

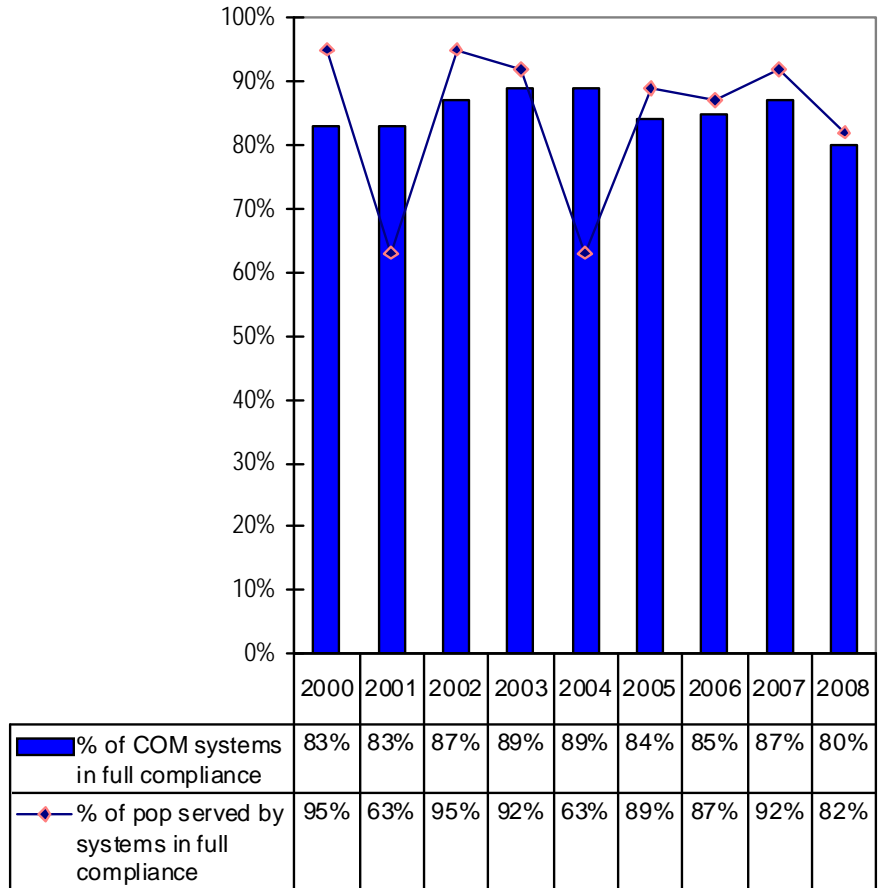
WATER THAT IS SAFE TO DRINK: KNOW IF DELIVERED WATER IS MEETING STANDARDS

INDICATOR: NUMBER OF PWS/POPULATION WITH NO MONITORING VIOLATIONS OR REPORTING REQUIREMENT VIOLATIONS FOR HEALTH BASED STANDARDS

WHY IS THIS IMPORTANT?

It is important to ensure that systems are testing their water and reporting the results, so it can be determined if the systems are complying with the protective standards that have been set. This indicator measures public water suppliers' compliance with monitoring and reporting rules. Without testing and reporting MassDEP cannot know if the water is safe to drink. This indicator measures performance that is critical to our ability to protect public health. This information also serves a secondary function by alerting MassDEP to compliance problems before they result in standard violations, allowing action to be taken to prevent contamination before it occurs.

WE HAVE GOOD DATA ON DELIVERED DRINKING WATER QUALITY



HOW ARE WE DOING?

The percentage of systems that are fully complying with all of their monitoring and reporting obligations saw a troubling decline in compliance during 2008. A drop of this magnitude is more typical of the performance shown in the percentage of the population receiving water from systems that are in full compliance with monitoring and reporting requirements. Last year's gains in both measures dissolved in 2008. Whereas the variability in the population metric has usually been offset by better results in the system metric (see for example 2001 and 2004) this is not the case in this past year and the details of this decline will need to be studied.

WORK PLAN

WATER THAT IS SAFE TO DRINK: KNOW IF DELIVERED WATER IS MEETING STANDARDS

INDICATOR: NUMBER OF PWS/POPULATION WITH NO VIOLATIONS OF MONITORING OR REPORTING REQUIREMENTS FOR HEALTH BASED STANDARDS

WHAT'S BEHIND THE NUMBERS?

The essential requirement in 310 CMR 22.00 that allows MassDEP to know if delivered water is meeting health-based standards is routine water quality monitoring performed by public water systems (PWS) and reported to MassDEP. This indicator measures compliance with the monitoring and reporting requirements that provide information on delivered water quality and does not include reporting violations unrelated to water quality e.g., violations of the consumer confidence report rule, public notice, annual statistical reporting, operations reporting, record keeping or of a condition of a variance or exemption. These requirements are important but do not directly affect our knowledge of water quality.

The recent trends in this indicator, expressed as a percentage of total PWS and broken out by PWS class (e.g. Community (COM), Non-Transient Non-Community [NTNC] and Transient Non-Community [TNC]) in Figure 1, have been positive through 2007. However, in 2008, although TNC systems maintained the excellent level of compliance achieved over the prior eight years COM and NTNC systems both remained below their 2003 peak levels of compliance and, in fact, failed to maintain the compliance gains of 2007. One might expect that the introduction of routine perchlorate monitoring would account for this increase in noncompliance, and these monitoring violations do account for a good part of this change (15% for COM, 20% for NTNC) yet in addition a much larger number of violations occurred in the long established monitoring rules for inorganic and organic contaminants (20% for COM were from the so-called Phase Rules covering IOC, SOC and VOC).

When this indicator is expressed as a percentage of total population served (Figure 2), the 2008 results show that noncompliance affected large numbers of people (both COM and NTNC saw 10% drops). Of note is the fact that TNC systems maintained their excellent level of compliance.

If the COM systems are broken out into traditional size categories (Figure 3) the poor performance in the 2008 results can be evaluated. Every population category except the largest saw more PWSs in violation of monitoring and reporting requirements. This is what drives the system-based metric. Additionally, unlike past years the volatile compliance results at small and medium PWSs were not offset by strong compliance at large and very large PWSs and as such the population-based metric also suffered.

No Monitoring or Reporting Violations for Health Based Standards:

Figure 1: % PWS

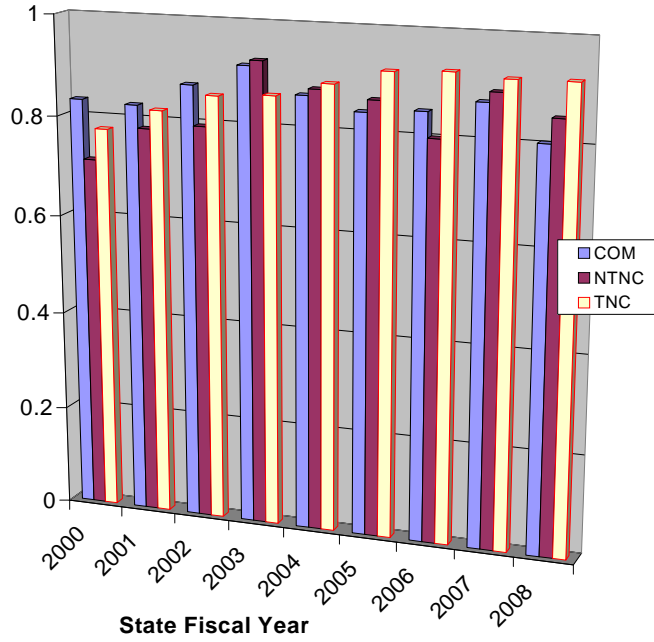


Figure 2: % Population Served

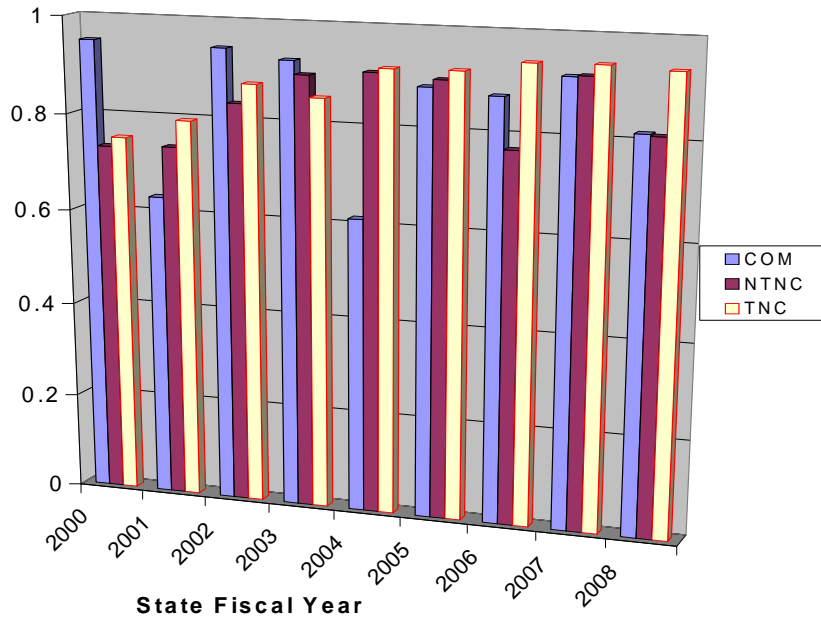
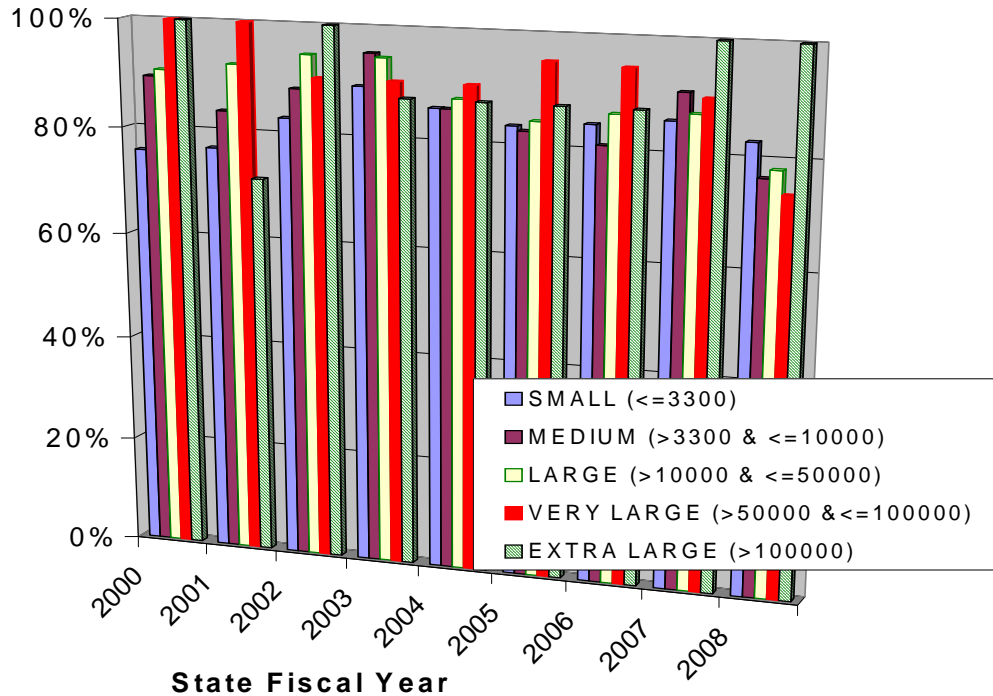


Figure 3: % COM PWS



Maintaining strong performance

Compliance with monitoring and reporting requirements has historically been strong and was on a path of improvement. Typically, decreases in compliance can be attributed to the implementation of new drinking water rules and although 2008 did see the introduction of routine perchlorate monitoring this alone does not account for the observed results. MassDEP will have to work to identify the root of this recent downturn. At its core, compliance with monitoring and reporting requirements reflects upon a PWSs' capacity to properly manage its activities. It may be necessary to conduct a more thorough capacity evaluation at the larger PWSs that incurred these monitoring violations. Possible causes could be staffing problems, issues with maintaining well-trained certified operators or with contracting certified environmental testing laboratories. MassDEP must refocus its limited resources to regain strong performance by PWS in meeting these requirements. To improve compliance, DWP will pursue:

- Electronic reporting via eDEP: reduces PWS reporting burden and improves DWP staff efficiency;

- Continued enhancement of existing compliance tools, such as the DWP-issued Sample Schedule, to serve as a concise reminder of all monitoring requirements;
- Sanitary surveys and technical assistance for newly registered PWS and PWS with compliance issues or expanded requirements;
- Continued implementation of the DWP comprehensive compliance strategy to maximize compliance.
- Capacity evaluations to determine the cause of the increasing monitoring failures.

Improving results

FY 2009 will see the continued implementation of “eDEP”, MassDEP’s electronic reporting system. This initiative should radically shorten the time between analysis and receipt of data for compliance evaluation and action. Improvement could be made via a few avenues:

- Prevent monitoring violations by continuing targeted capacity assessments and address capacity issues where identified. Monitoring violations generally reflect a breakdown in PWS management, which can be identified and addressed before monitoring violations occur;
- Continue to improve the timeliness of MassDEP enforcement to avoid prolonged noncompliance. Where monitoring requirements are ongoing and occur on a frequent basis quick enforcement can return the PWS to compliance prior to the next monitoring event, so that consecutive monitoring events are not missed.

DETAILED WORK PLAN

Vigilance within a monitoring program that generates tens of thousands of compliance samples every year requires the commitment of at least three full time equivalents (FTE) per MassDEP region with an additional 0.5 FTE in Boston for support and oversight. Activities covered by this staff include:

- Training on new rules or reinterpretations
 - Stage 2 Disinfectants and Disinfection Byproducts Rule
 - Long Term 2 Enhanced Surface Water Treatment Rule
 - Ground Water Rule
 - Lead and Copper Rule: Short-term Regulatory Revisions and Clarifications
 - Correspondence to affected PWSs
- Creation and maintenance of Sample Schedules
 - Interpretation of monitoring requirements across the spectrum of rules
 - Data entry
 - Generation and distribution of reports
 - Filing
- Creation and maintenance of sampling correspondence for rules not detailed by the Sample Schedule report (e.g. TCR, LCR, Stage 2 DBPR)
 - Interpretation of monitoring requirements across the spectrum of rules
 - Data entry
 - Generation and distribution of letters
 - Filing
- Administrative processing of paper submittals
 - Receipt of mail
 - Date stamping

- Sorting for technical review
- Technical reviews
 - Determine acceptability of data (both hardcopy and electronic submittals)
 - Generate pre-enforcement rejection letters
 - Data entry (hardcopy only)
 - Filing (office of record by contaminant, hardcopy only)
- Enforcement
 - Missing and uncorrected data
 - Data entry
 - Take enforcement as appropriate to maintain compliance with monitoring and reporting requirements
- Data management
- Quarterly reporting of violations and enforcements to EPA SDWIS/FED

WATER THAT IS SAFE TO DRINK: PROTECT EXISTING SOURCES OF DRINKING WATER

INDICATOR: NUMBER OF SYSTEMS WITH HIGH SUSCEPTIBILITY TO CONTAMINATION

MOST PUBLIC SYSTEMS HAVE A HIGH DEGREE OF SUSCEPTIBILITY TO CONTAMINATION

Why is this important?

Protecting sources of drinking water from contamination is one of the best ways to ensure that the water people drink is safe and the sustainability of this precious natural resource is maintained.

MassDEP has assessed the susceptibility to contamination of all public drinking water sources in the state. This indicator is preventive in nature and seeks to reduce the threat of contamination through identification of potential areas of susceptibility.

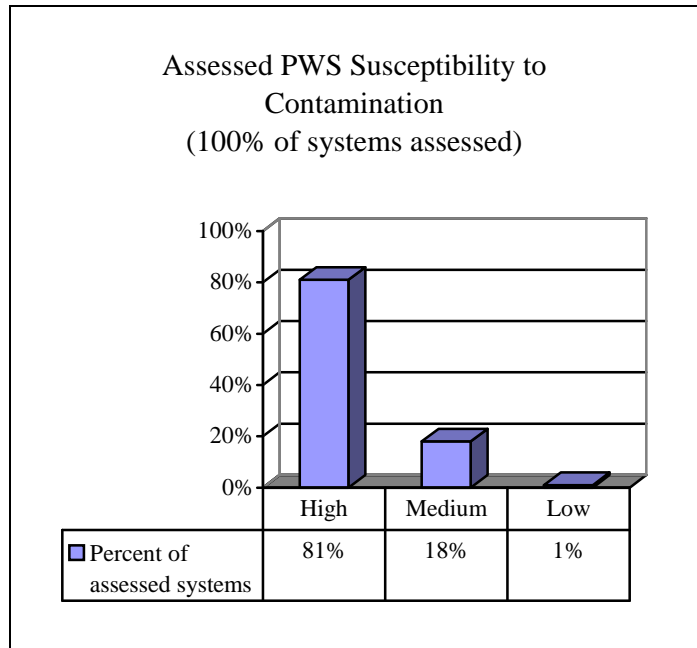
How are we doing?

The first step in reducing contamination of source waters is to locate potential areas of susceptibility.

MassDEP has completed Source Water Assessment and Protection Program (SWAP) mapping and reports for all public water systems. The reports were provided to each public water system and are posted on MassDEP's web site at: <http://www.mass.gov/dep/water/drinking/swapreps.htm>.

Drinking Water (DW) staff will continue to work with public water systems to reduce the risk of contamination by recommending the removal of potential threats, the development of local surface water and wellhead protection plans and the implementation of proactive source protection measures. DW Staff will focus on technical outreach related to reducing the threat of microbial contamination due to stormwater impacts; septic systems; agriculture; and wildlife. On-line courses related to these topics are being developed for water suppliers by MassDEP.

MassDEP is also working with other state agencies to prioritize their work within water supply protection areas. For example, MassDEP is entering into the second year of an Interdepartmental Service Agreement with the Massachusetts Department of Fire Services to conduct inspections and outreach at high priority underground storage tanks within Water Supply protection areas.



Work Plan

WATER THAT IS SAFE TO DRINK: PROTECT EXISTING SOURCES

Indicator: Number of systems with high susceptibility to contamination

MAINTAINING STRONG PERFORMANCE

Although MassDEP has had a strong source protection program for many years, the completion of the Source Water Assessment and Protection Program (SWAP) as required by the federal Safe Drinking Water Act, has resulted in the identification and mapping of potential contaminant sources for all Public Water Systems (PWS) in the state and the issuance of MassDEP recommendations for reducing the risk of contamination from these sources. This information was provided to PWSs and municipal officials and is available on-line on the MassDEP web site (<http://mass.gov/dep/water/drinking/swapreps.htm>).

When permitting new drinking water sources, MassDEP is careful to ensure that sources are not located near potential contamination. New sources, as well as existing sources where major modifications are proposed, are reviewed during this permitting process.

Improving Results

The mapping of potential contaminant sources using GIS and the improvements made to GIS databases as a result of SWAP enable MassDEP to coordinate with other state programs to prioritize inspection and compliance activities within drinking water protection areas. Examples of such coordination include working with the Underground Injection Control (UIC) Program, the Title 5 Program, and the Department of Fire Services

The Massachusetts Drinking Water Regulations, 310 CMR 22.00 have requirements for the development of local land use controls and the development of local surface water or wellhead protection plans. Source protection measures are also required to be implemented as part of Water Management Act Program reviews and for the issuance of Phase II/V water quality monitoring waivers and disinfection log credit.

DETAILED WORK PLAN

Staff will continue to:

- provide technical assistance about water supply protection as requested;
- provide grants for the purchase of land and conservation restrictions for water supply protection
- coordinate work with other state programs to focus inspection and compliance activities within water supply protection areas;
- work with other state agencies, such as the Department of Agricultural Resources, Department of Fire Services and the Department of Conservation and Recreation, to strengthen awareness of water supply protection areas and incorporate the protection of those areas into their work;

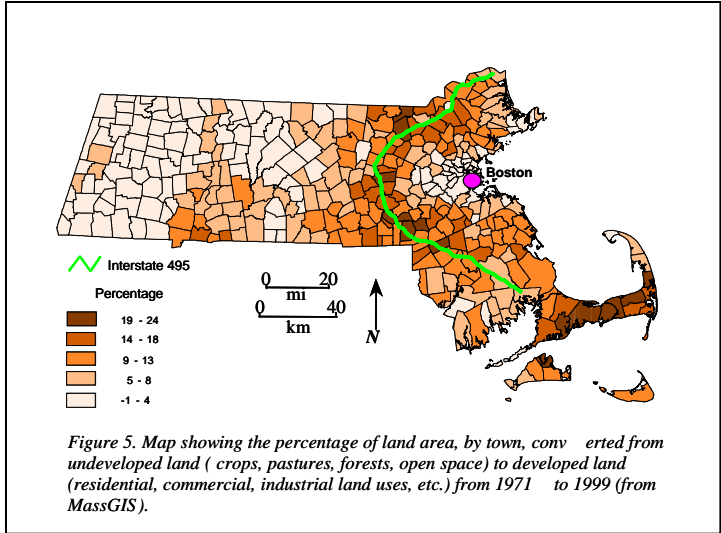
- help PWSs save substantial amounts of money by maintaining log credit toward disinfection, filtration waivers, and Phase II/V water quality monitoring waivers;
- provide on-line outreach materials for use by PWSs, watershed organizations, community groups and others;
- assist communities with developing local land use controls and review of local draft bylaws and ordinances;
- assist PWSs with developing surface water or wellhead protection plans for their sources, review and approve draft plans, and maintain updated guidance documents for plan development;
- work with organizations, such as the Massachusetts Water Works Association, the New England Water Works Association and the New England Interstate Water Pollution Control Commission, to address water supply issues within Massachusetts and across state boundaries;
- target outreach at reducing microbial threats from land uses and activities related to untreated storm water, septic systems, agriculture and backyard hobby farms, domestic animals, erosion and wildlife;
- develop on-line workshops related to untreated storm water, septic systems, agriculture and backyard hobby farms, domestic animals, erosion and wildlife. For suppliers not on-line, provide on-site assistance as needed with support from sanitary staff or organizations such as Mass. Rural Water and RCAP;
- work with the Massachusetts Interlocal Insurance Association (part of Mass. Municipal Association) to achieve a small discount on the general liability insurance premium of municipalities that develop protection plans and/or bylaws;
- use the new integrated protection database, I-Protect, which is in development for one-stop information about systems and their land use concerns to help develop targeted outreach assistance; and
- provide outreach to, and help facilitate partnerships among, public water systems, watershed groups, land trusts and other community groups to address microbial threats.

WATER THAT IS SAFE TO DRINK: IDENTIFY AND PROTECT FUTURE SOURCES OF DRINKING WATER

WHY IS THIS IMPORTANT?

The source water assessments that MassDEP has conducted demonstrate that some residential and commercial development choices are inconsistent with the protection of surface and groundwater supplies of water. This development creates potential for water contamination and can also reduce the volume of water that can safely be withdrawn for human use. MassDEP has also seen that cleaning up contamination after the fact is very expensive and sometimes nearly impossible. Preventing harm is easier and less expensive, but requires planning. It is important that we know where potential sources of drinking water are located. As land development increases, we can take action now to protect those areas and maintain water sustainability, so that clean drinking water can be available now and for the future.

LAND USE DEVELOPMENT CHOICES AFFECT FUTURE DEVELOPMENT OF DRINKING WATER SOURCES



HOW ARE WE DOING?

Massachusetts is developing land at a fast pace – more than 40 acres per day according to one estimate. Unless this development is carefully planned, it could impact water sustainability in certain areas of the Commonwealth, making potential sources of drinking water unavailable in the future through incompatible land uses or release of contaminants. Massachusetts is now in the process of identifying potential sources of drinking water, so that development decisions can at least be made with knowledge of the risks and costs those choices will create. We are still in the beginning stages of this investigation, so success in protecting future sources of drinking water is not currently measurable.

MAP FROM A PRESENTATION BY STEPHEN MABEE, MA STATE GEOLOGIST. USED WITH PERMISSION

Work Plan

Water that is safe to drink: Identify And Protect Future Sources of Drinking Water

WHAT'S BEHIND THE NUMBERS

The recent proliferation of residential and commercial development in the Commonwealth in conjunction with low-level groundwater contamination has significantly reduced the number of pristine areas available for the development of high yielding public water supplies. Of the 887 public water suppliers that submitted one or more Volatile Organic Compound (VOC) reports to MassDEP since 1999, 211 (24%) reported methyl tertiary-butyl ether detections. Build-out analysis studies have emphasized the importance of long range planning and identification of potential sites for future water supply development as well as the protection of these sources so they remain available for future development. In an attempt to accomplish this goal, all United States Geological Survey (USGS) delineated high and medium yield aquifers have been included in the GIS database.

The Executive Office of Energy and Environmental Affairs (EOEEA) Community Preservation Act initiative's build-out analysis indicated the need for Massachusetts to consider long-term water supply and wastewater disposal needs in conducting long range planning activities. In its publication, *News and Action*, the Massachusetts Audubon Society has been tracking loss of resources due to change. In a recent article, "[Losing Ground – At What Cost](#)", a loss of 40 acres of Massachusetts land per day to development is cited.

The Office of the State Geologist has given the rapidly developing I-495 belt the highest priority for geologic mapping. Through the STATEMAP program mapping of the Marlborough, Ayer, Lawrence, South Groveland, Reading, Wilmington, Milford, and the northern parts of the Blackstone and Westford quadrangles was recently completed as well as geologic mapping and fracture characterization of the Hudson, Rockport, and Gloucester quadrangles. Bedrock geologic mapping of the Billerica, Franklin and M. Grace quadrangles are scheduled to commence this year. Through the FEDMAP program, the Grafton, Nashua South and Uxbridge quadrangles are complete and mapping of the Worcester South quadrangle is in progress. It is anticipated that continued compilation of surficial geologic maps at a scale of 1:24,000 will produce an accurate layer of the till-stratified drift boundary for the entire state. Bedrock geologic mapping of the Shrewsbury, Maynard and Concord, Palmer and Winchendon quadrangles was recently completed through the EDMAP program.

MAINTAINING STRONG PERFORMANCE

To date, most regional efforts to identify future sources of drinking water are in the early stage. MassDEP actively participates in both internal and external efforts. EOEEA recently completed the Water Assets Project in which they provide a comprehensive assessment of current and potential water supplies in approximately 135 communities facing development pressures. The project addresses each community's ability to meet current and future demands for human use while maintaining support of local ecosystems. A follow-up EOEEA project focused on developing water budgets for all of the communities in the Commonwealth. The goal of the Water Budget project was to develop a tool that could quantify the human impacts on sub basin streamflow so that critical sub basins can be identified and prioritized for further study. With the Water Budget assessments in hand, communities can better understand the impacts of their withdrawals and discharges on streams in their communities and adopt mitigation strategies or bylaws to help alleviate the impact.

MassDEP has cooperated with the USGS and the Office of the State Geologist in acquiring primary data identifying future water resources. A number of State Revolving Fund (SRF) funded USGS projects of limited areal scope were completed in the last five years. These projects have attempted to assess the yield of existing ground and surface water sources, evaluate the potential yield of possible future drinking water sources on a sub-basin level, and study the water-bearing bedrock characteristics in rapidly developing areas along the I-495 belt, within which many of these communities are located. A current project that is nearing completion, evaluated the water resources in the Plymouth-Carver aquifer, of one of the Commonwealth's largest aquifers. In general, the main focus of these scientific investigations is to identify areas that might be suitable as water supplies to encourage protection of these sources through controls on uses that might conflict with drinking water use so that the sources remain available in the future.

During 2009, MassDEP's Drinking Water Program will continue to work with USGS to interface with work proposed by the Office of the State Geologist and to develop the next stage of work to be done in 2010.

Gathering this basic information is the necessary precursor of action to protect the potential sources themselves.

DETAILED WORK PLAN

To be successful in identifying and protecting future sources of drinking water, a comprehensive, well-coordinated approach that involves DWP, EOEEA, USGS, DCR and the Office of the State Geologist will be required.

In this context, the DWP role will be to:

- Support subsequent EOEEA water management studies
- Continue to develop and oversee in conjunction with the USGS's MA-RI Water Resource Center, water management and water resource evaluation studies.
- Continue participation in the Office of the State Geologist's STATEMAP, FEDMAP and EDMAP programs offered by the USGS.
- Continue providing technical support to the Department of Conservation and Recreation's Well Driller Registration/Well Completion Report Program
- Continue assisting water suppliers and municipalities in developing source water protection plans, including guidance on land acquisition and developing strategies to protect existing and future water supplies.

LINKS – WEB AND PAPER

EOEEA Water Budget Project – An initiative to systematically and comprehensively perform water budgets for all the basins and communities in the Commonwealth as well as evaluate the potential impacts on streams. This link provides users access to reports and presentations on the Water Budget Project: <ftp://eoea.crwa.org:oeawb@crwa.org>
EOEEA Department of Conservation and Recreation - <http://www.mass.gov/dcr/waterSupply.htm>
Community Preservation Initiative - <http://commpres.env.state.ma.us>
Office of the State Geologist (email) – sbmabee@geo.umass.edu
USGS - <http://ma.water.usgs.gov/>
Source Water Protection section of the Drinking Water Program, “[Protect Existing Sources](#)” section

Massachusetts Audubon Society

http://www.massaudubon.org/News_&Action/news.php?id=19&editorial=no

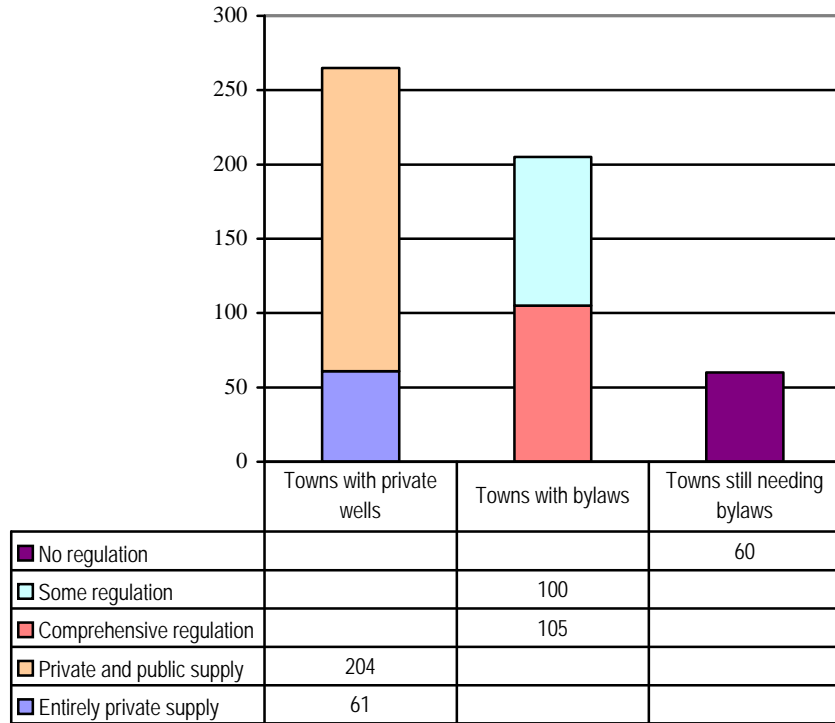
WATER THAT IS SAFE TO DRINK: SUPPORT PRIVATE WATER SUPPLY SAFETY

INDICATOR: NUMBER OF TOWNS WHERE PRIVATE WATER SUPPLIES ARE USED THAT HAVE ADEQUATE PRIVATE WELL REGULATIONS IN PLACE.

WHY IS THIS IMPORTANT?

State regulations apply only to public water systems (PWS), which are defined as supplies that serve 25 or more people or 15 or more service connections for more than 60 days per year. However, MassDEP is still concerned about protecting the health of people who use private drinking water sources. These wells are currently regulated only at the local level. Adequate local regulations are necessary for protecting the health of people who use private sources for drinking water.

SOME PRIVATE WATER SUPPLIES USED FOR DRINKING WATER LACK ADEQUATE REGULATION



HOW ARE WE DOING?

Over 550,000 people in Massachusetts currently depend upon private sources for drinking water. These people reside in 265 of the 351 towns and cities in Massachusetts. Because private sources are only regulated at the local level, protection of the health of private well users requires adequate local regulations. To support development of protective regulations, protection of health, and the sustainability of the resource, MassDEP has developed model regulations and information on recommended measures. However, 60 of the towns with people using private sources of drinking water currently lack any local regulations covering these sources and only 105 of the towns have comprehensive regulations addressing location, construction, water quality and quantity. MassDEP does not have current data on the extent of contamination present in private drinking water wells, though a 1988 study showed contamination of “at least 636 private wells in 120 Massachusetts municipalities”¹. MassDEP programs that protect groundwater from contamination often also provide protective benefits to private wells but local governments have to take action to ensure the health of these private well users.

¹ Massachusetts Special Legislative Commission on Water Supply. April 1988, “Private Well Contamination in Massachusetts: Sources, Responses, and Needs.”

Work Plan

Water that is Safe to Drink: Support Private Water Supply Safety

INDICATOR: NUMBER OF TOWNS WHERE PRIVATE WATER SUPPLIES ARE USED THAT HAVE ADEQUATE PRIVATE WELL REGULATIONS IN PLACE.

What's behind the numbers

Currently over 550,000 people in the Commonwealth are dependent on private wells for their drinking water needs. Sixty-one cities and towns (17%) depend entirely on private wells for residential water supplies. Many other municipalities have a combination of public and private water supply. Approximately 205 (58%) of the 351 towns and cities in the Commonwealth have some type of Board of Health (BOH) Private Well Regulation in effect. There is little consistency between those local BOH regulations concerning the minimum requirements for an acceptable potable private well. Of the 205 towns and cities with private well regulations, only 105 have a comprehensive regulation (one that contains minimum requirements for well siting, construction, water quality and quantity).² There are also 204 municipalities with both public and private water supplies within their borders (making a total of 265 cities and towns with some measure of private water supply), and approximately 61 (22%) of these 265 have no local Board of Health regulations governing private water sources. MassDEP has a Model BOH Private Well Regulation available for towns as part of the technical assistance program.

Maintaining Strong Performance

Under Massachusetts General Law (MGL Ch.111 §122), local BOHs have primary jurisdiction over the regulation of private wells. The local BOH is empowered to adopt a Private Well Regulation that establishes criteria for private well siting, construction, water quality and quantity.

In towns that have both public and private wells, private wells benefit from the same level of protection required for Public Water Systems (PWS) if located in a Zone II or Zone A recharge area of a public water source. In these instances, private wells located in the Zone II or Zone A are protected by municipal controls (bylaws, ordinances, health regulations) consistent with MassDEP Wellhead Protection Regulations and Surface Water Regulations.

The Drinking Water Program's (DWP) primary role with regard to private wells has been to provide outreach and technical assistance on the siting, construction, water quality testing and abandonment of private wells when requested by homeowners or local BOHs. This assistance can consist of telephone contact, conferences, and developing publications in cooperation with EPA Region 1 and the Massachusetts Association of Health Boards (MAHB). For example, MassDEP has pamphlets available for homeowners on the best approaches for monitoring and testing their water to assure its safety, which can be found on MassDEP's [web site](#).

Although private wells are directly regulated by local BOHs, there are other state environmental rules and activities that help to protect private sources of drinking water. These include the activities listed below. For more information on these activities, please follow the links found at the end of this page.

² DEM Office of Water Resources, November 1995, "Summary of Boards of Health Requirements for Well Drilling/Construction in Massachusetts."

- Septic system regulations: Septic system (Title 5) rules require a minimum siting setback for wastewater treatment systems in relation to a private well. The improper location, construction or maintenance of a subsurface disposal system is of concern because it may adversely affect the quality of water obtained from a nearby private well, especially as areas dependent on septic systems may not be serviced by a PWS.
- Ground water discharge permitting: potential impacts to private wells are evaluated during the review process for MassDEP Ground Water Discharge permits, and additional groundwater monitoring requirements may be imposed as part of the permit approval in the areas dependent on private wells.
- Solid waste facility siting regulations: these facilities are prohibited within a minimum siting setback from private wells, and additional groundwater monitoring locations may be required for the facility as part of their operating permit in areas dependent on private wells.
- Monitoring of hazardous waste sites: such sites located within an area dependent on private wells are required under MassDEP regulations to report releases at more stringent concentrations, achieve drinking water standards as clean up standards, and are required to have an immediate response action performed if an imminent hazard to the private well is determined to exist.
- Herbicide application licensing: on a case-by-case referral basis, MassDEP will continue to evaluate the potential impact to private wells during herbicide application license reviews.
- Protecting ground water through assistance to PWSs and towns: MassDEP provides informational material and technical assistance to PWSs and towns on how to protect groundwater through the use of Best Management Practices (BMPs). Because BMPs are usually implemented at the town-wide level, they enhance protection of both public and private water supplies. Types of BMPs most often implemented include: storm-water drainage improvements; spill prevention/containment; hazardous materials storage improvements and public education.

Improving Results

MassDEP does not have a direct regulatory role for private water supplies, but does have an important role in supporting BOHs and in preventing and eliminating sources of groundwater contamination. MassDEP will continue the work described above for protection of PWSs and groundwater that also provides protection to private water supplies. MassDEP's model Private Well regulations and informational materials for homeowners are available on our web site and are updated as new information becomes available.

In May 2008, MassDEP completed revisions to the Water Quality section of the 'Private Well Guidelines'. These revisions reflect more recent microbial sampling recommendations as specified in the federal Safe Drinking Water Act for Public Water Supplies. The DWP's guidance document, 'Private Well Testing Parameters and Frequency Guidelines', was also updated to include these monitoring revisions. Additionally, in 2007, MassDEP mailed its annual letter to BOHs and provided all communities with its inventory of all registered PWSs in their city or town as well as provided guidance on the following issues:

- How to identify a private/public water system;
- Identification of daycares that meet the definition of a PWS;
- How to handle facility conversions from private to public (e.g. gas station to restaurants);
- Condominium developments and PWS requirements
- Annual recreational camp requirement and water supply safety issues at local fairs.
- Update of recommended water quality monitoring for private wells

MassDEP will rely on BOHs to continue their oversight of private drinking water systems and plan to resume outreach efforts when additional resources become available.

Links

Title 5: <http://www.mass.gov/dep/water/wastewater/septicsy.htm>
BWSC: <http://mass.gov/dep/cleanup/helpforh.htm>
MAHB: www.mahb.org/
DWW: www.mass.gov/dep/water/laws/alkguide.pdf
DWP: www.mass.gov/dep/water/drinking/privatew.htm
DFA: http://www.mass.gov/agr/programs/aep/groundwater_factsheet.pdf
EPA program on private wells:
http://www.epa.gov/NE/eco/drinkwater/private_well_owners.html
MHOA or other boards of health sites: <http://www.mhoa.com>
DEM Office of Water Resources, November 1995, "Summary of Health Requirements for Well Drilling/Construction in Massachusetts"

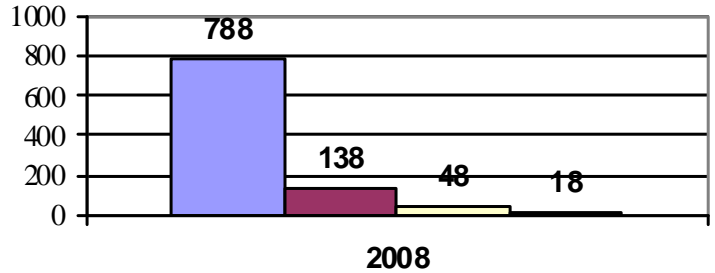
SUFFICIENT WATER FOR PUBLIC HEALTH AND SAFETY: ASSURE CAPACITY TO RESPOND TO EMERGENCIES

INDICATOR: NUMBER OF COMMUNITY AND NON-TRANSIENT NON-COMMUNITY SYSTEMS WITHOUT ADEQUATE CAPACITY TO RESPOND TO EMERGENCIES

WHY IS THIS IMPORTANT?

Every public water system (PWS) can experience a temporary situation that may impair its ability to deliver an adequate quantity of water or water of a desired quality to a portion of its service area. Some of these events can be anticipated and an adequate response system implemented. Because public water supplies are important in protecting public health (clean water to drink) and safety (water for fire fighting), MassDEP requires all Public Water Systems to have back-up systems (storage, power and alarm safety), emergency response plans, and to meet other requirements to assure that they are prepared in the case of an unforeseen emergency. A good emergency response plan is at the heart of a quick and adequate remedy on a temporary basis until the usual service can be restored. Certain physical provisions should also be in place in every system to enable uninterrupted availability of safe water. These provisions may involve backup energy supplies, reserve sources of water, and a distribution system designed to bypass events such as a break in a water main. This indicator measures system preparedness for emergencies.

SOME SYSTEMS COULD BE BETTER PREPARED FOR EMERGENCIES



- Total systems
- Systems inspected
- Systems with emergency response issues
- Systems with chemical safety issues (alarms, interlocks, etc.)

HOW ARE WE DOING?

Most systems inspected were prepared to respond to different emergencies. As of July 9, 2008, 138 (18%) of all Community and NTNC systems were inspected in FFY 2008. Of the systems inspected, 66% (90) were fully prepared to respond effectively to emergencies while 34% (48) had some preparedness issues. The issues were primarily in the areas of emergency response plan deficiencies (such as inadequate plans, outdated plans, or no plans in place) and the new compliance area: chemical safety issue (inadequate chemical alarms & equipment; improper identification of chemicals; etc). MassDEP’s Drinking Water Program (DWP) has recently launched a chemical safety initiative, which includes workgroup meetings with Public Water Suppliers and industry representatives, survey of all facilities, and pilot inspections in 2 regions.

WORK PLAN

SUFFICIENT WATER FOR PUBLIC HEALTH AND SAFETY: ASSURE CAPACITY TO RESPOND TO EMERGENCIES

INDICATOR: NUMBER OF COMMUNITY AND NON-TRANSIENT NON-COMMUNITY SYSTEMS WITHOUT ADEQUATE CAPACITY TO RESPOND TO EMERGENCIES

What's behind the numbers?

A sanitary survey is the principal method for identifying Public Water Systems with capacity problems that can impair their ability to respond to emergencies. Evaluation of PWSs' technical, financial, and managerial soundness is part of the sanitary survey. MassDEP receives information on PWSs through the annual statistical reports and also identifies response issues when an actual emergency clearly demonstrates that a system cannot respond effectively.

The following indicators are used to identify systems that have emergency response problems:

1. Number of systems identified during the sanitary survey process as having technical deficiencies that could impair their ability to respond to emergencies.
 - Systems with "less than 20 (psi)," in violation of MassDEP regulation 310 CMR 22.15(5)(e). 20 (psi) has been determined to be a minimum pressure necessary to provide adequate fire flow and public health protection;
 - Systems with inadequate storage;
 - Systems without redundant supply;
 - Systems without emergency power;
 - Systems without an interconnection or appropriate interconnection plan;
 - Systems with Emergency Response Plan violations (e.g. not having one, not updating it, or not training staff on its content).
 - Systems with chemical safety issues (inadequate chemical alarms & equipment; improper identification of chemicals; etc).
2. Systems where the response during an actual emergency demonstrated they did not have adequate capacity to respond to the emergency. For example, when a system has a chemical overfeed that results in an emergency, runs out of water and lacks alternate sources of water, workable interconnections, or resorts to use of an unapproved source.

While reviewing the findings of the sanitary surveys for fiscal year 2008, of 138 surveys (and inspections) completed (18 % of all community and non-transient non community public water systems) and the technical deficiencies identified, MassDEP staff noted that there was a dramatic increase in chemical safety issues at 18 systems (13% of those inspected) with issues that were written up by inspection staff. Details are shown in the following table:

**CAPACITY ISSUES AFFECTING EMERGENCY RESPONSE IDENTIFIED DURING
FFY08 SANITARY SURVEYS FOR COMMUNITY AND NON-TRANSIENT NON-
COMMUNITY SYSTEMS**

	Affected Systems	# COM Systems	# NTNC Systems
Inadequate Pressure	0	0	0
Inadequate Storage	0	0	0
No Redundant Supply	1	1	0
No Emergency Power	2	1	1
No Interconnections	0	0	0
ER Plan Issues	27	22	5
ER Plan Violations	0	0	0
Chemical Safety Issues	18	16	2
Totals	48	40	8
Total Surveys	138		

IMPROVING RESULTS

The sanitary survey data indicate that MassDEP staff has proactively used the sanitary survey program to identify violations and deficiencies that could affect the PWS's ability to respond to emergencies. Corrective action(s) necessary to resolve any deficiencies are identified in the inspection report and are flagged for follow up by the surveyor. Failure to address deficiencies can lead to enforcement actions.

In order to improve the results relative to PWSs with emergency response issues, MassDEP's Drinking Water Program (DWP) will:

- Implement newly promulgated emergency response regulations. These regulations have specific minimum requirements for planning, responding, reporting, and training.
- Offer Vulnerability Assessment Plan training and assistance;
- Offer Emergency Response Plan training classes to municipalities and others regulated entities;
- Continue to distribute the "Handbook for Water Supply Emergencies";
- Promote and update the DWP emergency contact list, including cell phone numbers and pager numbers;
- Continue to promote MassDEP's "Boilerplate Emergency Response Plan" from which an individual PWS may develop their own emergency response plans;
- Devote additional time during sanitary surveys to evaluate emergency response plans and chemical safety issues;
- Work with stakeholders concerning security issues;

Detailed Work plan

The sanitary survey process is the most comprehensive method to collect information about PWSs' ability to respond to emergencies. MassDEP will continue to evaluate all public water system components, including technical, financial, and managerial soundness and those components that have an impact on PWSs' ability to respond to an emergency (e.g. system pressure, storage, source redundancy, backup power, interconnections, inadequate staffing and emergency response plan violations or deficiencies). The activities covered by staff include:

- Performing surveys in accordance with our surveying Standard Operating Procedure including onsite inspections of chemical feed equipment;
- Implementing an Alarm Checking Program;
- Taking enforcement action as needed in accordance with the MassDEP enforcement strategy;
- Continuing to promote and update electronic resources that speed up MassDEP's ability to communicate with PWS.
- Providing technical assistance during emergency situations.
- Providing sample collection and analysis capabilities using the emergency response kits prepared by the MassDEP Wall Experiment Station.
- Provide annual training on emergency response for all system with a special emphasis on municipal systems.

Targeting potential problems by use of questionnaires and SWAP information together with prioritized sanitary surveys and their capacity component is expected to further reduce the infrequent incidence of such problems.

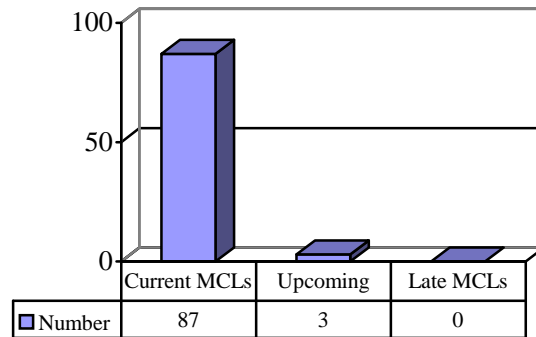
WATER THAT IS SAFE TO DRINK: SET STANDARDS FOR SAFE DRINKING WATER AT PUBLIC WATER SUPPLIES (PWS)

INDICATOR: IS MASSDEP CURRENT WITH ALL STANDARDS AND RULES?

WHY IS THIS IMPORTANT?

Drinking water standards that reflect the knowledge of current threats to public health are a critical first step in assuring the safety of our public water supplies. As new links between human health and substances present in drinking water are established, new standards (including treatment techniques) are created to minimize the adverse effects of these substances. Both the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) maintain exacting standards. To protect public health in Massachusetts, MassDEP needs to ensure that the state standards reflect the knowledge of potential threats and the federal rules for drinking water safety.

MASSDEP IS CURRENT WITH ALL DRINKING WATER STANDARDS AND RULES



HOW ARE WE DOING?

MassDEP is current with the adoption of all federal drinking water standards and is on schedule to adopt new standards as they are promulgated. As shown below, new rules will be implemented and several existing rules will be finalized during the next two years. In 2008 MassDEP will also promulgate a State Emergency Response regulation and make several minor regulation corrections previously adopted by EPA. Among those will be:

- Stage 2 Disinfectants and Disinfection Byproducts Rule (federal promulgation occurred in January 2006; adopted by MassDEP in summer of 2008)
- Long Term 2 Enhanced Surface Water Treatment Rule (federal promulgation occurred in January 2006; adopted by MassDEP in summer of 2008)
- Groundwater Rule (federal rule published in November 2006; MassDEP interim primacy expected in fall of 2009)
- Lead and Copper Rule Short Term Revisions (federal rule published in October 2007; MassDEP interim primacy expected in fall of 2009)

Detailed information on these rules as well as the number of systems that will be affected statewide is explained below in the work plan for FY09.

WORK PLAN

WATER THAT IS SAFE TO DRINK: SET STANDARDS FOR SAFE DRINKING WATER AT PUBLIC WATER SUPPLIES (PWS)

INDICATOR: ARE WE CURRENT WITH ALL STANDARDS AND RULES?

What's behind the numbers

During the period July 1, 2008 to June 30, 2009, many existing monitoring rules will be amended to incorporate EPA's analytical revisions. MassDEP will also promulgate specific Emergency Response requirements. In addition, during this period two major existing rules will be in their second year of implementation while MassDEP is in preparation for next year's promulgation of the Ground Water Rule.

- In the summer of 2008 MassDEP took over implementation of the Stage 2 Disinfectants/Disinfection Byproducts Rule (Stage 2 DBPR) from EPA. The rule applies to all community and non-transient non-community PWSs that treat their water with a chemical disinfectant *or deliver* water that has been treated with a chemical disinfectant. This rule is intended to reduce the amount of disinfectant use in drinking water treatment while maintaining the highest quality drinking water.
- In the summer of 2008 MassDEP took over the implementation of the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) from EPA. The LT2SWTR is intended to reduce disease incidence associated with *Cryptosporidium* and other pathogenic microorganisms in drinking water. The rule supplements existing regulations by targeting additional *Cryptosporidium* treatment requirements to higher risk systems. This regulation will apply to all systems that use surface water or ground water under the direct influence of surface water.
- The Groundwater Rule will not be promulgated until late 2009 but the program preparation work for the rule will be in progress during the program plan period. This rule affects 639 groundwater sources. The rule may require evaluation of ground water sources with disinfection (283) to determine if current treatment practices will meet the new virus inactivation requirements.
- The Lead and Copper Rule (LCR) Short Term Revisions were promulgated in October of 2007. The regulation revises existing regulations to clarify monitoring requirements and requires PWSs to:
 - receive prior state approval for treatment changes,
 - provide the results of monitoring to customers,
 - reconsider previously "tested-out" lines when resuming lead service line replacement programs, and will change the requirements for the delivery of public education materials after a lead action level exceedance. This regulation will apply to all community water systems and non-transient non-community water systems.

Routine emergency response evaluations will commence at all PWSs to support the program's emphasis on emergency preparedness with the promulgation of a state emergency response regulation in May of 2008. During this reporting period MassDEP will also develop and implement [Office and Research Guideline standards](#) for routinely used drinking water treatment chemicals.

Maintaining Strong Performance

MassDEP has done a very good job adopting regulatory requirements on time and working with systems in advance to assure compliance with the new rules by the time the rule becomes effective. MassDEP intends to maintain that strong performance for the rules that will become effective over the next few years.

- MassDEP will continue preparatory work to evaluate non-community ground water systems to determine if they are under the influence of surface water. Several regions have 5 or more systems left to evaluate. Some of these systems will be installing treatment to meet the requirements of the rules and will need compliance assistance to understand the requirements of the rules.
- The LT2ESWTR requires that the large surface water systems serving at least 100,000 receive bin determination by April 2009. These systems must complete monitoring by October 2008.
- The Stage 2 DBP Rule systems serving at least 100,000 people and any consecutive systems that they supply were required to submit an initial distribution system evaluation by October 1, 2006. Systems in the following size categories must do the same by successive due dates thereafter: 50,000 to 99,999 – April 1, 2007, 10,000 to 49,999 – October 1, 2007, and less than 10,000 – April 1, 2008. This rule will affect 298 systems and the MWRA.
- Additional training and/or compliance assistance will be needed for the Groundwater Rule. This rule affects many very small systems and it would be prudent to begin compliance assistance to be able to reach all PWSs in the required time period.
- The sanitary survey program will be maintained on a 3-year cycle for all community and non-transient non-community systems. The program will begin the process to phase transient non-community systems into a 5-year survey cycle and be amended to prioritize systems that need to comply with the LT2ESWTR and the Stage 2 DBP Rule rules so that updated information will be available on these systems such that appropriate compliance and technical assistance can then be directed to them.
- MassDEP will continue to work closely with EPA to insure compliance with the LCR. We have already implemented many of the proposed revisions based on guidance previously received from EPA. MassDEP will continue efforts to review all lead and copper monitoring plans and advise public water systems of necessary actions.
- The state emergency response regulations will be implemented during this period. Training will be provided for public water suppliers and program will begin to take enforcement action for emergency response planning failures.

Improving Results

Assisting systems in understanding new rules and planning ahead to comply with them is an area of strong performance for MassDEP. MassDEP's challenge will be to continue this strong performance while working with new rules that impose requirements on systems that have not had to comply with these types of requirements in the past. Targeting affected systems for technical assistance should help provide better compliance for these systems with the new rules. This has been done with previous regulations and has proven successful to ensure PWS compliance.

Detailed Work Plans

For these new rules work will be needed to bring systems into compliance including training with an emphasis on outreach for municipalities, new monitoring reports and possible system modification. A breakout of systems affected per region per rule is indicated below:

Rules	WERO	CERO	NERO	SERO	Total
LT2ESWTR	23	18	29	17	87
Stage 2 DBPR	61	70	96	71	298 & MWRA
GW Rule	60	206	60	313	639
LCR	219	246	131	192	788
Emergency Response	548	408	226	554	1736

DWP will incorporate the themes of conservation, including energy conservation and sustainability, in the development and implementation of all regulations and programs.

Resource information can be found at the following links:

All existing rules <http://mass.gov/dep/water/laws/regulati.htm#dw>

Standards in progress <http://mass.gov/dep/water/laws/regulati.htm#dw>

Emerging contaminants <http://www.mass.gov/dep/toxics/stypes/emercfs.htm>

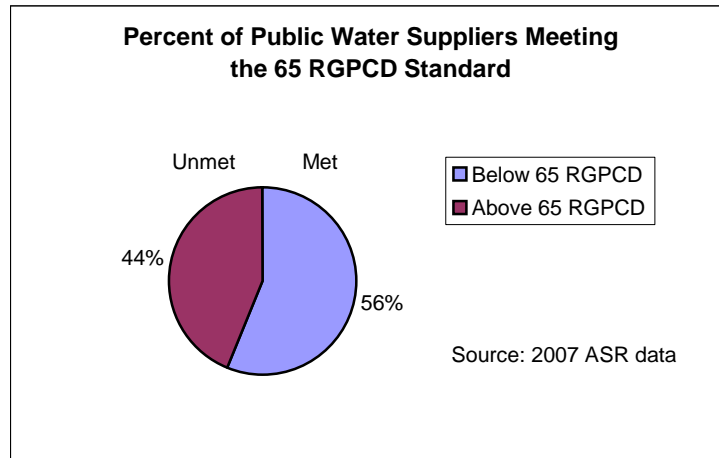
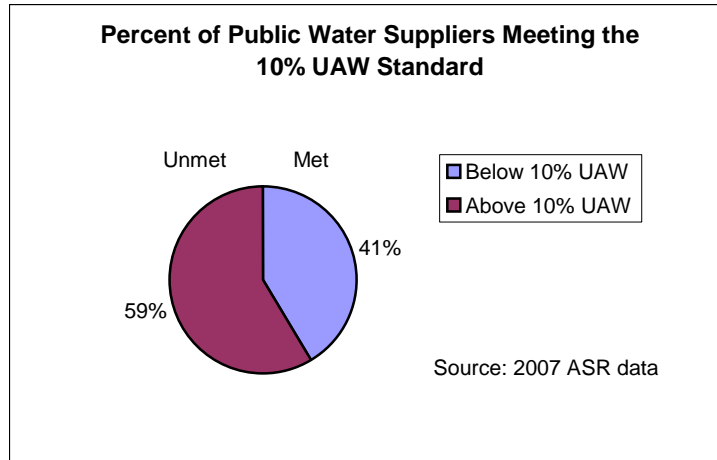
Unregulated Contaminant Monitoring rule (UCMR): <http://www.epa.gov/ogwdw/ucmr.html>

Contaminant Candidate List (CCL): <http://www.epa.gov/safewater/ccl/ccl3.html>

SUFFICIENT WATER FOR HEALTHY ECOSYSTEMS: Promote Wise Use of Water

INDICATOR:

- Percent of public water supplies meeting unaccounted for water standards (UAW)
- Percent of public water supplies meeting residential gallons per capita per day (RGPCD) water use standards



WHY IS THIS IMPORTANT?

These indicators measure the success of public water systems (PWS) in conserving water and the efficient use of water. If water is used wisely and minimizes waste, the needs for drinking water can be met and reduce the strain those uses put on fresh water ecosystems.

Unaccounted-For-Water (UAW) includes the difference between water pumped or purchased and water that is metered or confidently estimated. UAW includes water lost through water main joints and service connections, overflow of storage tanks, hydrant openings, leaks and other miscellaneous unmetered connections. To reduce UAW to less than 10%, the public water system (PWS) must make improvements to the water supply that will reduce the volume of water withdrawn from the source(s) and minimize the environmental impact on the watershed.

For many public water suppliers, the majority of water used is to provide drinking water to residential users. By determining the number of residential users along with the volume of water pumped through residential meters within a specified time period (typically one year), a calculation can be made of the average daily volume of water utilized by residential users. The calculation for residential gallons per capita day (RGPCD) allows the PWS to evaluate efficiencies in consumer use. For those PWS that have existing Water Management Act (WMA) permits and who have withdrawals points located in watersheds determined to be High or Medium Stress, the residential water use performance standard is sixty-five (65) RGPCD. Those permitted PWS in low and unassessed watersheds have been required to meet 80 RGPCD and 15% UAW.

All PWS water management registrations were renewed on January 1, 2008 to include requirements that all PWSs regardless of basin stress meet the 10% UAW and 65 RGPCD standards by December 31, 2017. This condition will result in those permits issued in low and unassessed basins that were previously subject to 80/15% Standard being modified to require compliance with the more stringent standards (65/10%) by December 31, 2017. Compliance checkpoints were included in the Registrations that require those PWSs not meeting 80/15% by December 31, 2009, and those not meeting the 65/10% standards by December 31, 2012, to develop a compliance plan(s) of their choosing to achieve the standard(s). To provide regulatory and fiscal certainty the Department also adopted Model Conservation Plans for those not meeting the RGPCD and UAW Standards. These Model Plans will be required of all PWSs that fail to meet the Performance Standards by December 31, 2017 when the registrations are renewed again. PWSs implementing the Model Conservation Plans prior to the December 31, 2017 compliance deadline will be assumed to have met the functional equivalent of complying with Performance Standards regardless of their RGPCD and UAW values.

HOW ARE WE DOING?

As MassDEP continues to revise the Annual Statistical Report (ASR) to improve and standardize the data reported by water suppliers, there are still significant concerns about the reliability of this data in efforts to evaluate their compliance with the performance standards for unaccounted for water and residential gallons per capita per day. Some suppliers do not have the technology in place to accurately calculate these values; others lack the capability of tracking this information. Among suppliers who do report, the methods for calculation vary greatly, making it difficult to rely on or compare reported values. In calendar year 2004, MassDEP started to implement new reporting standards that allows tracking of this information, and will convene a workgroup each year to review and revise the Annual Statistical Report as necessary to improve reporting. As an interim measure, MassDEP tracked the number of WMA permits that contain requirements for RGPCD and UAW. Permits are being revised to include the appropriate performance standards based on the degree of stress in the corresponding river basin. [See [“Control Water Withdrawals-Permitting.”](#)] To date 36% (71 of 198) of all permits and 260 registrations have been revised to include these standards.

Work Plan

Promote Wise Use of Water

INDICATOR:

- Percent of public water supplies meeting unaccounted for water (UAW) standards
- Percent of public water supplies meeting residential gallons per capita per day (RGPCD) water use standards

What's behind the numbers

Unaccounted for water (UAW) is defined by the Massachusetts Water Resources Commission (WRC) as the difference between the total water volume available for distribution after accounting for volumes bought and sold and measured losses from water treatment, and the metered water volume. UAW includes:

- master meter inaccuracies,
- domestic and non-domestic meter under-registration,
- errors in estimating for stopped meters,
- over-registering revenue meters,
- unauthorized hydrant openings,
- unavoidable leakage,
- recoverable leakage,
- illegal connections,
- standpipe overflows,
- data processing errors,
- and fire protection, unless this water can be confidently estimated.

Unmetered, confidently-estimated municipal uses that are well documented and estimated, such as hydrant flushing, major water main breaks, fire protection, meter calibration adjustments, act to reduce the total UAW.

Residential gallons per capita per day (RGPCD) are the total volume of residential water use in gallons divided by the population served. The population served may not always equal the total residential population of the community if the water supply system does not connect to all residences in the community. Some residences may be served by private wells or by a different water supply, or the system may service a number of residents located in a neighboring community. Therefore, there is some concern that public water suppliers measure and report population served in different ways, raising questions about the reliability and comparability of the data MassDEP has updated the methodology by which RGPCD was reported, thereby improving data quality.

The April 2004 [Water Management Policy](#) and subsequent revisions place limits of 65 RGPCD in high or medium stressed basins, with the 80 RGPCD originally allowed in low stress or un-assessed basins being gradually reduced to 65 RGPCD by December 31, 2017. Likewise, UAW is not to exceed 10% for a PWS in a high or medium stressed basin, or exceed 15 % in low stress or un-assessed basins. By Dec. 31, 2017, all UAW, regardless of basin stress, should not exceed 10%. [See "[Know Flow Conditions](#)"].

MassDEP now tracks the number of public water suppliers that keep RGPCD below 65 and UAW below 10% as well as those PWS with the permit condition to limit RGPCD and UAW. In

2006, 51% of PWSs exceeded 65 RGPCD. In 2007, the number exceeding 65 RGPCD decreased to 44%. The decrease in RGPCD is somewhat surprising considering how dry it was in the late summer/early fall of 2007, which led to the MA State Drought Management Task Force declaring a drought “Advisory” in October 2007. The reduction may reflect several factors:

1. To standardize reporting, MassDEP has continued to refine the methodology by which suppliers were asked to calculate the RGPCD value, resulting in improved values;
2. Likewise the increased scrutiny on these values has resulted in more detailed accounting and reporting by suppliers;
3. Increased conservation on the part of public water suppliers in order to comply with permit conditions may have resulted in improvements in overall residential water use.

UAW percentages on the other hand did not improve in 2007. In 2006, 47% of PWSs exceeded the 10% threshold, while 2007 saw an increase to 59%. The increase may reflect several factors such as:

1. Additional clarification within the Annual Statistical Report (ASR) on what is, and isn't considered UAW; and
2. The Department's detailed review of the information and calculations provided within the UAW section of the ASR, particularly with respect to the ability to move certain estimated uses into the accounted-for category.

Maintaining Strong Performance

Limiting UAW and RGPCD requires water suppliers to optimize the efficiency of their distribution systems, encourage the installation of water saving plumbing fixtures, and discourage non-essential outside water uses. These actions will limit non-essential uses and prevent the wasteful loss of water while limiting stress on water resources so the needs of the towns and communities are met.

Improving Results

In addition to increasing water conservation performance standards for permits, MassDEP will be checking existing permits as part of the 5-year permit review process for compliance with these standards and will take enforcement action where necessary.

Implementation of these new standards should help reduce waste and protect Massachusetts' valuable water resources.

Detailed Work Plans

The Water Management Act Program will develop guidelines to assist public water suppliers in preparing a compliance plan to meet RGPCD and UAW standards.

Regional water management staff will conduct 5-year reviews and issue modified permits for incorporating new RGPCD and UAW standards. Approximately 91 PWS permits are scheduled to have 5-year reviews completed in 2009. In addition, 31 PWS permits are scheduled to expire in 2009 and need to be renewed to allow the permit holder to continue to withdraw above the Water Management Act threshold volume. Permits being renewed will also be modified to include the RGPCD and UAW standards.

MassDEP revised the Water Management Policy's guidance document on January 17, 2006 and again in December 2007 to provide suppliers with options and incentives, allow more flexible timelines, reward good behavior, and to provide detail pertaining to enforcement responses. MassDEP hopes these revisions will facilitate implementation of the Policy, help stem the number of appeals, and allow MassDEP to focus attention on the most significant violations.