Kentucky DOW

Annual Report

Fiscal Year 2008

Commonwealth of Kentucky
Energy and Environment Cabinet
Department for Environmental Protection
DOW

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Kentucky
UNBRIDLED SPIRIT

From the Director

Dear Reader,

I am pleased to present the inaugural Division of Water (DOW) Annual Report. This report is an appropriate forum for the division to present the most significant issues and challenges facing the division, as well as the division's approach to and status in addressing these issues and challenges.

The past year has brought both progress and new challenges for DOW. We have made significant inroads toward reducing and eliminating permit backlogs. Much of this was gained by redirecting division resources to these issues and by streamlining our permitting processes. The division is also increasingly turning to Web-based applications and other electronic procedures that will serve the division and our customers by reducing paperwork and data entry, expediting the permit process and enhancing the customer's understanding of his or her permit status.

Like all agencies, DOW is realizing very significant budget reductions, both in federal grants and in general funds received from the legislature. Such budget challenges translate directly to the number of personnel the division can sustain, which in turn dictates what the division can accomplish in terms of its obligations and requirements. In this stark budgetary environment, we must determine where we are going to focus our efforts and how we can improve our efficiency and our efficacy. In this light, the division has undertaken valuable planning that has resulted in substantial changes in the division's structure and priorities. The division's management team established programmatic, organizational and process-improvement priorities for the next biennium. Subsequently, the division has been reorganized to better address these priorities, utilize synergies created by the new structure and provide for more efficient and effective processes and improved customer service.

As we move forward in the next year, DOW will continue to build on recent accomplishments. In addition to implementing programmatic, organizational and process-improvement priorities within the division's new structure, we will begin conducting a systematic evaluation of our business processes using lean management principles with assistance from the University of Kentucky College of Engineering's Center for Manufacturing.

This report intends to provide the reader with an understanding of the status and trends of many of the more important issues facing DOW and the commonwealth, and what the division has addressed and accomplished over the past fiscal year. It is my hope that this report will provide you with a better understanding of issues regarding protecting Kentucky's waters and the division's approach to these issues. As this is the first of such reports, DOW welcomes feedback, especially suggestions for future reports. If you would like to comment on this or future reports, please contact us at water@ky.gov and let us know what you think. Thank you for your interest and taking the time to read this report. If you have any questions, you may contact Peter Goodmann at peter.goodmann@ky.gov or Jo Blanset at jo.blanset@ky.gov for more information.

Sincerely,

Sandra L. Gruzesky, Director
Kentucky DOW

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Introduction

Thank you for taking the time to learn about the Division of Water (DOW), our working projects over the past year, our challenges and priorities, and what we anticipate in the years to come.

DOW's mission is to "*manage, protect and enhance the quality and quantity of the commonwealth's water resources for present and future generations through voluntary, regulatory and educational programs.*" DOW is the primary agency responsible for implementing and enforcing most of the federal Safe Drinking Water Act and Clean Water Act programs in Kentucky. The division is also responsible for implementing and enforcing numerous state programs authorized by the legislature and designed to protect Kentucky's human health and environment. This report means to illustrate how the DOW is carrying out its mission, to explain the challenges facing the division and the commonwealth, and explain the division's approaches to facing these challenges.

DOW faces numerous environmental, infrastructural, programmatic and technical challenges. The division's management team met in 2008 to evaluate these challenges in the context of an austere budget environment. We worked to prioritize the issues on which we will expend the division's limited resources. The division also reorganized to a structure we believe will better help us to carry out our mission and address our priorities through the implementation of our operational plan (see Appendix A).

Amongst the most profound of challenges facing the division and the commonwealth as a whole are the managerial and financial challenges presented by an aging water and sewer infrastructure. The latest Clean Water and Drinking Water Infrastructure Needs Surveys, which estimate the magnitude of investment needed now and in the future for wastewater and drinking water infrastructure, indicate that Kentucky will have more than $5 billion in documented needs over the next 15 years. This conservative estimate does not account for all the water and wastewater needs of systems that did not participate in the surveys. Nor does it account for the needs of our rural population, many of whom do not live within the service area of public water and, especially, public sewer systems.

Most of Kentucky's existing water and sewer infrastructure was built decades ago and is nearing the end of its useful life. This fact is reflected in the occurrence of combined sewer overflows (CSOs), sanitary sewer overflows (SSOs), failing wastewater treatment plants, wastewater treatment bypasses, line breaks and increasing water losses in water distribution systems. These issues are not just challenges for system management, but represent real public health and environmental risks. Waning federal assistance and increasingly limited state financial assistance are forcing local governments to raise the funds needed to upgrade and replace aging infrastructure. Kentuckians will continue to realize the real cost of water and sewer service, including infrastructure funding, treatment, collection, distribution, operation and compliance with federal law, through increased rates for water and sewer service. These costs reflect more realistically the cost to maintain the public health, environmental and socioeconomic benefits that result from having a reliable and safe water infrastructure. Infrastructure costs are inherently capital intensive and require substantial initial investment. However, it must also be understood that the issues being addressed via this infrastructure are long term and will serve our children and our children's children.

Among other issues, the sustainability challenges we face will bring into question the sustainability of small water and sewer systems, which dominate our infrastructural landscape. How do we evaluate the technical and managerial capacity of small systems? How do we assess the financial capacity of small systems to operate, maintain and replace aging infrastructures? We must at least find alternatives to traditional approaches of management and financing of such systems. Properly planned, designed, built and managed water and sewer infrastructure is essential for communities to achieve and sustain their environmental, economic and social goals. DOW plays a significant role in this issue. The division believes that integrated planning and permitting have proven to provide better protection for water resources and more affordable solutions to water and sewer problems. The division's approach will embrace integrated, holistic planning and permitting.

DIVISION OF WATER MISSION STATEMENT

To manage, protect, and enhance the quality and quantity of the commonwealth's water resources for present and future generations through voluntary, regulatory and educational programs.

The DOW Operational Plan is intended to serve as a road map toward accomplishing its mission, taking into consideration current environmental, regulatory and resource conditions. The division has identified four major objectives in this endeavor:

1. Develop sustainable permitting programs that provide sound decisions in a timely manner.
    a. Implement organizational structure that provides cross-program training and flexibility in assignment of staff to meet needs as they arise.
    b. Evaluate processes to improve efficiency.
    c. Identify activities that are not providing sufficient added value and target for elimination, or shift to other responsible parties.
    d. Update fee regulations to provide resources to meet federal and state obligations and improve permitting programs.
2. Protect and improve water quality.
    a. Fully implement wet weather compliance programs.
    b. Reduce pollutants in surface waters.
    c. Develop and implement watershed plans or Total Maximum Daily Loads (TMDLs) as appropriate.
    d. Develop an outreach strategy for elected officials and the public regarding water quality.
    e. Implement new organizational structure to improve efficiencies in assessment and analysis of water quality conditions and trends.
3. Ensure the integrity of water infrastructure through proper planning and promotion of sustainable infrastructure concepts.
    a. Promote EPA's Sustainable Infrastructure Initiative.
    b. Improve efficiency and decision making regarding water infrastructure.
4. Focus compliance efforts to meet federal and state obligations and promote objectives 1-3 of the division's operational plan.
    a. Meet federal and state obligations.
    b. Promote objectives 1-3 of the DOW's Operational Plan.
    c. Improve efficiencies in compliance determinations.

Each objective has several broad focus efforts that are key components toward accomplishing the objective, called tactics. Each tactic is further defined by specific actions intended to promote the accomplishment of the tactic. These actions are the activities the division intends to exert focused efforts toward completing during State Fiscal Year (SFY) 2009.

Division Reorganization

In 2008, a structural reorganization was implemented to allow DOW to address, in a more efficient manner, the numerous complex issues associated with protecting human health and the environment. Efficiencies are achieved by reducing administrative groups in DOW (branches and sections) and directing resources to programmatic priorities and needs, organizational priorities and process improvements. Additional benefits of this reorganization include an improved ability of DOW to address its priorities and accomplish its mission, facilitation of cross-program communication and cooperation and the enhanced ability to respond to the future demands for water resources and water quality planning and protection.

Water resources protection, management and planning are accomplished most effectively when performed on a watershed basis. When watersheds are evaluated holistically, the various conditions at play in the watershed are considered in relation to one another as decisions are being made. This watershed approach is a coordinating framework for environmental management that focuses public and private sector efforts on selected priority problems within hydrologically defined geographic areas, taking into consideration both groundwater and surface water flow, quality and stressors. The division's previous organizational structure did not sufficiently integrate the various programmatic functions (drinking water, water quality, floodplain management, etc.) in a way that promoted decision making on a watershed basis. This resulted in lost opportunities and synergies for advancing the division's goals and objectives.

The division's management team identified four primary functions that serve as the foundation of all of the work performed by the division. They consist of:

1. Permitting of activities that use or impact water.
2. Planning for and ensuring the integrity of water infrastructure.
3. Protecting and improving water quality.
4. Focusing compliance efforts.

The reorganization allows each branch and section to focus on the programmatic activities necessary to accomplish its individual tasks associated with the four foundational functions, while considering them in the context of a watershed framework. Additionally, this reorganization facilitates focused resources and delegation to identified division priorities. These priorities include:

- Development of sustainable permitting programs that make good decisions in a timely manner.
- Improvement of water quality and protection of human health by fully implementing wet weather compliance programs.
- Development of a culture of sustainable infrastructure in the commonwealth that promotes the four pillars of EPA's Sustainable Infrastructure Initiative.

The organizational structure was developed in a collaborative effort of the division's management team with solicited input from key division staff.

The new division structure consists of the director's office and six branches: the Surface Water Permits Branch, the Water Infrastructure Branch, the Watershed Management Branch, the Water Quality Branch, the Compliance and Technical Assistance Branch, and the Resource Planning and Program Support Branch. This new organization represents a reduction of three branches from the previous organizational structure.

Surface Water Permits Branch

The Surface Water Permits Branch (SWPB) consolidates many of the activities associated with issuing permits that have a direct impact on surface water. The branch issues operational permits for wastewater and storm water discharges, construction permits for new and expanded wastewater treatment plants and floodplain construction permits. Additionally, this branch implements compliance programs that are closely integrated with the permits it issues, such as the wet weather compliance program (the CSO/SSO program, the municipal separate storm sewer (MS4) program, the pretreatment program, and the whole effluent toxicity (WET) program). SWPB consists of five sections: the Construction and Compliance Section, the Operational Permits Section, the Wet Weather Section, the Floodplain Construction Section and the Permit Support Section. The division anticipates numerous benefits associated with this new branch structure that directly promotes the division's priorities. Efficiencies are gained by consolidating engineering resources that can be directed toward eliminating backlogs in permitting actions, better integration of programmatic functions that were previously segregated and promotion of watershed-based considerations in decision making and regulation development. Finally, creation of a Wet Weather Section provides for better implementation of the wet weather compliance programs that have a direct impact on water quality.

Water Infrastructure Branch

The Water Infrastructure Branch (WIB) consolidates the activities associated with water infrastructure planning, construction, management and funding. The branch is responsible for drinking water and wastewater planning; permitting of water line extensions, sewer line extensions and dams; evaluation of management of public water systems, publicly owned wastewater treatment works and dams; and implementation of the technical components of federal Special Appropriations (SPAP) grants and the Clean Water and Drinking Water State Revolving Loan Funds (SRF). These tasks are performed within the context of promoting EPA's Sustainable Infrastructure Initiative, which is intended to address the challenges associated with aging infrastructure and meet the demands for new infrastructure. The branch focuses on making decisions that are consistent with the four pillars of the sustainable infrastructure initiative (improving infrastructure management, full-cost pricing, efficient water use to minimize the demands on infrastructure and watershed approaches to protection and management of water resources). WIB consists of the Wastewater Municipal

Planning Section, the Drinking Water Capacity Development Section, the Engineering Section, the Dam Safety and Floodplain Compliance Section, and the SRF and SPAP Section. It will eliminate redundancy and backlogs by integrating the engineers who evaluate water and sewer line extensions. Integration of these programs will also provide decision making and regulation development within the context of a watershed framework to remain consistent with the division's priority of promoting sustainable infrastructure concepts.

Compliance and Technical Assistance Branch

The Compliance and Technical Assistance Branch (CTAB) is primarily responsible for monitoring compliance, initiating enforcement and providing technical assistance for all water programs. This branch is composed of 11 sections that include the Drinking Water Compliance and Technical Assistance Section and 10 regional field offices located throughout the state. The branch ensures that compliance efforts are focused toward promoting the division's priorities within the context of the watershed framework. By consolidating the drinking water compliance and technical assistance components within the current Field Operations Branch, the division hopes to achieve improved coordination and efficiency of inspection and compliance efforts for public water systems throughout the state, a better understanding of drinking water program implementation among inspectors and consistency in inspection and enforcement processes. A technical and regulatory advisor for drinking water program implementation is assigned to the branch manager.

Watershed Management Branch

The Watershed Management Branch (WMB) is responsible for working with division programs, other agencies in the public sector and private sector interests to promote and implement a watershed approach to managing the water resources of the commonwealth. This structure appropriately integrates groundwater and watershed management efforts within the division, integrates wellhead protection and source water protection activities with water supply planning, and provides geological technical expertise to the water withdrawal permit program and water quantity management. The establishment of the GIS and Data Analysis Section within WMB provides for comprehensive management of water quality data and promotes the analysis of water quality and other data to provide tools for improved implementation of watershed management principles. Merging the basin coordinators with the Nonpoint Source Section integrates the watershed basin coordination and outreach efforts with the financial, technical and education/outreach expertise and assets in the Nonpoint Source Section.

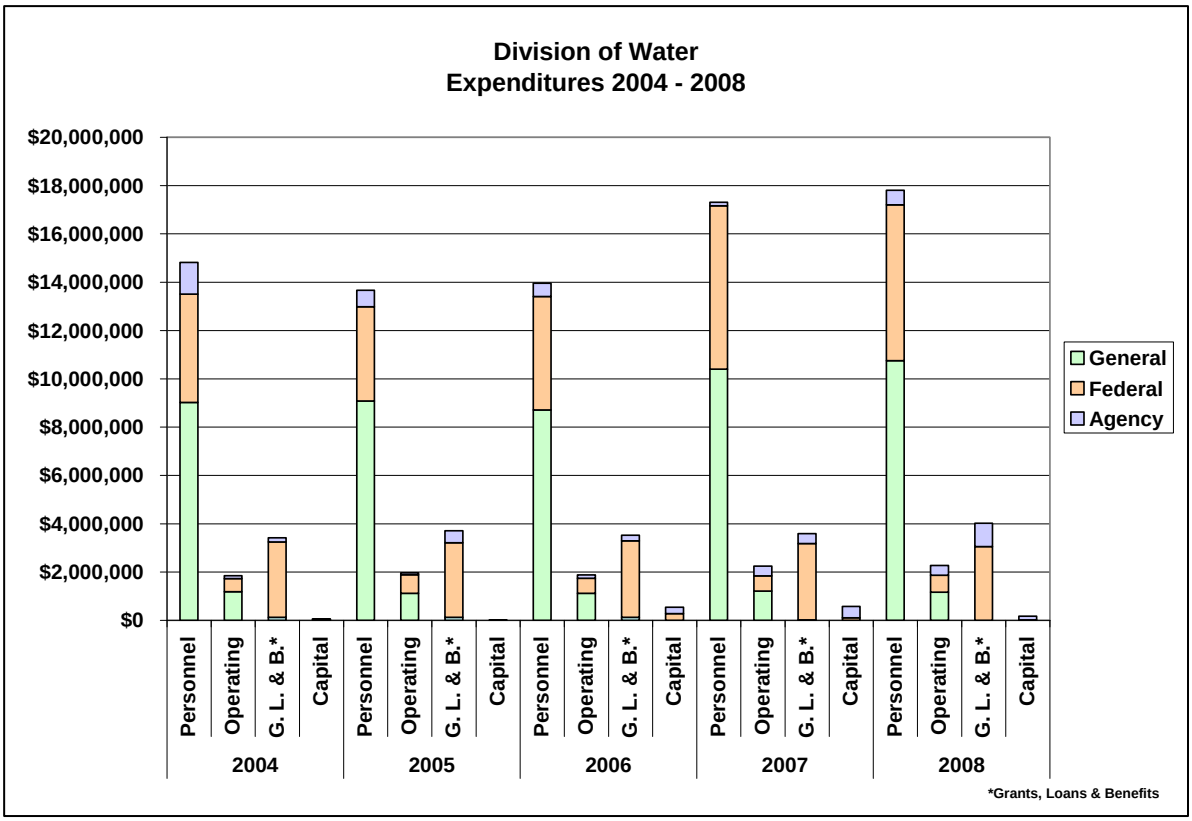
Water Quality Branch

The Water Quality Branch (WQB) is responsible for various functions that assess and protect surface water quality. These functions include the development of water quality standards; monitoring, assessment and reporting of surface water quality; assessment and

modeling of pollutant loadings for impaired waters; and implementation of the Water Quality Certification Program for construction activities that result in the placement of dredged or fill material into the waters of the commonwealth and that require a 404 permit from the U.S. Army Corps of Engineers. The WQB has three sections – the Monitoring Section, the TMDL Section and the Water Quality Certification Section. The branch function has not changed substantially; however, there were minor revisions to the organizational structure. Personnel responsible for assessment of surface water quality were combined into the Monitoring Section so that their efforts could be better coordinated. The individuals in the Water Quality Branch responsible for analyzing and assessing data were assigned to the GIS and Data Analysis Section in the Watershed Management Branch. This reassignment promotes the comprehensive evaluation of data in the division from a watershed context. The only other change is the addition of a staff person to the Water Quality Certification Program to address backlog concerns. The individual responsible for development of water quality standards reports directly to the branch manager.

Resource Planning and Program Support Branch

The Resource Planning and Program Support (RPPS) Branch is responsible for planning, coordinating and facilitating most of the administrative, financial and infrastructural functions of the division including the development and management of the division's budget. The RPPS Branch is composed of five sections. The Program Support Section facilitates division training needs, receives and pays invoices, tracks inventory and orders all equipment and supplies for the division. The Grants Management Section manages the federal grant programs for the division. These grants are used to support personnel costs, equipment, training and travel in support of grant activities. Federal funds are also used to support projects that are developed in coordination with the division and implemented by a variety of nonprofit groups, state universities, local governments, other state agencies and private sector companies. These projects have either a water quality or water infrastructure focus. The Resource Planning and Program Support Section is responsible for facilitating the development and promulgation of the division regulations and legislation. The section's focus will be developed to include the review and comparison of other states' water programs in an effort to learn from our state partners. The Information Technology (IT) Section performs IT functions and manages IT needs and infrastructure for the division. It also manages the Tools for Environmental Management and Protection Organizations (TEMPO) database. This section will be critical in working with program staff to implement the electronic solutions the division is developing. The Data Entry and Management Section performs data entry, manages the file room and processes Open Records Requests. This section will be working on backscanning paper files and developing a plan to be implemented in SFY 2009. The plan will eventually eliminate most paper documents in the division by managing digital copies of documents in TEMPO or other appropriate databases. The consolidation of administrative staff allows for greater cross training and administrative efficiencies that will improve the flow of electronic data to the permitting and technical programs within the division.



Net Effects

The reorganization reduced the number of branches in DOW from nine to six, the number of sections in the division from 36 to 33 and reduced the administrative burden on the Director's Office. These changes will improve the division's ability to manage its employees and programs effectively, provide programmatic synergy, focus on sustaining Kentucky's infrastructure,` eliminate permit backlog and better address water quality data management and analysis needs.

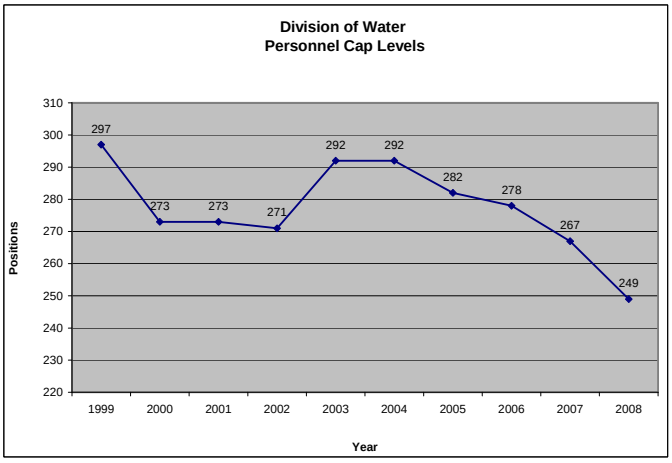
Budget Issues

DOW activities are maintained by general fund appropriations, federal grants from the U.S. Environmental Protection Agency (EPA) and the Federal Emergency Management Agency (FEMA), and fees collected for permit and certification activities. An analysis of DOW funding for SFY 2008 shows a substantial reliance on state general funds (56 percent) and on federal funds (38 percent). The division's revenue generated through permit and certification accounts for only 6 percent of the division budget for SFY 2008.

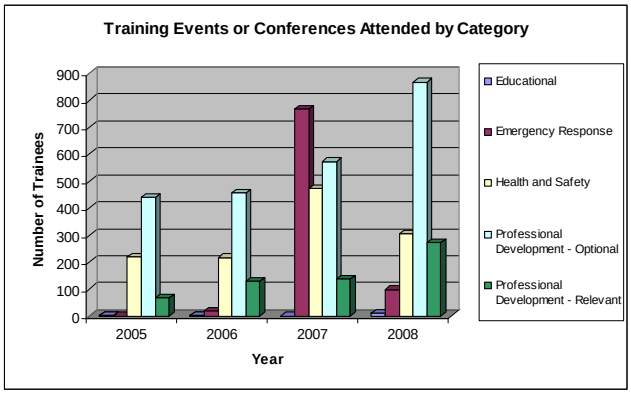
DOW's permit revenues are insufficient to maintain the permitting and inspection programs. The fees for the Kentucky Pollutant Discharge Elimination System (KPDES), facilities construction and drinking water programs have not been updated since they were originally promulgated in the 1970s and 1980s. In addition, the water withdrawal and floodplain permit programs do not currently charge any fee. The dam safety program is also understaffed and presently cannot recover the cost of inspecting non-state-owned dams.

The division has the budget to maintain 249 full-time, permanent employees. The number of

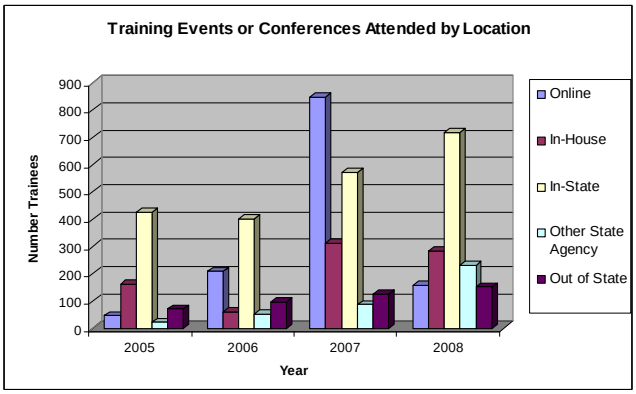
employees the division can maintain has decreased 15 percent since 2003 – a loss of 43 positions. This reduction in staffing has resulted in a severe strain on the remaining staff who struggle to provide adequate service to the commonwealth.



As a result of these reductions, the division has seen permitting backlogs develop and other programs overextend. The division has recently experienced significant attrition, largely through the retirement of experienced staff. Thus far in 2008, 12 people have retired; we anticipate an additional 15 staff will retire by Dec. 31. Currently, 62 percent of the DOW staff has fewer than 10 years' experience. This experience issue is compounded by the fact that the division struggles with recruiting and retaining qualified staff.



The division is actively recruiting technical staff from the state's universities and through use of the Department for Environmental Protection (DEP) scholarship program. The division also realizes challenge in retaining and training new staff. Training opportunities are evolving as cost becomes more prohibitive. We are increasingly using online venues, teleconferencing and videoconferencing to



provide necessary training for staff. DEP is in the process of developing a comprehensive training program for employees and managers. The goal is to design a series of training courses for employees that will enhance professional development, increase productivity and develop leadership skills within the department. Structured training will provide working supervisors and managers in DEP practical assistance in developing staff, which is crucial given the anticipated attrition DEP will experience over the next 14 months, and may enhance recruiting and retention efforts.

Backlog Initiative

DOW issues permits, approvals and certifications for various regulated activities pursuant to the Clean Water Act, Safe Drinking Water Act, as well as state statutory and regulatory obligations. In some cases the programs charge a fee for this service.

Division programs have worked the past two years to aggressively address the backlog of permits. Although significant progress was made regarding the backlog, this fragile success was achieved by unsustainable means. Key strategies for achieving zero permit backlog goals in the short term included the use of outside contractors, authorization of increased use of compensatory time and temporary reassignment of staff. Outside contractors and increased overtime payments created unsustainable budgetary impacts for the division. The temporary reassignment of staff has left management to address problems on an as-needed basis, providing an inconsistent level of service to our external customers, the regulated community. Furthermore, personnel who have invested substantial amounts of extra time, without relief, in achieving zero permit backlog goals experience fatigue, and this condition will exacerbate existing retention problems. Additionally, increased data management needs, increased regulatory complexity, an increase in the size of the regulated universe and fewer overall personnel resources within the division have resulted in an inability to sustain a consistently low permit backlog.

Electronic processing of documents will eventually result in greater efficiency. However, as databases such as Permit Compliance System (PCS), Integrated Scientific Information System (ISIS), TEMPO and the statewide Geo-net are populated with data, there exists a need to evaluate the accuracy of this information. In this transition state, the division continues to have significant data management needs.

The increase in complexity of the regulatory programs has resulted in longer, more involved review processes, increased correspondence and an increase in legal challenges to permitting conditions by third parties and applicants.

The division is experiencing an increase in the number of permitted entities and permits issues. Since Phase II stormwater regulations were implemented in 2003, permit volume has increased 500 percent with no additional staff available to process permit applications. In addition, the dynamics of the energy market have increased the volume of regulated activity for coal facilities and oil and gas operations. These facilities carry significant environmental impact risk and require a thorough review to determine if activities are permissible under the regulations. Due to the high volume of activity, resources have been reallocated from other priorities. The pace of economic development has also caused an increase in demand for other permit-related technical services. In addition to permit documents, the division provides technical assistance in the form of preliminary wastewater pollutant limits, waste load allocations, grant information, SRF loan processing and drinking water and wastewater planning document support. These activities are critical to the function

of the division and our external customers, the regulated community.

Attrition through retirement and other means is causing a continuing loss of institutional knowledge; recruitment and retention of technical staff continues to be a challenge. In many instances, there are few qualified technical candidates available in the engineering and other technical series. Furthermore, as a state agency, we offer limited incentives, and new personnel we are able to recruit commonly leave the agency for higher paying positions. Our programs subsequently lose the investment of time, knowledge and training dollars. Even at the current insufficient staffing levels in the permitting programs, the current permit fee structures do not provide adequate resources to sustain program activities.

The division is trying to implement non capital measures to provide timely support and documentation to our customers. The division reorganization has enabled DOW to direct resources to the highest priorities. The division has applied, on a limited basis, lean government efficiency principles, and some programs have adapted their processes to achieve a more efficient work flow. The division will be systematically evaluating its permit programs and applying these principles to achieve a work culture of continual improvement and increasing efficiency. This ongoing analysis of our processes by those involved will lead to greater employee involvement in determining how we conduct our business, finding greater efficiency and reducing waste.

Implementation of e-permitting and electronic efficiency is a key to reducing permit backlogs and improving customer service. Increasing demand to provide our services electronically has allowed us to save time in the conversion of paper data to electronic data for both our external customers and the division. Such efforts to date have been limited but successful and educational. We have increased the division-level support for databases such as TEMPO to become the official records for our function. Additional resources will be focused toward information technology infrastructure so that data are complete, secure, accurate and readily available to the public, making our permitting processes efficient.

Organizational Structure

One of the major objectives of the DOW reorganization was to pool permitting resources into organizational groups so that cross training of technical staff can occur and that we will be in a position to assign staff to a variety of permitting functions as the need arises. Also, we anticipate efficiency gains may be achieved as we evaluate permits that are related, such as for drinking water and wastewater infrastructure for new development, etc. The division will be evaluating improvements in efficiency over the next fiscal year to determine if additional improvements can be made.

Improved Efficiency

With continued reductions in staff and budget, numerous processes within DOW are undergoing evaluation to improve efficiency. Several key concepts have been identified for further investigation:

- Electronic submittal
- LEAN management principles
- Institutionalized use of GIS tools
- Floodplain Map Modernization Program

Electronic Submittal

The division is utilizing electronic submittals (e-submittals) to expedite the receipt of information from the regulated community while increasing the efficiency of in-house processing tasks. In keeping with the administration's mandate to reduce costs and eliminate waste, the division is implementing online submittal in several programs and looking to automate manual processes in as many areas as possible. As incoming work continues to increase while the number of staff decreases, we have been pressed to "do more with less." However, we have reached a point where the limited available resources force us to "do less with less." As mentioned throughout this report, one of our goals is to streamline processes, shed duties that do not add significant value and find ways to accomplish necessary tasks more efficiently. From e-notification to e-submittal, we must further rely on computer automation to perform some of our more routine tasks.

eDMRs

One effort in increased efficiency in processing time and document storage is the Internet-based support for electronic submittal of Discharge Monitoring Reports (DMRs). EPA has developed a tool called eDMR for this purpose. However, there are some complications associated with the implementation of this valuable tool. Every KPDES permitted facility is required to maintain compliance data, and as such this information has traditionally been submitted via paper, then manually converted to electronic data in PCS. This is an intensive process involving a large volume of data, which is also very time-sensitive. PCS is an outdated mainframe-based computer system, but it is also the largest federal database in the country other than the tax records held by the Internal Revenue Service. EPA is in the process of upgrading PCS to the Integrated Compliance and Information System – National Pollutant Discharge Elimination System (ICIS – NPDES), but it is currently only available to a limited number of states. Kentucky is slated for integration in 2010. The eDMR tool will be unavailable for use until the commonwealth has completed the migration to ICIS – NPDES. Grant funds have been applied for to assist in this request, but the award is yet to be announced.

eMORs

The drinking water program is utilizing e-submission through the use of eMORs, which uses the same form as the paper version of the Monthly Operation Report. There are currently seven pilot systems testing a new version of the eMOR that includes data checks and verification.

Driller Online Renewal through ePay

Kentucky Water Well Driller Certification program administers the program for approximately 160 monitoring well and water well drillers statewide. In addition to processing new applications for both drillers and rig operators, program staff must process recertifications for all drillers. This yearly process consumes a great deal of staff time. In 2008, the program instituted the ePay system, accessible via a link on the program Web page (http://water.ky.gov/gw/gwtech/gwdrill/), to allow drillers to complete recertification documentation and pay annual fees online. Program staff members are notified of the payment and data entry is automated as collected information is downloaded into the necessary fields in the departmental database to reactivate the driller's account. Not only does this automate the in-house process by saving time and resources, the procedure is more convenient and quicker for the driller. The driller will know immediately if recertification will

be delayed due to missing documentation, and turnaround time is greatly lessened. Drilling companies also have the option to recertify multiple drillers in the same transaction, further streamlining this process.

Since going live on July 1, 2008, this system has been quite successful.

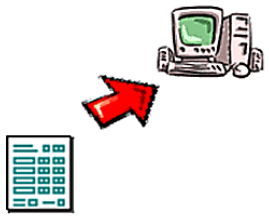
- Time-consuming tasks related to data entry and accounting are now automated; summary reports provide necessary information.
- Cutbacks resulting in fewer staff led to longer turnaround time and, in turn, to longer waiting time for driller requests; hours saved by automation help compensate for lost positions.
- Information is now more readily available to other agencies within DEP.

Dye Trace Online Notification Form

We continued to increase our online presence through the development of the Online Dye Trace Notification Form, which is scheduled to go live October 2008. This will allow researchers to notify DOW of dye traces by submitting information via an online form rather than faxing a copy of a notification to staff. The researcher will not only be able to view and edit their own submittals, but will also have the capability of viewing other traces that occurred within a specified area in the past 30 days. Automated notifications are issued following a researcher's submittal. This will benefit field office and Emergency Response Team (ERT) staff since supervisors will be able to log in to an internal Web site to search for active traces. This capability will save time and money by avoiding costs of mobilization to respond to citizen complaints of discolored streams.

Well Record Online Submittal

The next process scheduled to be streamlined through online submittal is well record review. More than 1,200 well records are received, reviewed and processed by DOW annually. As an added bonus, online submittal means less paper. Two new interactive PDF forms have been created to serve as a bridge between paper submittal and electronic submittal: the Uniform Kentucky Well Construction Record and the Uniform Kentucky Well Maintenance and Plugging Record. These forms, currently in use by numerous drillers, are available for download from the Drillers Program Web page.



Once collected online, the data will be subjected to numerous quality control checks, such as cross-referencing latitudinal and longitudinal coordinates within quadrangle and county, before the submission will be accepted. As part of the online process, many fields will be chosen from drop-down lists, eliminating many spelling errors and inconsistent entries. This will make data easier to access, adding efficiency within the usage and analysis areas as well as data entry. Data will then be automatically uploaded into the appropriate fields within the departmental database. Additional electronic error-checking in regard to record

completeness and drilling requirements will be performed, flagging any records containing information that indicate the wells were drilled out of compliance. These records will be compiled into automated reports that will be made available to the reviewers. Historically, approximately 5 percent of the well records received required further action by the reviewer. Automating the data entry allows the reviewer to concentrate on the submissions that are incomplete or contain errors rather than devoting hours to data entry.

GPP Online Development

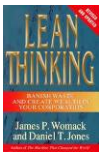
Another program targeted for automation is the Groundwater Protection Plan (GPP) program mandated by 401 KAR 5:037. Due to budget cuts, the program has been reduced to one staff member. This creates difficulties in continuing to provide timely customer service to the regulated community with assistance in developing a GPP. A GPP online development tool will be created that will enable the public to access an online tutorial. By entering answers to a series of questions, certain information will be collected while other information is provided. Information collected will result in a draft version of a GPP that can be submitted electronically to DOW, where the data are then loaded into corresponding fields in the departmental database, flagging anything that is "out of spec." Program staff can return comments and approvals electronically, which saves on paper and postage as well as time. Once the approved GPP is returned to the applicant, a paper copy can be printed by the owner to have available at the site. The owner can also choose whether to print a paper copy or retain an electronic copy for their records. This process has the added benefit of educating the site owner through responses to answered questions, which is one of the primary goals of the program.

ePortal

The Whole Effluent Toxicity (WET) program has been operating with 1.5 staff persons for the past several years. The program requires submittals of biomonitoring reports and reference toxicant data reports as a permit condition in the discharge permitting process. Use in 2008 of the ePortal system is increasing for biomonitoring reports from the permittee and reference toxicant data from the laboratories performing testing for the permittees. Review of submitted data from both permittees and labs must still take place by staff, with associated data entry into internal databases. Reports must be scanned into TEMPO and data must be manually entered into internal databases. Scheduled for the future will be a system similar to the well record submittal process, whereby labs can enter data directly into drop-down menus and submit electronically.

Lean Management Principles

The division is using grant funds to evaluate the §319(h) grant program and train key staff in lean management applications. Lean is a production approach and set of methods that seeks to eliminate all waste from a process. Although originally developed for manufacturing systems, organizations in the private and public sector have adapted and applied lean methods to office environments, service-delivery processes and administrative processes.



In the context of environmental agencies, most processes (*e.g.*, permitting, travel authorization, plans review) accumulate steps, approvals and activities over time. For example, some permitting processes have acquired more than 20 approval steps with little added value.

The lean method applies value stream mapping (VSM) to develop a visual representation of the flow of processes involved in delivering a desired outcome, service or product valued by customers. In the context of environmental agencies, a value stream could be the process of permitting air emissions of a certain type of stationary source, approving a brownfield site for redevelopment or hiring new agency staff. VSM examines information flows and systems as well as the flow of the product or service product (*e.g.*, a grant) through an agency's processes. VSM can increase understanding of actual decision-making and identify sources of waste.

DOW will use the lean approach to evaluate its programs and processes to streamline the production process, cut redundancy and improve its product. This effort will allow the division to focus limited resources in areas where they are most needed.

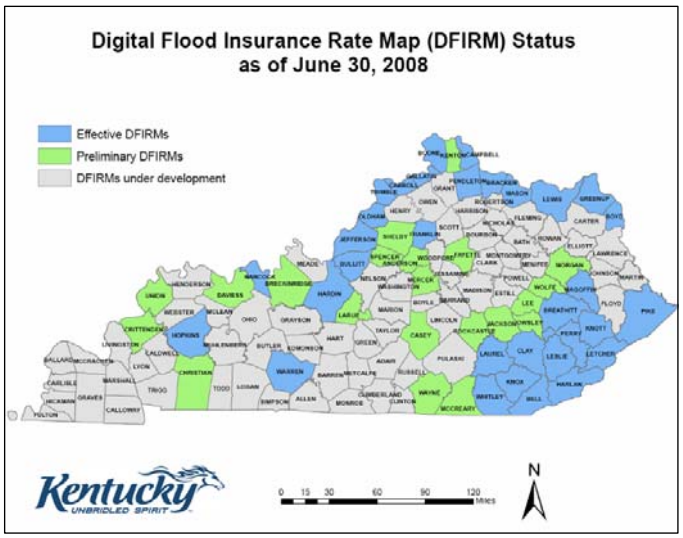
Institutionalized Use of GIS Tools

The DOW reorganization established the GIS and Data Analysis Section within the Watershed Management Branch. This section is responsible for institutionalizing the use of GIS (Geographic Information Systems) tools throughout the division and the dissemination of information and GIS data.

This section has primary responsibility for performing comprehensive water quality data management for the division and in conducting statewide and watershed-scale analyses of water quality and other data that serve the division in making decisions regarding permits, grants and policy. These analyses also provide for performance reporting and resultant GIS data outputs that can be utilized by staff and decision makers. Comprehensive data management and analysis is an activity necessary for effective watershed resources management and is something the division has historically been unable to accomplish. This section includes the personnel working on updates to the FEMA Floodplain Map Modernization, which is a GIS process/product. These individuals work with the National Flood Insurance Program (NFIP) staff and the basin coordinators to disseminate information and educate local officials regarding the NFIP and benefits. This section also leads and coordinates quality assurance/quality control issues for the division, including implementing the department's Quality Assurance Management Plan for the division, housing the division quality assurance (QA) coordinator, conducting review and approval of quality assurance project plans (QAPPs) for in-house and outside projects and addressing and managing emerging QA issues.

Floodplain Map Modernization Program

Map modernization is a multi-year congressionally mandated initiative to update the nation's inventory of flood hazard areas. The maps are a key component in identifying risk in local and state administration of the NFIP. Map modernization involves bringing together federal, state and local stakeholders in order to produce more accurate and usable flood hazard maps. The flood hazard maps will be available in paper and digital format, which allows for more timely updates, easier access to the maps and easier usability in GIS.



DOW began actively managing the map modernization initiative in 2005. In doing so, DOW has been intimately involved in updating flood hazard maps in 96 Kentucky counties. The goal of the program is to identify flood hazards on streams with up to a 1 square mile (1 mi^2) drainage area, which coincides with the state floodplain permitting requirements outlined in KRS 151. By managing the flood hazard map updates at the state level, DOW has been able to increase stakeholder involvement, identify leverage data in many counties and provide outreach to local governments and citizens statewide.

DOW received $4,296,999.17 in Cooperative Technical Partners (CTP) funding in federal fiscal year 2007 to update 26 counties and conduct scoping and rescoping activities for 54 counties. DOW received $3,942,000 in CTP funding in federal fiscal year 2008 to update 34 counties. Once updated, DOW plans to identify and implement necessary procedures for keeping these maps up to date.

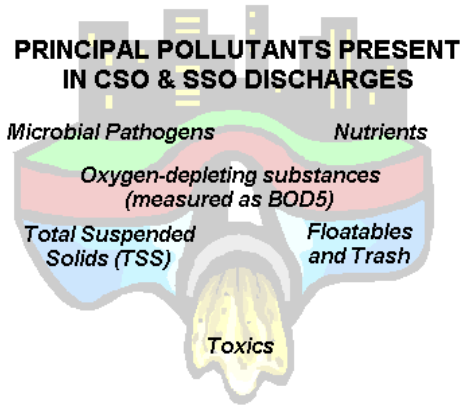
Update Fee Regulations

One of the division's top priorities is to establish sustainable permitting programs that provide sound decisions in a timely manner. In order to accomplish this, it is imperative that fee revenues cover a significant portion of the division's cost of implementing the program. During SFY 2008, DOW began to closely evaluate the costs of implementing its permitting and compliance programs. Some permitting programs, such as KPDES and construction permitting of water and wastewater infrastructure, charge nominal fees. The fee receipts generated by these permits cover less than 20 percent of the total cost of implementing these programs because the fees are outdated, fees are not charged for all types of permits in the program, and because there are a number of regulated entities that are exempt from paying a fee. Many of the division's permitting programs, such as floodplain construction, water certification and water withdrawal permitting, charge no fees at all. These programs rely 100 percent on general funds.

The division has initiated regulation updates to establish reasonable fees for all of its permitting and compliance programs. The first fee regulation filed was 401 KAR 9:020, 401 Water Quality Certification Fee Regulation, in March 2008. The regulation went into effect on Oct. 8, 2008, and is expected to generate approximately $400,000 annually in fee revenues. Revised fee regulations are in the final stages of development for drinking water lab certifications and wastewater discharge permit programs. Those regulations will be filed in SFY 2009.

Wet Weather

In conformance with the Clean Water Act (CWA), KRS Chapter 224 and its related regulations, and EPA's 1994 Combined Sewer Policy, the U.S. EPA and Kentucky's Energy and Environment Cabinet (EEC) have undertaken an initiative to minimize, or eliminate where possible, the impacts of wet weather overflows at permitted combined sewer overflow (CSO) outfalls. Additionally, this

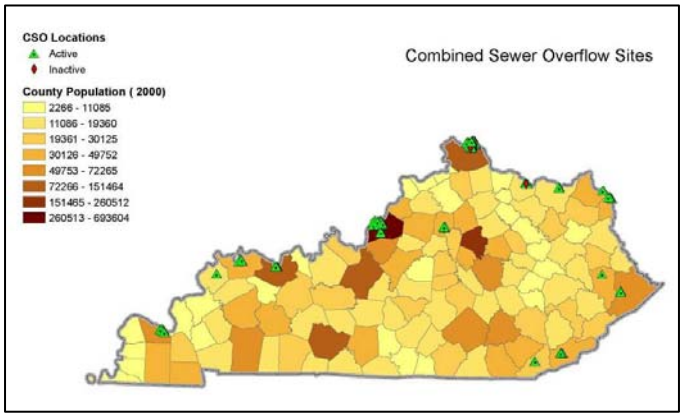


initiative seeks to completely eliminate sanitary sewer overflows (SSOs) and any dry weather overflows that may be active in a collection system, since both releases violate the CWA and KRS and related regulations.

The 1994 CSO Control Policy seeks to ensure that CSOs are caused exclusively by wet weather; that all wet weather discharge points are brought into compliance with technology-based and water-quality-based requirements of the CWA; and that the human health and environmental impacts of CSOs are minimized. The means to this end are the CSO Nine Minimum Controls, which provide short compliance with the CWA and 1994 Policy, and Long-Term Control Plans for those CSOs that cannot be eliminated in the near term.

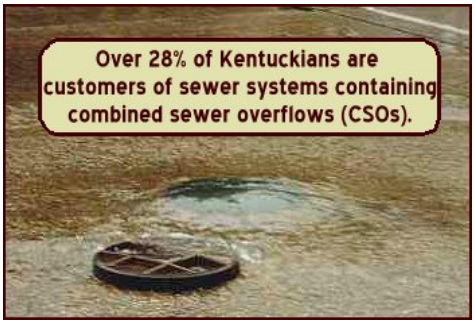
Additionally, this initiative targets SSOs and other unauthorized discharges. Both of these are sources of significant impacts on human health, water quality, aquatic biota and the ability of the state's sewer infrastructure to adequately collect and treat wastewater. To achieve this, the consent judgments entered for Kentucky's 17 CSO communities include Sanitary Sewer Overflow Plans (SSOPs), Sewer Overflow Response Protocols (SORPs) and self-assessments in keeping with the EPA Capacity, Management, Operations and Maintenance (CMOM) program.

DOW's "Wet Weather Team," consisting of staff from the former KPDES, Groundwater and Facilities Construction branches, is embodied in a new Wet Weather Section in the Surface Water Permits Branch. This new section implements oversight of the CSO and SSO compliance initiatives described above as well as the storm water MS4 permitting program. Additionally, the Wet Weather Section is currently conducting inspections in the 17 communities in Kentucky that

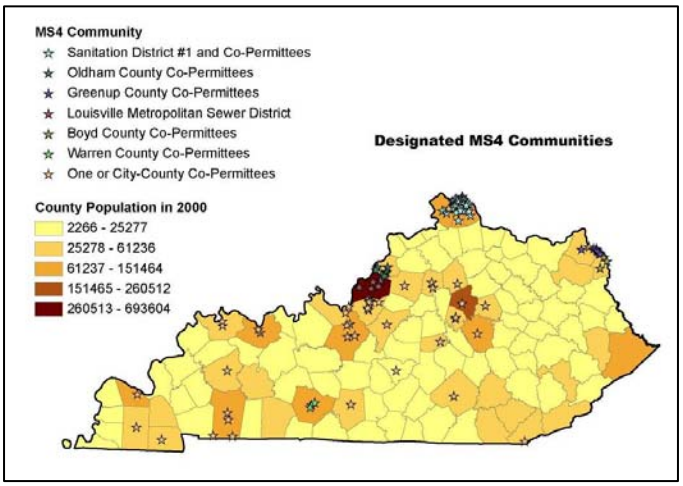


have CSOs to assure compliance with CSO/SSO state and federal consent agreements and is reviewing compliance documents submitted in response to those agreements. During the two-year

period from Oct. 1, 2008, to Sep. 30, 2010, DOW will perform comprehensive inspections of all Kentucky communities that contain active CSOs. The Wet Weather Section is also conducting wet weather inspections in non-CSO communities where DOW field staff have identified active SSOs or other wet weather compliance problems that adversely affect these sewer utilities. Approximately 60 communities will receive such inspections over the next several years.



Under the NPDES stormwater program, operators of large, medium and regulated small municipal separate storm sewer systems (MS4s) require



authorization to discharge pollutants under an NPDES permit. This permitting program is also housed in the Wet Weather Section of the Surface Water Permits Branch. Kentucky currently regulates one large MS4 (Louisville), one medium (Lexington) and 99 small MS4 programs. The large and medium MS4s are covered under Phase I of the MS4 program, which began in November 1990, with Kentucky's first Phase I permit issued in 1992. The small MS4s are covered under the Phase II program, which began in December 1999; Kentucky issued the first Phase II permit in 2003.

The MS4 program is driven by six minimum control measures that must be incorporated into the stormwater management programs. These measures are expected to result in significant reduction of pollutants discharged into receiving waterbodies. They are as follows:

- Public education and outreach
- Public participation and involvement
- Illicit discharge detection and elimination
- Construction site runoff control
- Post-construction runoff control
- Pollution prevention and good housekeeping for municipal operations

The Phase I programs are also responsible for monitoring their outfalls.

In 2007, the first round of MS4 inspections was completed. Ten Phase II communities and one Phase I community were inspected using the inspection checklist provided by the EPA in the MS4 Program Evaluation Guidance. These inspections yielded invaluable information concerning the status of the MS4 programs across the state. In 2008 the inspections continued, including the inspection of 10 Phase II communities and one Phase I. A number of the 2008 inspections have resulted in the issuance of several Notices of Violation – the first for the MS4 Program. It is hoped those actions will serve as a tool to return these communities to compliance.

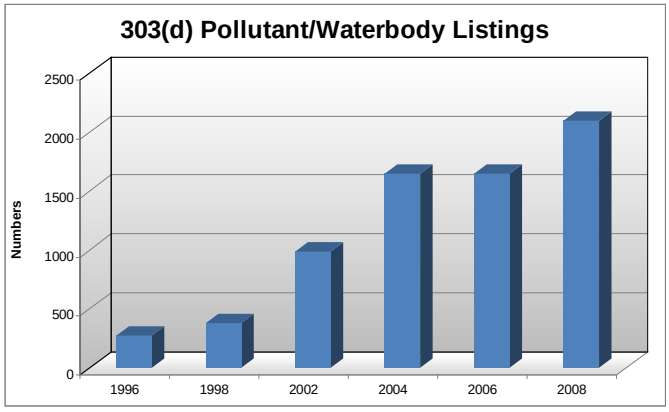
The two Phase I permits have expired but will be reissued before the end of 2008. The Phase II General Permit for the Phase II MS4s expired Dec. 31, 2007. As part of their application for permit renewal, the MS4 communities are required to submit a Stormwater Quality Management Plan (SWQMP), which describes how the community will implement the MS4 requirements. These plans were due to DOW by Jan. 31, 2008. As a result of this first submittal, DOW drafted the Phase II Stormwater Quality Management Plan Preparation Guidance to assist the MS4 communities in drafting their SWQMPs to ensure compliance with permit requirements. DOW staff met with each Phase II community separately to discuss the guidance document and provide water quality information for the MS4 community to consider as they drafted the revision to their SWQMP. This water quality information included such factors as the location of impaired waters and, if applicable, the location of Outstanding State Water Resources. This information is critical to the division's mission of managing, protecting and enhancing the quality and quantity of the commonwealth's water resources.

Pollutant Reduction

Requirements from Section 303(d) of the Clean Water Act include:

- Listing of impaired waters in an integrated report format.
- Calculating total maximum daily loads (TMDLs) for each pollutant.
- Delisting impaired waters that have successfully shown improvement.

Section 303(d) of the Clean Water Act requires states to submit a list of its impaired waters to EPA every two years on even-numbered years. In the past, this list was called the 303(d) List of Impaired Waters. As of 2006, EPA requires an integrated report that covers reporting requirements under Section 305(b) and 303(d); thus DOW developed a two-volume integrated report for the 2006 and 2008 reporting cycles. Volume 1 contains the 305(b) report, which provides information on the status of all assessed waterbodies in Kentucky and Volume 2 contains the 303(d) list. Volume 2 of the 2008 Integrated Report was approved by EPA on June 25, 2008, and can be viewed at http://water.ky.gov . As assessments of more streams have been performed over the years, the number of impaired waterbodies has increased dramatically. Volume 2 of the 2008 Integrated Report contains 2,098 listings.



Another requirement of Section 303(d) is that states must calculate TMDLs for impaired waterbodies on the 303(d) list. A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can assimilate and still maintain its designated use(s). Designated uses for Kentucky's streams and lakes include aquatic life uses, primary and secondary contact recreation uses (swimming, boating etc.), drinking water use and fish consumption use. The TMDL calculation, usually

expressed in units of mass/unit time, is also termed the loading capacity. A TMDL must be calculated for each pollutant impairing a lake or a specific reach of stream. This unit is termed a pollutant/waterbody combination and determines the number of TMDLs required.

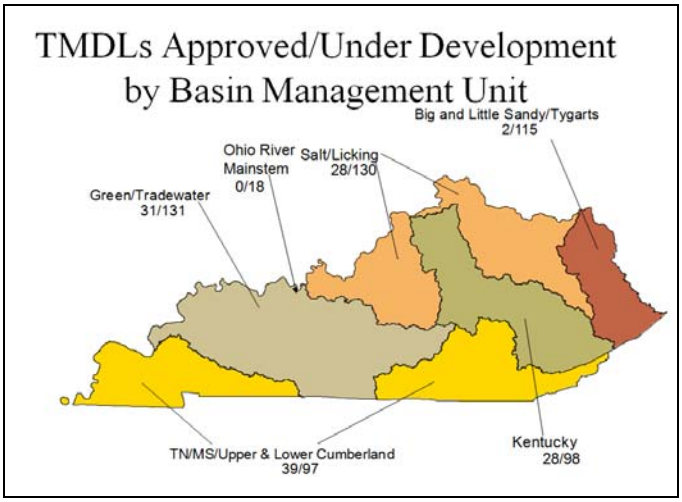
Approved Delistings by 303(d) Cycle Year Not Related to an Approved TMDL*

303(d) Cycle Year	Number Delisted
1998	32
2002	60
2004	33
2006	54
2008	26

There are two means by which a listing can be removed from Volume 2 of the Integrated Report. One is to develop a TMDL while the second is to delist it without TMDL development. Delistings only occur during a listing cycle year and only with EPA approval. Delistings can be due to errors in the initial listing or to an improvement in water quality such that the water is no longer impaired for a specific pollutant. EPA has approved a total of 205 delistings and 128 TMDLs, resulting in the removal of 333 pollutant/waterbody combinations from the 303(d) list.

During FY2008, TMDL field staff collected samples from 182 chemical, 17 biological and 54 bacteriological sites yielding samples from a total of 192 sites (many sites are sampled for multiple variables). Most chemical sites are visited on a monthly basis for one year while bacteriological sites are visited approximately 10 times during the summer primary contact recreation season and biological sites are visited once. For FY08, this resulted in the collection of 913 chemical, 276 bacteriological and 17 biological samples.

TMDL data analysts utilize the data collected by the field staff to calculate the TMDL for each pollutant/waterbody combination. Once the data are analyzed, a report is written to disseminate the findings. These TMDL reports must undergo internal DOW review (preliminary review), a 30-day public comment period (proposed review) and must be approved by the EPA (final review). The TMDL reports contain limits for both point and nonpoint sources of the pollutant such that a waterbody can be brought back to full support of its designated uses.



The required schedule for completion of TMDLs for all waterbody/pollutant combinations is 13 to 15 years from the initial listing. The program must complete TMDLs for approximately 140 combinations per year to stay on schedule. Currently the program is behind schedule, producing an average of nine TMDLs per year for a total of 128 TMDLs. The pace of TMDL development is on an upward swing and the program anticipates producing TMDLs for approximately 80 pollutant/waterbody combinations (including TMDLs developed by third parties) during FY2009.

SUCCESS STORY:
ROCK CREEK WATERSHED

Rock Creek originates in Pickett County, Tenn., and flows across the state line into McCreary County, Ky. After crossing the state line, Rock Creek flows for 21 miles before entering the South Fork of Cumberland River, locally called Big South Fork. The upper portion of Rock Creek has been designated by Kentucky as a State Wild River and an Outstanding State Resource Water. However, below the stream's juncture with White Oak Creek, acid mine drainage has severely impacted aquatic life. In 1990, Kentucky listed Rock Creek on the 303(d) list as nonsupporting for aquatic life and swimming. A Total Maximum Daily Load (TMDL) for Rock Creek is under development.

The Rock Creek Task Force was formed to restore the Lower Rock Creek Watershed. This group includes 12 state and federal agencies and conservation organizations. The Kentucky Division of Abandoned Mine Lands led the implementation of Phase 1 of the Rock Creek restoration project in spring 2000. Coal refuse that contributed to acidic conditions in runoff was removed from the banks of the creek, and open limestone channels and a modified vertical flow wetland system were installed to further neutralize acidic drainage. Water in the creek was then treated with monthly applications of limestone sand to continue to reduce acidity.

Funding for Phase I (total project cost $970,000) included §319(h) Clean Water Action Plan grant ($200,000) from the EPA through the Kentucky DOW, Appalachian Clean Streams Initiative ($280,000), Personal Responsibility in a Desirable Environment grant ($250,000) from National Oceanic and Atmospheric Administration, Kentucky Abandoned Mine Land Grant ($160,000), and U. S. Geological Survey cost share ($80,000).

Activities to date have dramatically improved the water quality in the Lower Rock Creek watershed. Acid loading into the South Fork of the Cumberland River from Rock Creek has decreased from a monthly average of 110 metric tons to near zero. Removing 25,000 cubic yards of coal refuse from streamside areas and revegetating the banks of Rock Creek have reduced the sediment entering the stream by 500 tons annually. Fish populations are improving in the lower Rock Creek watershed, and the number and diversity of fish species are increasing. Stations that once found no fish are now supporting fish. Because of these improvements, Rock Creek has been reclassified from full nonsupport to partial support for aquatic life and swimming on the 2008 Kentucky 303(d) list.


Rock Creek bank before restoration


Rock Creek bank after restoration

At the end of FY2008, there were 589 TMDLs under development, which means that at least TMDL monitoring had begun. Fifty-one of these were in preliminary review, nine were in proposed review and none were in final review. The vast majority of TMDLs under development have had data collection completed but are awaiting TMDL report development.

Third parties have been recruited to assist with the TMDL monitoring and development workload. Memoranda of agreement (MOA) have been developed and are currently ongoing with local universities to monitor streams and develop TMDL reports. MOAs have been established with Murray State University for work in the Clarks River Watershed in the Tennessee River Basin; with Western Kentucky University for work in the Panther Creek and Long Falls Creek watersheds in the Green River Basin; with the University of Kentucky for work in the Elkhorn Creek and Eagle Creek watersheds in the Kentucky River Basin; and with Eastern Kentucky University to collect stream data in the Beaver Creek Watershed in the Big Sandy River Basin. Additional assistance has been and continues to be provided by local governments, citizens groups, and other state and federal agencies that collect data under an approved Quality Assurance Project Plan enabling use of the data in TMDL calculations. The U.S. Geological Survey has been contracted by EPA to collect samples in the Floyds Fork Watershed and to produce a pathogen TMDL for this watershed. Additionally, EPA has funded Tetra Tech, Inc. to produce a pathogen TMDL for the main stem of the Ohio River. The TMDL Program no longer has funding available to establish additional MOAs with third parties, so 319(h) funding is being investigated as a means to retain university assistance with TMDL monitoring and development.

Watershed-Based Plans

Watershed-based plans (WBP) are required for all 319(h) projects funded with incremental dollars. These plans are important to make sure that 319(h) dollars are most efficiently used to address non-point source pollution. The 2004 Federal Guidance document states that WBPs are necessary "to ensure the development of realistic plans to achieve protection goals or water quality standards, while at the same time providing a significant degree of flexibility to work with stakeholders in the watershed to use a range of innovative approaches to implement the plan."

Beginning in FY 2004, a specific set of criteria must be included in WBPs to restore waters impaired by nonpoint source pollution using incremental dollars.

Summarized Version of Criteria a – i

- Identify impaired waters and causes/sources of impairment.
- Identify threats to other waters.
- Identify point source controls and nonpoint source management measures needed to attain and maintain water quality standards.
- Identify who will be responsible for implementation of controls and measures.
- Estimate load reductions that will be achieved.
- Provide an implementation schedule with interim milestones.
- Estimate implementation costs and identification of financing sources.
- Identify technical assistance, outreach and education needed.
- Establish a monitoring plan and adaptive implementation process.

The WBP must address a large geographic area so that when implemented it will address all identified causes of impairment. The WBP should be implemented in a dynamic and iterative manner so that plans may be modified over time. Although states are not required to submit WBPs to EPA for approval, EPA does encourage the leveraging of funds from other environmental programs to support the implementation of watershed plans.

To date, three plans have been accepted: Corbin City, Ten Mile Creek of Eagle Creek and Pleasant Run. Corbin City and Pleasant Run are currently in the process of implementation.

SUCCESS STORY:
FLEMING CREEK WATERSHED

The Fleming Creek watershed is contained almost entirely within Fleming County, in northeastern Kentucky. It is part of the Licking River Basin. The main stem is 39 miles long and it drains an area of 61,670 acres.

In 1989 and the early 1990s, a group of local landowners concerned about water quality initiated the Fleming Creek Watershed Nonpoint Source Demonstration Project and, in the process, formed the Fleming Creek Water Quality Oversight Committee. As a result of this group's sustained commitment, substantial resources have been dedicated to remediating the water quality problems in Fleming Creek.

A total of 75.2 stream miles in the Fleming Creek Watershed do not support the Designated Use of Primary Contact Recreation due to high pathogen levels, and 53.7 stream miles do not support the Designated Use of Warm Water Aquatic Habitat (Aquatic Life) because of nutrients, organic enrichment, low dissolved oxygen and noxious aquatic plants (DOW 2002). A TMDL for pathogens has been approved (DOW 2001).

Pre- and post-BMP water quality monitoring between 1992 and 1994 did not indicate improvements. Therefore, the watershed was adopted as a Clean Water Action Plan initiative in 1999. Subsequent monitoring by DOW and a project contractor has been conducted and biological recovery has been documented. A 4.8-mile stream segment of Fleming Creek (RM 16.0 – 20.8) has been determined to fully support its designated use of Warm Water Aquatic Habitat and has been delisted from the state's 303(d) list of impaired waters (DOW 2007 and USEPA 2007). In addition, pathogen data indicate a trend of increasing recovery in the lower watershed.

The numerous partners in the watershed have pursued extensive financial assistance through Clean Water Act, §319(h) Nonpoint Source Implementation Grants, the state cost share program and the various Farm Bill programs. Restoration efforts continue. Fleming Creek is also a candidate watershed that may be proposed to the Agriculture Water Quality Authority for a compliance evaluation pilot to determine the effectiveness of individual Agriculture Water Quality Plan implementation. A TMDL for nutrients and organic enrichment is currently under development for the watershed (DOW 2007).

Develop Outreach Strategy

Drought Mitigation and Response Planning

Drought is a recurrent feature of our climate that has no clear recognizable beginning or end. Drought is capable of causing a level of discomfort, economic hardship and threat to human health that rivals other natural disasters. By nature, drought develops progressively and in its early stages is not distinguishable from a typical dry spell.

The paradox is that the rainfall-rich eastern states, including Kentucky, are subject to severe drought. But because of the generally humid nature of the eastern climates, we are underprepared to deal effectively with severe drought. By developing a comprehensive approach to managing the impacts of drought, we can avoid the inefficiency, ineffectiveness and panic of *ad hoc* planning in the midst of a progressive emergency.

In 2007, the Kentucky legislature recognized the need to develop a comprehensive approach to managing drought proactively, including implementing drought mitigation actions to reduce the impact of drought. This will be accomplished by a coordinated response by local, state and federal agencies, including a comprehensive response at the state level in terms of identifying the areas of responsibility. Such coordination will allow for the development of an effective framework to facilitate communication among all state agencies from the emerging drought through the return of wet weather. Additionally, the legislature recognized the benefits of developing a comprehensive drought mitigation plan to offset the continued impacts of recurrent droughts. SJR109 requires EEC to develop, in consultation with a Drought Mitigation and Response Advisory Council, a drought mitigation and response plan. EEC must submit this plan to the Legislative Research Commission (LRC)

and the Interim Joint Committee on Agriculture and Natural Resources by Dec. 31, 2008. The goals of the drought mitigation and response planning process are (1) to develop a dynamic comprehensive and coordinated state plan to prepare for and respond to a major drought (one that lasts longer than the available supplies will sustain) and (2) to develop a dynamic, comprehensive, coordinated statewide, multi-agency plan for drought mitigation and response to drought.

The cabinet has convened a Drought Mitigation and Response Advisory Council that includes representatives of various water-dependent sectors, including city and county governments, agriculture, electrical power generators, industrial and commercial users, and municipal and private water utilities. The advisory council also includes representatives of citizen, environmental and recreational groups. This council is advising the cabinet on mitigation planning and prioritization and will be a consultant on the drought response plan.

Kentucky needs to prepare for a serious, extended drought similar to that of 1953 or 1930 as droughts of these magnitudes will most likely recur. Drought response plans developed since the 1980s have utilized the concept that the drought is

manageable with appropriate measures in place to deal with a limited water supply by limiting water demand for the duration of the drought. Success has been due, in large part, to the fact that water supplies are either replenished within a manageable time frame, or that the duration of recent droughts has not exceeded the available water supply. A recurrence of a drought similar to those of 1930 or a 1953 drought is highly likely and will result in water shortages in some areas that cannot be managed solely by local drought response (*i.e.* water-use reductions, water conservation, alternate sources). In addition, Kentucky needs to reduce its overall susceptibility to the adverse impacts of drought – not just for potable water supplies, but for all sectors that rely on available water, including agriculture, forestry, industry, power generation, mining, recreation and tourism.

Water Infrastructure

Sustainable Infrastructure (SI)

Kentucky needs $5 billion[1] to address its water and wastewater infrastructure needs over the next 20 years. Most of our existing infrastructure was built decades ago and is nearing the end of its useful life. With waning federal and state financial assistance, local governments must raise the funds needed to upgrade and replace the aging infrastructure in order to maintain the environmental and socioeconomic benefits that result from having reliable and safe water infrastructure.

According to EPA's 2002 Infrastructure Gap Analysis Report, the entire nation needs $500 billion to meet its water and wastewater infrastructure needs by year 2020. To bridge the gap between investments and current spending levels and help states and local governments tackle this challenge, EPA has launched the Sustainable Infrastructure (SI) initiative, which is aimed at changing the way the nation views, values and manages its water infrastructure. The SI initiative is organized around what has been dubbed the Four Pillars of sustainable infrastructure. EPA believes we can drastically reduce the funding gap if state water agencies, local governments and utility managers promote and adopt the following pillars into their planning, management and operation practices.

[1]This estimate is based on water and wastewater needs surveys compiled by DOW staff.

Better Utility Management: Sustainable infrastructure needs an effective management approach that ensures compliance with regulatory requirements, controls cost and extends the life cycle of infrastructure.

Full-Cost Pricing: This is where a collaborative effort among the different partners (*i.e.*, EPA, states and locals) is needed to change how the public views, values and manages water infrastructure. It is essential for utilities to develop rate structures that allow them to generate the revenues needed to properly operate and maintain their facilities and avoid huge spikes in water and sewer rates.

Water Efficiency: By cutting back on water consumption, we reduce the wear and tear on both water and wastewater infrastructure and could potentially postpone some treatment plants' expansion projects. This pillar could be advanced further by encouraging residential and commercial developers to use water-saving plumbing fixtures in

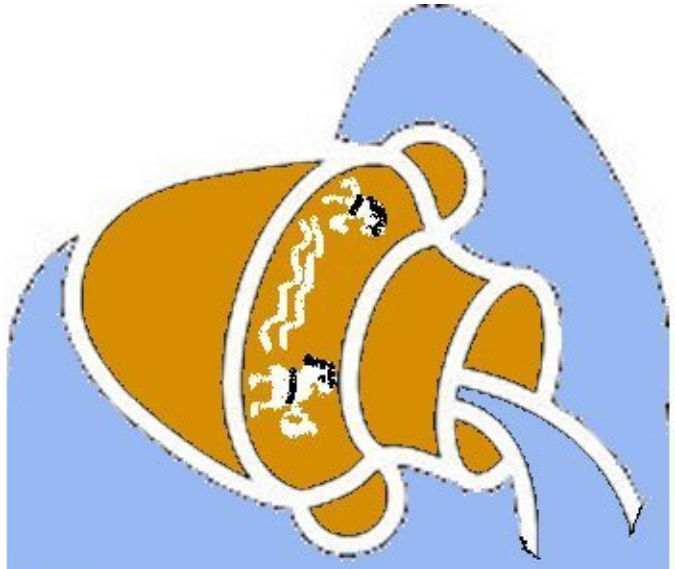
their new developments, as well as urging industrial users to reduce their potable water use by using recycled water when possible.

Watershed Protection: Integrated watershed planning is gaining momentum throughout the nation and proving to be a powerful tool in protecting water supplies. Utility managers are encouraged to incorporate watershed planning into their management and operation practices to reduce cost and restore the quality of impaired waters.

To learn more about the SI initiative and tap the available tools and resources on this subject, you can visit www.epa.gov/waterinfrastructure .

Improve Efficiency and Decision Making

As mentioned previously in the Organizational Structure section of this report, integrating the water infrastructure programs within one branch has improved consistency in infrastructure decision making and management. By having one engineering group evaluate both waterline and sewer line extensions, we prevent or minimize backlogs and help promote decision making and regulation development within the context of a watershed framework. These improvements will further promote sustainable infrastructure concepts – a priority of the division.



The Egyptians were the first people to record methods for treating water. These records date back more than 1,500 years to 400 A.D. They indicate that the most common ways of cleaning water were by boiling it over a fire, heating it in the sun, or by dipping a heated piece of iron into it. Filtering boiling water through sand and gravel and then allowing it to cool was another common treatment method.

Source: American Water Works Association

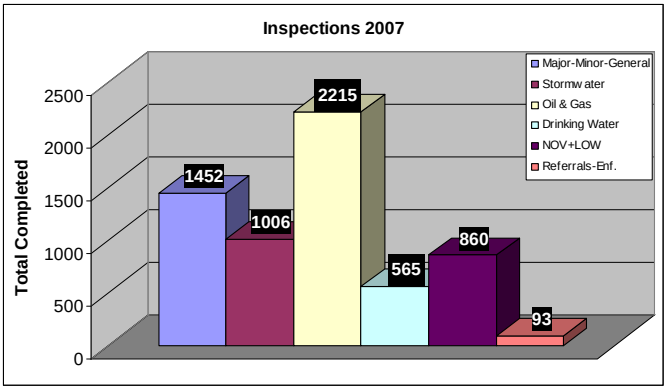
Focus Compliance Efforts

Meet Federal and State Obligations

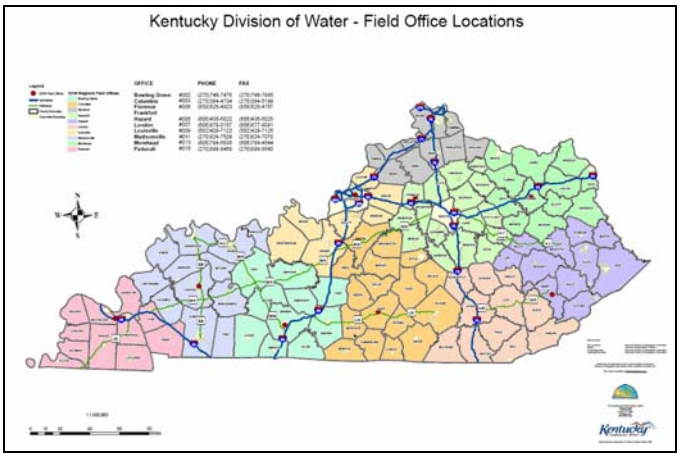
Compliance and Technical Assistance Branch

Field Inspectors Program

Training, equipping and focusing management are keys to quality, consistent inspections with technical assistance and enforcement. Federal program primacy requirements and federal grant



conditions mandate inspections of a percentage of federally permitted facilities. State regulations also mandate inspection of facilities permitted under state programs. DOW field inspectors working out of 10 regional offices conducted 4,673 inspections of permitted facilities in 2007. These include inspections of wastewater treatment facilities from major publically owned treatment plants to minor outfalls at smaller facilities or individual residences.



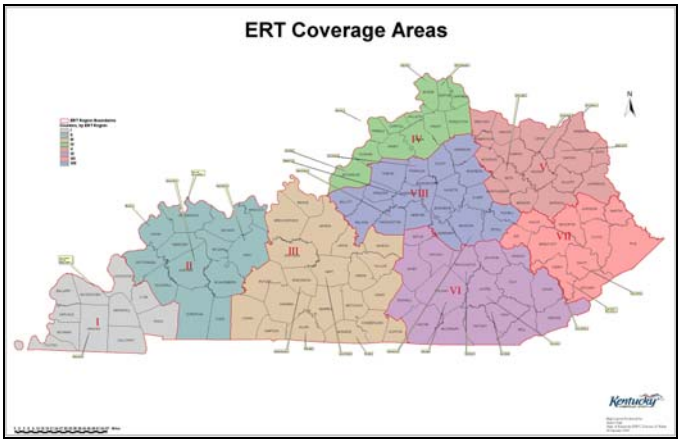
Inspections are also conducted at public drinking water systems, facilities operating under the coverage of a general permit, such as construction storm water, permitted agricultural facilities, oil and gas operations, coal mining operations, flood plain sites, water quality certification sites and other types of activities. As such, inspectors in DOW require broad programmatic knowledge and experience in addressing compliance issues, including necessary assistance and encouragement. Despite a significant decrease in the number of inspectors, the division has met its inspection obligations under federal grant commitments and continues to respond to complaints, emergencies, and other matters in a timely and professional manner.

Environmental Response Team

EEC is mandated to protect human health and to provide for efficient, coordinated and effective action to minimize damage to air, land and waters of the commonwealth from toxic or hazardous releases of pollutants and contaminates. To achieve this goal, DEP formed the Environmental Response Team (ERT) in 1980.

The statutory mandate in KRS 224.01-400 mandates a cabinet 24-hour environmental response line and designates the cabinet as the lead agency for emergency spill responses. In addition KRS 224.46-580 mandates the Cabinet to respond effectively and timely to emergencies created by releases per 224.01-400.

ERT is composed of employees from DEP (including DOW, Division for Air Quality (DAQ) and Division of Waste Management (DWM)) selected from interested applicants based on areas of expertise and work area to assure statewide coverage and specialized training and experience. ERT members assume the responsibilities of ERT responder in addition to their regular work duties.



ERT responders are assigned to eight geographic coverage areas with three responders in each region

being on call in a three-week rotation (one per week) plus an alternate to fill in as needed.

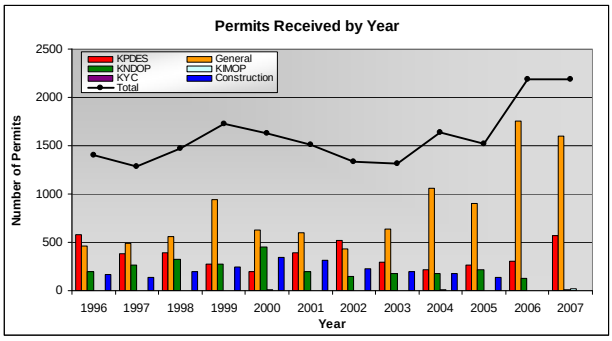
ERT responsibilities include:

- ⚠ Maintain a 24-hour emergency report/ notification phone line for spills and releases.
- ⚠ Coordinate and transfer non emergency and post emergency incidents to appropriate DEP staff.
- ⚠ Serve as On-Scene Coordinator in response to releases of toxic and hazardous substances, pollutants and contaminants that threaten the environment.
- ⚠ Coordinate with local, state and federal agencies, including EPA and agencies from adjacent states related to environmental releases.
- ⚠ Provide staffing and coordination of EEC efforts for Kentucky Emergency Operations Center (EOC) during activation of EOC due to natural disasters such as flooding and tornadoes.
- ⚠ Assist in training and planning activities of other local and state agencies.

Surface Water Permits Branch

KPDES

Kentucky received delegation of the federal National Pollutant Discharge Elimination System (NPDES) program in 1983. Section 106 of the federal Clean Water Act requires the commonwealth to issue KPDES permits to all point source discharges (coal, stormwater including Phase I and II programs, sanitary, municipal, industrial, concentrated animal feeding operations (CAFOs), CSOs, individual home residences) of pollutants to waters of the commonwealth. This also includes the administration of the division's wasteload allocation program (WLA), which is implemented in conjunction with the KPDES and TMDL programs.



Pretreatment

Section 106 of the federal Clean Water Act also requires the KPDES program to oversee local pretreatment programs, which regulate the indirect discharge of commercial and industrial wastewaters into municipal sewer systems. This is required whenever there is at least one Significant Industrial User (SIU) discharging into the wastewater treatment plant. As well, it can be required if a number of smaller commercial or industrial facilities have the potential to impact the operation of the wastewater treatment plant. These local programs ensure that the dischargers of pretreated waste have sufficient limitations on their discharge so as not to cause an upset or pass through of pollutants at the wastewater treatment plant. There are 63 approved pretreatment programs with over 700 significant industrial users.

Agriculture construction and KNDOP

KRS 224 and 401 KAR 5:005 require the state to issue operational permits to any liquid waste management system (animal feeding operations, sanitary spray irrigation, etc.) under the Kentucky No Discharge Operational Permitting (KNDOP)

program. This program has historically included small animal feeding operations (AFOs) that apply their wastewater as a beneficial nutrient source. However, the implementation of this program has expanded with the Waterkeeper Alliance et al. vs. EPA verdict in the 2nd U.S. Circuit. This decision held that in order to have a duty to comply with NPDES regulations, the facility must in fact have, or propose to have, a discharge to waters of the United States. Since these facilities are not allowed to discharge process wastewater due to federal Effluent Limitation Guidelines (ELGs) the commonwealth has chosen to permit them under KNDOP regardless of size. The branch issues approximately 100 construction permits per year, and an additional 100 KNDOPs per year to this facility type.

Oil and Gas Registration

KRS 224 requires registration for any oil and/or gas facility that causes or is capable of causing produced water. In addition, approval is required before an operator shall authorize or allow the transportation of produced water away from any oil and/or gas facility where it is produced. The division has temporarily suspended registration of these facilities due to staff resource issues.

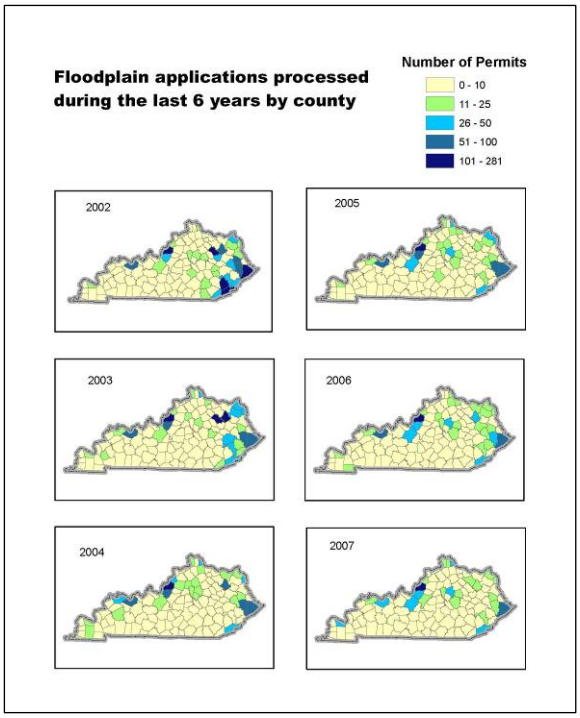
KIMOP

According to KRS 224, any publicly-owned treatment works (POTW) that owns sewer lines discharging into another POTW must obtain a Kentucky Inter-Municipal Operating permit (KIMOP) permit. There are currently 34 active KIMOPs.

Floodplain Management

The Floodplain Management Section has the primary responsibility for the approval or denial of proposed construction and other activities in the regulatory "100-year" floodplain for all streams in the commonwealth. Typical activities permitted are bridges, culverts, residential and commercial buildings, placement of fill, stream alterations or relocations, small impoundments, boat docks and ramps, and water and wastewater treatment facilities.

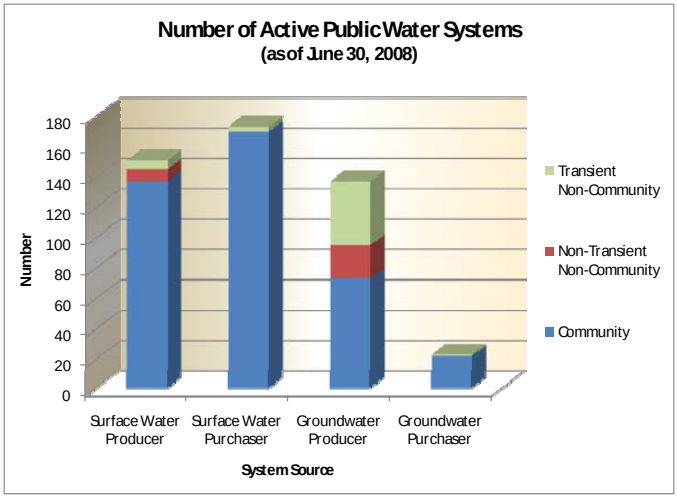
This section is also responsible for coordination of activities between the commonwealth of Kentucky and the FEMA in regard to the NFIP and Community Rating System. Staff members are responsible for representing Kentucky's position regarding floodplain management at various meetings with stakeholders including local government officials, state and federal agencies, as well as individuals and businesses. This program is designed to assist local communities with the adoption and compliance of local floodplain management ordinances.



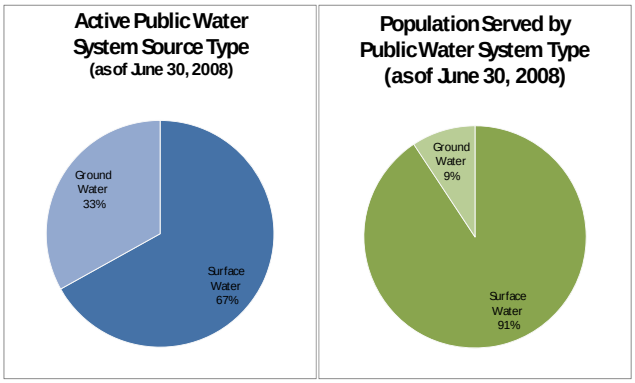
Water Infrastructure Branch

Drinking Water Program

As of June 30, 2008, 484 active public water systems (PWSs) serve 3,828,120 to 3,911,340



Kentuckians (approximately 92 to 94 percent of the current population). Sixty-seven percent of these systems use surface water while 33 percent rely on groundwater as a source serving approximately 9 percent of the population.



In 2008, Kentucky celebrated 10 years of involvement in the drinking water Area-Wide Optimization Program (AWOP), a voluntary effort geared towards surface water treatment plants that encourages them to increase public health protection by improving overall operations' water quality. The initial AWOP efforts were geared towards microbial removal (such as Cryptosporidium) using turbidity as a surrogate. In 2007, Kentucky began evaluating a modification of the program that addresses issues with disinfection by-products (DBP).

Kentucky Drinking Water Technical Assistance staff members utilize the small system set-aside associated with the Drinking Water State Revolving Loan Fund. Under this grant, 1,850 small system contacts were made in the three-year time frame of this report (six staff members). Technical assistance site visits averaged 10 per month per staff member, excluding the section supervisor. Phone calls and e-mails averaged 45 per staff per month, including the supervisor.

Disinfection efficiency measured by C-Ts (disinfection concentration and contact time) was evaluated at 13 water systems. C-Ts have been established at all surface water treatment plants with re-evaluations occurring when water plants expand or change treatment processes. During the summer of 2008, DOW began evaluating groundwater treatment plants for similar disinfection ability, with the focus on virus inactivation.

Kentucky regulations require that all treatment chemicals and products used in the drinking water process be approved by DOW. Over the past three years, 145 chemical changes were approved.

The Surface Water Treatment Rules require any disinfection change to be assessed for potential affects to microbial water quality. Water systems began evaluating changes in disinfection practices as one means of controlling disinfection by-products; however, changes in disinfection should not compromise the ability to control the pathogens in the finished water. Forty-four disinfection

changes were approved over the past three years.

Operational and maintenance issues are addressed on an as-needed basis, including distribution flushing, situations warranting boil water advisories, online analyzer usage, etc. One hundred such issues were reported and addressed over the past three years.

The Stage 2 Disinfection By-Products Rule and the Long-Term 2 Surface Water Treatment Rule were effective in January 2006. Both involve intensive early implementation activities staggered by water system population size. Kentucky entered into an agreement with EPA Region 4 to implement many of the early activities associated with these two rules, including training, tracking of submissions and approving monitoring plans.

- Eighteen DOW-sponsored training events for these two rules were conducted for water systems across the state, focusing on the early implementation. In addition, technical assistance staff members presented similar training at two Kentucky Water and Wastewater Operator Association annual conferences and four sectional meetings plus Kentucky Rural Water Association and Kentucky Public Service Commission training events (two annual conferences and three management training sessions).

- Initial Distribution System Evaluation (IDSE) plans were received and approved for 369 water systems as of June 30, 2008.

- Source water monitoring plans for Cryptosporidium and E.coli were received and approved for 112 surface water systems.

In conjunction with the EPA Technical Support Center (TSC), Kentucky participated in distribution system studies in Falmouth and Nicholasville. In Falmouth, tank studies and sampling protocols for disinfection by-products and chlorine residuals were evaluated; Falmouth is acting upon the recommendations from the study to improve tank turnover and water quality. Nicholasville was a multi-state evaluation, with Kentucky hosting state staff from Pennsylvania and an EPA contractor from Colorado as well as TSC. This study again focused on sampling and tank operation.

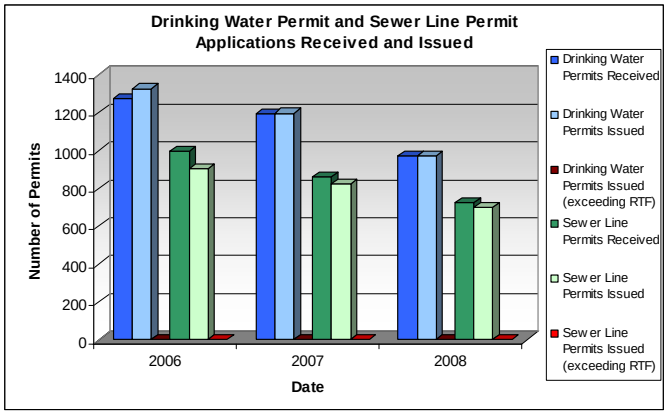
The Kentucky Drinking Water Program also maintains a Web site that includes a wide variety of information from technical documents to regulations to compliance forms. An e-mail distribution list is maintained and used to disseminate information to the regulated public.

Engineering

The Engineering Section reviews and approves (or denies) the engineering plans and specifications for all public water system projects and prepares construction permits. Projects include all water line extensions and relocations, preliminary engineering reports and new or modified water treatment plants, water storage tanks, booster pump stations, raw water intakes, raw water pump stations and raw water transmission lines, and small projects with wells or cisterns. The section also administers the technical portion of SRF and SPAP projects and conducts inspections during the construction of these projects. Section staff members review all Five-Mile Policy issues regarding raw water intakes for water treatment plants and wastewater discharges. The section answers questions and discusses concerns and problems with the general public regarding drinking water issues.

Goals of the Engineering Section:

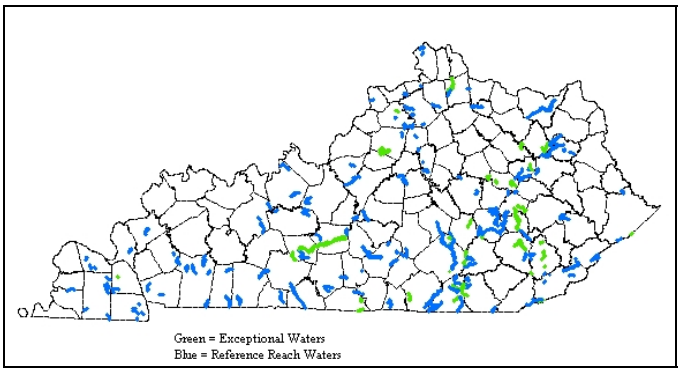
- Continue to complete reviews and issue construction permits for all public water system projects in less than 45 days.
- Continue to encourage public water systems to accept agreed orders for general permits for small water line extension projects (less than 10,000 feet).
- Continue to conduct inspections for all SRF and SPAP projects.
- Begin to issue operating permits for new or modified water treatment plants.
- Begin to conduct inspections on the construction of new or modified water treatment plants that are not SRF or SPAP projects.



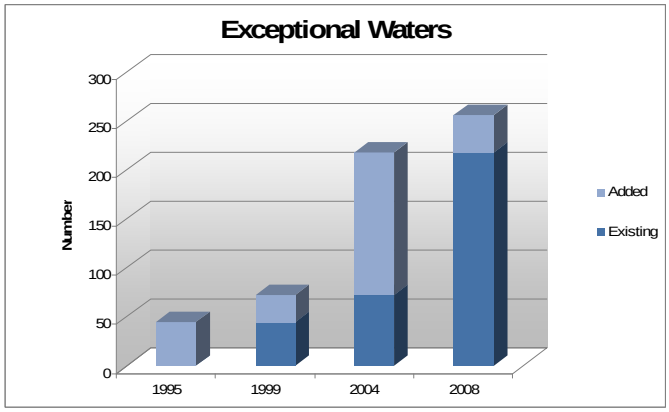
Water Quality Branch

Exceptional Waters

In 1995, Kentucky's antidegradation policy was enacted into regulation (401 KAR 5:030). Waters that had exceptionally high biodiversity, wild rivers, outstanding state resource waters and waters designated as reference reaches were placed into an exceptional waters category. Currently, there are 218 exceptional waters in the state. There are 38 additional waters proposed in the 2008 updated regulation package.



These waters represent the highest quality streams found in Kentucky and are based primarily on the quality of the biological community.

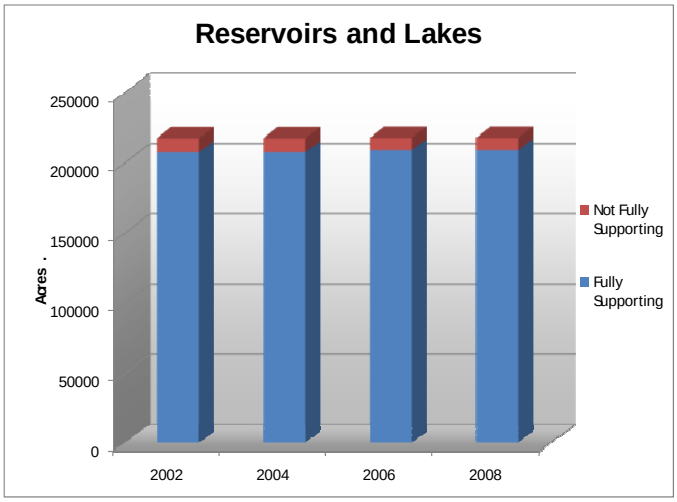


As depicted in the graph above, 45 waters were originally placed into the exceptional waters category in 1995 when the antidegradation implementation regulation was promulgated. In the 1999 triennial review of water quality standards, 27 waters were added to the category. Because of increased monitoring efforts during the rotating basin strategy, more exceptional waters were being identified. The exceptional waters category grew by 146 stream segments in 2004. At the end of the second cycle of the rotating basin strategy, 38 more stream segments have been identified as

exceptional. These are proposed additions to the 2008 water quality standards regulation package.

Reservoirs and Lakes

From 2007 to 2008, over 217,000 acres of lake were assessed. Consistently over the past six cycle-years, less than 5 percent of the acres assessed were determined to not be fully supporting.



Nutrient Criteria Development

Nutrients have been identified as major pollutants of concern when it comes to assessing warm water aquatic habitat use. EPA has focused on guiding states to develop numeric nutrient criteria by developing nutrient concentration guidelines that states can use when developing nutrient criteria. After reviewing the nutrient development guidelines, Kentucky chose to examine biological response relationships with nutrient concentrations. Since algae were perceived to have a more pronounced response to nutrient concentrations than other biota, most of the effort has focused on the diatom/nutrient relationship.

The Water Quality Branch (WQB) has developed these nutrient criteria objectives:

- Explore approaches for using diatom assemblage attributes in nutrient criteria development using existing data.
- Evaluate potential diatom indicators.
- Compare indicator response among Kentucky bioregions.
- Pinpoint nutrient benchmarks statewide and within bioregions.
- Compare biological responses with non-biological approaches.
- Identify data gaps.

The first step in the process was to screen existing data. After sifting through the original dataset, 248 diatom samples were found that had associated nutrient data, were collected during the correct index period and fell within the desired water quality parameters. The next step was to identify the response indicators (metrics) that would be used to examine the diatom response. Many different metrics were identified and used during the process. Third, WQB personnel identified methods to be used to assess the diatom/nutrient response. The Lowess Contour Threshold approach was chosen to determine the diatom response to total phosphorus, while it was decided that a biocriterion approach would better describe the diatom response to total nitrogen. Results from this effort resulted in good diatom response to total phosphorus and total nitrogen for certain areas of the state (Mississippi Valley Lowess Plain and Interior River Hills and Valleys ecoregions) but not for others (Pennyroyal and Bluegrass bioregions). Certain areas of the state have been identified as needing more chemical

and diatom data in order to determine the diatom/nutrient response.

Since data gaps exist, WQB has been involved in obtaining grants to assist in the collection of data in the areas where the gaps exist. Kentucky has been very successful in obtaining 104(b)3 nutrient and supplemental 106 monitoring grants in the past several years. Five grants have been awarded for a total of $142,045 to collect additional nutrient and diatom data for nutrient criteria development.

Year	Source	Name	Agencies Involved	Subecoregion / Bioregion	Amount
2006	104(b)3	Reference Reach Nutrient Study	KDOW	Statewide	$12,000
2007	104(b)3	71a Nutrient Study	USGS; KDOW	Crawford-Mammoth Cave Upland Subecoregion	$40,000
2007	104(b)3	Lakes Nutrient Data Analysis	EPA	Statewide	$40,000
2007	106	Mountain Nutrient Study	KGS; KDOW	Mountain Bioregion	$50,000
2008	106	71e Nutrient Study	WKU; KDOW	Western Pennyroyal Karst Plain	$45,000

Once these data are collected, WQB will develop nutrient criteria for the entire state and propose these criteria in the next triennial review of water quality standards regulations.

TMDLs

During FY2008, the TMDL field staff collected samples from 192 sites, with some sites sampled for more than one type of parameter:

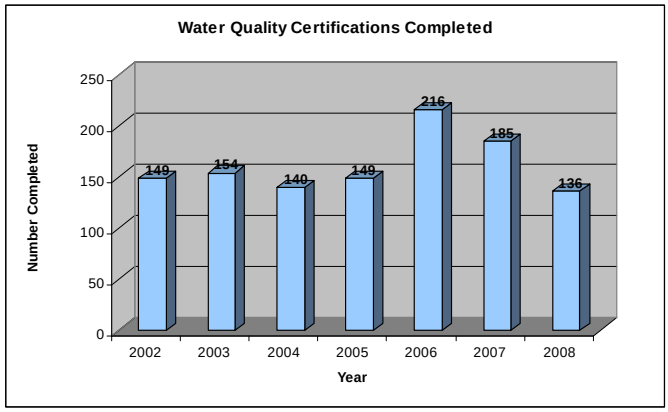
- 182 chemical
- 17 biological
- 54 bacteriological

This resulted in the collection of the following samples:

- 913 chemical
- 17 biological
- 276 bacteriological

Water Quality Certifications

During 2007-2008 there was a decline in water quality certifications written mainly because all water quality certifications for mining (previously approximately 50-60 per year) were transferred to the Department for Natural Resources. The Water Quality Certification Section conducted 316 site visits this year. These were divided into technical visits, Mitigation Review Team visits, monitoring and compliance visits, and application review visits. Staff members continue to assist applicants in minimizing or avoiding impacts to the waters of the commonwealth.



The section has begun public noticing individual water quality certifications that have complete applications. There is also the potential for recovering costs through a fee regulation that is currently going through the legislative process.

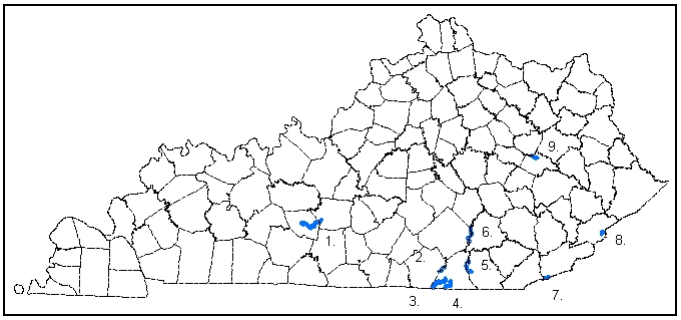
The Water Quality Certification Section has taken advantage of several useful training sessions. These include the Kentucky Erosion Prevention and Sediment Control Training, Natural Stream Channel

Design, the River Course II training in North Carolina and the Ohio Rapid Assessment Method for Wetlands.

The section is looking forward to the fee regulation and the ambient wetland monitoring and assessment that will be implemented in 2009. Both are currently under consideration. Both represent program-enriching opportunities.

Wild Rivers

KRS 146 provides for the establishment of the Wild Rivers Program and the designation of nine stream segments as Wild Rivers. The coordinator is responsible for monitoring conditions within the Wild River corridors, inspecting corridors for prohibitive land activities and purchasing land or easements within or adjacent to Wild River corridors. On a quarterly basis, the Wild Rivers program monitors water quality and inspects the immediate area around the water quality station for land use violations. The corridors are inspected aerially at least once during the fiscal year. Follow-up land verification and inspection of possible prohibitive activities is conducted as the need arises.



The map above shows the locations of the nine Wild River segments:

1. Green River
2. Little South Fork
3. Rock Creek
4. South Fork Cumberland River (Big South Fork)
5. Cumberland River
6. Rockcastle River
7. Martins Fork
8. Bad Branch
9. Red River

With the exception of the Red River in Wolfe and Menifee counties and the Green River in Hart and Edmonson counties, all of Kentucky's Wild Rivers are located in the Cumberland River Basin.

WILD RIVERS LAND OWNERSHIP

Property	County	River	Year	Acreage	Tracts
Stephens	McCreary	Cumberland	1997	160*	1
Tucker	McCreary	L. South Fork	1998	24	1
Sherry Medlin	Harlan	Martins Fork	1999	10	1
Croushorn	Harlan	Martins Fork	2000	1,600	3
Polly Howard	Harlan	Martins Fork	2001	11	2
Smith	Wolfe	Red	2005	150	1
Goebel	Hart	Green	2005	120	1
Reynolds	Laurel	Sinking Creek	2006	301	1
TOTAL:				**2,376**	**11**

*Total acreage; approximately 10 acres is within the Wild River corridor boundary, and this portion only was purchased with Wild Rivers-dedicated funds (remainder purchased by Kentucky Department of Parks, as it is adjacent to Cumberland Falls SRP.

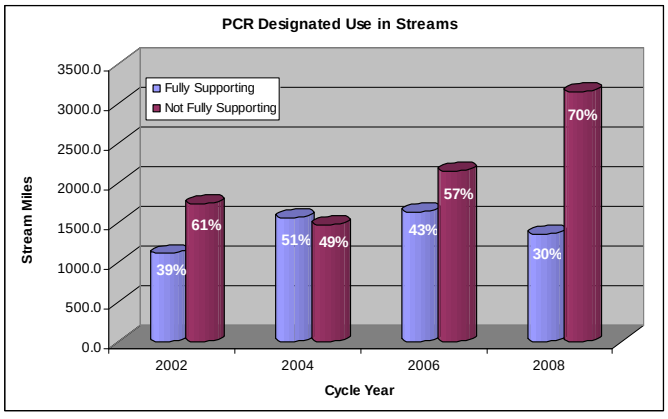
KRS 146.565 and 146.570 provide for the establishment of the Heritage Land Conservation Fund. The fund is sustained with money generated from enforcement actions and nature license plate sales. This money is used to purchase

a) Natural areas that possess unique features such as habitat for rare and endangered species.
b) Areas important to migratory birds.
c) Areas that perform important natural functions that are subject to alteration or loss.
d) Areas to be preserved in their natural state for public use, outdoor recreation and education.

Ten percent of the fund is designated to the Wild Rivers Program for the purchase of properties within or adjacent to Wild River corridors.

Primary Contact Recreational (PCR) Designated Use in Streams

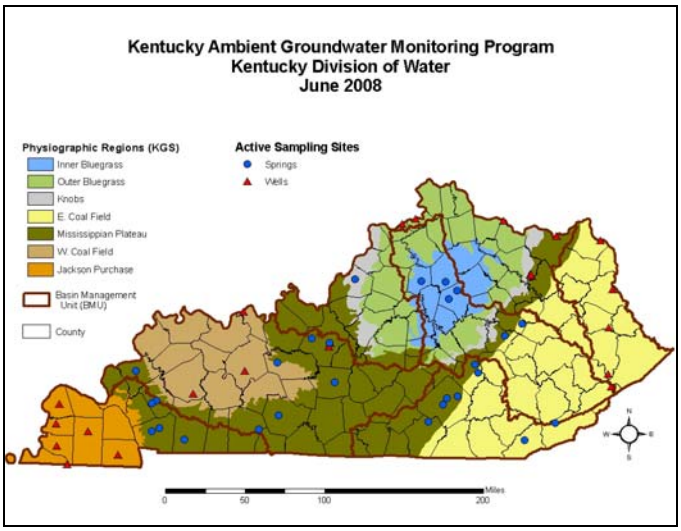
The number of assessed stream miles for PCR use has increased each year since 2002. Since 2004, the percentage of those streams fully supporting PCR use has decreased from 51 to 30 percent. According to the 2008 Integrated Report, 70 percent of the stream miles assessed for PCR did not fully support the designated use.



Watershed Management Branch

Ambient Groundwater Monitoring Program

The Ambient Groundwater Monitoring Network program is a statewide effort to monitor ambient groundwater quality conditions to provide ambient groundwater quality information to resource managers, groundwater users, including public and private water suppliers, planners and others.



Public water supplies, private wells and springs are included in the program to ensure that all aspects of groundwater are monitored. Approximately 50 currently active sites are monitored by program staff and provide information on groundwater quality across the state. These sites are distributed throughout Kentucky and provide data on all major subsurface flow regimes represented in the state, including granular flow, primarily in alluvial aquifers, conduit flow in karst aquifers and fracture flow in bedrock aquifers.

One-time ambient groundwater samples are also collected as part of investigations responding to citizen complaints and requests from private citizens for technical assistance with care and maintenance of water wells and springs. Analyses from these one-time sites are added to the program

database, thus broadening the information base on ambient groundwater quality in Kentucky. The ambient groundwater monitoring network program is also supplemented by data from other projects, including 319-funded assessment projects, data from state-funded projects (e.g. SB271b projects), the Pesticides Monitoring project, and other sources of ambient groundwater quality information.

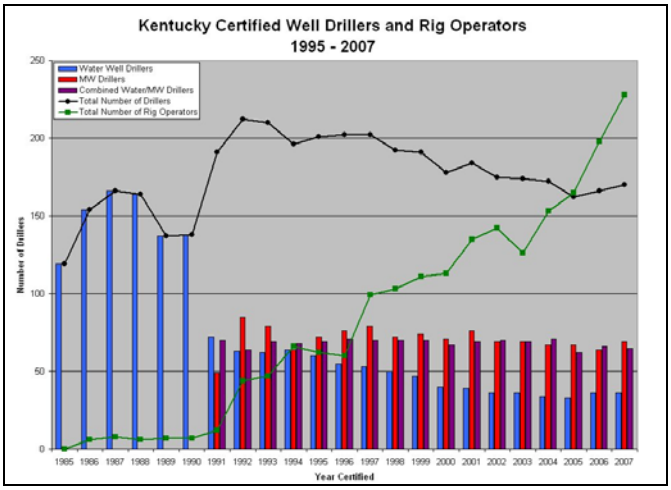
Ambient groundwater quality data support DOW's mission to protect public health and the environment. In addition, EEC's strategic plan supports the goal of tracking environmental conditions as a measure of program effectiveness. Ambient groundwater quality monitoring supports several other programs, including the Certified Water Well Drillers program, the Wellhead Protection (WHP) program, the Groundwater Protection Plan (GPP) program, surface water monitoring, the development of TMDLs and the Pesticide Management Plan program administered through the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) in the Department of Agriculture.

Groundwater monitoring during FY 2008 included:

- 135 samples from 58 sites (wells and springs) for the Ambient Groundwater Monitoring Program.
- 112 samples from 30 sites in Pike and Letcher counties for the Elkhorn Creek NPS study (BMU5, Round 2).
- 16 samples from four sites for the Pesticides Memorandum of Agreement Project.
- 63 samples from 63 sites for special assistance requests or complaint responses.
- 26 dye-traces for karst mapping projects and groundwater technical assistance investigations.
- Assistance to eight county health departments with dye-traces relative to localized contamination investigations.

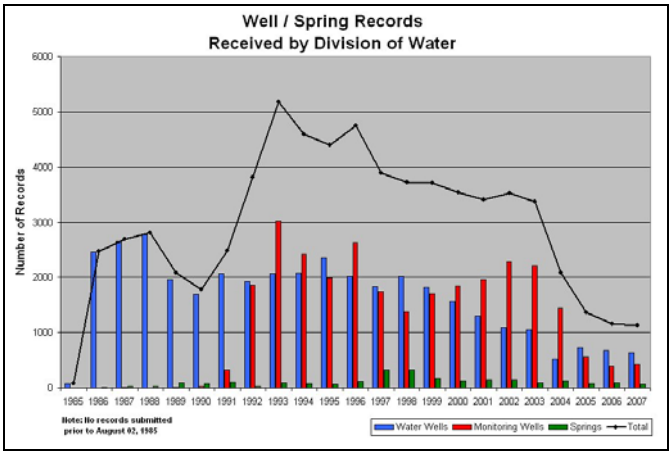
Certified Water Well Drillers Program

The Water Well Drillers Certification statute (KRS 223.400 to 223.991) passed in 1984 required that all water well drillers be certified by DOW, formed the Water Driller Certification Board and required DOW to promulgate certification and well construction standards regulations. The certification regulation (401 KAR 6:320) and well construction regulation (401 KAR 6:310) were promulgated in 1985; monitoring well construction requirements were added in 1991. Drillers are required to construct wells in accordance with regulations and submit required paperwork to DOW and the well owner, including well completion information and bacteria testing (for potable wells).



In 2007, DOW processed 170 recertification applications for water well, monitoring well and combined water and monitoring well drillers. Active rig operators for the year totaled 276. In 2007, 1,130 records were submitted: 634 water well records, 430 monitoring well records and 66 spring inventories. Submitted well construction paperwork is reviewed by staff members and applicable data is entered into a database that

currently houses more than 63,000 water well, monitoring well and spring records.



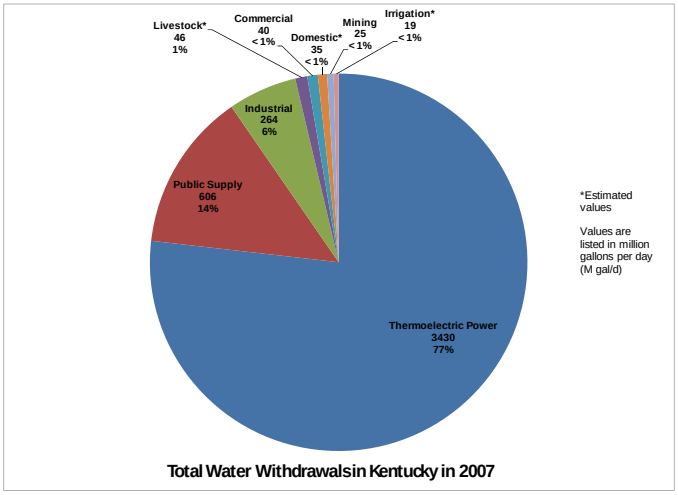
Water Withdrawal Permitting Program

The Water Withdrawal Permitting program oversees all withdrawals in the state that average at least 10,000 gallons per day, with the exception of water required for domestic and agricultural purposes and for steam-powered electricity generating plants. There are 755 active water withdrawal permits.

Permit holders are required to keep accurate records of daily water use and submit reports of that information to DOW monthly. During 2007, 47 permit holders who had failed to meet this requirement were brought back into compliance.

A relatively new method of monthly water withdrawal report submittal is available to the regulated community. The Radius program allows permit holders to submit monthly reports electronically. As of December 2007, there were 49 total users of Radius. That is an increase of eight from the previous year.

Water used for purposes of generating thermoelectric power accounted for almost 80 percent of the total water withdrawn in Kentucky in 2007. A majority of the water that is used for power generation in Kentucky is not consumed and is used primarily for cooling purposes and then returned to the source. When thermoelectric power production is excluded, public water supply and industrial water use account for 85 percent of the total water withdrawn in Kentucky.



In 2007 the average daily amount of water withdrawn by regulated users was 935 million gallons per day. Surface water sources supply approximately 80 percent of all water withdrawals that are regulated by DOW.

Water withdrawn from surface and groundwater sources for uses regulated by DOW

Source	Potable Water Supply	Industrial	Mining	Commercial[1]	TOTAL
Surface[2]	499	194	18	30	741
Ground[3]	107	70	7	10	194
TOTAL	606	264	25	40	935

1. Commercial uses include water for golf courses, state parks, geothermal cooling and fish hatcheries
2. Surface sources include rivers, streams, lakes and ponds
3. Groundwater sources include wells, springs and underground mines

Wellhead Protection Program

Wellhead protection is the prevention of groundwater contamination through management of potential contaminant sources within the delineated recharge area of a water supply well or spring. The 1986 Amendments to the Safe Drinking Water Act required states to develop wellhead protection programs (WHPP) to safeguard public water supplies using groundwater as their source. The WHPP requires five key elements:

1) a planning team composed of community, governmental, regulatory and private organizations.
2) delineation of the groundwater source's recharge area.
3) a thorough inventory of potential contaminant sources within the recharge area.
4) appropriate management strategies for all potential contaminant sources identified.
5) contingency water supply plans in the event of groundwater contamination.

Kentucky's WHPP was approved by EPA in 1993 and is coordinated by DOW under the Water Supply Planning Regulation KAR 401 4:220. The program started with 270 public water supply systems. There are currently 169 active systems: 96 community, 34 nontransient / noncommunity, and 39 nontransient/community.

WHPP in conjunction with the Source Water

Protection Program is continuing its efforts in the signage program. WHPP is seeking funding to supply Water Supply Protection road signs for communities that want to use these signs as part of their management strategy.

WHPP continues to update the wellhead protection areas (WHPAs) in the GIS system as new wells are brought on line and old wells are closed. The delineated WHPAs are also being updated where the delineation methods have changed the WHPAs from the previously approved versions. WHPP is also incorporating information from the contaminant source inventories into GIS coverage. WHPP reviews completed during FY 2008:

WHPP Reviews Completed FY 2008			
	Phase I	**Phase II**	**5-Year**
Reviewed	3	6	7
Approved	3	4	3
Developed	0	1	3

Additionally, WHPP staff members engaged in the following activities:

- One GUDI (Groundwater under the Direct Influence of surface water) determination
- 21 water withdrawal reviews
- 55 WHPP technical assists
- Eight site visits
- Nine public meetings

Quality Assurance

"A quality system is a framework by which an organization applies sufficient quality control and quality assurance practices to ensure the results of its environmental program meet or exceed expectations" (American Society for Quality, ANSI/ASQ E4-2004). DOW's Quality Assurance Program is a means to plan, implement, evaluate and assess in a systematic way the goals of an environmental policy or program.

Quality Assurance activities for FY 2008 included QAPP review, assignment of staff to a quality team, assignment of staff to a core quality team, review of the quality management plan for DEP, training of staff in quality assurance documentation, preparation of standard operating procedures and compilation of standard operating procedures

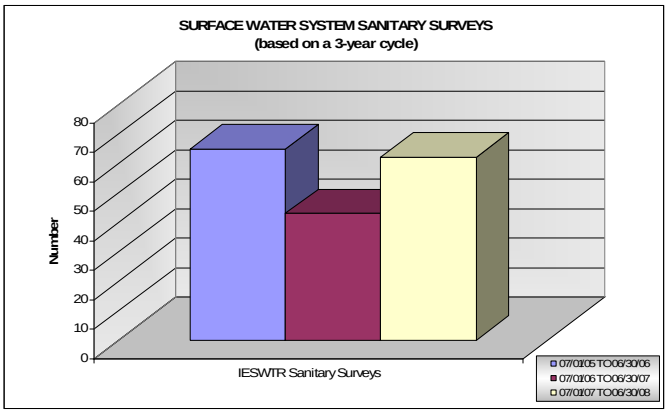
(SOPs) into a cohesive list, discussions of volunteer monitoring data use procedures, and the drafting of several documents to be used in contracting and data review by DOW staff that are assigned quality assurance responsibilities.

Documents prepared are summarized below:

- ✓ 24 total QAPPs reviewed (includes 319 and 106 grant funding sources)
- ✓ 156 total SOPs reviewed and compiled
- ✓ Four Quality Assurance teams formed/in existence
- ✓ DEP Quality Management Plan reviewed
- ✓ 69 employees attended two-day EPA training
- ✓ One employee attended three-day EPA Quality Assurance Conference
- ✓ Five documents drafted for QA program

Floodplain Management and Dams Program

The Compliance and Technical Assistance Branch (CTAB) performs only a few dam inspections annually. The stream construction inspections are linked to the statutory dam regulation mandate and authorization. The investigations primarily concern flooding and flooding prevention. CTAB staff do not schedule compliance monitoring inspections, but respond to complaints; in Eastern Kentucky this requires substantial effort.

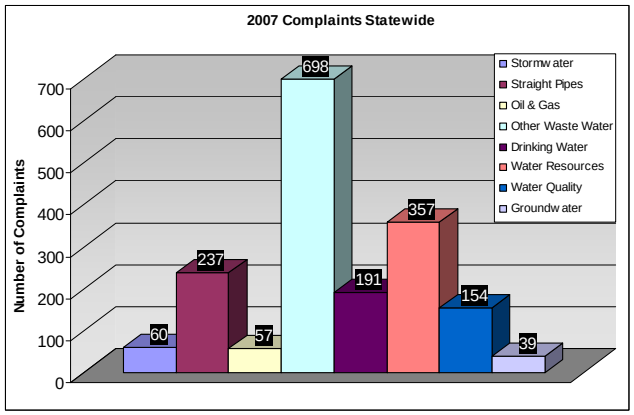


Improve Compliance Determination

Complaint Investigations

Public, private and governmental entities contact CTAB personnel regarding many subjects and perceived problems. Issues received from citizens or government personnel regarding activities that appear to compromise the public health and environment all result in a response (education or redirection) or action (investigation). The DOW complaints coordinator and field staff listen to the complainants' observations of the situation and document the report.

Complaints and inquiries from the public are a valuable resource to ensuring compliance of the laws and regulations regulated through DOW. After first ensuring that the problem is clearly understood, every complaint is recorded, prioritized and dispatched to the appropriate field staff for investigation.



From 2005 through 2007, 15,338 complaints were logged into the DEP system for investigation with 51 percent directly involving DOW. On average, 84 percent of the complaint investigations assigned to DOW have been environmentally closed during this time period. Another 2 percent were referred to the Division of Enforcement or to outside agencies for their action.

Department for Environmental Protection
Division of Water

FY 2009 OPERATIONAL PLAN

Objective 1.0 --- Develop sustainable permitting programs that provide sound decisions within regulatory time frames.

- **Tactic 1.1**: Maintain progress toward reducing and/or maintaining zero permit and data entry backlogs

  - **Measures:**
    - The total number of permits pending
    - The total number of permits pending that exceed regulatory time frames
    - The percentage of permit reviews completed within regulatory time frames
    - The percentage of permit reviews that exceed regulatory time frames

  - **Baseline:** The SFY 2008 DOW permit backlog

    - **Action 1.1.1:** Maintain and enhance TEMPO report tracking to target efforts toward backlog elimination. Evaluate and make adjustments as necessary on a weekly basis.

    - **Action 1.1.2:** Allocate staff as necessary to assist in permit reviews and data entry.

    - **Action 1.1.3:** Ensure permits are issued within regulatory time frames

- **Tactic 1.2**: Implement organizational structure that provides cross-program training and flexibility in assignment of staff to meet needs as they arise.

  - **Measures:** Employee productivity rates for permitting, data entry and scanning

  - **Baseline:** The SFY 2008 productivity rates

    - **Action 1.2.1:** Cross train staff across regulatory programs. Evaluate workload and production on a quarterly basis and adjust assignments accordingly.

    - **Action 1.2.2:** Cross train scan staff to perform data entry. Monitor productivity and workload of scan staff on a monthly basis and adjust data entry assignments accordingly by December 2008.

- **Action 1.2.3:** Survey division personnel interests, technical/programmatic strengths, and interest in cross-program assignments by March 2009.

- **Action 1.2.4:** Optimize federal time-code use by division personnel by Oct. 15, 2008.

□ **Tactic 1.3:** Evaluate processes to improve efficiency

- **Measures:**
  - Employee productivity rates for permitting, data entry and scanning.
  - Number of eMORs submitted
  - Number of staff trained in LEAN
  - Number of LEAN program evaluations

- **Baseline:**
  - SFY 2008 backlog percentages.
  - SFY 2008 employee productivity rates.
  - Number of eMORs submitted July 2008

  - **Action 1.3.1:** Implement electronic receipt of storm water general permit notices of intent and coal general permit notices of intent by June 30, 2009.

  - **Action 1.3.2:** Evaluate opportunities for electronic receipt and processing of other applications and data by June 30, 2009.

  - **Action 1.3.3:** Develop a plan for implementing submittal of DMRs electronically by March 30, 2009

  - **Action 1.3.4:** Complete implementation and promote the use of drinking water eMORs and data entry screens for Drinking Water Watch. Evaluate software packages available for Safe Drinking Water Act (SDWA) electronic data submittal and make a recommendation by Oct. 30, 2008.

  - **Action 1.3.5**: Key staff to attend LEAN training and develop a prioritized schedule for evaluating permitting and data entry processes by March 31, 2009.

  - **Action 1.3.6**: Educate staff in the capabilities of GIS, and develop and institutionalize the use of GIS tools for programmatic use, data/information assessment, and trend analysis. Ongoing.

  - **Action 1.3.7:** Complete the floodplain map modernization process for the remaining 34 counties in Kentucky and identify necessary procedures for keeping them up to date by Sept. 30, 2008

  - **Action 1.3.8:** Develop a plan for making improvements to and fully implementing a water resources database by June 30, 2009.

  - **Action 1.3.9:** Institute a process to evaluate how each permitting program currently and potentially functions within the context of a watershed approach and focus by June 30, 2009.

- **Tactic 1.4**: Identify activities that are not providing sufficient added value and target for elimination, or shift to other responsible parties.

    - **Action 1.4.1:** Evaluate the potential elimination of the oil and gas registration program. Initiate regulatory revisions as appropriate by February 2009.

    - **Action 1.4.2:** Expand the use of agreements with water and sewer utilities which have engineering resources to conduct water line extension and sewer line extension reviews within their systems and with DOW oversight.

    - **Action 1.4.3:** Evaluate DOW's Web site and make improvements to better deploy information regarding permit status, data and FOIA documents in order to reduce the request demand DOW staff.

    - **Action 1.4.4:** Identify the process and promote the concept of developing MS4 qualified local programs.

- **Tactic 1.5:** Update fee regulations to provide resources to meet federal and state obligations and improve permitting programs.

    - **Action 1.5.1:** Finalize 401 WQC fee regulations. File KPDES and drinking water laboratory certification fee regulations by September 2008.

    - **Action 1.5.2:** Evaluate remaining permitting programs and develop a prioritized schedule for fee update or development by December 2008.

    - **Action 1.5.3:** Develop and file at least one additional fee regulation by March 2009.

Objective 2: --- Protect and improve the quality and management of water resources.

- **Tactic 2.1:** Fully implement wet weather compliance programs

    - **Measures:**
        - Number of delisted waters
        - Number of CSO long-term control plans approved
        - Number of SSOPs approved

    - **Baseline:**
        - The 2000 impaired waters list
        - Number of approved long-term control plans in July 2008
        - Number of approved SSOPs in July 2008

    - **Action 2.1.1:** Perform all necessary reviews and inspections associated with CSO / SSO agreements. Ongoing, however, 50 percent will be completed by Sept. 30, 2008, and the remaining completed that come due this SFY completed by June 30, 2009.

- **Action 2.1.2:** Have each community with recurring SSOs (SSO occurring more that once during a 12 month period) operating under an approved sanitary sewer overflow plan by March 2009.

- **Action 2.1.3:** Issue the next generation of municipal separate storm sewer system permits (MS4) by December 2008 and perform all necessary reviews and inspections.

- **Action 2.1.4:** Issue the next generation of storm water construction permits and provide outreach to the regulated community regarding implementation. Three construction-related general permits will be in effect by December 2008 and outreach will take place in March 2009.

- **Action 2.1.5:** Update the Agriculture Water Quality Corrective Measures Protocol and best management practices and fully implement them by October 2008.

□ **Tactic 2.2:** Reduce pollutants in surface waters

- **Measures:** Number of delisted waters

- **Baseline:** The 2000 impaired waters list

  - **Action 2.2.1:** Complete data collection and analysis necessary for development of nutrient criteria.

  - **Action 2.2.2:** Where adequate data and effects thresholds exist, identify nutrient targets for waters impaired due to nutrients from point source discharges and develop an implementation plan for KPDES permitting by December 2008.

  - **Action 2.2.3:** Initiate development of a statewide nutrient reduction plan for phosphorus and nitrogen consistent with the Mississippi River Gulf Hypoxia Task Force recommendations.

  - **Action 2.2.4:** Work with agricultural agencies to incorporate DOW priorities in the prioritization of Farm Bill funding distribution, state cost-share programs funding, and the NPS program grants by June 2009.

□ **Tactic 2.3:** Develop and implement watershed plans or TMDLs as appropriate

- **Measures:**
  - Number of watershed plans developed
  - Number of watershed plans being implemented
  - Number of approved TMDLs

- **Baseline:**
  - Number of watershed plans developed by July 1, 2008
  - Number of watershed plans being implemented by July 1, 2008
  - Number of approved TMDLs as of July 1, 2008

- **Action 2.3.1:** Develop an implementation strategy for addressing the challenges in impaired watersheds by June 30, 2009.

- **Action 2.3.2:** Identify impaired waters that are candidates for bypassing TMDL development and develop a schedule for watershed planning for those waters by June 30, 2009.

- **Action 2.3.3:** Define what is / is not a watershed-based plan (WBP), the authority for approving WBPs, and determine the implications to permitting programs, TMDLs, Agriculture Water Quality obligations and baseline requirements, permit offsets, and water quality trading by June 30, 2009.

- **Action 2.3.4:** Develop 80 TMDLs by June 30, 2009.

□ **Tactic 2.4:** Develop an outreach strategy for elected officials and the public regarding water quality and quantity.

- **Action 2.4.1:** Develop presentations regarding the importance and implications of the wet weather compliance programs, nutrient criteria, TMDLs, emerging pollutants and watershed planning for state and local officials as well as the regulated community. Develop a prioritized plan for presenting this information, and work with basin coordinators and basin teams to promulgate this information by March 30, 2009.

□ **Tactic 2.5**: Implement new organizational structure to improve efficiencies in collection of water quality data and assessment and analysis of water quality conditions and trends.

- **Action 2.5.1:** Establish priorities for the new GIS and Data Analysis section in the Watershed Management Branch and begin evaluating water quality trends by Jan. 31, 2009.

- **Action 2.5.2:** Evaluate opportunities for improving water quality assessments and gaining efficiency in data collection with the new Monitoring Section in the Water Quality Branch.

- **Action 2.5.3:** Evaluate an inter-branch monitoring workgroup to identify data needs and develop prioritized monitoring plans.

- **Action 2.5.4:** Provide training in GIS tools and statistical analysis to improve planning, data analysis, and data assessment.

Objective 3.0 --- Ensure the integrity of water infrastructure through proper planning and promotion of sustainable infrastructure (SI) concepts**.**

□ **Tactic 3.1:** Promote EPA's Sustainable Infrastructure Initiative

- **Measures:**
  - Average annual volume of inflow and Infiltration
  - Average annual volume of water loss at PWSs

- Number of customers with water/sewer service
- Number of at-risk dams and number of people at risk below dams
- Annual number of boil water advisories
- Average annual water/sewer rates

- **Baseline:**
  - SFY 2008 average annual volumes and rates
  - Number of customers with water/sewer service by July 2008
  - Number of at risk dams and number of people below at risk dams as of July 2008
  - Number of boil water advisories during SFY 2008

    - **Action 3.1.1:** Assemble a SI team within the division that will seek opportunities to promote SI internally and externally by August 2008.

    - **Action 3.1.2:** SI team will identify key stakeholders from government, industry, and community groups to engage in promoting SI concepts and seek opportunities to develop collaborative efforts by February 2009.

    - **Action 3.1.3:** SI team will evaluate internal processes to further integrate drinking water, wastewater and storm water planning by February 2008.

    - **Action 3.1.4:** SI team will identify obstacles that hinder efforts to perform integrated water planning and provide recommendations to eliminate or work around these obstacles.

    - **Action 3.1.5:** Evaluate the prioritization formulas for the CW and DW SRFs to incorporate criteria elements for SI concepts such as water conservation, green infrastructure and infrastructure planning on a watershed basis by October 2008.

    - **Action 3.1.6:** Complete the Drinking Water Capacity Development Strategy and submit to EPA for approval by November 2008. Evaluate for regulation update by November 2008.

    - **Action 3.1.7:** File proposed revisions to 401 KAR 5:006 to streamline the planning process and to promote wastewater infrastructure planning on a watershed basis by June 2008.

    - **Action 3.1.8:** Develop a drought response plan by December 31, 2008, and begin to develop a statewide drought mitigation strategy. To the extent possible, incorporate water conservation and reuse into the strategy.

    - **Action 3.1.9:** Further promote the EPA wastewater Capacity, Management, Operations and Maintenance (CMOM) program and facilitate its incorporation into enforcement agreed orders.

    - **Action 3.1.10:** Further promote the drinking water Area Wide Optimization Program and evaluate opportunities to further integrate its concepts into the realm of infrastructure operational programs.

- **Action 3.1.11:** Further promote local governments' participation in the National Flood Insurance Program (NFIP).

- **Action 3.1.12:** Complete revisions to 401 KAR 4:030 – Dam Safety Regulations and file proposed regulations.

- **Action 3.1.13:** Develop an outreach strategy for state and local elected officials regarding the importance of sustainable infrastructure and implications of failing to provide for it by November 2008. Implement a schedule of presentations to make for legislative subcommittees, KIA and ADDs, and to local officials Include information about asset management tools, growth readiness and green infrastructure.

- **Action 3.1.14:** Develop a public education strategy to raise awareness regarding the benefits of water conservation, green infrastructure, asset management and other SI concepts.

- **Action 3.1.15:** Evaluate the pros and cons associated with issuing operational permits to public water systems and provide recommendations.

- **Action 3.1.16:** Incorporate decentralized and on-site wastewater infrastructure evaluation (via anti-degradation review process) into wastewater infrastructure planning, funding, and permitting by May 2009.

- **Action 3.1.17:** Work with local officials to identify and develop sustainable funding mechanisms for watershed planning and plan implementation.

□ **Tactic 3.2:** Improve efficiency and decision making regarding water infrastructure

- **Measures:**
  - Time frame for reviewing wastewater facility plans
  - Time frame for reviewing SRF projects

- **Baseline:**
  - SFY 2008 review timeframes

  - **Action 3.2.1:** Implement the new organizational structure and evaluate opportunities to improve our decision making processes to make them more efficient, effective and consistent by June 2009.

  - **Action 3.2.2:** Work with other state and federal agencies to finalize a uniform environmental review process and initiate implementation by March 2009.

  - **Action 3.2.3:** Identify where data gaps exist regarding stream flows throughout the state and develop protocols for incorporating gauging requirements in water withdrawal and KPDES permits.

  - **Action 3.2.4:** Update operating agreement with KIA and submit to EPA for approval by March 2009.

Objective 4.0 --- Focus compliance efforts to meet federal and state obligations and promote objectives 1 – 3 of the division's operational plan.

□ **Tactic 4.1:** Meet federal and state obligations

- **Measures:**
  - Percentage of 106 work plan inspections conducted
  - Number of sanitary surveys performed
  - Compliance rates for KPDES permitted facilities
  - Compliance rates of PWS facilities
  - EPA submittal date for drinking water actions

- **Baseline:** FFY 2008 & 2009 106 & PWS Workplan

  - **Action 4.1.1:** Complete drinking water primacy packages and submit to EPA for approval by January 2009.

  - **Action 4.1.2:** Implement the State Review Framework recommendations that include updating the Enforcement Management System for KPDES permits and submit to EPA for approval by October 2008.

  - **Action 4.1.3:** Complete revisions to the drinking water laboratory certification program and submit to EPA for approval by March 2009.

  - **Action 4.1.4:** Update drinking water regulations to be consistent with federal regulations. File regulation package by March 2009.

  - **Action 4.1.5:** Complete 106 and PWS workplan inspection commitments.

□ **Tactic 4.2:** Promote objectives 1 – 3 of DOW's Operational Plan

- **Measures:**
  - Number of wet weather inspections conducted
  - Number of investigations performed
  - Number of training events conducted for DOW staff
  - Number of training events for PWSs
  - Percent of inspections resulting in a compliance rating of No Violations Observed
  - Number of enforcement actions taken

- **Baseline:** 106 Workplan Commitments

  - **Action 4.2.1:** Develop schedule of inspections for wet weather compliance programs (storm water construction, MS4, agriculture, etc.) focusing on watersheds that are impaired due to contributions from these sources by September 2008.

  - **Action 4.2.2:** Provide training for new drinking water rules.

- **Action 4.2.3:** Focus compliance efforts on point source discharges identified as causing or significantly contributing to use impairment.

- **Action 4.2.4:** Develop a "menu" of projects to consider as Supplemental Environmental Projects (SEPs) for enforcement case settlement negotiations (i.e. gauging stations, alternate water supply development, nonpoint source projects, etc) by December 2008.

□ **Tactic 4.3:** Improve efficiencies in compliance determinations

- **Measures:**
  - Number of inspections completed
  - Percentage of facilities using e-notification
  - Number of training sessions developed
  - Percentage of inspectors trained

- **Baseline:** Curricula developed and implemented in 2008 and percentage of inspectors trained

  - **Action 4.3.1:** Implement new organizational structure and evaluate for opportunities to improve efficiencies an inspection processes and increase inspectors' knowledge and understanding of the drinking water program.

  - **Action 4.3.2:** Expand the availability of e-notification process to all regulated facilities by October 2008.

  - **Action 4.3.3:** Establish an annual training curriculum to increase job knowledge, consistency and efficiency.

□ **Tactic 4.4:** Identify activities that are not providing sufficient added value and target for elimination, or shift to other responsible parties.

- **Measures:**
  - Number of dam inspections
  - Number of Oil & Gas inspections vs. complaint investigations
  - Percent reduction of workplan commitments

- **Baseline:**
  - Dams inspected during SFY 2008
  - Oil & Gas inspections in SFY 2008
  - FFY 2008 Workplan

  - **Action 4.4.1:** Evaluate the feasibility of developing a dam certification requirement for dam owners that will reduce the number of dam safety inspections that must be conducted by DOW staff.

  - **Action 4.4.2:** Limit oil and gas inspections to complaint response by July 2008.

- **Action 4.4.3:** Revisit next year's work plan obligations with EPA and attempt to reduce level of obligation for activities that have limited value.

- **Action 4.3.4:** Work with PSC to improve boil water advisory notification process.

Objective 5.0 --- Institutionalize a culture of "Mission Focus" within the division.

- **Tactic 5.1:** Integrate the operational plan and the program, organizational and process-improvement priorities into division culture.

  - **Measure:** Percentage of staff familiar with mission statement, vision, core values, and operational plan of the division.

  - **Baseline:** October/November 2008 e-survey results.

    - **Action 5.1.1:** Develop a vision statement and core values for the division, and develop a symbol or logo and motto that reflect the division's mission, vision, and core values by Oct. 31, 2008.

    - **Action 5.1.2:** Develop a program where mangers recognize employees for behaviors relating back to core values and roll it out for peer-to-peer recognition. This includes the development of a mechanism to promote personal leadership / ownership and responsibility ("I" statements) among each employee by March 31, 2009.

    - **Action 5.1.3:** Develop a manager's toolbox that includes information regarding personnel management rules and tools, training tools for staff and managers, program management tools, including, organizational, process evaluation, and communication tools, and employee recognition and reward tools by June 30, 2009.

    - **Action 5.1.4:** Schedule two division-wide meetings per year to roll out operational plan and revisit core values.

    - **Action 5.1.5:** Incorporate operational plan elements and the elements of program, organizational and process-improvement priorities into individual work plans by Jan. 31, 2009.