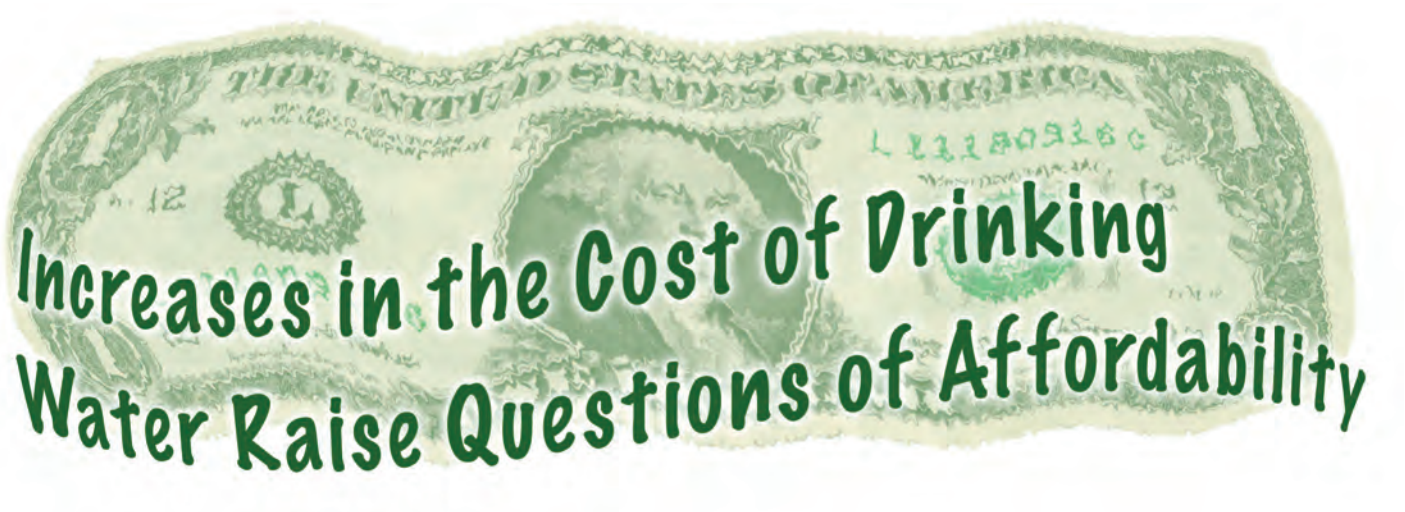
By Pat McCool, KRWA Consultant



Increases in the Cost of Drinking Water Raise Questions of Affordability

In the mid-1990's I recall discussing how to lower the trihalomethanes (THMs) with a water plant manager. We discussed different technologies to meet the maximum contaminant level (MCL) for THMs. I advocated a chlorine contact basin; the manager was considering higher cost ozone addition. The manager is one of the best, if not the best, plant managers I have known; I could not understand his insistence on the higher cost option.

I asked the manager why he favored ozone; he stated something like, "The EPA and the environmentalists want ozonation, carbon adsorption, and microfiltration to remove everything and anything from the water regardless of cost – so we might as well begin now with the ozonation". At the time I did not agree with him because I thought that the cost to the residential and commercial customers would be so high that elected officials and government officials would not proceed. I now can see the possibility that the manager may have been correct many, many years ago.

Government regulations have already increased the customers' price of water and may continue to do so in the near future and long term. Some of the new regulations will affect all water supplies while other new regulations will affect only certain water supplies. Important questions are "Are the new regulations necessary?" and "Is compliance with new regulations affordable?" I want to explain several situations that I consider not good use of resources.

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Sampling costs

I believe a good example of unnecessary costs concerns the recent sampling requirement for consecutive systems to monitor disinfection byproducts (DBPs) under the Stage 2 Rule. Some consecutive systems purchase water that has combined chlorine residual for DBPs control and these systems do not rechlorinate. In most of these cases, the trihahomenthanes (THMs) do not increase in the distribution system and the haloacetic acids (HAAs) are usually the highest at the point of purchase and do not increase in the distribution system. These additional samplings only confirm the level of DBPs from the seller of water and those levels are known in most all cases.

For instance, let's say there are five RWDs that purchase water from the same city, and all five RWDs had to sample for DBPs. This cost of sampling was approximately $1,600 for each, for a total of $8,000 for all five RWDs. The sampling was to determine how much DBPs increase in the distribution systems. The information concerning any increase in DBPs for these five RWDs could have been obtained with much less sampling and costs since the results from all five RWDs would have been similar. For instance, if one RWD was very large and extended 35 miles away from the point of purchase, why is sampling necessary for the small RWD that extended only a few miles from the city?

It has been shown over many years that the DBPs do not increase significantly in most Kansas consecutive systems when combined chlorine is used. Thus, if the water seller that is treating the water meets DBPs requirements, then the consecutive systems will also meet the requirements if the consecutive systems either do not rechlorinate or do rechlorinate properly.

Crypto

Another EPA regulation that has resulted in unnecessary sampling costs is the sampling for cryptosporidium and E. coli by water suppliers that use a river or lake as a water supply source. Costs for the cryptosporidium sampling is in the range of $9,000 to more than $20,000.

What is important in this particular regulation is that the standard that had to be met was on untreated water of the river or lake; that is, the standard does not apply to the drinking water. Why are all other standards on the drinking water instead of the river or lake water? Why is EPA concerned about cryptosporidium in the river or lake when water treatment and filtration remove cyrptosporidium? If the standard is not met in the river or lake, then costly additional treatment may be required. Fortunately, it appears that most, if not all, Kansas surface waters sampled meet the standard and will not require costly improvements to water treatment plants. But there was a lot of money spent sampling rivers and lakes and not sampling the drinking water.

Arsenic

Presently the EPA is reviewing the MCL for arsenic. However, there are scientists outside EPA who are disagreeing with the way EPA looks at the data and the limited data EPA is using. EPA is primarily basing the standards on a study from Southwest Taiwan in 1989.

In its review EPA uses "low-dose" villages in Taiwan that have in common their median village well arsenic concentration of less than 150 micrograms per liter (ug/l), but some of the villages have wells with arsenic concentrations greater than 500 ug/l. These scientists outside EPA have recommended that the EPA review use "low-exposure" villages that have either a mean village well arsenic concentration of less than 150 ug/l or that the maximum village well arsenic concentration be less than 150 ug/l.

Presently EPA is not using a 133-county study conducted over a period of 30 years in the U.S. While that study has some limitations, the Taiwan study also has limitations. It sometimes appears EPA wants data to support a desired conclusion rather than a conclusion from all pertinent data.

The MCL for arsenic had been 50 ug/l until 2001 when it was changed to 10 ug/l. The EPA is now considering using a new cancer slope factor to mathematically determine a new MCL, possibly in the range of 1 to 2 ug/l. Such a MCL for those small water supplies affected would have extraordinary costs with uncertain, undocumented, and questionable health benefits.

What's affordable?

The question that needs to be raised and answered is: "When is a water project not affordable?" Some projects such as extending service, hooking on new customers, or water sales to a consecutive system have some payback and can be considered on an economic return basis. But when the project is to comply with a regulation, then there is no payback in cash flow and, thus, the existing residential and commercial customers must cover all the costs.

The ultimate responsibility of determining affordability has been given to the elected city councils and RWD boards. However, there are two affordability standards that I have heard discussed. I am not sure whether either is correct.

An example of very high costs are the rates in another small town in Kansas where a project was recently completed to comply with EPA regulations. The town now has water rates of $79 for 5,000 gallons and about $100 for 7,000 gallons

Rural Development uses a standard, formally or informally, to determine whether the cost of water is too high for residential customers. The present opinion is $60 for 5,000 gallons. That amount seems high to some but it is also used in some projects that also have 40-year loans.

Forty years is a long time and 40-year loans have some hidden problems that are likely to occur during that time. First, for many, the number of customers and water use in many small towns and RWDs in Kansas may significantly decrease over that time causing water rates to increase further, even if no new expenditures occur. Second, a 40-year loan is just another debt that we are passing onto the next two generations of rate-paying customers.

The third problem with water at costs based on 40-year loans is where is the money for additional projects to comply with new, additional regulations. As with arsenic, EPA is looking at additional regulations for sampling, recordkeeping, and expensive treatment.

The definition of affordability is a matter of opinion. For instance, I have heard many say that the $50 to $60 monthly bills are affordable "for others". I have heard many say the customers of water suppliers using groundwater "are not paying enough" and "should be paying more" so as to discourage "unnecessary" water use. The trouble with all this is that everyone has a different determination on what others should pay. Who decides? Really, what is wrong with economical water or low-priced water rates? Maybe the determination should be left to the local elected officials as much as possible.

An example of very high costs are the rates in another small town in Kansas where a project was recently completed to comply with EPA regulations. The town now has water rates of $79 for 5,000 gallons and about $100 for 7,000 gallons; those costs do not include the sewer charges.

Has that town gone over the line as to what is affordable? Maybe yes; maybe no. But in either case, most would agree that there is no room for future affordable" price increases in that small town. This small town has a median household income (MHI) of $34,600. According to 1999 numbers, the national MHI used by EPA as an affordability test is approximately $40,000. EPA suggests that up to > one percent of MHI is affordable to address any one drinking water regulation. Clearly, this town is paying more than the "affordable" one percent. The issue in this Kansas town is that they still owe debt on their existing facilities, and like numerous other small cities and RWDs, has signed on to purchase water from a new public wholesale district (PWWSD). The cost of water to the customers is substantial when combined with the higher priced water provided by the new PWWSD.

Another small town several years ago needed a treatment plant to meet drinking water standards for its well water. The residential cost of water was estimated to increase from $65 to $82 per 5,000 gallons depending on the grant funding to pay for the treatment plant. The elected officials decided not to build the treatment plant because, in part, the plant was not affordable.

Various national legislation has been introduced to address affordability; see link in the sidebar.

EPA's "New Approach"

U.S. EPA Administrator Lisa Jackson announced new strategies to enhance public health protection from contaminants in drinking water. EPA's new approach is described at www.epa.gov/safewater/sdwa/dwstrategy.html. Administrator Jackson's March 22 speech is linked in the first paragraph of that link.

For further reading, check out these online resources:

EPA Administrator Johnson's recent remarks:
www.epa.gov/safewater/sdwa/dwstrategy.html

Small Systems Drinking Water Legislation, SB 3038
http://epw.senate.gov/public/index.cfm

In her speech the Administrator states that many water supply systems are "under-budgeted" and "rural communities are struggling" to meet present drinking regulations. She also states both that "our financial…. resources are limited" and that "our needs are not negotiable". She is describing two mutually opposed issues. Those are: 1) no monies; and, 2) the need to spend more. The Administrator seems to me to predict a reckoning with "needs" and costs. But she is predicting price increases.

The Administrator discusses the "development and adoption of treatment technologies" that will give smaller systems a chance of tackling the problem.

For many years, the water supply industry has had the technology to treat any water or remove any contaminant. A water supply can always install ozonation, microfiltration and reverse osmosis, and carbon adsorption – but for what benefit, and at what cost? The high costs to small systems will not be lowered by some new development or treatment technology; this is not the computer or microprocessor industry where capability keeps improving and the costs keep coming down.

I encourage everyone to read about EPA's new approach to drinking water and public health at the above link. The new approach states what many may consider very high-minded goals. But the "devil" is in the details not discussed. And the details are the costs of the future regulations.

I do not believe the new approach is so different than the old approach. As I see it, the EPA will promulgate new regulations that will cost water suppliers more and more money, and with questionable benefits. A new approach would be to consider affordability and not passing the debt of what we want now to the future generations.

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