

# Water Quality Technical Advisory Committee – DRAFT

Meeting Notes

Paterson Street Conference Room

October 9, 2018 – 1:00 p.m.

**Attending:** Henry Anderson; Janet Battista; Greg Harrington; Jocelyn Hemming; Gary Krinke; Sharon Long; Ald. David Ahrens; Amy Barrilleaux; Joe DeMorett; Tom Heikkinen; Al Larson; Joseph Grande

**Guests:** One member of the public

## 1. Agenda Repair/Announcements/Administration

- Starting in January, committee meetings will occur on Monday evenings from 5 to 6:30 p.m. Dates for 2019 meetings include January 7, April 15, July 15, and October 14.

## 2. Review of Meeting Notes

- The July 24 meeting notes were approved as presented.

## 3. PFAS Update

The committee was updated on a meeting between Water Utility and WI Air National Guard staff regarding PFAS contamination at Truax Field and the use and handling of PFAS-containing firefighting foams at Truax. The Guard provides emergency response to civilian, commercial, and military aircraft incidents at the Dane County Airport. Legacy AFFF (aqueous film forming foam which contains C8-based PFAS) completely removed from the base by December 2016. Building 414 has a C6-based AFFF automatic fire suppression system and four fire trucks carry combined 260 gallons of C6-based AFFF concentrate. An equivalent volume of AFFF, which is required by FAA, is stored in a single-walled overhead storage tank located above a trench drain. Training activities no longer use actual product; accidental releases treated as hazardous waste spill that requires Hazmat handling and reporting.

Wisconsin DNR has asked that City, County, and WI Air National Guard to investigate two burn pits on airport property for potential PFAS contamination. WI Air National Guard to take lead with scope of work likely ready by January 2019 and bid solicitation later in the spring. No further activity on PFAS releases to soil and groundwater.

The committee also briefly discussed the preliminary ATSDR report – *Toxicological Profile for Perfluoroalkyls, Draft for Public Comment* – including guidelines/standards proposed or approved by states that go beyond the Health Advisory issued by US EPA. The committee noted that the Health Advisory Level is not an enforcement standard and that the ATSDR assessment assists federal, state, and local agencies to investigate and prioritize Superfund and other waste sites to determine whether there is a potential health concern.

The committee recommended that the utility stay the course and continue to monitor water quality at Well 15; follow the investigation and remediation efforts at Truax, and remain engaged in PFAS-related activities that are occurring at the national level.

## 4. Water Quality Monitoring & Treatment Policies Discussion

The committee continued its discussion on recommended changes to the Water Utility's water quality monitoring and treatment policies. Notably, the committee recommended that the proposed changes below be incorporated into the policies and be presented in draft form to the Water Utility Board. Feedback from the board to be included in the final revisions from the committee.

### A. Testing Requirements

#### Recommendations #1, #3 and #4

Recommend approval as written

Recommendation #2 – 1,4-Dioxane

Add, "or there is a reasonable likelihood of it being detected", to account for possible concerns at other wells, for example, when there is a new detection of a chlorinated solvent.

**B. Iron and Manganese Standards for Treatment**

Recommendation #5 – Uniform Iron and Manganese Standards

1. The committee noted that the justification for filtration is readily available in AWWA manuals.
2. Recommend stating a target date for complete implementation, rather than an undefined aspiration, with treatment for "high priority" wells by 2030.
3. Equity can be a factor in identifying the "high priority" wells.
4. Timeline for implementation will depend on competing projects (as determined by the Master Plan and Asset Management Program), the water utility's ability to pay for these improvements, and what is an acceptable price of water (i.e. affordability).

**C. Water Quality Treatment Goals – Recommendation #6**

The committee recommended adding a more detailed justification to the preamble, clearly stating that these goals are non-enforceable, and clarifying that the goals are to be applied to the individual wells where treatment is added and not to the water system as a whole.

Carcinogenic Volatile Organic Compounds (cVOC): Strike the phrase after the semicolon; it is redundant.

Radium: Add a Best Available Technology (BAT) such as the addition of HMO.

Iron and Manganese: Increase the treatment target to 0.02 mg/L manganese to coincide with the Treatment Standard identified in Recommendation #5, even though reductions to <0.01 mg/L are readily achievable.

Primary Contaminants (not cVOC or Radium): Change "below the public health goal" to "down to the public health goal" recognizing that reductions below zero are not achievable and advances in laboratory analytical procedures are likely to produce lower detection limits over time.

Secondary Contaminants (not Iron or Manganese): Recommend approval as written

Unregulated Contaminants: Add "if a decision has been made to treat" and "with an established federal health reference level".

**5. Future Agenda Items**

- MWU Master Plan & Capital Improvement Plan
- Annexations – Town of Madison; Town of Blooming Grove
- Private Well Program Policies

**6. Adjournment**

The next meeting will be on Monday, January 7 from 5 p.m. to 6:30 p.m. at the Water Utility, 119 E Olin Ave.

## A. Testing Requirements –

Regulated Contaminants: Water Utility Board (WUB) policy requires more frequent testing if a regulated contaminant, measured at the entry point to the distribution system, tests higher than 50% of the Maximum Contaminant Level (MCL) or the Enforcement Standard (ES) in NR 140. According to this policy, quarterly monitoring replaces annual or less than annual testing.

The Department of Natural Resources (DNR) has requirements that are more stringent when a volatile organic compound (VOC) is “detected” – defined as exceeding 0.0005 mg/L. In this case, quarterly monitoring is required; however, the department may reduce monitoring to an annual basis if the department determines that the source “is reliably and consistently below the MCL.” [NR 809.245(6) (b)]

Similarly, DNR code requires increased monitoring (from annual to quarterly) for nitrate and nitrite when the concentration exceeds one-half the MCL. This requirement matches current WUB policy. There is no corresponding regulatory requirement to increase monitoring when any other regulated contaminant measures above one-half the MCL.

The regulatory requirement for frequency of radium monitoring (every three, six, or nine years) at a given well depends on whether radium is detected above or below one-half the MCL.

- Recommendation #1 – Modify the policy for radium monitoring as follows: If after three years of quarterly monitoring results show that combined radium is stable, and not increasing, and the running annual average of quarterly samples is less than 80% of the MCL, or 4 pCi/L, then reduce monitoring to annually and sample during the quarter which is likely to produce the highest radium result or when the operational condition of the well changes. Monitoring shall increase to quarterly if the results of three consecutive annual samples exceed 4 pCi/L, or any one sample is greater than the MCL, or 5 pCi/L. No sampling shall be required at a well when it is off-line.

Emerging or New Contaminants of Concern (Unregulated): Policies of the Water Utility Board mandate the maintenance of an annual budget to test for new or emerging contaminants. The Water Quality Technical Advisory Committee makes recommendations on which contaminants to test and at what frequency. Previously, guidance for hexavalent chromium monitoring was developed and approved. New guidelines for 1,4-dioxane and PFAS (per- and polyfluoroalkyl substances) are proposed here.

- Recommendation #2 – Add dioxane monitoring as follows: A minimum of triennial monitoring shall be conducted at each well in which 1,4-dioxane was detected in the past or there is a reasonable likelihood of it being detected (e.g. a new detection of a chlorinated solvent at an existing well). The reference level of 0.35 ug/L (US EPA’s  $10^{-6}$  lifetime cancer risk level) shall be the basis for more frequent monitoring; test results consistently above this level shall trigger semi-annual testing.
- Recommendations #3 – Add PFAS monitoring as follows: Any testing for PFAS shall follow a modified US EPA Method 537, or similar procedure, that includes analysis

for the presence of at least twelve targeted PFAS, including PFOA and PFOS, and at minimum reporting levels of no higher than 2 ng/L for each PFAS. A minimum of triennial monitoring shall occur at each well where at least one PFAS was detected or there is a reasonable likelihood of a PFAS being detected. The utility shall conduct annual monitoring at each well in which the combined PFAS concentration exceeds the federal health reference level.

- Recommendation #4 – The utility’s Water Quality Technical Advisory Committee occasionally may identify new or emerging contaminants for testing. Typically, the contaminants will come from US EPA’s Contaminant Candidate List (CCL) or the Unregulated Contaminants Monitoring Program. Add the following monitoring requirements for any new or emerging contaminant identified by the committee:
  - ❖ Initial monitoring – Monitor each well twice to establish a baseline level at each well. The committee may recommend a subset of wells for monitoring based on the likelihood that the contaminant of concern will be detected.
  - ❖ Subsequent monitoring – Conduct annual testing for a minimum of three years at any well where the contaminant is detected above a reference level. Wells where the contaminant is detected below the reference level shall be tested no less frequently than once every three years.
  - ❖ Reduced monitoring – Monitoring may be reduced to once every three years if the contaminant concentration is found to be stable and not increasing.

## B. Iron and Manganese Standards for Treatment

Previously, the Water Utility Board adopted two iron and manganese treatment standards. The first established that all Madison wells shall meet the secondary drinking standards for iron and manganese (0.3 and 0.05 mg/L, respectively). Further, any new source of supply shall have lower levels – below 0.1 mg/L iron and 0.02 mg/L manganese – with filtration included in the design of the facility if either metal is above these limits. The second policy, adopted in 2015, directs staff to develop plans for the implementation of filtration at an existing well facility if the untreated water exceeds 0.24 mg/L iron or 0.04 mg/L manganese.

- Recommendation #5 – Modify and incorporate the iron and manganese treatment standards into a single, uniform policy as follows: *Iron and manganese treatment shall be implemented at any well facility where the average annual concentration of iron or manganese exceeds 0.1 mg/L or 0.02 mg/L, respectively.* For any well that meets this threshold and requires treatment, the utility shall use asset management principles to rank, according to order of recommended completion, each iron and manganese filtration project and other projects identified in the long-range capital improvement program. It is understood that significant capital investment will be required to achieve this policy goal and the timing of these improvements must be balanced by the affordability goals of the City and water utility. Therefore, proposed target date for complete implementation of filtration is 2045, with high priority wells treated by 2030.

### C. Water Quality Treatment Goals –

In 2015, when the Water Utility Board established the Water Quality Treatment Policies, these policies provided guidance on what contaminant levels were deemed acceptable and directed staff to take action when these levels were exceeded. However, these policies did not explicitly state any treatment level goals. In other words, when provided, what level of treatment is deemed acceptable – below detection or some other level that is below the MCL or SMCL? Below are proposed non-enforceable treatment targets at the well in which water treatment is implemented; these targets are for the individual well and should not be applied to the water system as a whole. It should be noted that Best Available Technology, especially for treatment of new or emerging contaminants, may not be capable of completely eliminating the contaminant, and that detection limits are continually being improved.

The decision to add treatment reflects the utility's desire to reduce public health risk associated with a known contaminant or to improve the aesthetic quality of drinking water by reducing the level of a contaminant that can discolor the water or impart an unacceptable taste to the water. Because the capital investment required to implement treatment is significant, operation of these facilities shall maximize the benefits of that investment.

#### ➤ Recommendation #6 – Water Quality Treatment Targets are proposed as follows:

- ❖ Facilities to remove carcinogenic volatile organic compounds (cVOC) shall be designed and operated for complete removal of cVOC.
- ❖ Facilities specifically designed to reduce radium (i.e. treatment that employs the addition of hydrous manganese oxide [HMO]) shall be operated to lower the combined radium (Ra-226 + Ra-228) to a level below 2.5 pCi/L.
- ❖ Facilities to remove iron and manganese shall be designed to reduce the level to below 0.1 mg/L iron and 0.02 mg/L manganese; however, these facilities may be operated at lower removal efficiencies if water quality objectives are sustained while other benefits are achieved (e.g. energy conservation).
- ❖ For primary contaminants other than cVOC and radium, treatment facilities shall be designed and operated to reduce the contaminant down to the public health goal (MCLG), or 0.5 MCL, whichever is lower.
- ❖ For secondary contaminants other than iron or manganese, treatment facilities shall be designed and operated to reduce the contaminant to below 0.5 SMCL.
- ❖ For an unregulated contaminant with an established health reference level, and a decision has been made to add treatment, the facility shall be designed and operated to reduce the contaminant to below that established reference level.