

Elmira Water Board Electricity Cost Cut by 30%

Howard J. Woods Jr. & Associates completed an evaluation of electrical energy usage at the Elmira Water Board's filtration plant and raw water pumping facilities. This study focused on pumping costs incurred in the normal course of operation of the Board's Water Treatment Plant, a river pump station, and two well fields. In addition, the use of an upland raw water reservoir was also reviewed and its impact on electrical costs was considered. The evaluation identified ten recommendations that have reduced the Elmira Water Board's electrical costs by \$105,000 per year – a 30% reduction in electrical costs for the system!

The recommendations focused on operational changes that can be made to maximize the use of the facilities already at the Board's disposal – not expensive equipment replacements. In addition, several recommendations addressed the need to collect and maintain data in support of an enhanced programmed and preventative maintenance program that will guarantee energy savings into the future. Although the Board's facilities are relatively new, an enhanced maintenance program was developed to maximize and extend the life of these critical assets.

Three of the Ten Recommendations Produce 80% of the Annual Benefit

- Howard J Woods Jr & Associates ranked each of the Board's source facilities by energy consumption and determined that one small well field would consume

more energy per unit volume of water produced than any other pumping operation. We recommended these wells be placed in emergency reserve status until routine maintenance could be performed to improve the efficiency of the wells.

- Although the Board's upland surface water impoundment can be used without pumping, it affects the entire raw water pumping operations adversely. Operating records show that power consumption increases at the main river pump station and the principal well field by an average of 7% when the Reservoir is used. This source will now be used only for emergencies or when scheduled maintenance is needed at the other source facilities.
- Howard J Woods Jr & Associates also showed the Board how to take better advantage of the storage available in the Board's system and the Filtration Plant's variable speed high service pumps. We identified a minimum water level in the high service reservoir to provide adequate disinfection and satisfy the required CT (chlorine concentration times time) value for the system. We also set target pumping

rates for each shift to maximize the savings that could be achieved using the current electric utility time-of-day tariff.

Smart Operations Lead the Way to Consistent Savings

Raw water pump selection drives the cost of the operation at Elmira. By taking advantage of treated water storage,

the operators can select sources in a way that optimizes the fully automated High Service Pump operations at the Filtration Plant. By doing this, the pumps operate at a higher efficiency, thereby reducing electrical commodity costs and lowering demand charges. A method of modifying the existing time of day pumping operations was developed to minimize total pumping costs (demand charges plus commodity charges).

Howard J. Woods, Jr. & Associates LLC is an independent consulting firm in Newtown, Pennsylvania providing a wide range of management and environmental services to municipal and investor owned water and wastewater utilities and related businesses. More information can be obtained by calling 215-579-9912.

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