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Cc: [Austin, Brian P - DNR](#); [Moen, Trevor J - DNR](#); [DuFresne, Kristin I - DNR](#)
Subject: RE: Tyco pilot dye test comments
Date: Tuesday, August 22, 2017 8:24:12 AM

Conor – The DNR has reviewed CH2M’s *Pilot Test Work Plan – Tyco Fire Products LP Facility* dated August 14, 2017 and EPA’s comments. DNR comments are provided below in *red italics*.

Please feel free to contact us if you have any questions or concerns.

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From: Neal, Conor [mailto:Neal.Conor@epa.gov]
Sent: Friday, August 18, 2017 12:04 PM
To: DuFresne, Kristin I - DNR <Kristin.DuFresne@wisconsin.gov>; Kristi.root@tetrattech.com
Subject: Tyco pilot dye test comments

Hi Kristin and Kristi,

I just finished my review of Tyco’s pilot dye test work plan. For the most part I am happy with the workplan, but have a few very minor comments below:

Section 1.0 Introduction, paragraph 2 - Tyco states "The full-scale barrier wall dye test is planned for summer 2018. The September 2017 timing for the pilot test also will be beneficial, as it will be under similar conditions as that proposed for the full-scale test when lower river flows are most common and will limit the amount of dye needed during the full-scale test." The EPA granted Tyco's request for extension for implementing the full-scale barrier wall dye test to May 1, 2018. If Tyco would like to extend the implementation for the full-scale barrier wall dye test, it must request to do so. *Comment: The results of the full-scale barrier wall dye test should be submitted to the agencies for review/approval prior to (or no later than) the 2018 5-year review.*

Section 1.1 Background, paragraph 2 - Tyco states "the dye test was designed only to measure the effectiveness of representative portions of the barrier wall. However, the information obtained during the dye test will be regarded as being representative of the entire wall containment integrity." The heterogeneous nature of the subsurface (tie rods spaced approximately every 9 feet, utilities, surface mounds, and old wood piers and piles adjacent to the barrier wall) and the likelihood of needing to change injection locations in the field means it is difficult to assess whether the dye test will be representative of the entire wall containment integrity. However, given the

volume of dye required to assess the entire length of the wall, the EPA agrees that nine injection locations is sufficient for assessing the wall's containment integrity *in the Main Plant containment cell*.

Section 1.1 Background, paragraph 3 - Tyco states "The proposed full-scale barrier wall dye testing scheduled for August or September 2018..." Again, the EPA granted Tyco's request for extension for implementing the full-scale barrier wall dye test to May 1, 2018. If Tyco would like to extend the implementation for the full-scale barrier wall dye test, it must request to do so.

Section 2.0 Field Methods, Bullet 3 - WDNR prefers to use 1 ppm dye concentration???

The premise of the eventual full scale dye test requires that they are able to detect low levels of dye in the river by utilizing sensitive fluorometric instrumentation. The sample model outputs provided in appendix of the pilot proposal are suggesting something on the order of 95% dilution along the centerline at 500 feet from the initial injection point. At an initial concentration of 1,000 ppb, this would result in 20 ug/L at that distance. The instruments have rated detectability limits on the order of 0.1 to 0.5 ppb. Even assuming some background fluorescence, we'd retain adequate detectability. Therefore, DNR believes the proposal to use starting concentrations somewhere in the range of 200 ppb to 1,000 ppb is reasonable. Furthermore, if they can successfully detect the dye at the distant measurement transects using a lower starting concentration, that would give the agencies more confidence that the full scale barrier wall test could detect leakage. In other words, DNR would like to allow them the latitude to use concentrations at the lower end of the stated range if they prefer....

Section 2.0 Field Methods, Bullet 6 - Will the fluorometers be positioned in the same location for the first two dye events, which will occur near the surface and river bottom at location 1?

Section 2.3 Dye Additions, paragraph 2 - Tyco plans to add 200-1000 ppb dye at 100-500 mL/min (0.02-0.13 gpm). To ensure that the dye is detected by the SCUFAs, EPA prefers that Tyco use 1000 ppb dye added at 500 mL/min.

To stay on target with the schedule Tyco outlined, we should plan on getting them comments on the plan early next week and being available for a call to discuss, if necessary. Jeff Danko told me earlier this week that the schedule is based on the availability of the SCUFAs. Apparently they are in high demand, so hopefully we can stay on schedule.

Let me know if you have additional comments. I'd like to send these by Tuesday, Aug 22.

Thanks and have a nice weekend!

Conor

Conor Neal

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