

Poughkeepsies' Joint Water Board

***April 2, 2013
4:30 PM***

Poughkeepsies' Water Treatment Facility

Agenda

- 1. Approval of March 5, 2013 Minutes**
- 2. Public Participation**
- 3. Plant Status Report**
- 4. Distribution Model Report**
- 5. 2013 Updated Proposed Capital Budget- Business Plan**
- 6. 2012 Reconciliation**
- 7. Report on Spare Parts for Transmission Main**
- 8. Report on Screening at Low Lift Pump Station**
- 9. Old Business**
- 10. New Business**

Next meeting: May 7, 2013: 4:30 PM

Poughkeepsies' Water Treatment Facility

Capital Improvement Plan 2013

In 2000 we conducted a conceptual design to reduce disinfection by-products (trihalomethane and haloacetic acids) in our distribution system. At that time we selected chloramines. Chloramines are formed by adding ammonia to the treated water which then forms chloramines. Chloramines do not form trihalomethanes or haloacetic acids.

Chloramines were started in 2007. Between 2007 and 2010 we developed significant problems including colored water in multiple locations resulting in need to flush systems frequently.

In August 2010 the Water Board decided to return the distribution disinfectant to free chlorine. Since that decision was implemented we no longer have colored water issues.

At the time of that decision it was known that the potential to exceed the disinfection by-product standard returned. In response to that concern the Water Board directed CH2M Hill to pilot test our water supply to compare current operating procedures to alternatives that have been used by other systems to reduce disinfection by-products. The tests that were conducted were as follows:

1. Enhanced coagulation with polyaluminum chloride at reduced pH
2. Enhanced coagulation with alum at reduced pH
3. Chlorine Dioxide
4. Ozone with Biologically Activated Carbon
5. Metallic Ion Exchange (MIEX)

Results of that testing are presented in Figure 1, entitled THMs Projected LRAA and Figure 2, entitled HAA5s Projected LRAA. Each Figure identifies projections of contaminant concentration over time and the current standard that includes a range from 20-percent less than standard to represent a safety factor based upon abnormal events in the raw water supply.

Figure 1 shows that enhanced coagulation does not meet the condition, while chlorine dioxide will comply for time periods 7 days or less and that ozone and MIEX options easily comply

Figure 2 shows that enhanced coagulation and chlorine dioxide will not meet compliance while ozone and MIEX easily comply.

FIGURE 1
Total Trihalomethane (TTHM) Formation Estimates

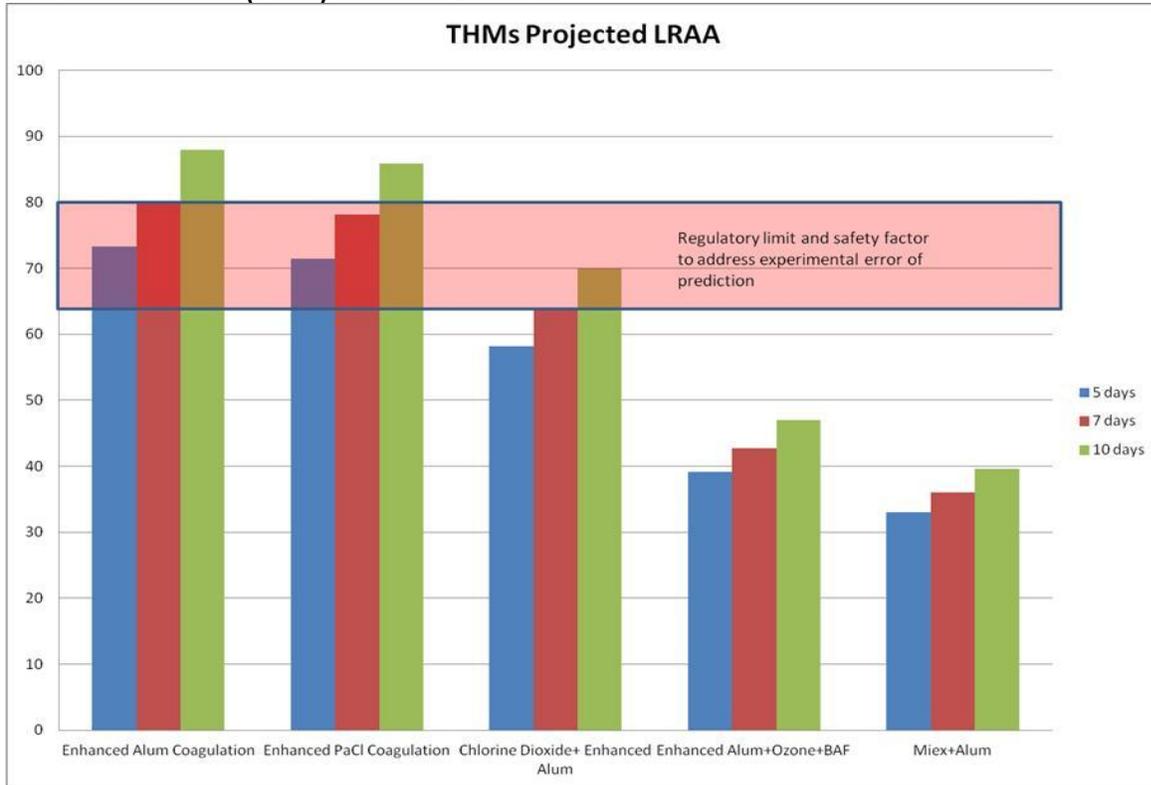
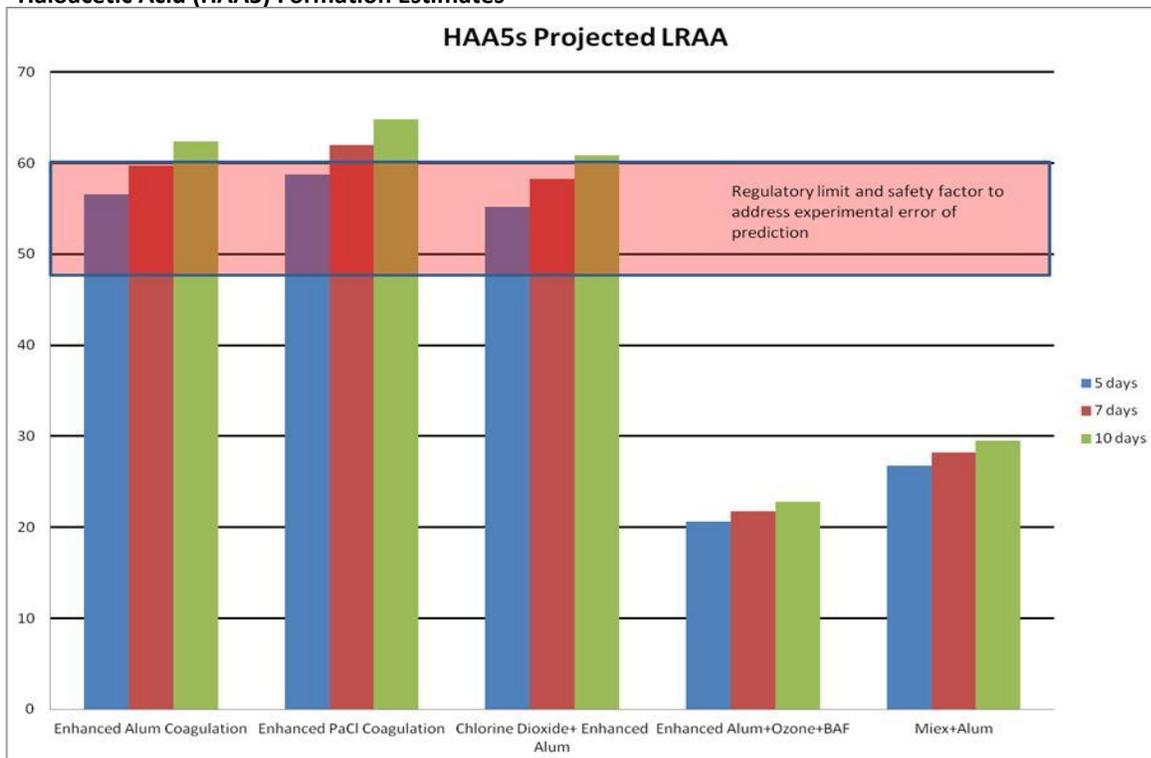


FIGURE 2
Haloacetic Acid (HAA5) Formation Estimates



Based upon Figures 1 and 2 it can be seen that if residence time of the water (water age) is reduced the potential to comply without improvements or implementation of chlorine dioxide may be possible. The Water Board contracted with CH2M Hill and Morris Associates to develop an integrated water model to estimate water age throughout the distribution systems. Results of that model are expected to be presented to the Water Board at the April 2, 2013, Board meeting. In the event the water age cannot be reduced Capital Improvements will be necessary.

Cost of Alternatives

Table 1 presents costs of the alternatives. Under all scenarios costs of pH adjustment for sulfuric acid (H2SO4) and carbon dioxide (CO2) were included. Sulfuric acid will reduce alkalinity which is important in the coagulation and will increase corrosiveness of the water. Carbon dioxide is the safer chemical to handle and will increase alkalinity.

TABLE 1

Phased Approach Estimated Costs (\$M)

Cost Item	pH adjustment		Chlorine Dioxide		Ozone		MIEX
	H2SO4	CO2	H2SO4	CO2	H2SO4	CO2	
Centrifuges	\$ 1.81	\$ 1.81	\$ 1.81	\$ 1.81	\$ 1.81	\$ 1.81	\$ 1.81
pH adjustment	\$ 0.19	\$ 0.53	\$ 0.19	\$ 0.53	\$ 0.19	\$ 0.53	
Chemical Feed Modifications	\$ 0.10	\$ 0.10					\$ 0.10
Chlorine Dioxide			\$ 0.35	\$ 0.35			
New Alum Facility			\$ 1.48	\$ 1.48	\$ 1.48	\$ 1.48	
MIEX							\$ 17.32
Ozone					\$ 9.86	\$ 9.86	
Pipelines			\$ 0.19	\$ 0.19	\$ 0.38	\$ 0.38	\$ 1.71
Construction Total	\$ 0.10	\$ 2.44	\$ 4.02	\$ 4.36	\$ 13.72	\$ 14.06	\$ 20.94
Pilot Testing					\$ 0.30	\$ 0.30	\$ 0.50
Engineering, SDCs (15%)	\$ 0.32	\$ 0.37	\$ 0.60	\$ 0.65	\$ 2.06	\$ 2.11	\$ 3.14
Startup (2%)	\$ 0.04	\$ 0.05	\$ 0.08	\$ 0.09	\$ 0.27	\$ 0.28	\$ 0.42
Project Total	\$ 2.46	\$ 2.85	\$ 4.70	\$ 5.10	\$ 16.35	\$ 16.75	\$ 25.00

Costs shown in Millions

The least cost alternative that will reliably comply with the new standard is ozone at a cost of \$16.35 million if sulfuric acid (H2SO4) is used or \$16.75 million if carbon dioxide (CO2) is used.

A projected phased implementation program that includes 3-percent inflation is shown in Table 2. These costs represent a fast track implementation which could be delayed. Actual timeline cannot be established until all approvals permits and contracts are authorized.

Table2
Disinfection Byproduct Required Upgrades
Based upon 3-percent inflation

Item	Total, 2012	2013	2014	2015	2016	2017	Total
Inflation Factor		1.062	1.094	1.128	1.162	1.197	
Centrifuge Replacement Program							
Design	\$ 271,500	\$ 100,917	\$ 193,064	\$ -	\$ -	\$ -	\$ 293,980
Construction	\$ 1,810,000	\$ -	\$ 495,035	\$ 1,531,260	\$ -	\$ -	\$ 2,026,295
Startup	\$ 36,200	\$ -	\$ -	\$ 40,834	\$ -	\$ -	\$ 40,834
Alum Storage and Feed System							
Design	\$ 222,000	\$ 235,764	\$ -	\$ -	\$ -	\$ -	\$ 235,764
Storage and Feed System	\$ 1,480,000	\$ -	\$ 809,560	\$ 834,720	\$ -	\$ -	\$ 1,644,280
Pipelines	\$ 190,000	\$ -	\$ 207,860	\$ -	\$ -	\$ -	\$ 207,860
pH Adjustment	\$ 222,300						
Ozone Contactor and Feed System							
Design	\$ 1,479,000	\$ 549,744	\$ 1,051,717	\$ -	\$ -	\$ -	\$ 1,601,461
Pilot Testing	\$ 300,000	\$ 318,600	\$ -	\$ -	\$ -	\$ -	\$ 318,600
Construction	\$ 9,860,000	\$ -	\$ 2,696,710	\$ 8,341,560	\$ -	\$ -	\$ 11,038,270
Pipelines	\$ 450,000	\$ -	\$ 123,075	\$ 380,700	\$ -	\$ -	\$ 503,775
Startup	\$ 197,200	\$ -	\$ -	\$ 222,442	\$ -	\$ -	\$ 222,442
Subtotal Disinfection Byproduct Upgrade	\$ 16,518,200	\$ 1,205,025	\$ 5,820,217	\$ 11,351,515	\$ -	\$ -	\$ 18,376,757
Cost Split							
Dutchess County, 2 MGD/19.3 MGD of Upgrade		\$ 124,873	\$ 603,131	\$ 1,176,323	\$ -	\$ -	\$ 1,904,327
City Town Costs		\$ 1,080,152	\$ 5,217,085	\$ 10,175,192	\$ -	\$ -	\$ 16,472,430
City Cost, 10.6 MGD/19.3 MGD		\$ 593,244	\$ 2,865,342	\$ 5,588,448	\$ -	\$ -	\$ 9,047,034
Town Costs, 8.7 MGD/19.3 MGD		\$ 486,908	\$ 2,351,743	\$ 4,586,745	\$ -	\$ -	\$ 7,425,396
TOTAL COSTS		\$ 1,205,025	\$ 5,820,217	\$ 11,351,515	\$ -	\$ -	\$ 18,376,757

IBM Considerations

IBM has approached the Water Board with a plan to discontinue using our water if TOC levels and urea concentrations are not reduced. CH2M Hill stated that either ozone or MIEX project will reduced TOC, however, testing was not performed concerning urea treatment. CH2M Hill proposes to conduct additional testing to confirm urea removal. CH2M Hill is currently preparing an estimate for the testing. In 2012 revenue from IBM water sale was \$1,465,150. In addition to the revenue, IBM's usage is beneficial in reducing unit cost to produce treated water.

Other Recommended Capital Improvements

The following additional items are recommended to be included in the Capital Improvement Plan. The pumps have been in operation 23 to 27 years. The sludge trailers have been in service 16 years.

<u>Cost Item</u>	<u>Date Installed/ Purchased</u>	<u>Estimated cost</u>
Low Lift Pump #1	1991	\$150,000
Low Lift Pump #2	1991	\$150,000
Low Lift Pump #3	1986	\$150,000
Low Lift Pump #4	1986	\$150,000
High Lift Pump #4	1986	\$150,000
Design for Pumps		\$70,000
Sludge Trailers	1997	\$120,000

Cost for Proposed Facility Improvements

Item	Total, 2012	2013	2014	2015	2016	2017	Total
Inflation Factor		1.062	1.094	1.128	1.162	1.197	
Low Lift Pump Replacement							
Design	\$ 35,000	\$ 37,170	\$ -	\$ -	\$ -	\$ -	\$ 37,170
Pump #2	\$ 150,000	\$ -	\$ 164,100	\$ -	\$ -	\$ -	\$ 164,100
Pump #3	\$ 150,000	\$ -	\$ -	\$ 169,200	\$ -	\$ -	\$ 169,200
Pump #1	\$ 150,000	\$ -	\$ -	\$ -	\$ 174,300	\$ -	\$ 174,300
Pump #4	\$ 150,000	\$ -	\$ -	\$ -	\$ -	\$ 179,550	\$ 179,550
High Lift #4 Replacement							
Design	\$ 35,000	\$ -	\$ -	\$ 39,480	\$ -	\$ -	\$ 39,480
Pump #2	\$ 150,000	\$ -	\$ -	\$ -	\$ 174,300	\$ -	\$ 174,300
Sludge Trailers							
	\$ 120,000	\$ -	\$ 131,280	\$ -	\$ -	\$ -	\$ 131,280
Subtotal Plant Required Replacements	\$ 940,000	\$ 37,170	\$ 295,380	\$ 208,680	\$ 348,600	\$ 179,550	\$ 1,069,380

Poughkeepsies' Joint Water Board

***March 5, 2013
Minutes***

Board Members

Mayor, John Tkazyik
Mark Newton
Paul Herman
Todd Tancredi
Rich DuPilka

Others

Randy Alstadt, Administrator
Don Beer, Morris Associates
Scott Volkman, Stenger, Roberts, Davis & Diamond, LLP
Milo Bunyi, City Administer
Doreen Tignanelli, Customer

1. Approval of February 5, 2013 Minutes

Todd Tancredi moved minutes be approved as written. Paul Herman seconded. Board approved 5-0.

2. Public Participation

Doreen Tignanelli stated that Town of Poughkeepsie is looking into composting. Doreen suggested that Town project could be designed to include sludge disposal as there could be savings.

Doreen questioned the status of the screening project at the low lift pump station. Doreen expressed concern that endangered species were found in plant. Randy agreed to provide a status report to Board at the April meeting.

3. Plant Status Report

Randy Alstadt reviewed his written report. Randy stated that plant is operating well. Randy advised that Low Lift Pump #2 was taken in for service today.

Randy stated that his Truck Driver position has not been posted. Randy provided Board a cost estimate for the cost of hauling sludge versus contracting out sludge disposal. Randy stated he contacted three companies that haul sludge and has received only one response from EarthCare for liquid hauling at \$0.205 per gallon. Randy stated his cost for hauling sludge, including depreciation cost for centrifuges, tractor and trailers, is \$0.16/gallon. Randy stated contracting out would be over \$150,000 more than current practice.

Mayor Tkazyik stated he is concerned of overall liability of hauling sludge. Todd Tancredi questioned if we are insured and in what amount. Randy stated that insurance covers the hauling, however he did not know amount.

Todd Tancredi stated that based upon Randy's analysis hauling sludge is cost effective and he agrees process should continue. Mayor Tkazyik questioned if position could be covered by a part time employee. Randy stated that the position is responsible for equipment maintenance, supporting senior mechanics and cleaning which is needed at the facility.

Board agreed that given the position is cost effective we should proceed with hiring the full timetruck driver position.

4. Reconciliation

Randy Alstadt stated at the last meeting Milo Bunyi stated he would try to have reconciliation of plant revenue and expenses for this meeting. Milo Bunyi stated that he is working with Town Comptroller, Jim Wojtowicz and Acting Finance Commissioner, Karen Sorrel to complete this task.

5. 2013 Updated Proposed Capital Budget

Randy Alstadt provided Board costs that include replacing four (4) low lift pumps, one (1) high lift pump, two (2) trailers and improvements identified as recommended option in the Conceptual Design. Randy stated that cost split shown on table includes cost sharing from City, Town and Dutchess County based upon designated capacity. Milo Bunyi stated that annual cost for project will be \$1,052,000 for a 25-30 year loan payment. Milo stated that by summer interest rates could increase to 5 percent or higher.

Mayor Tkazyik stated that impact of upgrade could negatively impact City bonding ability.

Mark Newton stated that Board is waiting on results of distribution model.

Randy Alstadt stated that if Board wants to serve IBM the recommended upgrade is required.

Mayor Tkazyik stated that County is moving forward to take over Hyde Park. Milo Bunyi stated that he is concerned City and Town will spend money to upgrade then County could take over at no cost. Scott Volkman stated that City and Town would be paid for cost of asset

Mark Newton stated that his concern is water quality.

Don Beer stated that there is no reason Water Board cannot negotiate with IBM and County on water sale. Mark Newton stated that IBM has reached out to us. Mayor Tkazyik stated that we cannot negotiate until City/Town sign off on upgrade. Mark Newton suggested negotiations start now and that he is concerned about water quality.

Mayor Tkazyik stated we are waiting on model to determine financial impacts.

Mark Newton stated his opinion is to move ahead with ozone. Mark questioned when model would be completed. Randy Alstadt advised that report is expected at April meeting.

Randy stated that to insure compliance to new standard, ozone will be required. Todd Tancredi stated that he disagreed that ozone is required.

Don Beer stated that Conceptual Report includes a safety factor. Don added that once model is complete we could determine that less costly option could solve disinfection byproduct problem. Don further stated that based upon current operation we are expected to exceed standard in October 2014.

Todd Tancredi stated that Town's problem areas are in the vicinity of the 44 tank and New Hamburg. Todd stated that Board does not have clear understanding of what we are making.

Rich DuPilka recommended that a business plan be prepared. Milo Bunyi stated he only knows current debt service. He also stated that he does not believe ozone is required.

Todd Tancredi stated we need to determine value of action. Don Beer stated Town needs to consider Town improvements versus proposed project.

Mark Newton stated that he believes IBM proposal is negotiable.

Milo Bunyi stated we are not prepared to go to Council with proposal. Mark Newton question process to move forward.

Mayor Tkazyik stated that we need to prepare a business plan. Todd Tancredi agreed. Rand Alstadt was directed to prepare a plan.

6. Spare Parts for Transmission Main

Rich DuPilka stated that he talked to Keith Ballard concerning acquisition of spare parts for the prestressed concrete transmission main the Board is responsible for. Rich expects to develop a list of recommended parts and associated costs for the April Board meeting. Todd Tancredi asked what pipe Board is responsible for. Rich replied that the Board is responsible for transmission main that goes from plant to College Hill Reservoir. Rich stated the main is 36-inch from plant to Fairview Pump Station then 30-inch to reservoir. Rich stated he believes parts could be \$50,000 to \$70,000.

7. Old Business

Mayor Tkazyik asked status and cost of screening at Low Lift Pump Station. Randy Alstadt replied that there has been little progress. Randy stated he would provide a report at the April meeting.

8. New Business

None.

Board set the next regular scheduled meeting to be April 2, 2013 at 4:30 PM.