

Expensive upgrades driven by new regulations: just how much is \$33.7 million?

Just how much is \$33.7 million and what can you do with it? This article deals with what five water systems are or have done to meet the new EPA regulations under Stage 1 Disinfectants & Disinfection Byproducts Rule (D/DBPR). This one new rule is driving very expensive improvements in many places.

Costly upgrades

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Before we get into the cost of upgrading for the D/DBPR, I

want to help you envision just how much money \$1 million is. What does a million dollars look like. Just how big a pile is a million dollars? Do I need a truck to carry it? Well, no, you don't need a truck and you can



put a million dollars in a large briefcase, or a 5-gallon paint bucket. Just to let you know, you can only obtain a million dollars in no smaller denominations than \$100 bills. A pile of one hundred packets of a hundred hundreds would weigh about 20 pounds and be about the size of a 15" television. For some reason they will not offer you the money in anything less than \$100 bills. Too much to carry I guess. My point is that \$1 million is a hefty sum of money, no matter what form it comes in.

What can you purchase for \$1 million? You can purchase:

- 33 full size 4WD pickup trucks
- 2000 TV's
- 200 snowmobiles
- 50,000 music CD's
- 40 university educations
- half a Lear Jet airplane

I don't know what you would do with just half of a Lear Jet. If you were to multiply all of this by the 33.7, you begin to get an idea of the cost that has gone into making improvements in water treatment plants in just five systems. What is it that \$33.7 million is buying? Largely, it's compliance with the new D/DBPR rule.

building to house the new super pulsator clarifiers, 4 new dual media filters, air backwash blowers, and upgrades to the intake pumps, transfer pumps, high service pumps, telemetry and converting to a liquid alum/poly blend.

The 2003/2004 upgrades include baffles in the clarifiers to meet the 6 mgd up flow requirements, two new filters, two new sludge lagoons and additions to the intake pumps, high speed pumps, transfer pumps and upsizing of the intake line to meet the 12 mgd.

The cost of these improvements comes to about

What is it that \$33.7 million is buying for 5 water systems in Kansas? Largely, it's compliance with the new D/DBPR rule.

Miami RWD 2 is in the process of completing upgrades to the plant that was originally constructed in 1985. The upgrades were started in 1999 when the plant was upgraded from 2 MGD to 4 MGD. Some of these improvements included a new



Toby Ross, City of Iola, looks on as construction begins on the city's new treatment plant. Iola's new plant is projected to cost \$10.7 million.

\$6.2 million. When asked about the upgrades, Gerald Bennett, Manager of Miami RWD 2, stated that most of these were driven because of EPA's new D/DPBR requirements.

Heading south, down Hwy 169 to Iola, we find the city undertaking the building of a spanking new water plant adjacent to their present plant. That plant was built in 1930 according to Toby Ross, plant manager and operator. Ground-breaking for the new plant was in June of 2003; it has a completion date in January 2005. This is a \$10.7 million project. It will include a 15,000 sq. foot building with a capability of 4 million gallons per day (MGD) capacity that could easily be expanded to 6 MGD without adding onto the building. Iola's plant includes ozone treatment equipment, a solids contact basins, rapid settling basins, four filters and a total redundancy on all equipment. Funding for the plant was obtained from a low interest loan from the Kansas Public Water Supply Loan Fund. Just as in Miami RWD 2, Toby stated that the main reason for the new plant was EPA's the new D/DBPR requirements. Iola's present plant could not meet these new regulations and building a new plant was far better than trying to refurbish a 70-year old water plant.

Public Wholesale Water Supply District No. 4 (winner of the Nation's Best Tasting Water Award for 2003) is also making improvements to its water treatment plant. The present \$836,000 project will include a new chlorine contact basin, a new block building for the high service pumps with heater and exhaust fan, a 10,600 sq. foot building to cover the three basins that will also have heat and exhaust fans and lighting. Two new 5,000 gal bulk storage tanks for liquid alum and caustic

soda with 150 gal. per day tanks with calibration tubes for measuring flow have also been added. A new carbon room with dust collector and explosive proof heater is in place as is a new chlorine alarm system for leak detection with exhaust fans. They have also installed

a new chlorination station at one of the standpipes with new valves for feeding liquid chlorine and ammonia. Additional changes include a new Scada system, new 100 HP high service pump and a new generator transfer switch located

inside the main building.

Plant Manager Sam Atherton commented that the improvements were driven by the new drinking water regulations. The system hopes it can reduce their daily chemical costs. By building the new



The above photo shows first of a kind chlorine containment equipment used in Kansas. These units each hold a ton chlorine cylinder. The units are part of the improvements being made by the Leavenworth Water Department.

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Jack Sowder, Superintendent at Burlington checks construction of new \$5.6 million water treatment plant.

covered chlorine contact basin, they were able to save several hundred dollars in chemicals per month and more importantly, they were able to lower their THM's and HAA5's to one of the lowest in the state with conventional treatment. The usage of the bulk chemicals has also saved hundreds of dollars per month.

The Leavenworth Water Department which is a separate entity from the City of Leavenworth, has two treatment plants. Leavenworth is in the final stages of their upgrades in early 2004. The \$10,384,000 project is shared between the two water plants. Plant No. 1 (the North Plant) is a surface water treatment plant and Plant No. 2 (the South Plant) is a ground water treatment plant. Don Murphy, Manager of the Leavenworth Water

Department, said that the purpose of the upgrades was to comply with the regulatory requirements of the D/DBPR. Specifically, disinfection improvements were necessary to meet the maximum contaminant level of 0.060 mg/l for haloacetic acids (HAA5's). The system was also concerned about the Interim Enhanced

Surface Water Treatment Rule (IESWTR) requirement which lowered the allowable finished water turbidity from 0.5 NTU to 0.3 NTU. Financing for this project is from the Kansas Public Water Supply Loan Fund. Construction started on November 12, 2002 and is scheduled for completion in February 2004.

Both of Leavenworth's plants will upgrade their chlorine containment systems; get new filter media and air backwash systems, new chlorine contact basins, extensive chemical feed improvements, new instrumentation and control equipment, and also extensive electrical improvements. Major items at the North Plant include replacement of the raw water intake pumps, motors, and check valves. New wash recovery basin at the South Plant is the major item there.

Burlington spending \$5.6 million

Jack Sowder, Manager of the City of Burlington Water Treatment Plant, commented that their new plant is the result of EPA's new regulations concerning THM's and HAA5's. The \$5.6 Million project is scheduled to replace the old water plant built in 1913. The new 126 foot by 140 foot main building will house new vertical turbine pumps, bulk bag carbon feed system, chlorine dioxide equipment, hydrated lime silo, a polymer feed system, chamber filter press, Scada system, clarifiers and concrete gravity filters. Also in the works are improvements on the raw water intakes, and a river bank stabilization project. A new bulk water sales station will be added. This project was started in October, 2003 and is scheduled for completion in late 2004.

The five water systems listed are by no means the only systems upgrading their water



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treatment to comply with the current EPA regulatory requirements of the Stage 1 Disinfectants and Disinfection By-Products Rule. From the smallest to the largest systems, the new rules will affect every system out there. The cost for these improvements will not be known for many years, and as we all know, it is only the beginning. Small systems are being forced to make huge capital investments simply to comply with regulations. My prediction is that there are going to be some small systems in the state that simply will not be able to afford the improvements. They are separated by great distances from neighboring systems. But then again, there's nothing that a truckload of money can't fix.

Watch out: Phase 2 of these regs is coming to a system near you -- soon.

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