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Massachusetts Department of Environmental Protection Report to the General Court of the Commonwealth on the Topic of NPDES Authorization

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Executive Summary

In Chapter 139 of the Acts of 2012, Section 209, the Massachusetts Legislature required *"the department of environmental protection shall evaluate the feasibility, cost, advantages and disadvantages of obtaining from the United States Environmental Protection Agency, to the extent permitted by federal law, delegated authority over National Pollutant Discharge Elimination System programs. The department shall file a report detailing its finding together with drafts of legislation necessary to obtaining such authority, with the clerks of the senate and the house of representatives not later than July 1, 2013."*

This report was prepared in response to the Legislature's directive. It is organized as follows:

Part I: NPDES Program Background
Part II: Feasibility, Cost, Advantages, Disadvantages
Part III: Draft Legislation

MassDEP organized an advisory committee to assist in evaluating the concerns, costs, and benefits of NPDES delegation. The advisory committee (hereafter "Advisors") was made up of stakeholders with varying expertise and perspectives including: watershed and environmental advocacy organizations, municipalities (including managers of water infrastructure systems), state environmental agencies, financial managers, attorneys, and consulting engineers. The Advisors were not asked to specifically recommend whether MassDEP should apply for delegation nor were they asked to endorse the content of this report. However, they provided invaluable assistance, feedback, and advice to MassDEP. A brief synopsis of the report's content and findings is provided below.

NPDES Program Background

The principal law governing pollution of the nation's surface waters is the Federal Water Pollution Control Act, or Clean Water Act ("CWA".) Based on the premise that "[n]o one has the right to pollute," the Act declared "the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985." In order to help achieve this goal, the Act provided for a "National Pollutant Discharge Elimination System" ("NPDES") permitting scheme, which requires that facilities that discharge pollutants into surface waters (such as wastewater treatment plants and manufacturers) obtain a permit from the EPA. The permit typically places limits on the pollutants from the discharge, to protect overall water quality.

The CWA allows States to request authority from EPA to administer the NPDES permit program. The assumption of control over the NPDES program is known as "delegation." Under the CWA, EPA must approve a State's request to operate a NPDES permit program if it determines, that the State has adequate legal authorities, procedures, and the ability to administer the program. State programs must be consistent with minimum federal requirements, although they may always be more stringent. If a State program does not remain consistent, EPA may withdraw its authorization.

As of June 2013, 46 states had been authorized to administer the federal NPDES permit program. EPA New England has four delegated states: Connecticut, Maine (except for facilities located in Indian country), Rhode Island and Vermont, and two non-delegated states: Massachusetts and New Hampshire. The other non-delegated states are Idaho and New Mexico. Thus, Massachusetts is an exception to the usual rule, with the result that the federal government is in charge of the permit issuance, compliance and enforcement for the 2990 NPDES permit holders in Massachusetts.

Feasibility, Cost, Advantages, and Disadvantages

Feasibility

MassDEP currently does not have the resources to successfully administer the NPDES program. Appropriate resources would need to be provided so that the Commonwealth could administer the NPDES programs in a manner which improves upon the way the program is administered in Massachusetts today. The feasibility of MassDEP obtaining authorization from EPA and administering the NPDES program is completely reliant on the following program improvements:

- expanded science support;
- enhanced staffing resources for permitting, compliance and enforcement; and
- advanced information technology capability.

Without significant improvements in these areas, MassDEP and the Advisors raise caution about MassDEP's ability to effectively administer NPDES programs.

Cost and Sources of Funding

MassDEP estimates that administration of the NPDES program would cost approximately $9-$10 million per year. If delegation were to be pursued, a more rigorous cost estimation process that included possible program changes would need to be conducted. Three possible sources of additional NPDES funding were examined. They include fees paid by permittees, general legislative appropriations, and a wastewater assessment fee would be paid by rate payers and based on wastewater flow. The wastewater assessment fee would be the most significant and reliable source of funding. However a combination of these funding sources would likely be necessary.

Advantages

The following were identified as potential advantages:

1. MassDEP is better equipped to concentrate on Massachusetts –specific issues and develop permits with a more complete understanding of local conditions.
2. MassDEP issues a permit under state authority that is similar to the NPDES permits issued by EPA. Having MassDEP as the one permitting authority with EPA limited to an oversight role could result in a more efficient permitting process.
3. If properly funded, pursuing delegation creates the opportunity for improving the current NPDES program. From incremental improvements to the existing system to significant program redesign and the heightened use of science in NPDES program decisions, such changes would improve the way the Commonwealth protects our water bodies.
4. A state agency may be better positioned than EPA to implement integrated water planning. Integrated planning is a process designed to work with permittees who have competing requirements that arise from separate wastewater and stormwater projects in order to meet their NPDES obligations.
5. The program redesign and fee structuring components of delegation would give MassDEP the opportunity to look and act more broadly to better protect water quality in Massachusetts. That could include better coordination on managing all pollution sources in a watershed.

Disadvantages

The following were identified as potential disadvantages:

1. To assume delegation of the program will cost the Commonwealth and its tax or rate payers millions of dollars every year; rather than having the federal government bear those costs.
2. EPA has had a largely successful role in protecting the Commonwealth's water bodies. MassDEP's status as a state executive agency could make it inherently more subject to political pressure to make permit decisions less protective that those that EPA might have issued.
3. MassDEP would need to develop the capacity to run the program in a fairly short time. The complex set of program, funding, legislative and management changes that accompany delegation would take time to accomplish.
4. If MassDEP was handed the program, the ability to change course and hand it back to EPA is extremely limited.
5. The risk of inconsistent or funding shortfalls is high and could cause a backlog of science, permitting, and compliance and enforcement. In those instances DEP would not be able to adequately fulfill its responsibility to protect the Commonwealths' waters.

Draft Legislation

Current authority in the Massachusetts Clean Waters Act is broad enough in scope to generally assume authority for the NPDES program. Nonetheless, the Legislature may need to make modest adjustments to the Massachusetts Clean Waters Act's current legal framework in order to ensure that the state authority conforms to specific federal requirements.

Conclusion

Whether or not MassDEP pursues delegation is more than a question of who does NPDES work, MassDEP or the EPA. It is also a question of whether sufficient resources will be made available for MassDEP to conduct the science-based work need to support the administration of the NPDES program. Questions related to the funding and incorporation of peer reviewed science, integrated planning, allocating resources, assuring adequate funding, and equitable approaches to reducing pollution from all sources must be explored further. Applying for NPDES delegation without also addressing these other questions would set the delegation process up for failure. Regardless of whether MassDEP proceeds to seek delegation -- any course of action that does not include increasing the Department's science capabilities would be a missed opportunity for improving water quality while also having a carefully coordinated approach to watershed management.

Part I: NPDES Background

What is the NPDES Program?

The principal law governing pollution of the nation's surface waters is the Federal Water Pollution Control Act, or Clean Water Act ("CWA".) Based on the premise that "[n]o one has the right to pollute," the Act implemented a "National Pollutant Discharge Elimination System" ("NPDES") permitting program which requires that facilities that discharge pollutants into surface waters obtain a permit from the EPA. The permit typically places limits on the pollutants from the discharge, to protect overall water quality.

Consistent with the declaration that no person has any inherent right to pollute, the Act prohibits any discharge of any pollutant from a "point source" into "waters of the United States" unless a NPDES permit has been issued. Point sources are discreet conveyances, such as pipes or man-made ditches. Examples of point sources that must obtain NPDES permits include wastewater treatment plants, power plants, and municipal stormwater systems that discharge cooling water to a surface water body. NPDES permits establish which and how much of a pollutant can be discharged into a surface water and what monitoring and reporting on discharges are required.

The amount and type of pollutants that a permit allows depends on the type of pollutants created by that facility, the type of industry, the quality of the surface water receiving the discharge and the pollution control technology used in that industry to reduce the amount of pollutants. Individual NPDES permits must contain discharge limitations based on EPA-established technology-based standards, or more stringent limitations if needed to achieve State-established water quality standards in the receiving water bodies.

What Other Programs Protect Water Quality in Massachusetts?

Issuing NPDES permits is only one component of how water quality is protected. MassDEP's non-NPDES work is done in its Watershed Planning, Drinking Water, Wetlands & Chapter 91 Waterways, and Wastewater Management programs.

The Watershed Planning Program manages the health of the state's watersheds by the development and implementation of various types of watershed assessments. Robust science – accurate monitoring, credible modeling and analysis, and the development of well-supported actions to reduce pollutants – is critical to this group's success.

The Drinking Water Program ensures that safe and pure drinking water is delivered by public water systems in Massachusetts according to national and state standards. It regulates water quality monitoring, new source approvals, water supply treatment, distribution protection, and reporting of water quality data.

The Wetlands and Waterways Program ensures the protection of Massachusetts' inland and coastal wetlands, tidelands, great ponds, rivers and floodplains. It regulates activities that may alter coastal and inland wetlands areas to ensure that the state's wetlands continue to provide valuable benefits, such as flood control, prevention of pollution and storm damage, and protection of public and private water supplies, groundwater, fisheries, land containing shellfish, and wildlife habitat. It also administers the waterways licensing program,

which regulates activities on both coastal and inland waterways, including construction, dredging and filling in tidelands, great ponds and certain rivers and streams.

MassDEP's wastewater programs protect public health and the environment through regulation of discharges from treatment plants, industrial facilities, sewers, and other sources; ensuring the safety of septic systems and alternative septic treatment technologies; and preventing pollution from stormwater runoff. However, in Massachusetts EPA is the agency with lead responsibility for issuing NPDES permits to facilities such as wastewater treatment plants, power plants and municipal stormwater systems. Many other states have been authorized by EPA to administer the NPDES programs.

What Does it Mean to be "Authorized"?

The CWA allows States to request authority from EPA to administer the NPDES permit program. The assumption of control over the NPDES program is known as "delegation."

Under the CWA EPA must approve a State's request to operate a NPDES permit program. It determines if the State has adequate legal authorities, procedures, and ability to administer the program. Nationally, EPA adopts procedural and programmatic requirements for State NPDES programs, including guidelines on monitoring, reporting, enforcement, personnel, and funding. A state's NPDES program must be consistent with minimum federal requirements, and may be more stringent. If a State program does not remain consistent, EPA may withdraw its authorization.

As of June 2013, 46 states had been authorized to administer the federal NPDES permit program. The four non-delegated states are Massachusetts, New Hampshire, Idaho and New Mexico. States may seek delegation for all or for specified parts of the national program. They can implement the base program alone (i.e., issue individual NPDES permits for industrial and municipal sources), then choose whether or not to seek authorization for administering federal facilities, the National Pretreatment Program, the Municipal Sewage Sludge Program or NPDES general permits. If the State has only partial authority EPA will implement the other programs. See this link for state delegation status: http://cfpub.epa.gov/npdes/statestats.cfm

What is EPA's role after a State is authorized?

After a State is authorized to issue permits, EPA is prohibited from conducting these activities. However, EPA must be provided with an opportunity to review each permit issued by the State and may formally object to elements that conflict with Federal requirements. If the permitting agency does not address the objection to EPA's satisfaction, EPA can choose to issue the permit directly. After a permit is issued by an authorized State, it is enforceable by the State and Federal agencies but EPA's role changes from directly administering the delegated program to overseeing the State's administration of the program.

How Does a State Request Authorization?

A State must apply to EPA for authorization to administer the NPDES permitting programs. The application must demonstrate:

- Legal authority sufficient for state permits to comply with federal rules

- Legal authority to inspect, monitor, enter and require reports from point sources
- Public Notice of Permits and opportunity for a public hearing
- Notice to EPA of Permits
- Adequate resources to run the program

Further details on the process for a State requesting NPDES program authorization are located in federal regulations located here: http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr123_main_02.tpl

Historical Delegation Studies and Actions in Massachusetts

MassDEP has explored requesting delegation a number of times since the 1970s. The most recent extensive formal effort was authored in 1996-97 by the consulting firm the Cadmus Group. The Cadmus Group was hired to write a report "examining the benefits of (Massachusetts) assuming responsibility for the NPDES program."

The Cadmus Report contains staffing estimates, a fee model, and program proposals based on the watershed planning model being pursued by MassDEP at that time (see Appendix C.) It concluded that "assuming a NPDES program similar to the one currently jointly run by EPA and Massachusetts was not desirable" since it would shift the burden of conducting the program to the state with only limited benefits.

The Cadmus Report described and analyzed the status of the NPDES program of the mid 1990s. At that time, MassDEP was assisting EPA is the development of permits, but had not yet established some of the other water quality initiatives such as the total maximum daily load (TMDL) program and stormwater permitting program which exist today.

The TMDL program examines water quality data and runs water quality models of specific water bodies to determine if they are impaired; characterizes its pollutants and their impacts, estimates pollutant loads from surrounding land uses; calculates the maximum daily loads of pollutants that those water bodies can accommodate without violating federal and state water quality standards; and writes an implementation plan for remediating that waterbody. These analyses are a critical part of the NPDES program. For waterbodies where TMDLs exist, NPDES permit writers use the TMDL to determine pollutant limits that support the water bodies' loading capacity.

At the time the Cadmus Report was written, the national TMDL program was in its infancy and MassDEP was focusing its efforts on wastewater treatment facilities, calculating their wasteload allocations for their NPDES permits. In the last 17 years, MassDEP's TMDL program has grown and now incorporates water quality monitoring to support TMDL development and implementation. In addition, since the Cadmus Report was written, EPA has developed and implemented NPDES stormwater requirements for construction projects, industrial facilities and municipalities.

The Cadmus Report estimated that an additional 42- 58.5 full time equivalents (FTEs) were needed for delegation at an annual cost of $6.5 – $6.9 million. These estimates were reflective of a program that involved fewer permits, lower staff costs, and a smaller universe of NPDES programs than would be anticipated today.

Recent State Experiences with Delegation – Maine and Alaska

While many states were authorized to administer the NPDES program in the 1970s, 1980s, and 1990's, MassDEP has reviewed the process and lessons learned from states that have more recently taken over the program. Maine and Alaska assumed delegation in 2001 and 2008 respectively.

Maine was authorized to administer the base NPDES permit program, federal facilities, the pretreatment program and general permits in January 2001. It does not administer the sludge program.

Maine DEP found that there are best practices that states can utilize to effectively and efficiently administer their NPDES program. These include: having an appropriate data management system is in place; ensuring that the program is well-managed and has sufficient resources prior to taking delegation; treating permit issuance like a production line with an annual schedule and targets based on an expiring permits; making decisions on permits based on what the agency knows at the time, then moving on; using a team approach among the water quality modelers, permit writers, compliance inspectors, enforcement staff, technical assistance, state revolving fund (SRF) and data management staff; establishing good working relationships with non-governmental organizations (NGOs) and the regulated communities, especially municipal wastewater associations; routinely keeping those organizations informed about upcoming program actions and regulatory developments and using their input to develop the program; and using the preliminary draft stage of the permit process to work out issues prior to the formal public comment period.

Maine suggests that any state taking on the NPDES program establish a mechanism to regularly update NPDES regulations based on changes to federal rules, ideally with omnibus legislation that performs those updates each year by reference. Maine also cautions that a state should not underestimate the need for good data management. Accurate and timely permit coding, an efficient electronic discharge monitoring report (eDMR) system and quality assurance and quality control (QA/QC) of data are critical backbones of a well-run NPDES delegation effort.

Alaska was approved by EPA to take delegation in 2008. Alaska's path to delegation had strong state legislative involvement, resulting in a report by the Alaska DEQ for the legislature on the advantages and disadvantages of delegation. That report is valuable in its articulation of the rationale for assuming program administration and is on line here: http://dec.alaska.gov/water/APDES/docs/NPDESReporttoLeg.pdf

Alaska also benefitted from a Primacy Workgroup that recommended pursuing delegation. Its report is also instructive on the concerns of the group and the variety of reasons relied upon to support delegation. http://www.dec.state.ak.us/water/npdes/pdfs/Work_Group_Report_FINAL.pdf

Understanding Categories of NPDES Permits

Individual permits are grouped by EPA into two categories based broadly on the type of point source:

- *Publicly owned treatment works (POTWs)* are facilities owned by a public entity, usually a Town, which treats municipal sewage, industrial wastes, or a combination of the two.
- *Non-publicly owned treatment works (non-POTWs)* are all other facilities, and are often referred to as "non-municipals" or "industrials." Non-POTWs include privately owned treatment works, water

treatment plants, concentrated animal feeding operations (CAFOs), or any manufacturing or commercial activity.

EPA further divides these two categories into major and minor facilities which are described below:

- Major POTWs include treatment works with design flows greater than 1 million gallons/day (MGD) or those otherwise designated by EPA.
- Major non-POTWs include treatment works that due to size or complexity of operations are designated by EPA
- Minor POTWs/non-POTWS include all other NPDES point source dischargers

In addition there are two categories of general permits:

- Stormwater which includes construction, municipal and industrial
- Non-stormwater which includes all others

Further details about categories of permits and permit writing are described in an EPA guidance document called "Water Permitting 101" found in Appendix A. Additional permitting resources can be found on the following website: http://water.epa.gov/learn/training/standardsacademy/permit_index.cfm

The number of NPDES permits in Massachusetts are outline by category below. Note that there are backlogs for both majors and minors – meaning that the permits for those facilities are overdue for renewal for modification.

- Majors – 122, with 51 in backlog;
- Minors – 130, with 37 in backlog ;
- Stormwater general permits – 2413; and
- Non-stormwater general permits: 325.

How are Individual NPDES Permits Written?

The limits and conditions in an individual NPDES permit are tailored to each permittee based on the type and volume of the discharge and the receiving surface waterbody. However, the process used to write and issue permits generally follows a common path. For individual permits, EPA specifies in 40 CFR §124, the major steps for an individual NPDES permit:

1. Receive application from permittee.
2. Review application for completeness and accuracy.
3. Request additional information as necessary.
4. Develop technology-based effluent limits using application data and other sources.
5. Develop water quality-based effluent limits using application data and other sources.
6. Compare water quality-based effluent limits with technology-based effluent limits and choose the more stringent of the two as the effluent limits for the permit.
7. Develop monitoring requirements for each pollutant.
8. Develop special conditions.
9. Develop standard conditions.
10. Consider variances and other applicable regulations.

11. Prepare the fact sheet, summarizing the principal facts and the significant factual legal, methodological and policy questions considered in preparing the draft permit including public notice of the draft permit, and other supporting documentation.
12. Complete the review and issuance process.
13. Issue the final permit.
14. Ensure permit requirements are implemented.

States may also prepare for legal challenges to the permit if it appears that challenges are likely.

The standards and criteria that the NPDES permit writers use are based upon federal and state water quality standards, the quality of the receiving waters, modeling of existing and anticipated pollutant levels and the technologies to be used to reduce pollutants. All of this information requires a sound scientific foundation in order to ensure the accuracy and effectiveness of the permit in protecting water quality.

The first major step in the NPDES permit development process is deriving technology-based effluent limits and identifying water-quality based effluent limits that are protective of state water quality standards. The permit writer then compares the technology-based effluent limits to the water quality-based effluent limits and applies the more stringent ones in the permit.

Following the development of effluent limits, the permit writer develops appropriate monitoring and reporting conditions, facility-specific special conditions, and includes standard permit conditions. After the draft NPDES permit is complete, a public notice announces the permit and invites interested parties to submit comments on the draft permit. A public hearing may be requested. After review and consideration of comments, the permitting authority then writes the final permit and issues it to the facility.

Establishment of General Permits

The NPDES program also has general permits, which are written to cover groups of dischargers with similar characteristics. The process for developing and issuing general NPDES permits is similar to the process for individual permits; however there are differences in the order of events.

Factors used to determine if a General Permit is appropriate include whether there are a large number of facilities to be covered; if the facilities have similar production processes or activities; if the facilities generate and discharge similar pollutants; if only a small percentage of the facilities have the potential for violations of water quality standards.

After a draft general permit has been reviewed and a final permit issued, facilities that want to be covered under it submit a Notice of Intent (NOI.) The permitting authority may then either request additional information about the facility, notify the facility that it is covered by the general permit, or require the facility to apply for an individual permit.

Part II: Feasibility, Cost, Advantages, Disadvantages

The Legislature's directive to MassDEP was to conduct an assessment of the feasibility, cost, advantages, and disadvantages associated with becoming an authorized NPDES state. This section of the report was informed by observations of members of the NPDES Delegation Advisory Committee.

What is the Feasibility of MA Delegation?

To obtain NPDES delegation, MassDEP must have adequate financial and technical capabilities. There was no consensus by the advisory committee that MassDEP should seek delegation. However, there was unanimous concern that if delegation occurred, MassDEP would need sufficient resources so that it could improve how the NPDES program is administered.

Three areas of program improvements that should accompany any delegation request have been identified – they include:

- expanded science support;
- enhanced staffing resources for permitting, compliance and enforcement; and
- advanced Information Technology (IT) capability.

Without significant improvements in these areas, MassDEP and the Advisors caution that MassDEP would not be able to effectively administer NPDES programs. The areas of program improvements are elaborated on below.

Expanded science support is critical for four main reasons. The NPDES program relies on TMDLs and water quality and technology standards to develop appropriate and defensible permit limits. The process of developing a TMDL begins with the determination of whether a waterbody meets state water quality standards. In order to make these determinations an extensive monitoring network is needed to accurately characterize each of the thousands of river and stream segments and lakes and ponds across the Commonwealth. Those results are then analyzed to determine whether any of those water bodies are impaired by excessive amounts of pollutants. Complex hydrologic modeling is then used to estimate the pollutant loads to these segments, taking into account factors like land uses (to assess nonpoint source loading) and known point source loads. Further modeling is completed to determine the pollution reductions needed to restore those water bodies, so that they met standards and support their intended uses.

These scientific findings are published in TMDLs, which are publically reviewed before they are finalized. MassDEP continues to monitor these waterbodies to track progress towards achieving water quality goals established in the TMDL. The agency also continues to sample and monitor unimpaired waters to verify that they are still meeting water quality standards. This science-heavy TMDL process is the backbone of the Commonwealth's ability to understand which rivers, streams, lakes or ponds have water quality impairments, determine the source of impairments, and implement a plan that meets standards and supports healthy waters.

The second reason expanded science support is needed is that the pace of this work – which starts with assessing every water body in the Commonwealth - needs to be sufficient to meet federal requirements and environmental goals. MassDEP has completed about 600 TMDLs, with about 1500 in its current backlog. At current staffing levels it will take decades to complete this work.

Third, many NPDES permit requirements are based upon the technologies used to reduce pollutants contained in discharges to water bodies. Whether it is advanced filtration technology at municipal water treatment plants or rain gardens built to treat pollutants from stormwater, MassDEP should use accurate, accepted science to evaluate the technologies to ensure that they are capable of achieving the pollution reductions they are designed to achieve.

Last, the many interests affected by NPDES programs, from permittees to environmental advocates to the general public, are more likely to accept and support implementation of NPDES permit decisions if those decisions are founded on science. Gaps in the science used to establish water quality standards, evaluate permit applications, set permit conditions or conduct compliance and enforcement actions leads those many interests to question the wisdom of those decisions or to challenge those decisions in court.

The need for *enhanced staffing resources for permitting, compliance and enforcement* is driven primarily by the statistics associated with the volume of permits that are being managed in the Commonwealth. As of October 2012 EPA administers 252 individual NPDES permits in Massachusetts, with 88 in its current backlog. Further, there are 2738 facilities or activities covered under general permits (such as the Construction General Permit, which currently regulates about 1400 construction sites of an acre or more.) If delegation to MassDEP occurs, an increased number of staff will be required in order to review and process permit applications, conduct inspections, evaluate compliance and implement needed enforcement, and conduct any needed enforcement-related legal proceedings.

An enhanced IT capability will be needed for two reasons. First, MassDEP would be issuing new state permits and would require increased IT capability for filing and analytic purposes. Second, MassDEP should assertively push to use enhanced analytics to assist with its compliance and enforcement (C&E) and program improvement activities. Computerized “triggers” and automated data analysis similar to that used in the Environmental Results Program could allow NPDES C&E staff to more efficiently locate and correct permittees who are not meeting the requirements of their permits.

The Advisors’ basis for advocating that these improvements accompany NPDES delegation was that they are needed to ensure that Massachusetts’ water quality programs are operated effectively and in a timely manner. The Advisors generally believe that merely shifting existing NPDES work from EPA to MassDEP is unlikely to improve the quality of the NPDES program or the waters of the Commonwealth. That rationale led the Advisors to conclude that significantly increased science resources are needed for MassDEP *even if delegation is not pursued*. Adequate funding for science and comprehensive approaches is currently lacking. Whether permits continue to be issued by EPA with input from MassDEP or are issued directly by MassDEP, this lack of support hampers the ability of any permit issuer to ensure that permit decisions are sound, well-grounded in facts, and accepted by those who need to implement them.

What Would NPDES Delegation Cost?

MassDEP evaluated the potential costs of having the state conduct the NPDES program. It was determined that MassDEP would need an additional 102 staff which would cost approximately $9-$10 million per year (see Appendix C for details). This initial estimate was based on the assumption that MassDEP would accept delegation of the entire NPDES program except for the Sewage Sludge program, and assumed that funding adequate to support all program costs was available. If delegation were to be pursued a more rigorous cost estimation process that included possible program changes would need to be conducted.

In addition, this estimate proposes that MassDEP would have significantly more staff than EPA currently has to address the areas where EPA has insufficient resources. Examples of those areas include monitoring, modeling, assessment, addressing the current individual permit backlog, and compliance and enforcement of NPDES general permits.

What are Sources of Funding for NPDES Delegation?

Although MassDEP currently receives funds from EPA for conducting water quality programs, those funds are being spent on existing MassDEP programs. It is unlikely that EPA will provide any additional monies to MassDEP to pay for the increased responsibilities that would result from delegation. The costs of accepting delegation require increased funds from Massachusetts taxpayers, ratepayers, and NPDES permit holders.

Who should pay is a complex question and when discussed with the Advisors the following five related fee considerations emerged. First, under state law municipalities are exempt from state fees under MGL. C. 21A, section 18. Therefore, if the state took delegation, municipal permittees would not pay any monies to cover the cost of the program, unless legislative action modified that exemption. Second, permittees could be assessed a combination of annual compliance fees (to support program activities associated with permit compliance and enforcement), permit application fees (to support activities associated with permit review) or general program fees (to support all program activities, including those like science support and IT.) Third, consideration would need to be given to whether general program costs should not only be paid not by the discharges but by taxpayers or ratepayers who benefit from the NPDES program. Fourth, water quality problems in Massachusetts are not just the result of NPDES discharges but are also the result of anyone whose actions create additional pollution. Fifth, in the current state and federal water quality programs some permittees pay an annual compliance fee and a permit application fee (e.g., groundwater dischargers) and some pay neither (e.g., permittees of the industrial stormwater Multi Sector General Permit.)

With these issues in mind, the Advisors also generally agreed that funding the NPDES program utilizing multiple sources was preferable to funding the program from one source as a multi-sourced approach is likely to be more stable and reliable. The Advisors also noted that broadening “who pays” beyond current NPDES facilities was worth examination. As a principle, MassDEP believes that any funding approach should be broad enough to include both those who create water pollution and those who benefit from NPDES and water quality programs.

MassDEP and the Advisors examined three possible sources of additional NPDES funding. The first was fees paid by NPDES permittees. A combination of permit application fees and annual compliance fees could be proposed on the grounds that those program components should be supported by those that pollute. A fee method

targets the limited number of point-based NPDES pollution sources that are currently required to have permits, and leaves out both other point sources that are not required to have permits and non-point sources that produce significant amounts of pollution. Currently the highest NPDES permit fees are reported to be in the $20,000 - $30,000 range. Fees would have to be raised substantially if this funding source were to fund the bulk of the program. Last, those that benefit from the NPDES program – the general public – would not pay directly for the program.

However, permit application fees and annual permit compliance fees that generally cover the cost of administering the permit portion of the NPDES program could be a stable and equitable source of funds. That means that permittees of some NPDES programs that currently do not pay anything. (e.g., the Construction General Permit and the Multi Sector General Permit) would start paying.

A second funding source examined was general legislative appropriations. As a primary funding source, state appropriations would be consistent with the principle that all who benefit would pay. However, the Legislature is subject to many competing demands from well-deserving programs and interests for appropriations. Further, tax receipts to support these many interests fluctuate with international, national and state economic factors, making it sometimes difficult for the Legislature to avoid cuts in programs when tax receipts are less than expected. For these reasons the Advisors thought that the instability of this source over time was problematic.

MassDEP and the Advisors also examined a third source of funding: a "wastewater assessment fee." This type of fee, modeled on MassDEP's current Section 70 drinking water assessment, would assess wastewater treatment plant ratepayers a small fee to be collected by the wastewater treatment facilities. The fee would be based on the amount of wastewater flow. Ratepayers that create more flow to wastewater treatment facilities (i.e., industrial users) would pay more than smaller users (i.e., individual households.) The Section 70 model also allows the facility operator to pass on its costs of administering the assessment fee. See Appendix D for a more detailed description of the wastewater assessment fee.

There are practical difficulties associated with administering this type of fee. For example: actual wastewater flows are harder to track than drinking water flows; the use of design flows does not precisely track actual flows; and wastewater facilities that discharge to the ground instead of surface waterbodies are not required to have NPDES permits and already pay permit and annual compliance fees to a separate state-run program. Yet it seems that these difficulties are offset by the advantages to the approach. A wastewater assessment fee broadens the base of the fee to include most of those who pollute and most of those who benefit. The "per unit" cost is low; for example, a typical household of four would pay $2 to $3 per year.

It is known that program funding for the Section 70 drinking water assessment fee is relatively stable. A benefit to this approach is that the fee is sufficiently broad, costs per customer would be fairly low, and it could be combined with NPDES permit fees. When the Advisors discussed this fee there was no agreement that it should be pursued. However, some Advisors believe a combination of fees paid by the permittees (annual compliance fees and/or permit application fees) and this more general wastewater assessment would be an acceptable way to provide increased resources if delegation were to occur.

What are the Advantages to Delegation?

Delegation should only be pursued if there are known significant benefits. At a minimum, delegation ought to result in a program that is at least as protective as the EPA-administered NPDES program. Based on feedback from the advisors, MassDEP identified five main advantages to delegation.

1. If Massachusetts were an authorized state, MassDEP would be better equipped than EPA to concentrate on Massachusetts –specific issues and develop a more complete scientific understanding of local conditions. Given sufficient resources, investments could be made in data collection about the environmental issues surrounding point and nonpoint source discharges and a better understanding of local impacts.
2. Massachusetts already devotes limited staff resources to working on NPDES permits issued by EPA. This creates duplication of effort. Having Massachusetts as the one permitting authority with EPA limited to the same kind of oversight role it currently plays for Rhode Island, Connecticut, Maine, and Vermont would result in a more efficient permitting process.
3. If properly funded, pursuing delegation creates the opportunity for improving the current NPDES program. From incremental improvements to the existing system to significant program redesign and the heightened use of science in NPDES program decisions, such changes would improve the way the Commonwealth protects our water bodies. In addition this focus on making more informed and scientifically supported management decisions may cause greater acceptance and agreement on implementation from interested parties**.**
4. A state agency may be better positioned than EPA to implement integrated water planning. Integrated planning is a process designed to work with permittees who have competing requirements that arise from separate wastewater and stormwater projects in order to meet their NPDES obligations by appropriate sequencing of work. While not intended to lower existing regulatory or permitting standards or delay necessary improvements, it is intended to provide more flexibility than simply focusing on each NPDES requirement individually without full consideration of all competing obligations. http://cfpub.epa.gov/npdes/integratedplans.cfm
5. Program redesign and fee structuring components of delegation would give MassDEP the opportunity to look and act more broadly to better protect water quality in Massachusetts. This could include better coordination on managing all pollution sources in a watershed.

What are the Disadvantages to Delegation?

Delegation should not be pursued unless it is certain to result in program benefits. Therefore if delegation only resulted in a shift of program responsibilities and costs to the state without significant program improvements, most Advisors noted that delegation would not be worth the effort. Based on feedback from the advisors, MassDEP identified five main disadvantages to delegation.

1. To assume delegation of the program will cost the Commonwealth and its tax or rate payers millions of dollars every year; rather than having the federal government bear those costs. Those who would pay for a shifted and expanded NPDES program face many other local, regional, and statewide funding

challenges. It is reasonable to ask whether a delegation-impelled funding increase is more compelling than other priorities. It is also not clear that spending money on delegation is the most effective way to expend scarce resources dedicated towards environmental protection.

2. EPA has had a largely successful role in protecting the Commonwealth's water bodies. MassDEP's status as a state executive agency could make it inherently more subject to political pressure to make permit decisions less protective that those that EPA might have issued. Narrowing EPA's responsibilities from administration to oversight of programs could result in some loss of environmental protection.
3. MassDEP would need to develop the capacity to run the program in a fairly short time. The complex set of program, funding, legislative and management changes that accompany delegation would take time to accomplish.
4. If MassDEP was handed the program, the ability to change course and hand it back to EPA is extremely limited. Although "de-delegation" is permitted by the CWA, nationally it is rare for a delegated state to return or be ordered to return its authorization back to EPA. As a practical matter, delegation is an enduring decision that relegates EPA's role to that of an overseer of water quality programs.
5. The risk of inconsistent or funding shortfalls is high and could cause a backlog of science, permitting, and compliance and enforcement. In those instances DEP would not be able to adequately fulfill its responsibility to protect the Commonwealths' waters. In addition, even if there were sufficient funding at the onset of the delegation process there is a reasonable risk that such funding would erode over time.

Conclusions about Program Success

Whether or not MassDEP pursues delegation is more than a question of who does NPDES work, MassDEP or the EPA. It is also a question of whether sufficient resources will be made available for MassDEP to conduct the science-based work need to support the administration of the NPDES program. Independent of who administers NPDES programs the following questions should be explored further:

- How do government agencies, the regulated community, and stakeholders increase the use of and fund peer-reviewed and accepted science to guide the setting of standards, the issuance of permits and the work needed to remediate impaired waters?
- How does the agency with permit authority work with municipalities and industries to appropriately implement integrated planning and choose wisely among various expenditures to allocate scarce taxpayer and ratepayer dollars in the most beneficial way?
- How does the Commonwealth and its partners obtain - and maintain - sufficient funding to make the NPDES program work well if delegation were pursued?
- How does the Commonwealth ensure that the burden of reducing pollution into our waters is shared appropriately among the many sources of pollution in an equitable manner?

The Advisors and MassDEP together agree that applying for NPDES delegation without also addressing these other questions would set the delegation process up for failure. Regardless of whether MassDEP proceeds to seek delegation -- any course of action that does not include increasing the Department's science capabilities would be a missed opportunity for improving water quality while also having a carefully coordinated approach to watershed management.

Part III: Draft Legislation

What Additional Statutory Authority is Needed for Delegation?

Congress set the requirements for a state to assume delegated authority to administer the NPDES program in section 402(b)(2) of the federal Clean Water Act. Congress directed EPA to approve a state's program if the state has "adequate authority." EPA has detailed regulations that a state's program must satisfy in order to have "adequate authority" to implement the NPDES program. Any application from MassDEP seeking authorization must include the required statutory and regulatory language that demonstrated compliance with the NPDES regulations and requires permittees to comply with the regulations and their permits. MassDEP's program need not be identical to the current EPA program but must meet the"adequate authority" criteria, and any variances will have to be approved by EPA.

MassDEP's current authority in the Massachusetts Clean Waters Act to permit the discharge of pollutants into waters of the commonwealth is broad enough in scope to generally assume authority for the NPDES program. Nonetheless, the Legislature may need to make modest adjustments to the Massachusetts Clean Waters Act's current legal framework in order to conform state authority to specific federal requirements. For example, additional specific enforcement authority would be required to satisfy federal requirements concerning the availability of injunctive relief and increase maximum permissible civil penalty amounts. Other changes could also be made to improve the ability of MassDEP to administer the program, within the parameters of minimum federal requirements. These changes may include changes to the procedures for appealing permitting decisions, changes to the public notice provisions, and changes to the provisions governing the public's access to information. In addition, the Legislature may need to make changes to the existing legal framework concerning permit fees for this program (M.G.L. c. 21A, section 18) and/ or create a new funding mechanism to ensure adequate funding to administer the program, as described in the discussion of costs earlier in this report.

Two draft bills are provided below. The first draft includes changes that would be required for federal consistency in order to demonstrate adequate authority for authorization. It also includes suggested changes intended to improve the ability of MassDEP to implement a delegated NPDES program. The second bill is one that directs MassDEP to submit an application seeking authorization from EPA. Such a directive was used by the Alaska legislature to move the state towards authorized administration of the program.

Neither of the draft bills has been reviewed by EPA. There may be additional specific changes to the first bill that would be required by EPA to establish the required legal authority in Massachusetts. Further legal research and consultation between MassDEP and EPA's legal counsel would be needed to definitively determine all required legislative elements that would be needed. The preliminary draft bills included below do provide detailed examples of the kinds of mandatory elements that would be part of the comprehensive legislative submittal needed for delegation, and an optional statement of direction that might be used by the legislature to instruct MassDEP to seek authorization. No draft funding legislation has been provided, as the program funding needs could be met with a variety of sources. See Appendix F for legislative language.

Appendix A: MassDEP Requirement to Report to the Legislature

Chapter 139 of the Acts of 2012, Section 209: Notwithstanding any other general or special law to the contrary, the department of environmental protection shall evaluate the feasibility, cost, advantages and disadvantages of obtaining from the United States Environmental Protection Agency, to the extent permitted by federal law, delegated authority over National Pollutant Discharge Elimination System programs. The department shall file a report detailing its findings, together with drafts of legislation necessary to obtaining such authority, with the clerks of the senate and the house of representatives not later than July 1, 2013.

Appendix B: NPDES Delegation Advisory Committee

MassDEP convened a NPDES Delegation Advisory Committee to help MassDEP review the issues posed by the Legislature and to offer input on a draft of the MassDEP's Report to the Legislature.

The Committee met three times to assist MassDEP in developing key questions and concepts that the Report would address and then review an initial draft of the Report to ensure that key points were adequately addressed. This 21 member group had wide representation, with members from the regulated community, environmental advocates, budget and fiscal experts, municipalities and the legal field.

Each of the two hour meetings was held at MassDEP's Boston Offices:

- March 23: topics included the schedule and scope of the Report
- April 12: topics included improvements and shortcomings of the NPDES program and EPA's role in delegation
- May 14: topic included a wastewater assessment fee and an outline of the Report

MassDEP is grateful for the observations and opinions provided by the members of the NPDES Delegation Advisory Committee. Their willingness to work on this project is testimony to their commitment to the common good of the citizens of Massachusetts. Advisors who participated are listed here:

Kathy Baskin – Executive Office of Energy and Environmental Affairs
Julia Blatt - Mass Rivers Alliance
Douglas Borgatti - Springfield Water and Sewer Commission
Robert Brown - MassDEP
Bruce Carlisle - Coastal Zone Management
Alan Cathcart – Town of Concord
Bethany Eisenberg – VHB
Alison Field-Juma - OARS
Andrew Fisk - Connecticut River Watershed Council
Glenn Haas - Brown and Caldwell
Paul Hogan - Woodard and Curran
Michael Hornbrook – MWRA
Brian Kavanah – Maine DEP
Rebekah Lacey - Anderson & Kreiger
Kristin LaCroix – MassDEP
Robert Moylan - Worcester Public Works and Parks
Sue Perez – MA Water Pollution Abatement Trust
Tom Philbin - Mass Municipal Association
John Sullivan - Boston Water and Sewer Commission
Tom Tilas - AECOM
Robert Zimmerman - Charles River Watershed Association

Appendix C: Estimated Staffing Needs for NPDES Delegation

2/15/2012

Category	Description	Current level	Projected Need 2011	Comment
Management	Program manager, permitting manager, compliance/enforcement manager	1	3	
ICIS/Administration/Data entry	compliance/enforcement & DMR data entry; Region & Boston	.3	7	Data entry and clerical support for permitting and enforcement
Permitting	Major/Minor permits	1.5	16	Includes sanitary and industrial discharges
General permitting	NCCW, Water Treatment plants, Construction Dewatering, POTW	0	4	
Stormwater permitting	Includes 4 regional circuit riders and a technical BMP person to review technologies	1	10	Includes outreach to communities and BMP review
Power Plant permitting	17 Power Plants across the state	0	5	
Industrial Pretreatment Program	Pretreatment plans/ PCI audits	0	4	
Compliance inspections and enforcement		7.5	10	
Toxics activities	PPCP, emergent contaminants etc	0	1	
Sludge permitting	Residuals management either 310 CMR 32.00 or 503	1.5	4	
Monitoring and Permitting Science and monitoring (lab) Support ***See note below***	Modeling, mixing Zones, water quality standards, non point source assessments, regional water quality monitoring, fish studies	9	56	This work supports many BRP programs and the Lab (WES) is a shared resource. ***See note below.***
Public Outreach		0	1	
Legal support	Legal – regional and Boston	2	7	Includes enforcement activities, appeals, hearings and court actions
TOTAL		**25.8**	**128**	
New Staff Needed		**102.2 Additional FTEs**		

Estimated Science and Monitoring Need

The state's monitoring and assessment work supports BRP in a variety of programs. In estimating the FTE need to support a delegated NPDES program, we could limit the question to monitoring solely for NPDES purposes or include all our federal monitoring responsibilities. Those general responsibilities include ambient monitoring, fixed-site monitoring, compliance monitoring, and TMDL monitoring. The Cadmus report (1997) identified a need of 13.2 FTEs to conduct monitoring needed for permit decisions and TMDL development. This estimate predates the current TMDL and stormwater rules.

In 2005 DWM developed a monitoring strategy to estimate our monitoring needs. This included compliance and ambient monitoring and support staff but did not include marine monitoring. That 2005 document, located on our server at http://www.mass.gov/dep/water/resources/envmonit.htm, identified a FTE need of 48 staff.

Today the gap is 37 FTEs for monitoring related activities. All these activities are needed to assess water quality conditions, obtain data to develop TMDLs and conduct compliance monitoring. The breakdown is as follows:

Activity	Estimated Need (2005)	Current staff (2011)	FTE shortfall (2011)
Assessment Monitoring	14	3	11
Biologist	5	1	4
Microbiologist	3	1	2
Fish monitoring	3	1	2
Seasonal help	3	-	3
TMDL data collection	6	-	6
Compliance monitoring (0.5/region)	2	-	2
Data Management	7	2	5
Fixed site network	2	-	2
Quality Assurance	3	1	2
Total Monitoring Need	**48**	**9**	**39**
Lab Support Need	**8**	**3**	**5**
Total Monitoring and Lab Support Need	**56**	**12**	**44**

Appendix D: Wastewater Assessment Fee Description

Potential Funding Mechanism for NPDES

A NPDES wastewater assessment modeled after the Safe Drinking Water Act Section 70 program could provide funds to support a state-operated NPDES program.

The Section 70 assessment collects funds from public drinking water system suppliers "to assist in providing technical compliance assistance to all suppliers of water." The Assessment makes up the difference between the cost of administering the Safe Drinking Water Act in Massachusetts and the funds available through federal grant and state appropriation.

MassDEP sets an assessment rate each year for both metered and unmetered systems and sends that assessment to the public water suppliers. Each water supplier then bills their customers for this assessment (either through a separate line item or lumped together with its other charges), collects the funds and sends them to MassDEP. The assessment is based on a previous years' reported actual flow, and there is a minimum assessment of $20 per year.

In other words, the suppliers are a "pass-through" for collection of the fee from their customers. While MassDEP sends the assessment bill to the suppliers, the program regulations require that "Assessments and administrative costs of end suppliers related to the Assessment shall be recovered to the maximum practical extent from charges to users."

The program's assessment has been set to provide stable funding of about $2 million per year. When it was operated as a dedicated account an overhead charge was deducted. In the last few years the use of the Section 70 dedicated account has ended. Since then the legislature has deducted approximately $700k per year, leaving net funding available of about $1.3 million per year.

How Would a Section 70 style Wastewater Assessment Fee be Calculated?

Calculating the charge is straightforward: *RATE X FLOW = Total Annual Assessment*

Conversion from daily flow to yearly flow may be needed depending on the data used to calculate the flow (see accompanying spreadsheet.)

There are three types of flow associated with wastewater treatment plants, any one of which might be used for the gallons per year figure:

- Design flow is the maximum that the facility could safely treat.
- Permitted flow is the maximum allowed by regulators; in practice this number is about the same as the design flow.

- Actual flow is the amount that WWTP operators actually treat.

All municipal WWTFs in Massachusetts have a daily flow of about 1039 million gallons per day. See the accompanying spreadsheet showing examples of the revenue generated using different Assessment Rates.

Since wastewater is also treated and disposed into surface waters through non- municipal wastewater treatment plants, the Assessment could be broadened to include those smaller facilities.

The Assessment would not apply to groundwater dischargers since those permittees already are overseen by and pay annual compliance fees to MassDEP. The Assessment also would not apply to septic system owners since those systems are already overseen by the Title 5 program.

For illustrative purposes the following spreadsheet shows the impact that the fee would have on a typical residence based on the wastewater flow from that residence. The impact of the fee on a wastewater treatment facility or an industrial business would vary with the flow generated by that facility.

NPDES Wastewater Assessment Draft Calculation Sheet

rate per million gallons	flow in gallons/day	days in a year	Total Assessment	Annual rate for typical ratepayer family of 4 using 81,000 gal/year	# of FTEs supported
$5	1039	365	$1,896,175	$0.41	11.9
$10	1039	365	$3,792,350	$0.81	23.7
$15	1039	365	$5,688,525	$1.22	35.6
$20	1039	365	$7,584,700	$1.62	47.4
$25	1039	365	$9,480,875	$2.03	59.3
$30	1039	365	$11,377,050	$2.43	71.1

ASSUMPTIONS		
Fully loaded cost per FTE:	**$160,000**	
Total Muni WWTFs flow:	**1039**	**million gallons per day**

Appendix E: NPDES Delegation Report Glossary

Assessment - the process of determining whether the quality of a receiving water meets water quality standards; after setting standards, states take biological, chemical, and physical measures of their waters, sample fish tissue, other biota and sediments, and evaluate land use data, predictive models, and surveys to assess the degree to which these standards are being met

Authorization; the word used in the Clean Water Act to describe the process by which a state receives approval from EPA to administer the NPDES program; see Delegation

BMPs – Best Management Practices; the actions taken or facilities built to reduce pollution

CWA- the federal Clean Water Act found at 33 U.S.C. §§ 1251 *et seq*

Delegation - the process by which a state receives approval from EPA to administer the NPDES program; see Authorization

FTEs – Full Time Equivalents; the ratio of the total number of paid employee work hours during a period divided by the number of working hours in that period; one FTE is equivalent to one employee working full-time

FWPCA – Federal Water Pollution Control Act, 33 U.S.C. section 1251 et seq., as amended.

General Permit – a permit written to apply to a group of similar facilities, as distinct from a permit written to apply to an individual facility

Integrated planning - an EPA- sanctioned process used to set priorities among different CWA projects, each of which may be needed to meet water quality standards; it offers an "opportunity for identifying cost-effective and protective solutions and implementing the most important projects first."

Massachusetts Clean Waters Act - M.G.L. c .21, section 26 – 53

MassDEP - Massachusetts Department of Environmental Protection

MS4 – Municipal Separate Storm Sewer System permit; the NPDES general permit which authorizes Towns and certain government agencies discharge stormwater from their stormwater systems

Nonpoint source - in the same manner as the terms fiction and nonfiction, a nonpoint source is defined to mean any source of water pollution that does not meet the legal definition of "point source" in section 502(14) of the Clean Water Act; coming from many diffuse sources, non point source pollution is caused by rainfall or snowmelt moving over and through the ground

NPDES National Pretreatment Program - the requirement that sources discharging wastewater to POTWs control their discharges, and meet limits on the amount of pollutants allowed to be discharged; the program is

designed to reduce the level of pollutants discharged by industry and other non-domestic wastewater sources into municipal sewer systems

NPDES Municipal Sewage Sludge Program – the national EPA requirements that apply to the solids separated during the treatment of municipal wastewater

Point Source - water pollution coming from a single point, such as a sewage-outflow pipe; a stationary location or fixed facility from which pollutants are discharged or emitted or any single, identifiable discharge point of pollution, such as a pipe, ditch, or smokestack. This term is defined in the Federal Clean Water Act.

POTWs - Publically Owned Treatment Works; sewage treatment facilities owned and operated by a public entity

Segments – a part of a river of a stream; EPA recommends that states partition waters to represent homogeneity in physical, biological or chemical conditions. This segmentation may reflect an a priori knowledge of factors such as flow, channel morphology, substrate, riparian condition, adjoining land uses, confluence with other waterbodies, and potential sources of pollutant loadings (both point and nonpoint). Although there is no single default dimension for a segment size, states should utilize these or similar principles when they define the segments used in their water quality standards

SRF – State Revolving Fund, the federal and state partnership program administered in Massachusetts by the Water Pollution Abatement Trust established in MGL. c 29C including the clean water and drinking water revolving funds used to provide low interest loans to water and wastewater systems

Technology based effluent limits - pollutant limits derived from treatment technologies available to he permittee; they can be derived from EPA's national effluent limitation guidelines and standards or, when national; guidance is not available, from best professional judgment

TMDL – Total Maximum Daily Load; a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards; TMDLs define how much of a pollutant a water body can tolerate and still meet water quality standards

Water quality based effluent limits – pollution limits based upon the quality of the receiving water; if technology-based effluent limits are not sufficient to ensure that water quality standards will be attained in the receiving water, more stringent water quality-based effluent limits must be used

Water quality standards – Water Quality Standards define the goals for a waterbody by designating its uses, setting criteria to protect those uses, and establishing antidegradation provisions to maintain those uses; after states adopt water quality standards for their waters, EPA must approve these standards

Waters of the United States – these are the waters which the Clean Water Act regulates; as defined in the Clean Water Act and 40 CFR 230.3 (s) these include all waters used in interstate commerce, interstate wetlands, intrastate lakes, rivers, streams (including intermittent streams) which could affect interstate commerce

Appendix F: NPDES Delegation Draft Legislation Needed

An Act Further Amending the Massachusetts Clean Waters Act to Conform With the Federal Clean Water Act.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

SECTION _. Section 26A of chapter 21 of the General Laws, as most recently amended by section 96 of chapter 26 of the acts of 2003, is hereby amended by striking the definition of "director" and inserting in place thereof the following definition:

"Department", the department of environmental protection.

General comment: Clarification of existing statute. There is a need to further amend the Act to replace references to the Division of Water Pollution Control and the Director of the Division of Water Pollution Control. The powers and responsibilities of that Division, and the Director's authority and responsibilities, have been assumed by the Department of Environmental Protection and its Commissioner.

SECTION _. Section 26A of chapter 21 of the General Laws, as most recently amended by section 96 of chapter 26 of the acts of 2003, is hereby amended by striking the definition of "Person" and inserting in place thereof the following definition:

"Person", any agency or political subdivision of the commonwealth or the federal government, any public or private corporation or authority, individual, partnership or association, or other entity, including any an agent or employee thereof and any officer of a public or private agency or organization, upon whom a duty may be imposed by or pursuant to any provision of sections twenty-six to fifty-three, inclusive.

Mark-up:

"Person", any agency or political subdivision of the commonwealth or the federal government, any public or private corporation or authority, individual, partnership or association, or other entity, including any agent or employee thereof and any officer of a public or private agency or organization, upon whom a duty may be imposed by or pursuant to any provision of sections twenty-six to fifty-three, inclusive.

Comment: Required for federal conformity. The foregoing is intended to make clear that the definition of "person" includes agencies and political subdivisions of the federal government. See 40 CFR 122.2 which states: "*Person* means an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof."

SECTION _. Section 26A of said chapter 21, as most recently amended by section 96 of chapter 26 of the acts of 2003, is hereby amended by inserting in the definition of "Public entity" after the word "amended" the following words:- ", regardless of whether such entity has actually received such a grant."

Markup:

"Public entity", any city, town, special district, or other existing governmental unit eligible to receive a grant for the construction of treatment works from the United States Environmental Protection Agency pursuant to Title II of the FWPCA, as amended, regardless of whether such entity has actually received such a grant.

Comment: Required for federal conformity. The foregoing is intended to make clear that all publicly owned treatment works are subject to applicable treatment requirements (i.e., not just those that receive a grant).

SECTION _. Section 26A of said chapter 21, as most recently amended by section 96 of chapter 26 of the acts of 2003, is hereby amended by inserting the following definitions for the terms "Territorial sea" and Territorial sea baseline":

"Territorial sea", the waters, three nautical miles wide, adjacent to the coast of the Commonwealth and seaward of the **territorial sea** baseline.

"Territorial sea baseline", the line defining the shoreward extent of the **territorial sea** of the Commonwealth drawn according to the principles, as recognized by the United States, of the Convention on the **Territorial Sea** and the Contiguous Zone, 15 U.S.T. 1606, and the 1982 United Nations Convention on the Law of the **Sea** (UNCLOS), 21 I.L.M. 1261. Normally, the **territorial sea** baseline is the mean low water line along the coast of the Commonwealth.

Comment: Required for federal consistency and clarity. The two foregoing new definitions are intended to define the phrase "territorial sea," as such phrase is used in the definition of "waters of the Commonwealth," consistent with the use of such phrase under the Federal Water Pollution Control Act, 33 U.S.C. §§ 1251 et seq., as amended.

SECTION _. Section 26A of said chapter 21, as most recently amended by section 96 of chapter 26 of the acts of 2003, is hereby amended by striking the definition of "Waters" and "waters of the commonwealth" and inserting in place thereof the following definition:

"Waters" and "waters of the commonwealth", all waters within the jurisdiction of the commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, coastal waters, including the territorial sea, and groundwaters.

Mark-up:

"Waters" and "waters of the commonwealth", all waters within the jurisdiction of the commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, coastal waters, including the territorial sea, and groundwaters.

Comment: Required for clarity and consistency with federal terms. The foregoing is intended to make clear that the definition of "waters of the Commonwealth" includes the territorial sea, consistent with the use of the phrase "waters of the United States" under the Federal Water Pollution Control Act, 33 U.S.C. §§ 1251 et seq., as amended. See 40 CFR 122.2 which states:

"Waters of the United States" or "waters of the U.S." means:
(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
(b) All interstate waters, including interstate "wetlands;"
(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
    (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;
    (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    (3) Which are used or could be used for industrial purposes by industries in interstate commerce;
(d) All impoundments of waters otherwise defined as waters of the United States under this definition;
(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;
(f) The territorial sea; and
(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

SECTION _. Chapter 21 is hereby further amended by striking out subsection 27(7), as most recently amended by section 2 of chapter 7 of the acts of 1983, and inserting in place thereof the following section.

(7) Require dischargers to establish monitoring, sampling, record keeping and reporting procedures and facilities, and to submit to the commissioner data gathered therefrom and such other data as he shall reasonably request for purposes of carrying out this chapter. The commissioner may make such data, and any data obtained pursuant to the provisions of section forty, available to other government agencies concerned with the protection of public waters or water supplies, and to the public for inspection and copying, except that he shall not permit disclosure, other than to another federal, state or local government agency as provided in the preceding clause, of any information, other than permits, permit applications and effluent data, obtained by, submitted to or retained by him pursuant to any provision of this chapter, upon a showing, satisfactory to him, that such information if made public would divulge methods or processes entitled to protection as trade secrets of any person, provided, however, that data and information, including data and information submitted on permit application forms prescribed by the commissioner and any attachments used to supply information required by any permit application forms, may not be claimed or treated as confidential.

Mark-up:

(7) Require dischargers to establish monitoring, sampling, record keeping and reporting procedures and facilities, and to submit to the director data gathered therefrom and such other data as he shall reasonably request for purposes of carrying out this chapter. The ~~director~~commissioner may make such data, and any data obtained pursuant to the provisions of section forty, available to other government agencies concerned with the protection of public waters or water supplies, and to the public for inspection and copying, except that he shall not permit disclosure, other than to another federal, state or local government agency as provided in the preceding clause, of any information, other than permits, permit applications and effluent data, obtained by, submitted to or retained by him pursuant to any provision of this chapter, upon a showing, satisfactory to him, that such information if made public would divulge methods or processes entitled to protection as trade secrets of any person, provided, however, that data and information, including data and information submitted on permit application forms prescribed by the commissioner and any attachments used to supply information required by any permit application forms, may not be claimed or treated as confidential.

Comment: Required for federal conformity. The foregoing is intended to satisfy federal requirements that authorized state agencies make available to the public permit applications, and data and information submitted on permit application forms, under § 402(j) of the Federal Water Pollution Control Act, 33 U.S.C. §§ 1251 et seq., as amended, and the regulations promulgated by EPA at 40 C.F.R. 122.7.

SECTION 7. Section 42 of said chapter 21, as most recently amended by section 1 of chapter 251 of the acts of 2004, is hereby further amended by striking the third paragraph.

Markup:

~~No information submitted or made available for inspection in accordance with requirements established by or under this chapter may be used in any criminal proceeding against the individual who submits it, certifies it, or makes it available, except in a prosecution for the making of a false statement or record, or for otherwise failing to comply with reporting or recording requirements under this chapter.~~

Comment: Required for federal conformity. The foregoing is intended to satisfy federal requirements for compliance evaluation programs under 40 CFR 123.26(a). Section 123.26(a) states "State programs shall have procedures for receipt, evaluation, retention and investigation for possible enforcement of all notices and reports required of permittees and other regulated persons (and for investigation for possible enforcement of failure to submit these notices and reports)."

SECTION__. Section 43 of said chapter 21, as most recently amended by sections 267 and 268 of chapter 133 of the acts of 1992, is hereby amended by striking clause (4) and inserting in place thereof the following new clause:

(4) The Department shall provide public notice of every permit proceeding under this chapter by posting notice on the department's internet web site and by other methods it deems appropriate. The internet posting must include a notice of the receipt of the application, the type of proposed action, and a statement establishing a public comment period, not less than twenty-one days, on the proposed action. The Department may hold a public hearing if he deems such hearing to be in the public interest. If a public hearing is held, the public comment period must extend through the hearing date. If the applicant or permittee requests a hearing, the Department shall hold a public hearing on the matter in a community within the affected area of the discharge, at least twenty-one days after giving notice thereof. The Department may, upon request of a permittee, revise a schedule of compliance in an issued permit if the Department determines that good and valid cause, for which the permittee is not at fault, exists for such revision, and in such cases the provisions of this paragraph for public notice and hearing shall not apply. The direct Department or may also suspend this paragraph for public notice and hearing by promulgating regulations establishing a process for renewal of a previously issued permit where renewal of such permit does not require significant changes, provided that no such suspension shall be adopted by the Department for discharges to surface waters of the commonwealth, except in accordance with all applicable provisions of the FWPCA and regulations promulgated thereunder. If the Department has proposed to suspend or revoke a permit, in whole or in part, pursuant to paragraph (10), and if the permittee requests an adjudicatory hearing under section forty-five on the proposed determination, the requested hearing may be held as part of the public hearing to be afforded under this paragraph.

Markup:

(4) The Department shall provide public notice of every permit proceeding under this chapter by posting notice on the department's internet web site and by other methods it deems appropriate. The internet posting must include a notice of the receipt of the application, the type of proposed action, and a statement establishing a public comment period, not less than twenty-one days, on the proposed action. ~~Public notice of every permit proceeding, including proceedings under paragraph (10), shall be given in the manner provided by section three of chapter thirty A.~~ The Department ~~director shall circulate information received concerning the matter pending in accordance with the provisions of clause (7) of section twenty-seven and~~ may hold a public hearing if he deems such hearing to be in the public interest. If a public hearing is held, the public comment period must extend through the hearing date. If the applicant or permittee requests a hearing, the Department ~~director~~ shall hold a public hearing on the matter in a community within the affected area of the discharge, at least ~~thirty~~ twenty-one days after giving notice thereof. The Department ~~director~~ may, upon request of a permittee, revise a schedule of compliance in an issued permit if the Department ~~director~~ determines that good and valid cause, for which the permittee is not at fault, exists for such revision, and in such cases the provisions of this paragraph for public notice and hearing shall not apply. The Department ~~director~~ may also suspend this paragraph for public notice and hearing by promulgating regulations establishing a process for renewal of a previously issued permit where renewal of such permit does not require significant changes, provided that no such suspension shall be adopted by the Department for discharges to surface waters of the commonwealth, except in accordance with all applicable provisions of the FWPCA and regulations promulgated thereunder. If the Department ~~director~~ has proposed to suspend or revoke a permit, in whole or in part, pursuant to paragraph (10), and if the permittee requests an adjudicatory hearing under section forty-five on the proposed determination, the requested hearing may be held as part of the public hearing to be afforded under this paragraph.

Comment: Required for federal conformity. The changes also will update the public notice requirements for draft permits to require draft permits to be posted for public notice on the internet, and allow the agency to determine other appropriate methods of public notice to interested parties. .

SECTION __. Section 43 of said chapter 21, as most recently amended by sections 267 and 268 of chapter 133 of the acts of 1992, is hereby amended by striking clause (7) and inserting in place thereof the following new clause:

(7) Every permit shall specify effluent limitations, interim and final deadlines where appropriate for compliance, the term for which the permit is issued, which may not be in excess of ten years, and such requirements of proper operation and maintenance, monitoring, sampling, recording, reporting, and inspection as the Department may prescribe, provided that the term for permits to discharge to surface waters of the commonwealth shall conform to the applicable provisions of the FWPCA and regulations promulgated thereunder. Permits may specify additional requirements, including technical controls and other components of treatment works to be constructed or installed, and provisions for insuring payments of user charges, which the Department deems necessary to safeguard the quality of the receiving waters or to comply with pertinent provisions of the laws of the commonwealth or of federal law.

Markup:

(7) Every permit shall specify effluent limitations, interim and final deadlines where appropriate for compliance, the term for which the permit is issued, which may not be in excess of ~~five~~ten years, and such requirements of proper operation and maintenance, monitoring, sampling, recording, reporting, and inspection as the Department ~~director~~ may prescribe, provided that the term for permits to discharge to surface waters of the commonwealth shall conform to the applicable provisions of the FWPCA and regulations promulgated thereunder. Permits may specify additional requirements, including technical controls and other components of treatment works to be constructed or installed, and provisions for insuring payments of user charges, which the Department ~~director~~ deems necessary to safeguard the quality of the receiving waters or to comply with pertinent provisions of the laws of the commonwealth or of federal law.

> Comment: Proposed for clarity and will streamline conformity with possible federal changes concerning permit terms. This provision will allow for issuance of permits with terms longer than five years, if such longer terms are authorized in the future by amendments to the FWPCA.

SECTION __. Section 44 of said chapter 21, as most recently amended by chapter 26 of the acts of 1974, is hereby amended by striking out clause (1) and inserting in place thereof the following new clause:

(1) Whenever it appears to the Department that there is a violation or threat of violation of any provision of this chapter or any permit, order, approval, regulation, standard, or plan issued or adopted thereunder, the Department may issue to any person causing or contributing, or likely to cause or contribute, to said violation or threatened violation, an order requiring the production of records, or imposing such restraints on or requiring such action by said persons as it deems necessary to abate or prevent a violation or threat of violation. Said order also may require that the owner of an abatement facility or treatment works prohibit additional connections thereto or extensions thereof, may prohibit any person from making, modifying or utilizing any such connection or extension, and may require an industrial user of such works to comply with user charge or pretreatment requirements established as a matter of federal, state or local law or regulations. The Department may order the discharger to apply forthwith for a permit, or for a new permit, or to take other appropriate action under rules and regulations adopted by the Department subject to the provisions of chapter thirty A, and to cease and desist from making or allowing further discharges beyond a specified date until compliance with the order is fully achieved. Issuance of an order under this paragraph shall not preclude, and shall not be deemed an election to forego, any action to recover damages, or to seek civil penalties and criminal fines under section forty-two or civil administrative penalties.

Mark-up:

(1) Whenever it appears to the Department~~director~~ that there ~~are discharges of pollutants without a required permit, or that such discharges are in violation of a permit issued under this chapter~~is a violation or threat of violation of any provision of this chapter or any permit, order, approval,

regulation, standard, or plan issued or adopted thereunder, or in contravention of any regulation, standard or plan adopted by the Department, the Department~~director~~ may order the discharger to apply forthwith for a permit, or for a new permit, or to take other appropriate action under rules and regulations adopted by the Department~~director~~ subject to the provisions of chapter thirty A, and to cease and desist from making or allowing further discharges beyond a specified date until compliance with the order is fully achieved. Issuance of an order under this paragraph shall not preclude, and shall not be deemed an election be deemed an election to forego, any action to recover damages, or to seek civil penalties and criminal fines under section forty-two or civil administrative penalties~~to recover damages, or to seek civil penalties, criminal fines under section forty-two~~.

Comment: Required for federal conformity. These changes specify the necessary authority required in order for a state to be granted authorization to administer the NPDES program.

SECTION __. Section 46 of said chapter 21, as most recently amended by section 12 of chapter 546 of the acts of 1973, is hereby amended by striking out said section and inserting in place thereof the following section:

The superior court shall have jurisdiction to enjoin violations or threatened violations of, or grant such additional relief as it deems necessary or appropriate to secure compliance with, the provisions of sections twenty-six through fifty-three of this chapter or any regulation adopted, or order, permit or approval issued, or contract or grant made by the Department thereunder, or to protect the public health, safety, welfare of the environment, upon the petition of the attorney general or the Department.

Markup:

~~The attorney general may, upon request of the director, bring action for injunctive relief against any person violating a provision of this chapter, or of any permit, order, regulation or determination issued thereunder, and t~~The superior court ~~in equity~~ shall have jurisdiction to enjoin ~~such~~ violations or threatened violations of, or ~~and to~~ grant such ~~further~~ additional relief as it ~~may~~ deems necessary or appropriate to secure compliance with, the provisions of sections twenty-six through fifty-three of this chapter or any regulation adopted, or order, permit or approval issued, or contract or grant made by the Department~~director~~ thereunder, or to protect the public health, safety, welfare of the environment, upon the petition of the attorney general or the Department. ~~Notwithstanding any other provision of this chapter, if the director finds that a discharge or combination of discharges presents an imminent and substantial threat to the health, welfare or livelihood of any persons, he shall request the attorney general to bring suit, and the attorney general may bring suit in the superior court to enjoin forthwith the discharges causing such a threat or to require the offending discharges to take such other action as may be necessary.~~

Comment: Required for federal conformity. These changes provide for the required jurisdiction and authority for injunctive relief under the Clean Waters Act.

SECTION __. Section ten of chapter 83, as appearing in section 138 of chapter 149 of the acts of 2004, is hereby amended by striking therefrom the sum $5,000 and inserting in its place the sum "$25,000."

Markup:

Section 10. A city, town or sewer district may, from time to time, prescribe rules and regulations regarding the use of common sewers to prevent the entrance or discharge therein of any substance which may tend to interfere with the flow of sewage or the proper operation of the sewerage system and the treatment and disposal works, for the connection of estates and buildings with sewers, for the construction, alteration, and use of all connections entering into such sewers, and for the inspection of all materials used therein; and may prescribe civil penalties, not exceeding $25,000 ~~five thousand dollars~~ for each day of violation of any such rule or regulation. A city, town, sewer district, or a district established for the purpose of managing stormwater, pursuant to section 1A of chapter 40, may from time to time prescribe rules and regulations for the use of main drains and the management of stormwater to prevent the discharge of sediment and pollutants therein which may tend to degrade wetlands, streams, other surface water bodies, and groundwater and to inspect the facilities for the collection and infiltration of stormwater in order to reduce flooding and improve the quality of and decrease the quantity of stormwater runoff; for the connection of estates and buildings with main drains; for the construction, alteration, and use of all connections entering into such main drains; and for the inspection of all materials used therein; and may prescribe civil penalties, not exceeding ~~$5,000~~ $25,000 for each day of violation of a rule or regulation. Such rules and regulations shall be published once in a newspaper published in the city or town, if there be any, and if not, then in a newspaper published in the county, and shall include a notice that said rules and regulations shall be available for inspection by the public, and shall not take effect until such publication has been made.

> Comment: Required for federal conformity. This change will increase the maximum civil penalty amounts to those required by the federal FWPCA for an authorized program.

SECTION __. Regulations adopted, and orders and permits and approval issued, and contracts and grants made by the Department under the authority of the laws amended by this act and in effect prior to the effective date of this act shall continue in full force and effect following said effective date. No suit, action, cause of action or other proceeding arising or brought under the provisions of said sections or regulations adopted or orders, permits or approvals issued thereunder shall abate or be impaired by reason of the passage of this act.

> Comment: Required for clarity during transition period to preserve the effective terms of existing permits, and ensure continued authority to pursue and conclude legal proceedings based on the Act or regulations in effect upon at the time of the passage of these amendments.

SECTION __. Chapter 21, as most recently amended by sections 267 and 268 of chapter 133 of the acts of 1992, is hereby amended by striking subsection 43(3) and inserting in place thereof the following:

(3) The Department shall adopt regulations with respect to permit proceedings and determinations, including regulations establishing informal adjudicatory procedures notwithstanding section thirteen of chapter thirty A. Applications for permits shall be submitted within times and on forms prescribed by the Department and shall contain such information as he may require.

Markup:

(3) The Department ~~director~~ shall adopt regulations with respect to permit proceedings and determinations, including regulations establishing informal adjudicatory procedures notwithstanding section thirteen of chapter thirty A. Applications for permits shall be submitted within times and on forms prescribed by the Department ~~director~~ and shall contain such information as he may require.

Comment: Modifications to state administrative procedure requirements to allow informal proceedings. The foregoing would allow the Department to establish informal review procedures in lieu of the full evidentiary proceedings now required for permitting decisions by M.G.L. c.310A, The informal review procedures could govern the review of discharge permit appeals, with the exception of permit modifications initiated by the Department and permit suspensions and revocations which are subject to review under Section 45 of chapter 21. Several years ago, EPA determined that a full formal adjudicatory hearing was not required by the U.S. constitution for NPDES permits and streamlined its permitting proceedings by replacing formal evidentiary hearing procedures with a direct appeal to the Environmental Appeals Board. The Board now has discretionary authority to accept these appeals, and review the appealed permit, or dismiss the appeal and make the permit final. The Department, if authorized, could establish an informal administrative review process distinct from the adjudicatory hearing requirements of M.G.L. Chapter 30A, which could be similar to that currently being used by EPA and the Environmental Appeals Board.

An Act Directing the Department of Environmental Protection to see Authorization to Administer the National Pollutant Discharge Elimination System Program

The Department shall expeditiously seek authorization to administer the National Pollutant Discharge Elimination System pursuant the Federal Clean Water Act by filing a complete application with the United States Environmental Protection Agency. The Department shall establish an advisory workgroup that includes representatives of permittees affected by the National Pollutant Discharge Elimination System and other interested persons to meet and confer as needed during the period that the Department is designing its permitting program and seeking such authority. Until the requested authority for administering the National Pollutant Discharge Elimination System has been transferred to the Department, the Department shall submit annually, within 10 days after the date the legislature convenes

in regular session, a report to both houses of the legislature and the governor that includes the following information: (1) the Department's progress in preparing and submitting its application to the United States Environmental Protection Agency; (2) a description of the progress by the United States Environmental Protection Agency in reviewing the application and the expected or actual date and substance of the agency's approval; and (3) the progress made by the Department during the National Pollutant Discharge Elimination System program transition period, the program responsibilities that have been transferred to the Department and the program responsibilities retained by the United States Environmental Protection Agency, whether the transition is proceeding on schedule, and identification of relevant statutory, regulatory, or financial impediments to obtaining National Pollutant Discharge Elimination System authority.

Comment: This legislation directs the Department of Environmental Protection to seek authorization to administer the NPDES program from EPA.

Appendix G: Cadmus Report 1997

See attached PDF.

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Technical Support of Massachusetts NPDES Program Delegation Initiative

Final Report

The Cadmus Group, Inc.
Waltham, Massachusetts

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for

Arleen O'Donnell
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Bureau of Resource Protection
Massachusetts Department of Environmental Protection
Boston, Massachusetts

Technical Support of Massachusetts NPDES Program Delegation Initiative

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Technical Support of Massachusetts NPDES Program Delegation Initiative

1.0 Introduction

Since the mid-1970s, Massachusetts has periodically considered assuming authority for the National Pollution Discharge Elimination System (NPDES) program from U.S. EPA Region 1. Recognizing the importance of the NPDES program to watershed-based water resource management, in mid-1996 Massachusetts once again began examining the benefits of assuming responsibility for the NPDES program. A NPDES Task Force (NTF) comprised of EPA, state, industrial and large municipal permittees, watershed and industry associations, and citizen advocates was convened to consider the benefits of a Massachusetts-run NPDES program. See Attachment 1 for a list of NTF members.

The Cadmus Group Inc. was retained by the Massachusetts Department of Environmental Protection (DEP) to assist the DEP in designing a NPDES program by:

- Developing program features based on legal program requirements and the NPDES advisory group's feedback.
- Refining the program features based on feedback from the NPDES Task force.
- Developing an estimated staffing level for the program.
- Reviewing funding methods with the NTF.
- Developing a funding approach for funding the program.
- Building a fee model for the program.

During the project the DEP also requested that Cadmus investigate the possibility that a NPDES program would result in cost savings for permittees in comparison to an EPA-led program. DEP further requested that Cadmus attempt to develop several case studies illustrating the benefits of a DEP-run program.

From October through June, Cadmus met regularly with DEP and the NTF to discuss the program and to develop staffing and funding estimates for a state-run NPDES program. Attachment 2 contains selected presentations to the group.

This report outlines the case for and against a Massachusetts-run NPDES program, the estimated cost of such a program, and the magnitude of fees that would be needed to support such a program. This report also summarizes the staff, budgets, and funding mechanisms for several other states' NPDES programs.

2.0 The Case for a Massachusetts-Run NPDES Program

During the spring and summer of 1996, DEP and the NTF discussed the benefits of a state-run program. In the fall of 1996 when Cadmus joined the effort, Cadmus assisted in refining the discussion of benefits. One key question that Cadmus posed to DEP was whether they had carefully considered the arguments against assuming NPDES authority. The DEP and the NTF agreed that assuming a NPDES program similar to the one currently jointly run by EPA and Massachusetts was not desirable—it would essentially shift the burden of running over half of the current program from EPA to Massachusetts, with limited benefits. DEP and the NTF asked that Cadmus build a robust program capable of at least potentially delivering benefits to NPDES permittees and the State's environment. This in short was the context with which Cadmus developed a staffing level and budget: *The program must be better than the current program and capable of at least potentially delivering to the State and NPDES permittees benefits identified by DEP and the NPDES Task Force.*

Following is a discussion of the potential benefits that could potentially accrue from a Massachusetts-run NPDES program. In some cases the benefit derives from shifting responsibility for the program from a joint arrangement between the EPA and the State to a program run solely by the State. In other cases the benefit derives primarily from Massachusetts committing additional resources to the program to allow for 1) enhanced water quality monitoring, 2) enhanced ability to model and analyze water quality, and 3) enhanced ability to integrate the NPDES program with a watershed approach. In the case of metal limits in NPDES permits, the potential benefit would result from a State-led effort to develop State or eco-regional-specific metal criteria, as was the case in Connecticut.

The benefits discussed below are *potential* benefits and are not guaranteed even with enhanced program funding. The reason for this is that they depend on several factors, whose precise impact is difficult to predict at this time:

- What will EPA's approach be in allowing flexibility in administering the NPDES program?
- Will EPA approve of discharge trading between points sources or between point and nonpoint sources?
- Will EPA approve regional metal criteria?
- What level of relief will regional metal criteria actually give NPDES permittees, particularly for copper?
- How feasible will watershed approaches to phosphorus control be?

- Where watershed nonpoint source controls to phosphorus are technically feasible, will they be cost competitive with point source control?

The following section discusses the potential benefits of a Massachusetts-run NPDES program. As appropriate the potential benefits are discussed in the context of the questions above.

2.1 Local control by a single agency

One of the primary benefits of NPDES delegation noted by permittees and their representatives is local control by a single agency, in contrast to the current dual-agency arrangement. Eliminating the federal permitting authority would speed permitting decisions and reduce the resources expended by permittees during permit review. DEP is also perceived by some permittees as closer and more familiar with local issues than EPA Region 1. A case study in Exhibit 2-1 illustrates benefits that DEP's approach can provide to a permittee.

Allowing DEP to directly issue NPDES permits may make the permitting process a more customer-friendly experience and promote better approaches to water quality management. Finally, the existing system results in permit backlogs and does not address minor permittees in a comprehensive manner. By increasing its use of general permits and reducing delays caused by the need to coordinate between two agencies, DEP can increase both the number of permits issued and the speed with which applications are addressed.

Both the NTF and a stakeholder group convened for Cadmus by the Massachusetts Clean Water Council, noted the advantage of single agency control. Their support of a state program is based, in part, on the anticipation of tangible benefits. Those benefits include creating statewide or regional metals criteria, especially copper limits. NPDES permittees also strongly support permit limits based on consideration of both point and nonpoint sources (e.g., watershed-based phosphorus limits). Currently, the state dedicates limited resources to evaluating the relative contribution of nonpoint sources. Traditionally, point sources have borne the brunt of the burden for pollution reduction. Controlling nonpoint sources may offer a more cost-effective approach for pollutant removal.

The potential benefits discussed above hinge on three main factors: 1) the scope of the Massachusetts NPDES program; 2) the level of protection dictated by water quality (e.g., does the science support a higher metals criteria?); and 3) the role that EPA chooses to play in the future under a state-run program (i.e., what actions would EPA challenge or amend?).

The desire for a Massachusetts-run program was clearly stated by a variety of stakeholders. Stakeholders believe that a redesigned NPDES program could result in better treatment of permittees because of better science underpinning water quality regulation. The tangible benefits are, however,

dependent on relatively complex science and the ability of DEP and EPA to come to some future agreement on a variety of issues.

2.2 Permitting based on science—data and modeling

Massachusetts has limited resources for point source and nonpoint source modeling and watershed assessment which are key elements of scientific support. The state is now developing a pilot ambient monitoring program. While few resources and staff are assigned to water quality modeling, the State is currently developing a modeling tool kit. The challenge of supporting a watershed approach and the increasing complexity of permitting require sophisticated scientific tools and the staff to apply them.

Exhibit 2-1
MWRA NPDES Permit Negotiation

Cadmus staff interviewed MWRA and DEP staff concerning MWRA permit negotiations and wrote a case study illustrating the benefits of DEP's approach in negotiating permit limits. Both MWRA attorneys and DEP staff had strong concerns about releasing the information at this juncture because they felt it would jeopardize negotiations still under way. To respect the wishes of those parties, Cadmus retained the case study awaiting further direction from DEP.

The NTF and the stakeholders convened by the Massachusetts Clean Water Council strongly supported bolstering the scientific basis for clean water regulation. Again, to satisfy these stakeholders it will probably be necessary to show tangible benefits in exchange for increased funding for science. Several stakeholders pointed out that they would be willing to pay for more and better science if benefits could be demonstrated.

2.3 Nutrient Removal

DEP directed Cadmus to investigate whether a watershed approach to nutrient control could potentially save POTWs treatment costs. A potential cost savings could occur where a thorough study determines that the primary source of phosphorus in a watershed is from nonpoint sources. If this were the case, the DEP would need a means for regulating the nonpoint sources, otherwise the point sources would have to reduce their phosphorus contribution, even if they contribute a relatively small portion of the total load.

Phosphorus is a limiting nutrient in most fresh waters— that is, the concentration of phosphorus in part determines whether a water body will become eutrophic. Nitrogen is a limiting nutrient in many marine coastal waters, and thus may be a concern for both ocean dischargers and dischargers to large rivers emptying into the ocean.

EPA is currently considering stringent phosphorus limits for 6 POTWs in the Assabet River Basin, for 4 plants in the Charles River basin, and for 6 plants in the Nashua River Basin. In addition, EPA is considering phosphorus limits of 0.75 to 1.0 mg/l for 6 plants in the Blackstone River. Exhibit 2-2 and Attachment 3 illustrate that treatment costs rise with decreasing effluent phosphorus concentration, but vary greatly from plant to plant. Assuming that these plants now achieve phosphorus effluent concentrations of 1.0 mg/l, and the EPA would require limits of 0.2 mg/l, the cost for a 2 MGD plant would rise $125,000 per year, from $60,000 to $185,000. The costs would likely be much higher because filtration is commonly required to meet effluent limits of 0.2 mg/l. If a watershed approach could help even 10 MGD of flow from this set of plants to avoid additional treatment, roughly $1,250,000 would be saved annually.

Exhibit 2-3 discusses the Marlborough East wastewater plant, which is facing a 0.1 mg/l phosphorus permit limit. To achieve this level of treatment, extensive capital investment is required resulting in an annual cost of $800,000 to $2 million, excluding operating costs. Because these costs are an order of magnitude higher than higher effluent limits, the potential savings of revising these permit limits based on an innovative watershed approach are substantial.

Exhibit 2-2
The Cost of Retrofitting POTWs to Control Phosphorus to Concentrations of 0.2 to 2 mg/l.

To examine the cost of retrofitting a POTW with a phosphorus removal process, Cadmus reviewed the literature, interviewed several wastewater engineering companies, and interviewed staff from several Massachusetts POTWs that have added phosphorus control to their plants.

The engineering companies contacted indicated that because the cost of retrofitting a plant is highly dependent on a plant's design, it is difficult to predict the cost, except on a case-by-case basis. These firms were reluctant to share detailed cost information from their projects. Based on interviews with POTWs, however, Cadmus obtained retrofit costs that included chemical addition, and in some cases included capital and sludge disposal costs. A survey of 99 wastewater plants in the Chesapeake Bay area (EPA, 1987), provided additional estimates for capital investments and O&M costs associated with various chemical feed systems used for phosphorus control. Total actual costs are likely to be higher because additional costs such as additional sludge disposal, building, and filter costs were not included.

Cadmus interviewed staff from four wastewater plants that had retrofitted systems to produce phosphorus effluent concentrations between 0.5 and 1.0 mg/l. Cadmus also reviewed information for a budgeted phosphorus upgrade that was not constructed. Summaries of these plants are presented in Table 2-1, including phosphorus control costs per MGD. Without knowing the influent concentrations of phosphorus to the plants over time, it is difficult to calculate the cost of phosphorus removal on a per pound basis. The cost of phosphorus removal ranges from $18,000 to $67,000 per year per MGD of flow.

A survey of 99 plants in the Chesapeake Bay drainage area developed approximate costs for retrofitting POTWs for phosphorus removal. Attachment 3 contains cost curves for attaining various effluent phosphorus concentrations. Updating the costs to 1997 dollars, retrofitting a 2 MGD plant to attain effluent phosphorus concentrations of 2.0 mg/l, 1.0 mg/l, 0.5 mg/l, and 0.2 mg/l would cost $65,000, $85,000, $110,000, and $205,000, respectively, based on mid-range values of the costs presented. The range of cost for achieving 0.2 mg/l is very broad reflecting the difficulty of achieving more stringent levels of treatment, varying from $110,000 to $300,000.

For a watershed approach to achieve savings for permittees, a series of other factors need to support the alternative approach to phosphorus control:

- A watershed study would need to either show that phosphorus is not a problem, which is unlikely given phosphorus' role as a limiting nutrient in freshwater and given EPA's focus on eutrophying rivers, or the study would have to show nonpoint sources as a significant source of phosphorus.

- In many watersheds, nonpoint-source-derived phosphorus is flushed from watersheds during relatively few high-flow periods. In contrast, phosphorus from POTWs tends to be a relatively constant source of phosphorus year-round. A phosphorus dynamic

study would need to show that nonpoint source control would limit phosphorus during critical algal growth periods.

- A means to control identified nonpoint sources of phosphorus and measure that control must be found. While controlling and measuring phosphorus in point sources is relatively straightforward, controlling phosphorus through nonpoint source best management practices (BMPs), such as riparian filter strips, is less dependable and is more difficult to measure.

Exhibit 2-3
Control of Phosphorus to 0.1 mg/l in the Marlborough East POTW

The Marlborough East treatment plant, with a design flow of 5.5 MGD, is facing a 0.1 mg/l phosphorus permit limit. To achieve this level of phosphorus removal the plant will need to install capital intensive filtration systems. The plant received an estimate of $20 million for a filtration system. They are currently investigating an alternative technology that may reduce the cost to $8 million. No projected operational costs were developed for this report. Even considering capital costs alone, the annual cost assuming a rate of 8% for 20 years is $800,000 to $2 million, or roughly $160,000 to $400,000 per MGD per year. Because of the capital investment required, these costs are roughly an order of magnitude higher than those discussed in Exhibit 2-2.

- An institutional method for phosphorus control must be identified. Where responsibility for phosphorus is retained by the point source(s), a means for the point sources to trade phosphorus with nonpoint sources must be found. In these cases, the nonpoint source control must offer a cost savings over traditional end-of-pipe treatment. Where the nonpoint sources will be regulated directly by the DEP, it is not as critical that nonpoint source control represent a least-cost strategy.

- Another possibility for lowering the cost of phosphorus control is to allow point-to-point source trading between plants with a high costs of phosphorus removal and plants with lower costs and the ability to remove additional levels of phosphorus.

Determining the level to which the above factors support a cost savings from alternative phosphorus control was beyond the scope of this study. Many of these factors may be best determined during detailed basin studies. One approach would be to investigate the practicality of least-cost phosphorus control during a pilot study of a basin or basins.

Connecticut approached Massachusetts concerning establishing nitrogen limits for Massachusetts dischargers to the Connecticut River. One main concern is that nitrogen loading to Long Island Sound is partially responsible for low dissolved oxygen in the western portion of the Sound. As an alternative for placing the entire burden of nutrient removal with wastewater treatment plants, a watershed-linked NPDES program could review nutrient loading in a watershed and pursue least-cost options for nutrient control. Tools available include stormwater regulations, cooperative extension programs, agricultural programs, and local land use controls (i.e., the River's Act).

Exhibit 2-4 reviews a plan by Connecticut to control nitrogen loading to the Connecticut River and Long Island Sound and comments on the tools that Massachusetts needs to respond to such a plan.

2.4 Enhanced watershed assessment capability

Point source stakeholders clearly feel that they are regulated out of proportion to their impact on receiving waters when compared to nonpoint sources. They may be willing to support funding for a Massachusetts program if regulatory controls for water resource protection would, in the future, balance the burden more fairly between point and nonpoint sources. Vital to achieving this balance are science tools and data if watershed-based planning is to be successful, if pollutant trading is to be even considered, and if site-specific criteria are to be successfully explored and implemented.

2.5 Coastal monitoring

Coastal monitoring elements would allow DEP to better evaluate ocean discharges. This component was not initially part of this study, however later in the project DEP expressed interest in expanding the state's ability to assess marine discharges and their impacts. The NTF did not have a strong reaction to adding a marine monitoring component to the program.

2.6 Use of TMDLS as a water quality protection tool

Total Maximum Daily Limits (TMDLs) are used to allocate portions of total daily limits of pollutant loads, which then can be redistributed among permits. Their specific meaning varies from sophisticated dynamic models to humbler allocation formulas. Many states are in continuing litigation over the use of different TMDL techniques. Because these cases are being negotiated separately, the form of TMDL required for assessing and remediating impaired waters is likely to vary from state to state and may vary in the future. This uncertainty notwithstanding, Massachusetts should build the capability to apply a variety of steady state and dynamic model in permitting and assessment. As outlined above, this program design includes 2 FTEs for

Exhibit 2-4
Proposed Nitrogen Reduction Plan for the Connecticut River

The Connecticut Department of Environmental Protection (CTDEP) was involved in a 10-year study of the Long Island Sound. The study concludes that the entire Connecticut River watershed must reduce nitrogen loads by 58 percent in order to reverse the eutrophication that has occurred and to approach dissolved oxygen standards established for the Sound. While detailed studies of the nitrogen loadings from Massachusetts, New Hampshire, and Vermont have not been conducted, the study estimates that the total enriched nitrogen loading from the northern half of the watershed is 5 percent.

Connecticut and New York determined that 77 percent of the loadings are from point sources. To finance upgrades for POTWs, $250 million has been committed this year and up to $700 million will be spent over the next 15 years. CTDEP has suggested DEP invest in similar advanced wastewater treatment at all POTWs in the watershed to meet its 58 percent target.

Without monitoring data, DEP cannot critically review the Long Island Sound Study. DEP has had meetings with POTWs in the watershed to determine whether they have additional capacity for further nitrogen reductions with their existing facilities. Concern has been expressed about the potential increased operating costs of attaining further reductions, even if plant modifications are unnecessary. For example, the largest POTW in the watershed, the Springfield wastewater treatment plant, would incur higher costs for operating oxygen supplying blowers at a higher level.

While DEP and the POTWs are interested in improving the conditions in the Sound, and willing to participate in the efforts underway in the watershed, the State is limited in its understanding of the problem. With delegation, the proposed DEP program adds ambient monitoring and modeling staff. The Department could also require monitoring by permittees to assist with developing baseline and ongoing information about the conditions in the receiving waters. As part of the larger watershed approach underway in Massachusetts, DEP could use these data to understand and try to balance the contribution of point and nonpoint source contributions to the nitrogen loadings.

DEP is more likely to identify a creative solution to the nitrogen problem because DEP staff have ongoing relationships with the municipal plants. Through their inspection and limited monitoring programs, DEP staff meet with permittees and are in the watersheds to observe other potential impacts on receiving waters. Conversely, EPA must rely on Discharge Monitoring Reports (DMRs) to gain an understanding of the permittees processes and discharges. With delegation, DEP's expanded monitoring program and field presence should enhance their understanding of the receiving waters and watersheds, allowing DEP to issue better permits, without the duplication of effort required to work with EPA.

modelers in the base version and 4 modeling and monitoring support staff in the recommended version. Should Massachusetts face a short court-ordered schedule for conducting TMDL analyses for all of its impaired waters at once, neither program design includes adequate modeling staff. For comparison, Washington, a State with 80 percent as many people and 8.5 times the area of Massachusetts, has 8 modelers for watershed assessment. Delaware, with one-tenth as many people and one-fourth the area of Massachusetts, has 2 modelers for watershed assessment. Delaware may need to add more modelers depending on the outcome of TMDL negotiations.

2.7 Pollution prevention focus on source reduction

Pollution prevention, a tool which has grown increasingly popular over the last several years, can be a powerful method for reducing pollution at the source. Pollution prevention is not a panacea, however. Win-win scenarios are at times elusive. It is also a challenge for State agencies to gain access to companies in need and provide the concentrated technical knowledge necessary to make meaningful gains.

Massachusetts already provides some resources in this area. The Executive Office of Environmental Affairs (EOEA) Office of Technical Assistance (OTA) has industry's trust and provides technical resources confidentially to all industries, when requested. The services provided by the Toxic Use Reduction Institute (TURI) can be valuable to small and medium companies whose engineering resources are inadequate. DEP's printing industry initiative is another example of working with industry to reduce pollution at the source. We recommend that DEP build incentives into its NPDES program to encourage pollution prevention strategies. These incentives can vary from forgiving fines and relaxing compliance schedules in return for gains in source reduction, to matching permittees with sources of funding for innovative technology. We have seen the extension of compliance schedules combined with the threat of enforcement be a very powerful tool to gain source reduction.

DEP does not have to bear the brunt of staffing pollution prevention efforts. A large and growing population of groups and programs provides low- and no-cost assistance to industry, particularly small and medium facilities. Examples include OTA, the Massachusetts Manufacturing Partnership, Climate Wise, and EPA Region 1 programs.

The base NPDES program includes 1.2 FTEs for pollution prevention associated with the pretreatment program. We also recommend coordinating activities among the partners in pollution prevention programs, particularly EPA, EOEA (OTA), and DEP so that industries know whom to call and are not confronted by a patchwork of overlapping programs and contacts.

The NTF saw value in dedicating resources to pretreatment and pollution prevention. A focus group of point sources was less sanguine about the benefits of State-offered technical assistance. It is likely that technical assistance would be most beneficial to small and medium-

sized companies and that large or sophisticated companies (likely represented by the stakeholder focus group) have less to learn from the state. This area may be a larger selling point to municipal pretreatment programs and smaller industrial sources.

2.8 Exploration of pollutant trading

Several of the states we contacted noted the benefit of pollution trading, but indicated that they were still in the preliminary stages of developing strategies. As noted earlier in this report, traditionally, point sources have borne the brunt of pollutant reduction. Pollutant trading allows permittees facing large costs for pollutant removal to finance less expensive pollutant reduction strategies elsewhere in the watershed. The theory is that the pollutant loading in the receiving waters is the critical benchmark, and reductions should be sought from the most cost-effective source. From our experience with monitoring and modeling nutrient loads in watersheds, we know that monitoring nutrient loads and assigning them to their sources is very difficult for a variety of reasons:

- Nutrients are present in a variety of forms and readily transform between those forms through a variety of processes. For example, nitrogen is present as organic nitrogen, nitrate, and ammonia.

- Natural sources of nutrients can vary widely and are often a large component of a watershed's nutrient balance.

- Phosphorus is strongly attracted to the clay fraction of soil and is mostly transported during a small number of high-flow events.

- Except in watersheds dominated by point sources, much nutrient loading comes from nonpoint sources and is often tied to land use.

These difficulties notwithstanding, a nutrient control and trading program will need to be supported by general ambient data, by targeted sampling, and by wet-weather sampling. Even with these data available, gains in nutrient loading will still rely in part on assumptions regarding the performance of BMPs and nutrient flows. Assessing the validity of assumptions requires that long-term data be collected, in part, to determine the effects of natural variation in nutrient loading.

2.9 Exploration of site-specific metals criteria

While site-specific criteria and their establishment are discussed at length in *EPA's Water Quality Standards Handbook,* there remains some disagreement between EPA and DEP as to their usefulness, the degree of scientific proof needed for their establishment, and the proper level of concern over metal storage and release in sediments.

Evaluation of site-specific standards and the development of regional metals standards are probably best accomplished as a special project. Therefore, this project has not been included in the NPDES program budget. Cadmus' site-specific criteria projects in the western United States have cost roughly $150,000 per river reach. Because site-specific criteria for metals would be valuable to municipalities, an important strategic question for obtaining support for NPDES delegation is whether to include funds for such criteria in the proposed NPDES budget.

Copper criteria for fresh waters in the state are on the order of several parts per billion depending on the chemical hardness of the water. As a consequence, where there is relatively low dilution of a wastewater discharge, the water-quality based limit for the discharge is very low. Many POTWs have difficulty meeting copper criteria in their associated receiving waters because of this set of circumstances. The criteria currently applied are default national criteria derived from laboratory studies. There is some disagreement as to whether these criteria are, in fact, appropriate for the State's waters. While a full treatment of this topic is beyond the scope of this discussion, in general, factors including dissolved carbon in waters can mitigate the environmental effects of dissolved copper. The EPA, as described in their *Water Quality Standards Handbook,* have several prescribed techniques for developing alternative criteria for a water or a region. These techniques are, in general, based on the testing the biological harm done by a contaminant using test species and actual receiving water samples.

DEP contends that State or regional criteria would be more realistic than a national criterion and would be adequately protective of the environment. Both the NTF and a focus group of point source-related stake holders supported investigating regional or State criteria. While a State-run NPDES program is not necessarily a prerequisite to investigating these alternative criteria, the perception of several stakeholders is that EPA is likely to pose less of an obstacle if they are not the prime NPDES authority.

Municipal treatment works and the industries that discharge to them would view the opportunity to pursue a less restrictive copper criteria as a large benefit. Conversely, if EPA begins enforcing copper limits in POTW permits, it is likely that local copper limits and the resulting permit limits will be lowered. This could pose a problem for metal finishers and other dischargers of copper, for example printed circuit manufacturers. This aspect of a NPDES program could be used as a selling point to both municipalities and pretreating industries.

2.10 Increased effort of NPDES stormwater program

By Massachusetts' estimate, roughly 20 percent of the eligible population has filed a Notice of Intent (NOI) for coverage under the Massachusetts General Stormwater Permit. Data submitted by systems that have filed an NOI are not read or entered into a computer format by EPA. In a related area, industrial stormwater that enters shallow groundwater through dry wells is not a focus of the state's underground injection well program. There is, therefore, a population of unregulated and uninspected stormwater systems.

While the threat posed by industrial stormwater to the State's waters is largely unquantified, there is the potential for stormwater drainage from industrial sites to contaminate both surface water and groundwater in close connection to surface water, and there is a good chance that a small percentage of sites are problems. With an unregistered population as high as 8,000 sites, even a small percentage of problem sites can present a large number of potential water quality problems.

The base NPDES program includes a total of 2.3 stormwater-related FTEs, and an additional optional 6.8 FTEs, of which 1.8 are dedicated to locating and investigating industrial and construction-related stormwater sites. These staff will use tools such as Geographic Information Systems (GIS) and business databases such as that maintained by Dunn and Bradstreet to efficiently locate businesses likely to have separate stormwater systems. The program also includes a stormwater engineering specialist (1 FTE) who will assist in stormwater quality and hydrologic assessment and in evaluating best management practices (BMPs).

The stormwater staff will work cooperatively with EOEA basin teams to locate problem sites and develop solutions. These teams include staff from DEP and other EOEA agencies, as well as federal partners such as the Natural Resource Conservation Services (NRCS). NRCS staff may prove valuable in evaluating and suggesting stormwater BMPs because some of their personnel have stormwater engineering experience.

2.11 Addition of Massachusetts stormwater initiative

Massachusetts recently published its stormwater performance guidelines. The guidelines describe hydrology and contaminant performance standards that will be enforced largely by local conservation commissions. This approach presents both a challenge and a key benefit. The key challenge is empowering volunteer conservation commissions, largely lacking in stormwater hydrology and engineering expertise, to administer the performance standards. The key benefit is that this approach, if handled well, will partner the state with local boards in protecting water quality. The combination of partnering with the EOEA basin teams and utilizing the new stormwater standards will help the commissions see their mission more broadly, i.e., to include the protection of water quality. The estimate above dedicates 4 of the 9.1 stormwater-related FTEs to providing technical assistance to conservation commissions.

2.12 Modern data management tools for efficiency and effectiveness

There are a variety of tools that a NPDES program should take advantage of to improve customer service and efficiency. Following are several areas that the program should include:

- Electronic applications (used by Mass DOR, EPA Form Rs and others)
- Electronic data filing
- Automation of response letters

- Computer-aided enforcement paperwork
- Permit writing expert systems
- Data modeling and viewing tool kit

2.13 Links to a whole basin approach

The Massachusetts Watershed Initiative seeks to engender local support for and participation in water quality protection, to support existing water quality protection efforts, and to develop a basin-based multi-disciplinary approach to water quality protection. There are a variety of opportunities for synergy between the Initiative and a Massachusetts NPDES program:

- Citizen and permittee monitoring consortiums (discussed below) present an opportunity for the state to efficiently expand its ambient monitoring network.

- Participation by other EOEA team members can bolster a science-based approach to water quality protection. For example:

    - NRCS staff can assist in nonpoint source efforts.

    - The Department of Food and Agriculture (DFA) can provide data for nonpoint assessments.

    - Agencies and local stakeholders can make water quality concerns known before a NPDES permit is due for renewal, streamlining public and agency review.

    - Grant and loan funds can be targeted toward priority waters.

    - OTA can assist with pretreatment program activities.

These are examples and would have to be negotiated through the basin teams or through the developing EOEA watershed initiative. However, the basin teams offer the opportunity for comment and input into permit development, rather than delaying input until the draft permits are issued. Already, EPA NPDES staff participate on EOEA basin teams. Yet it will be easier for staff within the same agency to share data and resolve conflicts when developing permits.

2.14 Monitoring consortiums and citizen monitoring

Washington State and North Carolina reported relying heavily on permittees for monitoring ambient water quality in the area of discharges. North Carolina has roughly 140 ambient monitoring sites in the Nuese, Cape Fear, and Yadkin basins sampled by monitoring

associates or monitoring consortiums. The samplers are trained along with state personnel to ensure consistent methodology and quality control. The monitoring is funded by permittees. One FTE is assigned to coordinate the collection and quality control of these data. North Carolina hopes to expand this program to include 1,000 or more sites. This expanded effort will require an estimated 3 to 4 FTEs to administer.

We recommend that Massachusetts commit resources to designing monitoring consortiums and permittee ambient monitoring programs. It is critical to design training programs and quality control systems that ensure collected data are reliable and add to the knowledge of ambient conditions. The value to the State in encouraging these types of monitoring efforts is 3-fold: 1) state resources will be leveraged; 2) permittees will perceive that their permits are based on good science (a point repeatedly raised by permittees); and 3) citizen involvement will be encouraged and integrated with state efforts. We anticipate that a portion of the staff dedicated to NPDES Program Support will be dedicated to program management and program development. We anticipate that a portion of this time will be used for reviewing the advantages of monitoring consortiiums.

2.15 Increased staffing and resources

In addition to core NPDES elements, the program described in this report includes a variety of options intended to bolster several areas in water resource management including stormwater control, pretreatment programs, and watershed modeling and modeling.

3.0 The Staffing and Cost of a NPDES Program

The following section discusses the elements of a NPDES program, elements missing from the current two-agency program, and staffing needs for a Massachusetts-run NPDES program. In each section an estimate is given of the current effort to provide context for the staffing estimates. The focus of this project was not in reviewing EPA's current efforts. Further, it is difficult to estimate DEP's efforts because it is currently not a complete program and therefore many NPDES tasks are either mixed with non-NPDES tasks or are split among multiple staff. Many of DEP's current NPDES-related activities are related to large episodic projects such as the MWRA discharge permit and may not be indicative of long-term staffing needs. Therefore, the estimates of current staffing should be used for comparative purposes.

3.1 Methodology

Over the past several years, Cadmus has developed budget and staff estimation models for EPA Region- and State-run NPDES programs. These workload models were based on extensive interviews with EPA and State staff and were field tested for accuracy. States and regions have used the models to project funding and staffing needs and revenue shortfalls for other projects. Cadmus used the models as a starting point to estimate DEP's program needs. The estimates were then refined based on extensive interviews with EPA and DEP staff on State-specific considerations. Inherent in the program budget are anticipated Massachusetts approaches such as participation on basin teams and the need to develop an ambient monitoring network, as well as some expected efficiencies such as general permitting. For example, our workload model indicated that over 20 FTEs would be needed for compliance and enforcement. Based on Massachusetts' intended focus on innovation and on interviews with DEP personnel, Cadmus developed a revised estimate of 11 FTEs for general enforcement, plus an additional 1 FTE for pretreatment compliance, or a total of 12 FTEs for enforcement. Finally, Cadmus compared the Massachusetts program design to other state NPDES programs, recognizing that approaches to NPDES regulation and the elements included in NPDES budgets vary greatly between States.

The overall philosophy was to produce a robust, yet defensible estimate of program staffing needs. Because the reorganization of and refinements to the EOEA Watershed Initiative were in their early stages during formation of these staffing estimates, we decided not to aggressively account for potential efficiencies arising from future activities. The staff savings from watershed approaches are uncertain: few states instituting watershed approaches have claimed savings, rather, they feel they are doing "more with the same resources." Given the degree of uncertainty surrounding potential savings from the watershed approach, the NTF advised us to discount its impact. Any benefits accruing from the initiative can be recognized in future budget and funding requests.

The NTF recommended that DEP revisit the budget and funding projections regularly as the NPDES program is implemented, to allow closer scrutiny as the newly designed program gets up and running.

3.2 Estimated staffing needs for a Massachusetts-run NPDES program

3.2.1 Permit writing

Activities of a permit writer

Massachusetts has 60 major industrial permittees and 100 major municipal permittees. Staff indicated that there are 26 minor municipal discharges and an unknown number of industrial permittees estimated at between 360 and 370. Staff acknowledged that there are likely fewer industrial minor permittees because a subset of these dischargers are probably out-of-business. DEP's approach to many of these dischargers will be to include them in general permits in the future.

Based on a 5-year permitting cycle, DEP will need to issue annually about 32 major permits, approximately 4 minor municipal permits, and depending on the number of active minor industrial discharges, about 70 to 75 minor industrial permits.

EPA staff indicated that they had shifted recently to a watershed approach. While they were enthusiastic about the revised approach and thought that it helped them do their job better, they did not yet see any added efficiency from the approach. In fact, they felt that adjustments to the new approach and shifts in staff responsibility had if anything slowed their job somewhat, at least temporarily.

Current level of effort

Based on discussion with EPA staff, EPA Region 1 currently has 10 permit writers with roughly an additional 2 FTEs dedicated to administrative support including mailing notices and reviewing applications for completeness. DEP has less than 1 FTE dedicated to reviewing permits. In total, there are currently about 12 FTEs dedicated to permit writing.

Core NPDES Activities FTEs

EPA staff indicated that they write roughly 6 major permits per year, but that minor municipal permits take as much time as major permits. Cadmus' base model assumed roughly 5 major permits are written per FTE. This was initially revised to 6 to reflect current EPA experience. The model's staffing factor for permit modifications was 12 per FTE and accounted for 10 percent of major permits requiring modification in a given year. The base model run estimated that 7.5 FTEs were needed for major permits and minor municipal permits, less than EPA's current staffing level. The model estimated that another 3.6 FTEs would be needed to

fully service 350 to 400 industrial minor permits, of which there is now a large backlog. In total, we estimate that to fully service major and minor permits, assuming EPA's current level of efficiency, would require roughly 11 FTEs for permit writing and 2.8 FTEs for administrative support for a total of 13.8 FTEs. Below the revised estimate based on assumed efficiency gains inherent in a DEP program and shifts to general permits is discussed.

Integrated FTE estimate

DEP indicated that their future approach would bring efficiencies to permit writing. In Cadmus' judgment, the EPA approach to permit writing is slowed by the way that the permit writer's responsibility is structured, and DEP could improve on their permit per FTE rate. Based on these factors, Cadmus revised the number of permits written by a permit writer to 10 per year (roughly 22 days per permit). This factor was retained for minor municipalities based on EPA comments and based on the multiple challenges facing minor municipal plants including nutrient control. For industrial discharges, a rate of 10 major permits per FTE is also assumed. Minor industrial discharges will take roughly 8 staff days per permit. The resulting staff estimates are 3.4 FTEs for major and minor municipal permits and 1.7 FTEs for major industrial permits, a substantial reduction from current staffing levels. Based on bringing the list of industrial minor discharges up-to-date and shifting up to 25 percent of those remaining to general permits, we estimate that an additional 1.8 FTEs will be needed for these minor permits. Including 2.3 FTEs for administrative support, this a total of 9.2 FTEs for permit writing and related support—well below the current staffing level, while providing a higher level of service.

Additional activities

An additional 1.1 FTEs were budgeted for ensuring adequate coverage of toxic material issues for permits. Increasingly, river reaches (for example, the Connecticut River) are classified as not supporting aquatic life uses because of non-conventional pollutants. These staff would investigate sources of the pollutants and ensure that permit limits for toxic materials were appropriate.

3.2.2 General permit activities

DEP is currently reviewing its industrial minor discharges and where possible shifting selected dischargers to general permits. The staffing estimate allows for developing general permits, and processing and evaluating notices of intent (NOIs) for current and new permittees.

Staff estimates

Core NPDES Activities FTEs:

We estimated that it takes roughly 8 days of staff time to process an NOI (28 NOIs are processed and evaluated per FTE). Based on 106 current general permit holders, we estimated

that reviewing NOIs for current permittees on a 5-year basis would take 0.8 FTEs. Based on a near-term shift of 200 industrial minor permits to general permits, we estimate another 1.5 FTEs are needed for NOI review. Based on 30 days to develop a new general permit and plans for developing 5 new general permits over the next permitting cycle, 0.14 FTEs are needed for permit development.

Phased Activities:

The staffing for developing initial general permits (0.14 FTE) is spread over the first 5 years of a NPDES program, but then would no longer be needed and could be shifted to receiving NOIs and reviewing submitted materials.

Current level of effort

Currently the DEP dedicates less than 1 FTE for developing general permits and for receiving NOIs.

Commentary

General permits, where appropriate, can reduce permit writing burden. Part of the reason that the staffing estimate for permit writing is well below the current EPA staffing, yet is predicted to provide a higher level of service, is a planned shift to general permits.

3.2.3 Pretreatment activities

There are 48 approved pretreatment programs in Massachusetts and 77 categorical industrial users (CIUs) that discharge to POTWs without approved pretreatment programs. The delegated pretreatment authority is responsible for performing annual inspections of POTW pretreatment programs and audits of these programs every 5 years. Currently DEP performs limited outreach to POTW pretreatment programs. Additionally, the Office of Technical Assistance (OTA) assists POTWs in identifying their significant industrial users (SIUs), and performs technical assistance for pretreaters that request their help.

DEP staff indicated that several areas needed additional effort:

- Review of quarterly noncompliance reports (QNCRs).
- Monitoring and surveillance of SIUs discharging to approved programs.
- Monitoring and surveillance of categorical industrial users (CIUs) discharging to POTWs with no approved program.

- Outreach and training of POTWs.

Staff estimates

Core NPDES Activities FTEs:

Pretreatment staffing estimates were based on 1 new program approval every 5 years requiring 30 days of staff time, 20 percent of the 48 approved programs requiring 8.5 days for program modifications, 80 percent of programs receiving an annual report review requiring 3.5 days, and 20 percent of programs per year receiving an audit requiring 5 days per program. These activities total 1.23 FTEs. DEP concurred with these estimates and staffing requirements.

Regulating the 77 CIUs discharging to non-delegated POTWs is estimated to take roughly 0.9 FTEs based on inspections once every 3 years, and on 10 percent of semi-annual report reviews requiring follow-up. Training is estimated to require 20 days per pretreatment staff, based on comments by DEP staff, or an additional 0.2 FTEs. The total for core NPDES pretreatment activities is 2.3 FTEs, well below the current 3.5 FTEs jointly provided by DEP and EPA. This is in part due to a projected shift in emphasis from enforcement to outreach by DEP.

Additional Activities:

To respond to program shortcomings identified by DEP staff, we recommend that:

- 1 FTE be added to review and follow up QNCRs.
- 0.4 FTEs be added for monitoring and surveillance.
- 1.2 FTEs be added for pollution prevention outreach to programs (1 FTE plus an additional 40 days of outreach staff time for workshops).
- 0.3 staff be added to identify new CIUs (3 new CIUs x 22 days/CIU).

This is a total of 2.9 FTEs of additional pretreatment effort, or a total of 5.2 FTEs including core NPDES elements. This modest increase over the current joint EPA/DEP staffing provides for many of the features that DEP staff indicate are now missing.

Current level of effort

Currently the DEP dedicates less than 1 FTE to meeting with pretreatment programs and to inspecting and auditing the programs. EPA has 3 FTEs including 1 contract employee

assigned to inspections, program approvals, and audits. The total current effort is roughly 3.3 FTEs.

Commentary

Several studies in the late 1980s (U.S. GAO, 1989) examined pretreatment programs nationwide and determined that many SIUs were violating their permitting conditions and that enforcement by POTWs was not stringent enough. DEP staff indicated that they would like more time to work with programs that they felt were lacking in their enforcement and outreach. While Cadmus did not review individual SIUs or pretreatment programs for this study, we have seen large gains made through pretreatment programs and by pollution prevention efforts by pretreating industries.

3.2.4 NPDES stormwater

Stormwater activities

In 1987 stormwater from industrial and construction sites became a focus of NPDES. Massachusetts developed their general stormwater permit in 1992. In general the stormwater regulations require that selected industries either file an individual permit or file for coverage under a general permit. Depending on the materials used at a site, their SIC code, and the approach that their management take, their ongoing requirements vary from annual inspections to site stormwater monitoring. Sites must also write a stormwater pollution prevention plan (SWPPP).

Sites in Massachusetts wishing to be covered under a general permit file an NOI to the EPA headquarters national NOI processing center. Applications are then forwarded to EPA Region 1.

Estimated staffing needs

Core NPDES Activities FTEs:

We estimated NOI processing by doubling the contractor time required to run the national NOI center in order to account for a lost economy of scale. Based on roughly 2,000 permittees, roughly 0.5 FTEs are required. An additional 0.6 FTEs are estimated for reviewing and following up on submitted information.

The two MS4 permittees require roughly .2 FTEs, based on 36 days per permit and 12 days per permittee for annual follow-up. The total core NPDES functions require 1.3 FTEs. This is similar to the current level of staffing.

Integrated FTE estimate:

We added an FTE as a stormwater coordinator to answer permittees questions, link the NPDES stormwater effort to watershed efforts, and oversee data management. This position will help improve the use of data collected and will improve technical assistance over its current level.

Additional Activities:

Various DEP staff indicated that only roughly 1 in 5 sites have filed for coverage under the stormwater general permit. This is consistent with qualitative estimates we've heard from other states. We estimate that 1.8 FTEs would be needed to identify unpermitted sites and inspect problem sites, for the first 5 years of the program. We estimated that staff using tools including GIS and business databases could identify roughly 20 new sites per week. We assumed that roughly 1 percent of sites found would need to be inspected requiring one-half day of staff time per site.

The new DEP stormwater program is an important element of a comprehensive watershed-based approach to protecting and enhancing water quality. This effort has the potential for reducing pressure on point sources for some contaminants as nonpoint sources are also considered in load reduction. We are concerned, however, that putting the bulk of the responsibility for this program on conservation commissions will challenge the volunteer commissions that are often time limited and have little knowledge of stormwater. We recommend that DEP fund one circuit rider per region (in addition to initial outreach efforts to the commissions) to assist the commissions.

As discussed elsewhere in the report, stormwater remains one of the major causes of use non-attainment and is challenging to control. We therefore recommend that DEP include in its program a stormwater engineering specialist (1 FTE) to provide technical assistance to state and local staff.

Current level of effort

Currently DEP dedicates a fraction of an FTE for stormwater activities because EPA handles the bulk of related activities. EPA has 1 FTE working on stormwater full time. This staff member answers questions, receives NOIs from the national EPA NOI processing center, and receives monitoring information from permittees. Staff indicated that little is done with the data received, and it is not coded into electronic files. In past years, Cadmus has found that it has been difficult to reach EPA with industrial stormwater questions. This program feature was not examined during this study, although EPA staff indicated that they were understaffed in this area. EPA also dedicates some staff time in multimedia inspections to stormwater, although it is unclear how much of a focus this has been.

Commentary

Urban runoff remains one of the leading causes of rivers not attaining their designated uses (DEP, 1994). Given this continuing problem, we believe that this area deserves both creative approaches and adequate staffing. While the level of NPDES stormwater staffing is very low in Massachusetts, in fact so low as to be essentially a self-policing program, this is not atypical. Other states that Cadmus has interviewed over the last several years have indicated that they did not have sufficient staff to address industrial stormwater.

One of the challenges in staffing both core NPDES stormwater efforts and additional stormwater activities is in generating support for paying for the staffing. Point source permittees may be hesitant to pay for a NPDES program through fees that include a stormwater component that doesn't service them directly.

3.2.5 Enforcement

Enforcementactivities

Enforcement encompasses a variety of activities including inspections, issuing administrative orders, and handling court cases. EPA indicated that it handles an average of 2 to 4 court cases per year on an ongoing basis, issues roughly 12 penalty orders and handles 6 requests for public hearings, 15 requests for evidentiary hearings, and roughly 1 criminal case per year.

Current level of effort

DEP estimated that there are 3 FTEs in the central office dedicated to enforcement-related activities, with an additional 2.5 FTEs in the regions. In addition, other DEP staff indicated that 4 FTEs are dedicated to industrial wastewater inspections in the regions. Assuming that roughly half of these 4 FTEs can be assigned to enforcement (we understand that historically much of the industrial wastewater staff's time was used for sewer connection permits), roughly 7.5 FTEs are dedicated to enforcement and inspection activities.

EPA indicated that they have 4 FTEs handling court cases and penalty orders, and 4 FTEs performing pretreatment enforcement. Three of these 4 FTEs are accounted for under the pretreatment category; the current EPA effort accounted for in the enforcement category is 5 FTEs.

In total, the current enforcement effort is roughly 12.5 FTEs not accounted for in other categories.

Core NPDES and integrated program staff estimate

Our initial model estimate based on regional and state NPDES experience called for approximately 22 FTEs for enforcement-related activities. Based on DEP's stated intention to focus on cooperative management and creative approaches, on the current level of effort, and on DEP feedback, we revised our staff estimate for this component to 12.1 FTEs.

3.2.6 Public outreach and training activities

Current activities and staffing

While there are certainly some outreach and training activities underway (for example development of a modeling tool kit) that are related to NPDES, we approached this category of activities in terms of what would need to be added to a State-run NPDES program.

Staffing estimate

For NPDES-related outreach and training, we budgeted 1 FTE for an outreach and training coordinator, and 10 days per core technical staff member for training, for a total of 2.6 FTEs.

3.2.7 Data entry activities

Activities

The NPDES program will need core data management support including:

- Entering major and minor permit limits
- Entering major and minor discharge monitoring data
- Entering enforcement actions for major and minor permittees
- Entering enforcement actions for pretreatment POTWs and CIUs

Current level of effort

EPA has roughly 3 FTEs currently entering data into and maintaining the Permit Compliance System (PCS). DEP does not currently have dedicated PCS staff.

Staffing estimate

Based on the model staffing factors below, we estimate that 2.8 FTEs will be needed for data entry. This estimate is consistent with the current staffing levels.

Clerical staff

We estimate based on experience with other state programs that approximately 1 clerical staff will be needed for 10 FTEs to perform miscellaneous data entry, filing, and library work. A review of a detailed study of Minnesota's staffing of their point source compliance section staff showed roughly 1 clerical or information management position per 7-10 FTEs.

3.2.8 Science support

As discussed earlier in the report, the challenges facing water quality managers in the 1990s are increasingly complex because they involve analyzing pollutant sources that result in part form wet weather, from nonpoint sources, and from chronic impacts. If a new State-run program is to provide some of the environmental and management benefits previously discussed in this report, it will need adequate scientific support to conduct monitoring and analysis. In addition, States are facing increasing pressure to perform TMDLs for their rivers, a task that will demand analysis staff.

In discussing NPDES program staffing with various States, we found that States vary markedly in the portion of science support (e.g., water quality standards support, watershed assessment, water quality modeling) that is assigned to a NPDES program. The base NPDES program design would add 2 high-level modelers to build modeling approaches and 0.6 FTEs to perform limited wet weather sampling to the 3.5 FTEs already performing a basic level of water quality, sediment, and biological monitoring, for a total of 6.1 FTEs. Our recommended alternative would add an additional 7.1 FTEs (or 13.2 FTEs total) to provide 4 staff to run an ambient monitoring network, 2.6 FTEs to perform additional studies, 4 FTEs to undertake modeling, data analysis, and monitoring support for the regions for water quality assessments and performing TMDL analyses, and the 2.0 and 0.6 FTEs mentioned above for core modeling and wet weather sampling.

3.2.9 Management and program development activities

Activities

The NPDES program will require staff for overall management, for management of program functions (e.g., pretreatment, permit writing), and for program development. Program development will include exploring innovative approaches such as pollutant trading and pollution prevention.

Staffing estimate

Based on our work with other regulatory programs, we estimate that roughly 5 FTEs will be needed for management and program development, in addition to a program director. Based on DEP's wish to minimize the resources wholly dedicated to management and on the rationale

that program development support will be needed to initiate the creative approaches that DEP envisions for their program (e.g., pollutant trading, watershed approaches), we have assigned the 5 FTEs to program development.

3.3 Overall program staff estimate

Exhibit 3.1 outlines the estimated staffing needs of a Massachusetts NPDES program by program element. For comparison purposes, the approximate current staffing levels in DEP and EPA are displayed. The projected staffing needs are divided into core NPDES elements base program, and additional activities. (This is provided for contextual purposes only. We don't recommend adoption of a bare-bones program for reasons discussed in Chapter 2.)

There are about 35 FTEs currently performing NPDES-related tasks in DEP and EPA. The proposed base program adds 14 FTEs to the total current effort (requiring 39 DEP FTEs to also cover lost EPA staff), but adds additional program features such as:

- Full servicing of minor industrial discharges.
- Better servicing of the NPDES stormwater program.
- Creation of additional general permits to increase permitting efficiency and reduce permittee burden program development staff to pursue topics including pollutant trading, metals criteria revision, and whole-watershed approaches.

If science support is considered, an additional 15.5 FTEs over the total current effort are needed (requiring 41.5 DEP FTEs to also cover lost EPA staff). If delegation of a sludge program is also sought, an additional 4 FTEs would be required. (Very few States have done so, and the NTF was divided on whether to include this element.) We also identified an additional 2.8 FTEs needed for additional NPDES stormwater activities described in Section 3.2.4, and an additional 4 FTEs to serve as circuit riders to assist conservation commissions with the new DEP stormwater program.

As outlined above, the estimates are based on a staffing model developed from EPA regional and State NPDES programs, and on interviews with EPA and DEP staff. The NTF generally agreed with the magnitude of the estimate and thought that they could endorse this scale of program to their constituents. Even after several rounds of review by DEP staff, the overall magnitude of the program changed little.

Exhibit 3-1
Estimated Current and Projected NPDES Staffing

	Existing Staff			Estimated Need			
	Estimated DEP	Estimated EPA	Total	NPDES Core	Base Program	Additional Staff	Total
Management	0.9	1.0	1.9	1.0	1.0		
Permitting	0.5	12.0	12.5	7.4	7.4		7.4
Ind. minors			0.0	1.8	**1.8**		1.8
Pretreatment	0.3	3.0	3.3	2.3	5.2		5.2
General	0.3	0.0	0.3	2.4	**2.4**		2.4
Stormwater	0.3	1.0	1.3	1.3	**2.3**	6.8	9.1
Enforcement	7.5	5.0	12.5	12.0	12.1		12.1
Toxics			0.0		**1.1**		1.1
PCS	0.3	3.0	3.3	2.8	2.8		2.8
Outreach			0.0		**2.6**		2.6
Program Support	Attorney	Bio	0.0		**5.2**		5.2
Clerical/Data entry			0.0	5.2	**5.2**		5.2
Totals	10.0	25.0	35.0	36.1	48.9	6.8	54.7
Change from Existing Staff Level				1.1	**13.9**		19.7
Additional DEP Staff Required				26.1	38.9		44.7
Water Quality Support	3.5	1.0	4.5	3.5	6.1	7.0	13.1
SludgePermitting	3.0		3.0	3.0	3.0	4.0	7.0
Combined Totals	**16.5**	26.0	42.5	42.6	**58.0**	17.8	**74.8**
Change from Existing Staff Level				0.1	**15.5**		32.3
Additional DEP Staff Required				26.1	**41.5**		**58.3**

Exist Data Need

#1 2
2 14
0 0
0 1
1 1
7.5 13.5
— —
0 3
0 6
0 3
1 1
12.5 48.5
31.
37 additional
30-35 Total

3.4 Staffing of other selected NPDES programs

Because each State divides activities differently, it is difficult to compare staffing estimates from other States to Massachusetts without very detailed research involving actual position descriptions. Many States separate nearly all water quality support and monitoring from the NPDES staff budget. Nevertheless, the following staffing estimates for several States should help the reader view the Massachusetts estimates in the context of other programs.

Delaware

Based on an interview with State staff, Delaware has 30 major NPDES discharges (less than one-fifth of Massachusetts) and 41 minor permits (roughly one-tenth of Massachusetts). Delaware has received roughly 100 NPDES stormwater NOIs (one-eighteenth of Massachusetts). Their core program has 3 permit writers, 5 compliance and enforcement staff, 1 regulatory development position, 1 PCS position, 1 manager, 1 NPDES stormwater position, and 1 administrative assistant, for a total of 13 FTEs. In addition, Delaware has 2 modelers, for a total of 15 FTEs. This total does not include any pretreatment, sludge, watershed assessment, training, or nonpoint source staff. While it is difficult to extrapolate staffing levels precisely, a reasonable scale up of the Delaware program might be to multiply the staffing, except for the manager position, by 5. This would yield a total of 71 positions without the program features previously noted.

Maine

Maine is proposing to assume responsibility for its NPDES program. Including 1 FTE for NPDES stormwater, the program is estimated to require 30 FTEs in addition to legal staff for enforcement. This total includes 3 FTEs for NPDES-related water quality support, but does not include staff for general watershed assessment or staff for a sludge program. Because Maine has far fewer permits than Massachusetts, this total is consistent with the Massachusetts staffing estimate.

Minnesota

Minnesota's point source program includes 35 permitting staff, 38 compliance and enforcement staff, 20 water quality standards staff, and 10 training and assistance staff, for a total of 103 FTEs. This program serves 79 major discharges (in contrast to Massachusetts' 160), but serves roughly 950 minor permittees (compared to Massachusetts' total of roughly 400.)

3.5 Estimated cost of a NPDES program

The following budget estimate is based on an average loaded cost of $89,000 for a DEP employee. Loaded costs include benefits and overhead, such as costs to provide office space.

The coastal surveillance and ambient monitoring costs are for sampling and modeling, and the other estimates are for staffing costs.

Activity	**Increased Cost**
Base Program (shortfall)	$3.7M
Additional Activities	
Stormwater	$0.6M
Science Support	$0.6M
Coastal Surveillance	$0.4M - 0.8M
Sludge	$0.4M
Ambient Monitoring	$0.8M
Subtotal	*$2.8M-$3.2M*
Total	***$6.5M-$6.9M***

The NTF generally agreed with this budget and agreed to support this program.

4.0 Funding Options for the NPDES Program

Many options exist for funding State programs. A combination of General Funds appropriated by the State Legislature and revenues generated by permit fees is the most common strategy employed by other States. The NTF did not discuss in detail approaching the Massachusetts Legislature with a proposal to have the NPDES program funded by general funds. There was some discussion of examining the fate of existing permit fees paid by industry, or exploring the possibility of using the Municipal Sewer Rate Relief funds as alternative funding sources, but no specific recommendations were made.

Cadmus prepared several presentations on possible fee options. The NTF discussed different principles that could guide which fees were implemented. For example, the easiest fee to administer and explain is a flow- or usage-based fee. The data needed to calculate fee revenue is easily accessible in the Permit Compliance System maintained by EPA, and there is a clear correlation between usage and fees paid. A slightly different approach that interested some NTF members included a combination of flow- or usage-based fees and some premium based on the number of parameters in a permit. Theoretically, the more-complicated permits require additional permit staff time to develop, and the fees would be more closely related to the workload imposed on the State by the permittee. Similarly, the group weighed flat charges for facilities with additional, complicating factors such as pretreatment programs, sludge application, or combined sewer overflow outfalls. The group also discussed weighting fees based on the pollutant-pays principle, or charging higher permit fees to facilities with greater limits in an effort to introduce pollution prevention principles into the fee design. However, after evaluating the various alternatives, the NTF agreed that the fees involved were probably not significant enough to induce a chang e in behavior, and therefore the State may be better off proposing fees that are easiest to administer and collect.

The NTF reviewed a fee based on a combination of flow and the number of contaminant parameters monitored in a discharge. This fee structure contained a minimum fee of $1,000-$5,000 and a maximum fee of $100,000 per discharge. Consensus on the appropriate means of funding the program was not reached. Generally, fees were agreed to in concept, but further exploration should be done on revenue options.

4.1 Fee alternatives for a Massachusetts NPDES program

The basis for several fee schedules was described for the NTF. In comparing the options, the NTF weighed several important criteria for selecting the most appropriate fee program for Massachusetts. The fee program must collect an adequate, sustainable, and reliable revenue stream. The administrative burden for DEP should be minimized, to limit the cost of collecting the fee. It should be easy to explain the fee basis to the permittees, the Legislature, and the public. The fee should provide incentives for conservation and pollution prevention. And

finally, the fee paid should correlate with the time spent by DEP staff to provide services to the permittee. Bearing these criteria in mind, the NTF evaluated several fee proposals.

Design Flow

The first, and most common, is a rate based on design flow. Easy to explain and understand, this fee provides a reliable source of revenue and, since the design flow is included in the permit, is simple for the State to calculate. A disadvantage is that this fee structure does not provide incentive for water conservation, and it requires that a plant with a low flow in relation to its design flow charge a disproportionally large per capita fee.

Actual Flow

A flow-based fee can also be based on actual flow. Although similar to a design flow-based fee, it would require that the State periodically calculate the fee as actual flows change. This would result in a less stable revenue stream than would a fee based on design flow. One problem with this strategy is that systems with a large proportion of infiltration will have to charge higher per capita rates and may feel penalized for essentially discharging clean groundwater. Unless the fee is capped, large-flow dischargers such as power plants would pay a large proportion of the State's fees. Actual fee examples are discussed in later sections.

Discharge Severity Rating

Some States prefer a fee that is based on the principle that the "polluter pays," seeking to send the message that the impact of the waste should be minimized. To achieve this purpose, some States institute fees based on the content of the discharge, assigning points for certain characteristics of the waste stream and basing the fee on the accumulation of points. This fee is administratively complex, both to calculate and to explain. Some States calculate fees based on Standard Industrial Classification (SIC) codes. Alternatively, the fee examples presented to the NTF were based on the number of parameters in a facility's permit. Both SIC codes and number of parameters in the permits are data available from the existing EPA database, making calculation of the permit fees relatively simple. The NTF endorsed the message indicated from this approach. However, there was general recognition that the size of the proposed annual fee was too small to be likely to affect permittee behavior, when compared to the cost of operational or structural changes necessary to reduce the complexity of their permits. The NTF elected not to recommend this fee strategy.

Weighted combination of flow and contaminants

A third approach combines the two previous fee schedules, using both flow and number of parameters to calculate fees. The advantage of this fee is that it includes flow and pollutant components without requiring extensive load computations by the State. This approach potentially approximates the attention needed by a NPDES program based on the rationale that a

discharge with a larger number of parameters will take more time and require more instream analysis. This strategy also provides at least a small incentive for flow and pollutant reduction.

Cadmus ran a preliminary version of this fee using a model developed for this project. While there is clearly merit in weighting a fee to account for parameters as an analog for time spent by the DEP staff to write the permit, the PCS data used for the fee model showed little variation in the number of parameters between apparently simple and more complex discharges. We recommend that this type of fee be revisited with a more detailed analysis of individual permits and the pollutants of concern limited in the permits.

Service-based fee

Some States charge permittees fees for services delivered. Each action by the State staff is charged directly to the customer. Staff time required for NPDES functions, such as permitting, enforcement, technical assistance, and compliance inspections are tracked using the State's timesheet tracking system and billed to the permittee. However, many components of the NPDES program design, such as monitoring, activities attributed to nonpoint sources, or policy development, are not directly billable. In addition, some States elect not to charge fees for enforcement activities. To cover these unbilled costs, some States have developed an overhead factor which they apply to the other fees for services. One difficulty with the fee for service approach stems from the unpredictability of the revenue flow. Because the program budget for the upcoming fiscal year must be developed without knowing fee receipts, it is challenging for management to plan program activities. The administrative costs to track and bill these charges are also larger than for the other fee bases described above. DEP staff did not support this fee model, based on their concern that it would be difficult to accurately track and bill staff time at the individual permittee level.

Flat fees

Many States adopt flat fees for certain classes of permittees. After calculating the approximate time spent by State staff by category of permittee (i.e., industrial or municipal, major or minor, presence of a pretreatment program, on-site disposal of sludge), the State can divide this figure by the number of permittees in the category to set the annual fee. Clearly this fee is extremely simple to explain, collects a reliable revenue stream, yet does not account for variation among permittees in each category. Some states use this approach for certain activities, for example, for General Permit NOIs.

Other State fee programs

To provide some context for the proposed fees for Massachusetts, Cadmus reviewed fee programs created for other State NPDES programs. The States examined included Arkansas, Connecticut, Florida, Kansas, Louisiana, Minnesota, Missouri, and Oklahoma. Section 4.2 describes each of these fee programs. To compare the impact of paying the fees in each State,

four sample facilities were selected from the Massachusetts inventory, and the fees that they would pay under each State's fee schedule were calculated. The sample represented both industrial and municipal permittees, as well as major and minor facilities, with varying wasteloads. In addition, a large, thermal discharger was included to illustrate the impact on a large volume permittee. Attachment 2 compares the fees that would be paid by these four permittees under each scenario, and Attachment 4 has more detailed descriptions of selected fees.

4.2 Other States' approaches to fees

- A review of 27 states shows an average fee contribution of 32 percent (median = 28 percent), with a range of 0 to 100 percent.
- The average program size, based on a review of 15 states is $6,300,000.
- Most States that have fee programs also charge municipal treatment plants. (Massachusetts does not.)

Arkansas

The State uses a combination of flat fees for non-municipal dischargers ($9,000 or $13,000 depending on the categorical industry), and fees based on a combination of design flow and presence of toxics or priority pollutants for municipals. The municipal fees are calculated by adding a base fee plus a charge for flow. The minimum fee for major municipals is $5,000. For minor municipals without toxics or priority pollutants, the minimum fee is $200 and maximum is $8,000. If there are toxics or priority pollutant limits in the permit, the minimum fee is $200 and the maximum is $13,000. Non-contact cooling water permittees are charged a maximum of $9,000. Aquatic animal production facilities pay $2,000, and general permits are between $100 and $200.

Connecticut

Connecticut has individual and general permit fees. There is a flat application fee of $700. General permittees pay additional fees only if they are required to register with the State. Individual permittees pay an additional application fee and annual fees which are based on a combination of the maximum daily flow and wastewater category. Application fees range from $700 to $9,800. The reissuance application fee may be reduced up to 75 percent if no substantial changes have taken place since the date of the prior permit. Note: municipalities receive a 50 percent discount

Florida

Ranging from $200 to $7,000, the fees paid by municipals are based on design flow. Pretreatment programs add $500 to the fee. Industrial dischargers are charged fees based on categorical industries and major/minor designation.

Fees for major industrials range from $800 to $11,500, while minor industrials range from $600 to $8,600. There is no charge for stormwater-only dischargers; facilities with stormwater-only discharges in their permits pay $200 per outfall per year. There are no annual fees for general permits.

Kansas

Kansas fees are based on design flow, with a minimum fee. Municipals pay $185 per MGD, with a minimum of $185. Industrial permittees pay $320 per MGD, with a minimum of $320. Cooling water and dewatering fees are $60 per year; feedlots' annual fees are between $30 and $150.

Louisiana

Louisiana adopted a rating system that assigns points based on permittee characteristics, weighting most heavily those characteristics that result in the most effort for State staff. The minimum fee is $227.50, and the maximum fee is $94,500. The fee per point for industrials is roughly twice as large as that for municipals. The ratings points are based on facility complexity (from SIC codes, and processes and products reported by permittees); flow volume and type (e.g., non-contact cooling water, process flows, sanitary wastewater); limits for traditional pollutants in permit; heat load (for thermal dischargers); major/minor designation; and whether the receiving water is used as a drinking water source.

Massachusetts

Based on the fee schedule in 310 CMR 4, industrial dischargers with Type II treatment pay $5,000 in annual fees, and Type I facilities pay $850 per year. There are 60 major industrial dischargers in the State, where major is determined by whether industrial process water is discharged. The precise number of industrial dischargers that should be covered by a minor permit is not known, however, it is roughly 360. Municipal POTWs are exempt from a discharge fee. State staff indicated that the current fee arrangement is not a large revenue generator and collects roughly $250,000 per year.

Minnesota

Prior to its 1996 fee proposal, the state had a four-tier, relatively flat cost structure for each class of permittee based on design size. It was believed to be inequitable to small

communities; to provide no load-based incentive to reduce pollutants; and to be unconnected to the State's workload. The State examined alternative fee structures including load-based fees, flow-based fees, and the existing fee structure. They proposed a new fee program based on flow. For municipals, the maximum annual fee is $3.00 per capita. The base fees are $2,000 for majors, and $500 for minors plus a charge for total annual flow times a fee per gallon (set to collect enough revenue each year). The base fees were established because many municipals had a very low flow volume. Municipal stormwater permittees pay $7,500 per year; land-applied sludge requires an annual fee of $100. Industrial fees are also formulated on a base charge plus flow calculation. The base is $2,500 for majors, $1,000 for minors, and $1,750 for land application facilities. General permits are between $260 and $290.

Missouri

Municipal fees are based on design flow and range from $15 to $3,000. No permittee will be charged less than 1 cent or more than 10 cents per capita. An additional fee is charged for pretreatment programs ($3,000 if < 5 MGD, $5,000 if > 5 MGD.) Industrial dischargers pay a two-tier fee based on complexity. (The regulations do not define complexity.) If complicated and < 1 MGD, the fee is $3,500. Plants with larger flows pay $5,000. If less complicated and < 1 MGD, the fee is $1,500, otherwise it is $2,500.

North Carolina

North Carolina has permit fees based on daily design flow and whether the discharger is industrial, domestic, or cooling water. Application fees range from $240 to $400. Annual fees for administration and compliance monitoring range from $300 to $1,125, with an added surcharge if the discharger has received a notice of violation within the previous year. Stormwater dischargers pay an application fee of $400 and an annual fee of $400 (in compliance) or $600 (with a notice of violation).

New York

New York's permit fee schedule is based on daily design flow and whether the discharger is private, commercial, industrial, or municipal. There is no application fee. The annual fees range from $100 to $40,000.

Oklahoma

Like Louisiana, the State adopted a system that assigns points based on permittee characteristics that require additional cost or effort for the state. The characteristics reviewed include flow (design flow for municipals and average annual reported flow for industrials), major/minor designation, outfalls, pretreatment program, and complexity (based on EPA's SIC code-based designation of discharge complexity). Permittees pay a fee of $25 per point.

The State also uses flat fees for general permits, public notification, permit applications, and permit modifications.

4.3 A potential fee-based program for Massachusetts

The program staffing estimate developed in this report is based on a NPDES program designed to address point sources of pollution in a watershed context. In including staff for non-NPDES stormwater and for pollutant trading development, the program is performing tasks not strictly related to NPDES. Other States, including Maine, have faced difficulty in funding through fees a program with non-NPDES elements. Maine staff indicated that the fee negotiation portion of program design was the most time-consuming part of the process. We therefore recommend that fees be used to fund only a portion of the NPDES program, with the remainder coming from other sources including the State General Fund. With such a strategy, the DEP will not need to justify every program element as a service to fee payers because a large portion of the program will be State funded.

4.4 The fee-calculation model

For this project, Cadmus developed a spreadsheet-based model that calculates fees for permittees listed in PCS based on flow or a combination of the number of pollutant parameters in a permit and flow. The model allows the user to set the minimum and maximum fee rates for municipal and industrial major and minor permittees. Based on a user-supplied total fee target, the model calculates the target fee per MGD to attain that target. An electronic copy of the model in Excel version 5 is provided with this report.

4.5 Example fees from several model runs

To examine the effects of various strategies on the fees paid by Massachusetts' NPDES permittee population, the following section reviews several example model runs. The NTF supported in principle funding a portion of the NPDES program with fees from both industry and POTWs, however, they did not have specific requirements for the fee schedule. Based on Maine's experience with its review of NPDES delegation, the DEP will need to spend a good deal of time with the permittees most affected by a new NPDES fee structure. We suspect that a final fee program will require some sort of negotiation with the permittees.

The following examples in this model are based on funding 30 percent of the base program with fees, (roughly the national average of fee contribution) or $2,200,000. The model runs are based on PCS data extractions supplied by U.S. EPA Region 1. While the data were reviewed for major discrepancies, a thorough data audit was beyond the scope of this analysis. There were several minor discrepancies noted. For example, actual flow data were not available for most of the minor municipalities. For this reason, their fees are mostly dictated by the base fee set in each example. The effect of this factor on the example model runs is minimal because their total flow contribution is less than one-half of 1 percent of the 4,550 MGD reported in PCS. Roughly

less than half of the industrial minors were represented in the PCS data we used. Because the flows of these dischargers are generally very small, the effect of this anomaly is only several percent and, again, will not affect the findings of the model runs or the observations offered in the following sections. Clearly, before a NPDES program is implemented a full audit of the permit data should be undertaken. See Attachment 5 for data sheets describing the assumptions and results of the following four examples.

Example 1—Flow-based fee with no maximum fees

Based on comments by the NTF, Cadmus focused on an actual-flow-based fee model. As a base case, Cadmus ran the model assuming no maximum level of fees. We do not suggest adopting this strategy, but rather we ran this example to establish a base line. Minimum fees for major industrial dischargers were set to the current fee of $5,000 based on the rationale that most small and medium dischargers would be subject to this base fee, and their fees would not change under the new program. This population of dischargers would thus be likely neutral or positive toward the revised fee program. The minimum fee for municipal major permits is set to half of the industrial minimum based on two factors: 1) several other States set their municipal fee or rating system to one-half of the industrial system, and 2) this is approximately the cost of a permit writer's time based on EPA estimates (but doesn't account for other program costs), so at a minimum a major permittee covers the cost of its permit writer.

In Example 1 (see Attachment 5), the flow-based fee is $393 per MGD. Roughly 70 percent of the revenue is generated from industrial sources, with 6 major power plants contributing 77 percent of industrial fees and 54 percent of all fee revenue. For a POTW, based on an average per capita wastewater flow of 150 per day, (this assumes roughly 50 gal/capita/day of infiltration), this is approximately $0.06 per person per year.

Example 2—Flow-based program with minimum fees

As a second case, the maximum fee for industrial major sources was set at $50,000 to cap the fees of several high-flow discharges (see Attachment 5). The maximum fee for major municipal plants was not capped for this example to examine the effect per capita of fees if the burden is shifted somewhat to POTWs. In this example, the portion of NPDES fees paid by the 10 largest power plants drops from 54 percent to 14 percent. Because of the revenue shifted from large industrial discharges, the cost per MGD rises to $1,077. While the contribution of major municipal discharges rises to 57 percent of revenue generated and the MWRA's share rises to 25 percent, the annual per capita cost is still only $0.16.

Example 3—Flow-based program with minimum fees

EPA permit writers indicated that the time that they invest in a municipal minor discharger is similar to that of a major discharger. Based on an EPA permit writer issuing roughly 6 permits per year and a 5-year permitting cycle, each minor municipal discharger requires

roughly 3.3 percent of an FTE per year, or roughly $3,000 based on a loaded FTE rate of $90,000. This minimum rate is not designed to recover all costs related to a minor municipal permit, but rather to examine the effect of recovering the core permitting costs. In general, this minimum fee has little effect on the overall fee program. The cost per MGD drops slightly to $991, but the portion of the fees supported by large power plants, by MWRA, and by categories other than minor municipal dischargers change s little. The larger minimum fee will change the cost per capita, particularly for small plants. For example, a plant with a discharge of 0.30 MGD would have a per capita fee of roughly $1.50 per year. Although this is an order of magnitude higher than the average municipal fee, it is still very low.

Because the effect of this minimum fee is greatest on the minor discharges but affects the overall program very little, this fee could be set to a level judged to generate maximum support with little regard for the revenue that it provides.

Example 4—Flow-based program with minimum fees and a maximum municipal fee

In this example we examined the impact of setting a maximum municipal fee, essentially capping the MWRA's annual fee. Because per capita fees for all examples are projected at well below $1.00 per year, this cap does not provide meaningful rate relief, but might avert some opposition to the fee program. The main impact of this fee cap is to reduce to 2 percent MWRA's contribution to the fee program, requiring that the cost per MGD of flow roughly double from examples 2 and 3 to $1,964. The main impact is to increase the per capita cost for plants smaller than 25 MGD by a factor of 2 to roughly $0.29 per year. In contrast the MWRA fee, if divided among 2 million connected users, would be roughly $0.025 per person per year.

Capping the municipal fee would have little effect on most major industrial dischargers because most are subject to the $5,000 minimum fee, with 12 subject to the maximum fee of $50,000.

4.6 General recommendations

The permittee population of Massachusetts will strongly shape any potential fee program. The population is characterized by a few large discharges accounting for most of the State's wastewater flow: roughly 46 percent of POTW discharge is from a single plant—Deer Island—and roughly 77 percent of industrial discharge volume is from 6 power plants. Massachusetts has 60 major industrial dischargers. If a substantial portion of a NPDES program is to be funded through fees, then municipal fees will be necessary.

Following are general recommendations:

- We recommend that the fees for smaller major industrial discharges be kept near their current level of $5,000 to minimize impact to this group and to minimize resistance to a State-run NPDES program.

- Municipal dischargers will need to fund a substantial portion of the part of the program supported by fees because of the level of funding needed and the few major industrial permittees. The fees can be designed, however, to keep fees per capita below $1.00 per year.

- Because the program includes several functions that are not core NPDES functions, including non-NPDES stormwater investigations and watershed assessments, we recommend that fees be used to fund only a portion of the program.

- Because municipal minor permit fees will generate little revenue, we recommend that they be set to encourage support for a State-run NPDES program. One approach would be to set the fees to cover basic permit writing activities.

5.0 The Case for and Against NPDES Delegation By Stakeholder Group

5.1 Municipal POTWs

The State's POTWs face a variety of challenges including meeting current "gold book" metals criteria and meeting increasingly stringent phosphorus limits. A State-run program could potentially offer relief to POTWs in these areas by taking a flexible watershed-based approach to controlling both pollutants. Balanced against this potential benefit is the fact that, unlike most States that charge NPDES permit fees, Massachusetts exempts municipalities from paying a NPDES fee. If a State-run program were to be funded fully or partially through permit fees, POTWs would almost certainly need to contribute to the fee-supported portion of the program.

While specific fee levels are discussed elsewhere in this report, in general, the likely financial benefits of a State-run program would need to exceed the fees charged if the case for why Massachusetts needs a NPDES program is based on financial reasons. The less certain the potential benefits, the larger the differential between the potential benefit and the scheduled fee must be.

There are several other issues concerning municipal permittees:

- The fees discussed in this report may appear large for some large POTWs, but they will result in per capita fees of far less than $1.00 per year.

- Roughly 40 percent of the municipal wastewater in the State is treated by the MWRA plant on Deer Island. While the point above holds for this plant, the DEP will need to negotiate a fee with the MWRA if the program is to be partially or fully fee-supported.

5.2 Minor industrial dischargers

Renewal of many minor industrial dischargers is backlogged. One of the key activities identified by DEP staff was a plan to find current minor dischargers and to update the PCS database accordingly. Because many of these dischargers are likely not currently paying fees nor receiving much attention from the NPDES program, they are likely to view increased activity and increased fees negatively. One strategy for avoiding galvanizing this group into an opposition to the new program is to keep their fees relatively low and, as appropriate, shift their permits to general permits.

5.3 Major industrial dischargers

There are 60 major industrial permittees in the State. Of these, the vast majority of the wastewater flow (although not necessarily the impact) is accounted for by heated water discharges from 6 power plants. This group of permittees is likely to view favorably the shifting of the NPDES program to a single agency. As noted in Chapter 2 of this report, a focus group of point sources and their representatives convened by the Massachusetts Clean Water Council (MCWC) clearly supported an approach to permitting that was based on better science and better balancing of point and nonpoint sources. This group is not likely to view favorably a program fully funded by fees because ,invariably, the program will include some components that are not focused on them. Similarly, this group is likely to want to see part of the program funded by municipalities because the majority of major permittees are municipal sources. In fact, because there are so few major industrial permittees, the NPDES program described in this report could not be fully funded by industrial sources because the average fee would be roughly $100,000 per year.

5.4 Environmental groups

Because the environmental groups represented in the NTF did not regularly attend, Cadmus did not interview any representatives of these groups. These groups are likely to look favorably on increased efforts in a NPDES program particularly where the program links well to watershed approaches and to nonpoint sources. They are likely to be less enthusiastic, at least initially, about topics such as revised metal criteria. We recommend that DEP reach out to environmental groups because they should be natural partners in NPDES delegation. DEP will need to take a balanced approach in how it publicizes potential benefits to permittees so that environmental groups do not become concerned that these benefits translate into less environmental protection. In short, the message needs to be that a new NPDES program will bring more efficient environmental protection through smarter approaches to water resource protection.

6.0 Summary

6.1 Agreement by the NPDES Task Force

The NTF generally agreed to the following points:

- A Massachusetts NPDES program is advantageous in that it has a variety of potential benefits to the environment and to permittees.

- Massachusetts should take responsibility for each of the major aspects of a NPDES program, except sludge. The group was divided on the benefit of a State sludge program.

- A well-run State NPDES program designed to provide environmental benefits will require substantial staff. The group could not agree, however, from where the staff should be drawn. Several key stakeholders thought that the State should investigate the possibility of drawing the staff from existing programs (but not necessarily from DEP).

- There was general agreement that the EPA should contribute staff and funds to assist DEP, in part because it was felt that EPA would be off-loading responsibility to the State and that they should pay for that benefit.

- A fee-based program is a potentially beneficial method of funding the program. However, the Task Force did not agree to propose developing fee-enabling legislation without further consideration of other funding mechanisms. They recognized that this approach has some inherent challenges. Even though the per capita cost of a fee for POTWs would be very small, the bill to a large treatment plant would be large enough to generate attention and perhaps opposition. This is particularly true in the context of recent opposition to MWRA fee increases.

- The NPDES Task Force saw benefit to a phased approach for financial and practical reasons. A phased approach would allow transfer of program elements and training of DEP staff. For example, the PCS database is currently maintained by EPA personnel. A phased approach would allow time for transferring data and for training DEP data managers.

6.2 Program funding requirements

The recommended core NPDES program will require between $6,500,000 and $6,900,000, based on the average loaded cost of an FTE supplied by DEP ($89,000). The base program will require approximately 42 new FTEs of DEP staff, or about 16 FTEs above the program currently staffed by EPA and DEP. The required funding also includes $400,000 to $800,000 to fund data and modeling programs for enhance coastal water surveillance, and $600,000 for an ambient freshwater sampling program to pay for sample analysis. To the extent that either of these programs can be alternatively funded, the total needed for the NPDES program could be reduced.

6.3 Fee alternatives

In this report we outlined a series of fee alternatives. We recommend setting maximum fees for industry based on negotiation. For municipal plants we recommend capping the per capita charge rather than capping the total plant fee. Relief could also be given plants with large inflow and infiltration problems. Minimum industry fees should be set to minimize changes from current fees, while minimums for municipal plants should be set to cover basic permit writing activities. As outlined earlier, because the bulk of a flow-based fee would be paid by a small group of municipalities and by six large power plants, we recommend direct negotiations with those potential fee-payers.

7.0 Next Steps

Following are several suggested next steps in building support for a State-run NPDES program:

- Solicit and secure EOEA support for the NPDES delegation effort.
- Initiate discussions with direct dischargers. There are 60 major industrial dischargers in the State that have permits.
- Continue discussions with the MWRA regarding fees to fund the program.
- Meet with the Associated Industries of Massachusetts (AIM) to discuss the effect of a fee-based funding system on businesses of various sizes.
- Initiate discussions with additional POTWs to test the acceptance of a fee that appears large on a plant-by-plant basis, but is, in fact, on the order of $1.00 per person per year.
- Begin discussions with key legislators on strategic committees to educate them about how delegation will benefit the State and their constituencies.

7.1 Roll-out schedule

Month 1
Secure EOEA support

Months 2-3
Roll out to selected permittees, environmental groups, watershed groups.
Revise approach as needed

Months 3-9
Conduct pilot basin studies
Evaluate basin study results
Increase science capability
Revise program as necessary

Months 10-12
Develop delegation package
Negotiate with key stakeholders
Submit delegation package

After program approval
Staff core elements
Phase-in additional elements
Measure results

8.0 References

Massachusetts Department of Environmental Protection, 1994. Summary of Water Quality.

United States Environmental Protection Agency, 1987. Retrofitting POTWs for Phosphorus Removal in the Chesapeake Bay Drainage Basin. Report Number EPA/625/6-87/017.

United States General Accounting Office, 1989. Water Pollution: Improved Monitoring and Enforcement Needed for Toxic Pollutants Entering Sewers.