

# Complicated Rules and Mistakes Result in Unnecessary Expenditures for Water Systems in Kansas



The July 2016 issue of *The Kansas Lifeline* carried an article by Elmer Ronnebaum about systems incurring unnecessary sampling and analyses costs. That article can be found at this link: <http://krwa.net/portals/krwa/lifeline/1607/006.pdf>. This article further discusses this matter.

The monitoring frequency for most analyses does not vary a lot. But the schedule for the disinfection byproducts (DBPs) of trihalomethanes (THMs) and haloacetic acids (HAAs) can vary considerably.

The possible variance is especially true for those public water supplies (PWSs) that have a surface water source and therefore, are known as Subpart H supplies. This is because the THMs and HAAs can vary due to the water temperature and the free chlorine contact time at the water treatment plant.

There are many water supplies in Kansas that purchase water from a surface water source. The THMs and HAAs in their water are determined mostly at the water treatment that the purchasers do not control. Also, the monitoring frequency can vary considerably due to past monitoring results.

## Serving less than 500

The frequency for routine monitoring for Subpart H water supplies serving less than 500 population size is annual. The samples are taken in a specified month during July - September. For those Subpart H water supplies that purchase water, the samples are required to be taken during the same month as the system operating the water treatment plant.

Federal law requires increased monitoring frequency from annually to quarterly if the THMs are greater than 80 ug/l or the HAAs are greater than 60 ug/l. However, the public water system cannot return to annual monitoring frequency until it has monitored for at least four consecutive quarters and the locational running annual average

(LRAA) for THMs and HAAs is equal to or below 60 ug/l and 45 ug/l, respectively.

## Serving 501 - 3,300

The routine monitoring frequency for Subpart H water supplies serving 500 - 3,300 population size is quarterly. For those Subpart H water supplies that purchase water, the samples are required to be taken during the same month as the water supply operating the water treatment plant.

Federal law allows for reduced monitoring frequency for the Subpart H water supplies serving 500 - 3,300 population size, but this has not occurred in Kansas due to a federal requirement that the source water annual TOC level before any treatment

**The unnecessary monitoring cost for analyses that are not required most often occurs for Subpart H water supplies serving less than 500 persons and purchasing their water supply source.**

must be below 4.0 mg/l and that the THMs and HAAs are at or below 40 ug/l and 30 ug/l, respectively.

**Variance in monitoring frequency and unnecessary cost**

The unnecessary monitoring cost for analyses that are not required most often occurs for Subpart H water supplies serving less than 500 persons and purchasing their water supply source. This unnecessary cost adversely affects these small water supplies more than it would larger systems.

Nearby is a table of actual analyses for THMs and HAAs from such a water supply purchasing water. The water supply was on annual monitoring frequency until the high 210 ug/l THMs and high 130 ug/l HAAs in July 2014. The water supply was then placed on quarterly monitoring frequency according to 40 CFR 141.625 (a). Monitoring thus should occur in the months of October, January, April and July.

There are several anomalies in the quarterly monitoring frequency. One anomaly is that the 4th quarter 2015 sample was taken on January 6 rather than in October. Another anomaly is that the 3rd quarter 2015 sample was taken on June 30 instead of the month of July. A third anomaly is that there was no monitoring in January in the 1st quarter of 2016. And the last anomaly is that the 2nd quarter 2016 monitoring was in May instead of April.

The high THMs and high HAAs in July 2014 were due to treatment at the

<b>Disinfection Byproducts (DBPs) Monitoring Results</b>						
Monitoring Month	Monitoring Quarter	THMs ug/l	THMs LRAA	HAAs ug/l	HAAs LRAA	
July 2014	Annual	210		130		
January 6, 2015	4th	29		38		
January 20, 2015	1st	37		28		
April 2015	2nd	36	78	21	54	
June 2015	3rd	48	38	18	26	
October 2015	4th	43	41	21	22	
May 2016	2nd	48	44	18	20	
July 2016	3rd	37	44	20	19	
October 2016	4th	38	42	21	20	
January 2017	1st	47	43	15	19	
April 2017	2nd	45	42	21	21	

LRAA is locational running annual average  
 Maximum Contaminant Level (MCL) for THMs is 80 ug/l  
 Maximum Contaminant Level (MCL) for HAAs is 60 ug/l

water seller’s water treatment plant and were not caused by anything that the purchasing water supply did. As can be easily seen by the THMs and HAAs data in the nearby table, the water supply has had very good monitoring data beginning in January 2015.

Depending on how the KDHE regulatory authorities apply “four

consecutive quarters” of 40 CFR 141.625 (c), the return to annual monitoring frequency could have occurred in July 2015, or October 2016, or for sure in January 2017. The different dates depend on how KDHE addresses or does not address the aforementioned anomalies but KDHE has addressed such in other situations.

**All water supplies need to monitor and understand monitoring analyses and frequency especially for THMs and HAAs.**

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## § 141.625 Conditions requiring increased monitoring

(a) If you are required to monitor at a particular location annually or less frequently than annually under § 141.621 or § 141.623, you must increase monitoring to dual sample sets once per quarter (taken every 90 days) at all locations if a TTHM sample is >0.080 mg/L or a HAA5 sample is >0.060 mg/L at any location.

(b) You are in violation of the MCL when the LRAA exceeds the subpart V MCLs in § 141.64(b)(2), calculated based on four consecutive quarters of monitoring (or the LRAA calculated based on fewer than four quarters of data if the MCL would be exceeded regardless of the monitoring results of subsequent quarters). You are in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if you fail to monitor.

(c) You may return to routine monitoring once you have conducted increased monitoring for at least four consecutive quarters and the LRAA for every monitoring location is ≤0.060 mg/L for TTHM and ≤0.045 mg/L for HAAs.

*Note: The above information is by Cornell University Law School at this Internet link: <https://www.law.cornell.edu/cfr/text/40/141.625>*

## Another error

Last year another water supply serving fewer than 500 persons and purchasing surface water from another water supply contacted KRWA about their THMs and HAAs analyses. These analyses show that the HAAs were out of compliance at 110 ug/l and that the water supply was thus required to continue quarterly monitoring. Other water supplies that purchased water from the same water supplier were in compliance.

KRWA reviewed the HAAs analyses and noted that dibromochloroacetic acid was very, uncharacteristically high when compared to the other four haloacetic acids. The water supply contacted the KDHE laboratory and the laboratory found and corrected the error in reporting. The HAAs were actually 19 ug/l and the water supply received a new, correct analyses sheet from the KDHE laboratory; the system was then placed on annual monitoring.

## Review the monitoring analyses and frequency

All water supplies need to monitor and understand monitoring analyses and frequency especially for THMs and HAAs. Water supplies serving less than 500, purchasing water that is a surface water source, and monitoring quarterly for THMs and HAAs need to be sure they are vigilant in ensuring that unnecessary monitoring is not occurring and that they return to annual monitoring after four consecutive quarters of good analyses.

If the monitoring analyses or frequency do not seem correct, or you suspect that there is a problem, please contact KRWA as we have extensive experience reviewing and explaining monitoring analyses and monitoring frequencies.

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*Engineering from the University of Kansas.*



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