present. Most of the changes had a greater impact on the transient non-community (TNC) water systems.

**6. Private Well Surveys – Wellhead Protection Areas**

A brief summary was shared regarding the wellhead protection efforts undertaken in the Well 31 WHP area. Summary results are included in the Well 31 WHPP.

**7. Future Agenda Items**

- MWU Master Plan & Capital Improvement Plan (April 2017, Al Larson)
- Annexations – Town of Madison; Town of Blooming Grove

**8. Adjournment**

Next meeting: Tuesday, April 11, 2016 at 1 p.m. in the Olin Avenue Conference Room.