

Rennaker, Joanne (DEQ)

From: Prysby, Mike (DEQ)
Sent: Friday, October 16, 2015 1:30 PM
To: lytle.darren@epa.gov; schock.michael@epa.gov
Cc: Busch, Stephen (DEQ)
Subject: FW: Flint WTP PH2 SEG4 - Corrosion Control
Attachments: Flint WTP PH2 S4 - Corrosion Control.pdf

Darren, Michael

We have received Flint's corrosion control proposal from their consultant. If you have comments, please provide them to me by Monday morning.

Michael Prysby, P.E.
 District Engineer
 Office of Drinking Water and Municipal Assistance
 517 290-8817

From: Matta, Samir [<mailto:SFmatta@lan-inc.com>]
Sent: Friday, October 16, 2015 12:02 AM
To: Prysby, Mike (DEQ)
Subject: Flint WTP PH2 SEG4 - Corrosion Control

Hi Mike,

Please see attached plans for the Corrosion Control Plan for the City of Flint. I will have the official submittal package to you tomorrow afternoon after I get Brent or Mike's signature on the permit application. I will call you when I get back in Lansing to drop the package. Is three sets of full size plans adequate? Would you like some half size plans? Let me know.

Basis of Design

Given that Flint will require lead and copper corrosion control and given that Detroit utilizes orthophosphate for their corrosion control methodology, and that Flint will be receiving Detroit water for the immediate future, orthophosphate is the appropriate corrosion control methodology for Flint. A dosage of 0.8 mg/l as PO_4 has been recommended for the Detroit water. Numerous utilities utilizing Lake Michigan water have a target dosage of 0.9 mg/l as PO_4 . Therefore, a target dosage in the range of 0.8 to 0.9 mg/l appears appropriate.

It is expected that, at least initially, there will be a significant PO_4 demand in the system. This will require a significantly higher dosage until this demand is satisfied and the target residual can be maintained. We are therefore designing for capability of a maximum dosage of 1.5 mg/l.

The arriving Detroit water will likely have some residual PO_4 when it arrives at Flint. It has been reported that this residual will be approximately 0.4 mg/l. The system must therefore be capable of a minimum dosage of 0.4 mg/l.

Based upon the usage of 75% Phosphoric Acid and a flow range of 4 MGD to 25 MGD, with an average day of 16 MGD, the expected feed rate will be 1.35 to 32 gpd. Average Phosphoric Acid feed is expected to be 10.8 gpd, requiring 30 days storage of 325 gal.

Orthophosphate will need to be applied at two locations. Detroit water will enter the Flint system at Control Station CS2, and supplementary phosphate will be applied there. However, on occasion some incoming water may need to be diverted to the Dort Reservoir, bypassing CS2. This water would then be introduced to the system through High Service Pump Station PS4 and phosphate would be introduced at this location.

Please let me know if the information is adequate or you require additional information.

Thanks.

Samir F. Matta, PE
Team Leader



**Lockwood, Andrews
& Newnam, Inc.**

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