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July 5, 2010

Bill Tesh  
Manager, Montgomery RWD 14  
P.O. Box 31  
Dearing, Kansas 67340

Re: Water Supply Operations

Dear Bill,

I wish to thank you for the opportunity to meet on July 3 to discuss water supply operations. The main topics of discussion were rechlorination and ammonia addition.

We mixed the ammonium sulfate solution at six (6) ounces per gallon. The influent flow rate into the clearwell from Coffeyville is about 220 GPM. The solution feed rate is 1.0 gallon per hour. The resultant ammonia addition is 0.95 or approximately 1.0 mg/l.

The operation of the rechlorination should be modified. Presently one sodium hypochlorite pump discharges into the top of the clearwell water and the other sodium hypochlorite pump discharges into the high service pump discharge line. The operation should be rechlorination into the high service line pump discharge line only. This will require a modification of the electric connection as we discussed for operation for the automatic, alternating high service pumping.

When I left, the larger rechlorination feed pump (with a maximum feed capacity of 4.0 gph at 150 psi) was only being used. The smaller feed pump (with a maximum feed capacity of 1.0 gph at 110 psi) has had problems in consistently feeding into the high service discharge line; this is believed to be due to the lesser head capacity.

We discussed installing a sodium hypochlorite solution feed tank similar to that you installed for ammonia addition. This would allow of diluting the 10% commercial or 6% Clorox to better match the strength of the feed solution to the large capacity rechlorination feed pump. Dilution of the purchased hypochlorite liquid will allow more accurate chlorine dosages. You should also consider purchasing a feed pump with a maximum capacity of 1.0 gph and a higher head capacity.

When you obtain data on the gallons of hypochlorite usage per day, the resultant chlorine residuals, we can discuss changes in hypochlorite dosages. You should be pumping 0.20 gallons of straight 10% sodium hypochlorite for every 20,000 gallons of water treated for 1.0 mg/l of increase in chlorine residual. For example, for an increase in chlorine residual of 1.8 mg/l for 120,000 gallons treated in six days, you should have used 2.16 gallons of straight 10% sodium hypochlorite.

Once you have installed the sodium hypochlorite solution feed tank, we can begin diluting the 10 % commercial or 6% Clorox so that the sodium hypochlorite feed rate better “fits” the 4.0 gph feed pump. Presently, the use of the 4.0 feed pump with 10% solution requires operating at the very bottom of the feed pump feed range where inaccurate and precise feeding is more difficult to achieve.

Funding for the above assistance was provided through a contractual arrangement between the Kansas Dept. of Health & Environment (State Revolving Loan Program set-aside) and KRWA. Also, visit the KRWA website [www.krwa.net](http://www.krwa.net) for news and information concerning water and wastewater utilities, training opportunities and other KRWA programs.

If you have any questions concerning water supply operations, please contact me.

Again, thanks for opportunity to meet with you.

Respectfully,

S. Patrick McCool, P.E.  
KRWA Consultant

C: Patrick O’Connell  
Richard Thomas, KDHE