

From: Shekter, Smith, Liane (DEQ)
To: Devereaux, Tracy Jo (DEQ); Tetzlaff, Kathenna (DEQ); Butler, Sonya (DEQ); Monosmith, Carrie (DEQ); Benza, Richard (DEQ)
Subject: Thursday's schedule...
Date: Wednesday, March 25, 2015 5:35:42 PM

Just wanted to share with you my schedule for tomorrow since I'm out first thing and the morning got rather full:

8am - breakfast meeting with Milan Supply and others to discuss an opportunity to provide well construction and pump selection training for ODWMA staff. Dana, Jim McEwan and Brant F. will be at the meeting too.

10am – 1/1 with Sonya (I'll try not to be late ☺!)

11am – Sonya and I are meeting with Dan W. to discuss SAW

11:15am – meeting with Sarah Howes, Jim Sygo, Debbie O. and Katelyn W. to discuss MHCs.

1:30pm – there's a webinar re: Legionella. I believe someone rsvp'd and a room was reserved but I'm not recalling details at this time.

From: Busch, Stephen (DEO)
To: Howard Croft (hcroft@cityofflint.com); Brent Wright (bwright@cityofflint.com); mcclascow@cityofflint.com; Daugherty Johnson (djohnson@cityofflint.com)
Cc: Gerald Ambrose (gambrose@cityofflint.com); rhenderson@cityofflint.com; Prysby, Mike (DEO)
Subject: Water Quality Optimization Strategy
Date: Tuesday, March 17, 2015 2:01:50 PM

Howard,

As Mike Prysby and I mentioned during our phone call earlier today, the City should be taking action to optimize water quality in the City's distribution system which will in turn provide the City's water customers with water quality that helps limit the potential for legionella occurrence in premise plumbing. It is recognized that contraction of Legionnaires' Disease is not from ingestion of potable water and not regulated under Safe Drinking Water Act requirements. Further, there is currently no direct evidence of legionella in the City's public water system. However, actions by the City of Flint water system can help minimize the potential for an outbreak in customer plumbing systems.

These actions include the following:

- Water main pigging and flushing to remove biofilm, tuberculation, and sediment throughout the distribution system. Failure to remove such material will limit the effectiveness of any disinfectant. Pigging is the preferred process and equipment can be obtained at minimal cost. As the growth range for legionella starts at 68 degrees F, conducting this work as soon as possible in the spring and early summer with cooler temperatures would help reduce the potential for formation under warmer water conditions.
- Maintain pH levels of 7.2-7.8 in finished water and distribution system when possible to maximize the disinfection and oxidation potential of the hypochlorous acid residual (versus the less potent hypochlorite ion). Any optimized corrosion control plan practices regarding pH levels must be taken into consideration.
- Maintain a minimum free chlorine residual of 0.5 mg/L throughout the distribution system when possible. Continuous residual at this level has been shown to be effective in control of legionella. (This will need to be balanced with requirements to limit TTHM formation and comply with the TTHM standard.)
- Continuous operation and optimization of the ozone treatment equipment to treat raw source water. Ozone is highly effective in the destruction of legionella bacteria.
- Conduct routine monitoring for legionella bacteria at the water treatment plant tap and at locations in the distribution system. Note: sample locations must take water directly off the main and not be from premise plumbing systems. Distribution locations could include storage tank inlets or pumping stations. Monitoring at the WTP plant tap would demonstrate removal of any legionella present in raw source water. A private laboratory that specializes in water sample analysis for legionella would need to be used.
- Optimize water treatment plant operation for pathogen reduction under surface water