Looking For Results

By: Geert F. Bakker, Manager, PSC Water and Wastewater Division

During a recent seminar, the subject of operations records was repeatedly discussed. Utilities are required to maintain bookkeeping records, budgets, operational records, and accumulate information to be submitted to several agencies. I wondered how any organization can accumulate so many records and still make any sense out of them. At the PSC, we have a large amount of financial and operational data in the Annual Reports filed with us annually by every water and sewer utility in the state. We prepare a compilation of water and sewer utilities by revenue, operating expenses, plant investment and customers served. This gives us a general overview but not much data to analyze for efficiency factors, such as labor cost, cost of employee benefits, and other operational expenses. We have tried to analyze the variances in operational expenses among water utilities. However, without adequate databases this work is very time consuming. Many differences in operating expenses among various utilities exist, but often can be explained by the age and design of the utility plant. Hourly wages paid is a different story. We do get requests from Board members for ‘normal’ wages paid to water and sewer operators in this state. It is difficult to give a realistic wage scale because of the large variance in hourly wages paid, particularly between the large (more than 5000 customers) and small utilities (less than 2000 customers). Often utilities pay what is required to keep operators at the water plant. One wonders though, how a small utility can still advertise a position for an operator at the treatment plant and offer $7.00 per hour.

The operational information in the PSC Annual Report is often incorrect. So (Continued on Pg. 3)

Retention of Operational Records

By: James W. Ellars, P.E., PSC Engineering Division

How well a utility operates is often proportional to how well it maintains system records. Operational records can include any type of data about the physical plant, i.e., treatment plant, collection/distribution system, etc.

Water Rule 2.5 states in part:

“Each utility shall keep on file suitable maps, plans, and records showing the entire layout of every pumping station, filter plant, reservoir, transmission and distribution system, with the location, size, and capacity of each plant, size of each transmission and distribution line, fire hydrant, valve and customer’s service, reservoirs, tanks and other facilities used in the production and delivery of water.....”

Sewer Rule 2.5 contains similar language for sewer utilities.

Here’s a typical scenario: A water utility receives reports of service outages in one neighborhood. A field employee is sent out into the distribution system to perform corrective actions. However, the employee realizes that he’s not quite sure where the valves are in a particular neighborhood, nor does he remember where the lines are located! He considers contacting Charlie (another employee), who has been with the utility for 25 years and knows where everything is in the system. He then remembers that Charlie

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In the last issue of “Pipeline” Rosalie Brodersen briefly mentioned the recent reorganization of the Division of Water Resources (DWR). I would like to expand on that just a little.

In the words of Mark Twain, “What, then, is the true Gospel of consistency? Change. Who is the really consistent man? The man who changes. Since change is the law of his being, he can not be consistent if he is stuck in a rut.” Oh well, what did he know anyway?

The DWR changed greatly on March 16, 2002. Five sections went to three to streamline efforts and promote efficiency. Three new branches were formed to deal with watershed planning, regulatory programs and administration. Director Allyn Turner named Bill Brannon, a 25-year employee, as her sole Deputy Director to help oversee operations of DWR. He will also retain responsibility for the non-point source program. Three new Assistant Directors were named to head the Branches. Pat Campbell, with 12 years experience in DWR, will be in charge of Watershed Development. He will oversee watershed assessments, the development of Total Maximum Daily Loads and other non-regulatory programs. Jerry Ray, with 30 years experience, will be in charge of Administration, which includes the Clean Water State Revolving Fund program and other policy and planning functions. Yours truly was named to head the Permitting and Engineering programs which includes NPDES permits, SRF engineering, safe dams, groundwater, 401 certifications and quality assurance.

These changes will increase efficiency and provide greater focus on DWR’s vision and mission which is to “preserve and enhance West Virginia’s waters for the benefit and safety of all”. The new structure will enable us to combine and share resources and expertise, particularly in the permitting / engineering and administrative areas and will also elevate emerging, environmentally important activities to a more visible stature within the agency. It will also enhance our opportunity to work more closely with other divisions in DEP. Lastly and probably most important is that we believe the public will be better served by these changes which should make DWR more responsive to regulatory and policy issues, while also focusing more attention on nontraditional water protection programs like watershed management and the nonpoint source program.

One of the major issues now facing DWR is implementation of West Virginia’s antidegradation rule developed during the 2001 legislative session. What is antidegradation? The federal Clean Water Act establishes guidelines for states to regulate discharges into state waters. The state also maintains water quality standards to ensure that water uses are protected. The Clean Water Act also mandates that states develop antidegradation policies to further protect waters.

This new rule provides a process to ensure that our high quality waters are appropriately protected and that all waters’ existing uses are maintained. The rule provides for an additional step to be added to the DEP’s water pollution control permit process. The revised permit process will provide for more protection of state waters through expanded collection and review of existing water quality and uses, additional emphasis on alternatives, the inclusion of socioeconomic justifications and expanded inter-governmental reviews and public participation.

All activities that effect West Virginia’s waters will undergo some form of antidegradation implementation. Industries or activities that have point source discharge will be reviewed based on the level of protection required of the receiving stream. Nonpoint source activities must ensure that best management practices have been installed and implemented.

The antidegradation rule outlines four (4) levels of protection for state waters: Tier 1, Tier 2, Tier 2.5 and Tier 3. Tier 2 is the default protection for most waters in the state. Tier 1 protection applies to all waters. Existing water uses and water quality necessary to maintain the existing uses must be protected for Tier 1 waters. This protection level must be applied to all permit application reviews.

High quality waters are given Tier 2 protection, unless a higher protection level is identified. High quality waters are those whose quality is better than the established criteria. New or expanded regulated activities that will cause significant degradation must undergo the Tier 2 review process. This includes alternatives evaluation and socioeconomic importance of the activity.

Although all West Virginia waters receive broad protection by our water quality standards, explicit protection is proposed to be given to over 444 streams under the Tier 2.5 category. Decisions on these Tier 2.5 streams will be made in the immediate future. No significant degradation of a Tier 2.5 stream will be permitted. Finally, Tier 3 protection affords the highest levels of protection to “Outstanding National Resource Waters” contained within five wilderness areas, including Dolly Sods, Laurel Fork North, Laurel Fork South, Otter Creek and Cranberry River. The final stream list has not yet been completed by DWR. Tier 3 waters cannot be degraded.

The DWR has created teams to address implementation of the new rule including Tier 2.5 issues, funding, public outreach and development of guidelines and procedures. The agency is working hard to provide information to the public on antidegradation by using the Internet, brochures and public meetings. Public input is valuable and welcome. Thus far there has been tremendous public interest in this issue. DEP is working hard to implement policies and procedures regarding this new rule.

Antidegradation. Get used to it (and learn how to spell it).

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we wonder what information PSD, Municipal and Association utility board members rely on when making decisions. If the utility management does not know where a main line is located or how old or what size it is, how does management determine when that main must be replaced? How is the cost of a main extension calculated from water or sewer mains when capacity is not evident?

Long-term planning is not a topic at most board meetings. A PSD started planning a central sewer collection system in 1972. It finally built the treatment and collection system in 1999, replacing 24 sewage package plants. Such tenacious planning requires continuity of membership on the board. Public utilities rarely have the benefit of ‘long term’ board members. This is because public elections often determine municipal water and sewer board memberships. PSD board members often join boards to obtain water and sewer to their neighborhood or subdivision and loose interest when that has been accomplished. Being a PSD board member is a public service and has few rewards (not counting the $50 per month). Achievements such as the growth of the system, improvements in operations and in customer service are often the only rewards for a board member. In the District mentioned above, one chairman held the position for 28 years.

The utility boards are informed by its staff what the requirements are for the system, but board members are often reluctant to have rates increased. Or they know that City Council is in no mood to increase rates. Board meetings are often filled with discussions about main extensions, billing adjustments, disgruntled employees and customers, speakers settling political scores or even “who should be allowed to talk”. These meetings are often evidence that 20% of the customers take 80% of management’s time. It is more efficient to delegate all operational decision making to the management based on board approved policies and procedures. The board must stand firm once the decision has been made and support the management and employees when argument heats up and the other party involves the PSC. If your policy is reasonable and applied across the board, it will likely be upheld by an Administrative Law Judge.

Sometimes it is a board member or mayor who will attempt to manage the utility. If you as a board member arrive regularly at the utility office (other than Board meetings) and immediately become engrossed in business decisions, you may be doing the utility more harm than good because you are not letting the manager do his job. It is also easy to become involved in employee disputes, or create disputes when employees manipulate the board member. Many Public Service District board members make very good managers, which has been demonstrated in the past by several board members who became managers. However, a Public Service District board member must resign and wait for a year before he can become employed by a district.

So how can board members become more effective in planning for the long term utility needs in the service area? How can a board have more control over the operations of a water and sewer system? When a board delegates the operational details to the employees and concentrates on the final results of the operation, guiding the operation will take less time and the board will have better control. The board must stop making operational decisions but make sure that the utility achieves the goals that the board has set. These goals or performance standards are not only reflected in the financial budget, but also in the reports filed with the Department of Environmental Protection or Bureau of Public Health. Management and the board must agree on these performance measures, so it is important to involve employees in this performance standard setting process.

The financial budget contains the financial plan of the utility and reflects the board’s expectation for management’s control of the operations. The budgeted amounts are compared each month to actual financial results. The board can easily detect major variances. These variances must be investigated, explained, and a decision must be made to modify the budget for future periods if the change in operating expenses may be expected to continue in the future. The board must receive this information monthly (every board must insist on it!). The board and employees will have up to date information on collections, accounts outstanding, revenues, and expenses. However, there are many factors that may influence variances with budgeted amounts. If a new office employee replaces an experienced billing and collection clerk, the collections of customer bills can be expected to fall. An inexperienced field employee will make more mistakes and waste more materials. What is the real cost of not providing thorough employee orientation for a new em-
ployee? It is necessary to provide job descriptions and performance expectations that contain the utility’s expectations of the employees. These orientation sessions inform the employees what the board will do to help them reach that standard of performance. Performance standards define acceptable levels of operation, such as:

* the number customer bills outstanding over
  * 60 and 90 days
* the number of meters can be read by employees
* the number of customer complaints and disputes

Other standards define operational procedures such as:

* how water and wastewater tests are completed
* procedures for accepting deliveries to the plant (chemical deliveries could pose a danger) procedures for purchases (purchase orders) and inventory withdrawals
* inventory controls
* use of work orders
* processing customer complaints
* required training for new employees

Many other procedures for plant operations are possible, such as safety procedures and minimum quality requirements for pipe etc.

It is also important for the board to review all reports filed with regulatory agencies, and inspection reports prepared by regulatory agencies. The Department of Environmental Protection’s Facility Inspection Report gives an excellent summary of the PH and DO numbers for treatment plant’s operations and are easily compared from month to month. The Bureau of Public Health’s Turbidity Report provides information detailing the treatment plant’s operation over a time period. Changes are readily observed. Ask for explanations!

Once the board has implemented these performance standards and controls, The board and management can attempt to improve these performance standards. These improvements are often a result of suggestions by the staff. Management must attend board meetings in order to inform the board and to be aware of the board’s objectives for the utility. If the utility has both office and operations managers, both should attend the board meetings so the board can have full information and direct both managers. The board may set expectations for the utility, e.g. that the unaccounted for water percentage shall not exceed 15%, or the Inflow & Infiltration be reduced to 20%. The board also may decide on organizational goals, such as a resolution to provide water to ‘Dry Hole Mountain’ in two years and ask management to pursue the necessary steps. The board can ask management to implement a preventive maintenance program when unexpected breakdowns continually create cost overruns over budgeted amounts. The initial budgeted cost for maintenance will be higher, however, there will be cost savings when water outages decrease and customer relations improve.

Of course, often those goals are set by regulatory agencies. Both the Department of Environmental Protection and Bureau of Public Health perform inspections and report their own expectations of corrections to be made to the systems operations. The utility has to address these ‘deficiencies’ because it is often difficult to obtain funds for projects if the Infrastructure Council members have no confidence in utility management. Utilities that complete projects also get the grant and loan funds. Those utilities that plan a project only when grant funds are available, will do very few projects and are often not able to keep their present system in good condition.

Tracking results of operations against the performance standards, will be much easier when the board has clarified expectations. The employees must document the results and when the summaries are provided to the board several days before the meeting, the board members will be able to ask informed questions. This saves time for everybody. This time saved can be used to attend to future needs or plans of the utility.

In conclusion, when you review the functions of the board in controlling the utility operation, also look at the role the employees play. The employees have to collaborate with the board in implementing the various controls, policies and procedures. This is an ongoing process where performance standards and procedures are evaluated continuously. The board and employees have to form a team that acts to provide the best service at the lowest possible cost. This participation in problem solving and planning helps all team members develop professionally and personally, while the organization elevates its performance in terms of service to current and future customers. In the long term, this will lead to retaining good board members and competent employees.

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Retained and moved to Florida last month. What does he do? The last time the old system maps were seen was on the floor in Charlie's office at the old treatment plant!

This type of scenario happens from time to time in utilities with little or no record-keeping system. All water and sewer utilities are required by Commission Rules to maintain detailed maps and records of their systems. Regardless of the regulatory requirements, it makes good operational sense to know where your facilities are, and what the system capacities are (line sizes, tank sizes, pump sizes, etc.). It is also a necessity in order to react to emergency situations where time is of the essence, and quickly finding a valve in the middle of the night makes the difference between a short outage and a long one. Such records not only have to be safeguarded, but also need to be updated frequently (usually once per year at a minimum). Having accurate, updated system records ensures that a utility can respond to emergencies quickly, react to requests for service faster, and maintain its system more efficiently.

Water Conservation During Drought

By: Susan Brown, Utilities Analyst, PSC Water and Wastewater Division

There has been a lot of discussion about the weather and the fluctuation of temperatures as well as precipitation. We are experiencing drought conditions but are we doing enough to avoid an emergency situation? We all use water, but at times we use it like there is an unlimited supply. The following tips were found at the American Red Cross web site under Drought.

Indoor Use: General

• Never poor water down the drain when there may be another use for it. Use it to water your indoor plants or garden.
  • Make sure your home is leak-free. When you are certain that no water is being used in your home, take a reading of the water meter. Wait 30 minutes and then take a second reading. If the meter reading changes, you have a leak!
  • Repair dripping faucets by replacing washers. One drop per second wastes 2,700 gallons of water per year!

Bathroom

• Check for toilet leaks by adding food coloring to the tank. If you have a leak, the color will appear in the bowl within 30 minutes. (Flush immediately to avoid stains.)
  • the toilet handle frequently sticks in the flush position letting water run constantly, replace or adjust it.
  • Leaky toilets usually can be fixed inexpensively by replacing the flapper.
  • Install a toilet displacement device to cut down on the amounts of water needed for each flush. (Contrary to popular opinion a brick should not be used because it can dissolve and the lose pieces can cause damage to the internal parts. Instead, place a one-gallon plastic jug of water into the tank to displace toilet flow or purchase a device available at most hardware and home centers designed for this purpose.) Be sure the installation does not interfere with the operating parts.
  • Consider purchasing a low-volume toilet that uses less than half the water of older models.

NOTE: In many areas, low-volume units are required by law.

• Take shorter shower.
  • Replace your showerhead with an ultra-low-flow version.
  • Place a bucket in the shower to catch excess water for watering plants.
  • In the shower, turn the water on to get wet; turn off to lather up; then turn the water back on to rinse. Repeat when washing your hair.
  • Don’t let the water run while brushing your teeth, washing your face or shaving.
  • Void flushing the toilet unnecessarily. Dispose of tissues, insects, and other familiar waste in the trash rather than the toilet.

Kitchen

• Operate automatic dishwashers only when they are fully loaded. Use the “light wash” feature if available to use less water.
  • When hand washing dishes, save water by filling two containers - one with soapy water and the other with rinse water containing a small amount of chlorine bleach.
  • Most dishwashers can clean soiled dishes very well, so dishes do not have to be rinsed before washing. Just remove large particles of food, and put the soiled dishes in the dishwasher.
  • Store drinking water in the refrigerator. Don’t
Does your utility have a leak adjustment policy? Does it limit customer adjustments only to underground leaks in the customer’s service line? Do you give adjustments for water leaks that occur in the customer’s house? How many leak adjustments should you allow for one customer? Should leak adjustments even be allowed? After all the water did run through the meter and it costs the utility money to make the water. What can be done about a customer who refuses to fix their leaking pipes and then continuously asks for a leak adjustment? Do leaking commodes and dripping faucets qualify for leak adjustments? These are just some of the questions and complaints that Staff sees on a reoccurring basis.

The Public Service Commission’s General Order No. 188.12 dated October 11, 1995, dealt with revisions to the rules and regulations of water utilities. In this General Order the Commission discussed many of these leak adjustment issues. The Commission promulgated a rule change requiring leak adjustments in 4.4.3. Several parties generally opposed mandatory leak adjustments. They believed that adjustments send the wrong signals to customers regarding maintaining their lines. According to the order the Commission believes that leak adjustments are reasonable. The utilities recover their costs of treating the water. However, they should not receive a windfall by being allowed to recover their full base rate for the excess lost water.

Several parties argued that it is difficult to determine the incremental cost of treatment. They argued that incremental costs vary from district to district and over time. The Commission agreed that determining incremental costs may be difficult. The Commission Staff performed an internal study in an attempt to determine a reasonable average incremental cost of treating water statewide. They modified the rule to allow utilities to use either their own incremental costs or the Commission’s estimate of “typical incremental cost.” The Commission encouraged utilities to use their own actual data especially if their incremental costs are higher than the Commission estimated ($0.75 per thousand gallons). However, after a utility has a rate case, its incremental cost of production should be known. As part of a rate case, the incremental costs calculated and placed in the tariff as the amount the utility will use in the event of a leak adjustment. After incremental costs are determined in a rate case, the utility can no longer have the option of using the Commission’s estimate.

Several utilities requested that the rules have some provision requiring the customer to prove that the unusual usage was caused by a leak. The Commission stated that utilities, in their written policies, could develop reasonable proof requirements. The Commission declined to do so generically for all utilities. The Commission adopted a rule change that allowed utilities to charge for historic usage as opposed to average usage.

Some utilities suggested applying the leak adjustment only for underground leaks. Other utilities complained that the policy would require adjustments for leaking commodes and faucets. The Commission declined to limit the rule to only underground leaks. However, the Commission stated that it did not believe that the rule should apply to leaky commodes, dishwashers or other appliances. The Commission did place an exclusion in the rules to prevent adjustments in those circumstances. The adjustment was intended to be applied for major leaks such as pipes which break.

Several utilities suggested a limit per time period on the number of leak adjustments that should be given to a customer. The Commission declined to adopt the suggestion saying that they believed it unlikely for the same customer to need frequent adjustments.

In summary, all utilities are required to have a leak adjustment policy. They may use the Commission’s estimate of $0.75 per thousand gallons until they have a rate case with the Commission, at which time the incremental cost will be determined.

The utility should establish reasonable proof requirements for leaks as part of their leak adjustment policy. Good judgement on the part of the utility may be required as to the reasonableness of proof. In complaint cases the Commission Staff actually investigates the customer’s residence for signs of reasonable proof.

How many leak adjustments should you allow for one customer and what can be done about a customer who refuses to fix their leaking pipes and then continuously asks for a leak adjustment? The Commission declined to limit the number of adjustments a customer can receive. However, water rules 4.9.1 states that any utility may decline to serve an applicant until he has complied with the State and municipal regulations governing water
let the tap run while you are waiting for the water to cool.
  • Do not use running water to thaw meat or other frozen foods. Defrost food overnight in the refrigerator, or use the defrost setting on your microwave.
  • Do not waste water waiting for it to get hot. Capture it for other uses such as plant watering or heat it on the stove or in the microwave.
  • Clean vegetables in a pan filled with water rather than running water from the tap. Reuse the water that vegetables are washed in for cleaning or watering plants.
  • Kitchen sink disposals require lots of water to operate properly. Start a compost pile as an alternate method of disposing of food waste, or simply dispose of food in the garbage.

Laundry
  • Operate automatic close washers only when they are fully loaded or set the water level for the size of your load.

Long Term Indoor Water Conservation
  • Retrofit all household faucets by installing aerators with flow restrictors.
  • Consider installing an instant hot water heater on your sink.
  • Insulate your water pipes to reduce heat loss and prevent them from breaking if you have sudden and unexpected spell of freezing weather.
  • If you are considering installing a new heat pump or air-conditioning system, the new air-to-air models are just as efficient as the water-to-air type and do not waste water.
  • Install a water-softening system only when the minerals in the water would damage your pipes. Turn the softener off while on vacation.
  • When purchasing a new appliance, choose one that is more energy and water efficient.

Outdoor Use:
  General
  • If you have a well at home, check your pump periodically. If the pump turns on and off while water is not being used, you have a leak.

  Car Washing
  • Use a shut-off nozzle on your hose that can be adjusted down to a fine spray, so that water flows only as needed. When finished, turn it off at the faucet instead of at the nozzle to avoid leaks. Check hose connectors to make sure plastic or rubber washers are in place to prevent leaks.
  • Consider using a commercial car wash that recycles water. If you wash your own car, park on the grass so that you will be watering at the same time.

  Pools
  • If you have a swimming pool, consider installing a new water-saving pool filter. A single backflushing with a traditional filter uses 180 to 250 gallons of water.
  • Cover pools and spas to reduce evaporation of water.

service and the Commission approved rules and regulations of the utility. Water rule 4.9.2 states that the utility may refuse to serve an applicant if, in its judgement, the applicant’s installation of piping equipment is regarded as hazardous or of such character that satisfactory service cannot be given.

Do leaking commodes and dripping faucets qualify for leak adjustments? Water rule 4.4.3.a. states that each utility shall develop and implement a written policy concerning the adjustment of customer bills where the bill reflects unusual usage which can be attributed to leakage on the customer’s side of the meter. Leaking commodes, dripping faucets, malfunctioning appliances and similar situations shall not constitute leaks which entitle the customer to a recalculated bill.

Hopefully this answers some questions regarding leak adjustments. If you have any questions you may contact the Commission Staff. If you would like to read the Commission’s General Orders in their entirety you may do so on the Commission’s website <www.psc.state.wv.us/>.
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