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## Environmental Management Systems and the Clean Water State Revolving Fund

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### *The Problem*

Public and private enterprises face an increasingly heavy burden of responsibility for the future condition of our environment. Wastewater treatment systems in particular are getting more complex and face numerous environmental challenges, requiring dynamic, top quality environmental management. A systematic method for addressing environmental consequences is often needed – not only for current issues of legal compliance but also to address additional community and environmental concerns. One method of managing environmental impacts has been codified into a series of protocols: environmental management systems (EMS). The EMS method holds particular promise as an information-rich and inclusive framework for addressing environmental issues.

This fact sheet will briefly discuss what an **environmental management system** (EMS) actually is and how the Clean Water State Revolving Fund may be tapped to establish an EMS program.

### *What is an EMS?*

An EMS is a formal set of procedures and policies that define how an organization will manage and reduce its impacts on the environment. The basic elements of an EMS include:

- reviewing the organization's goals;
- analyzing its environmental impacts and legal requirements;
- setting environmental objectives and targets;
- establishing programs to meet objectives and targets;
- monitoring and measuring progress;
- ensuring employee environmental awareness and competence;
- reviewing progress of the EMS and making improvements.

As an integrative process, EMS is a continual cycle that involves planning, implementing, reviewing and improving so that an organization can reduce its environmental impacts.

EMSs are increasingly being developed in conformance with the voluntary International Organization for Standardization (ISO) 14001 standard for EMSs. Over 1300 organizations in the U.S. are attracted to the ISO EMS because it provides a documented, externally verifiable system. Firms adopting an ISO 14001-based EMS can demonstrate due diligence in regulatory compliance, a positive statement of environmental philosophy, and a competitive advantage in public, customer, and business partner relationships. EPA has established a policy of promoting the development of EMSs in key sectors, including wastewater, because the EMS method can help improve overall environmental performance, reduce costs, and bring about improved facility management in many other ways. A number of states are also promoting EMS adoption by various sectors.

Several publicly owned treatment works (POTWs) have been or will shortly be certified to ISO 14001. These include San Diego, CA, Lowell, MA, Charleston, SC, Eugene, OR and Gastonia, NC. Other, more tailored EMS programs are also underway. For example, under the National Biosolids Partnership (NBP), the EPA's Office of Water, along with the Water Environmental Federation (WEF) and the Association of Metropolitan Sewerage Agencies (AMSA), is helping to develop and implement an EMS program tailored to the biosolids industry. EPA, AMSA and WEF are also beginning a project to analyze the feasibility of developing a utility-wide EMS template that would integrate the use of other utility management tools like asset management. More information about the NBP's EMS program can be found on their web site at [www.biosolids.org](http://www.biosolids.org).

### *The Clean Water State Revolving Fund*

The CWSRF programs, in every state and Puerto Rico, work like banks. Federal and state contributions are used to capitalize or set up the programs. These assets, in turn, are used to make low or no-interest loans for important water quality projects. Funds are repaid to the CWSRFs over terms as long as twenty years. Repaid funds are then recycled to fund other water quality projects. Nationally, the CWSRF has in excess of \$34 billion in assets (includes loans already made and funds available to make loans). The CWSRF is funding water quality projects at a rate of more than \$3 billion per year.

Potential incentives for funding CWSRF EMS projects include special recognition, such as acknowledgment on EPA's web site, opportunities to be featured in EPA publications, and participation in information exchanges such as EMS practitioner forums.

### *Benefits in Using Environmental Management Systems for CWSRF Projects*

EMS can help local government entities address their regulatory and non-regulatory issues in a systematic and cost-effective manner. This proactive approach can help reduce the risk of non-compliance and improve health and safety practices for employees and the public. The EMS can also help address non-regulatory issues such as odor management and energy conservation. Implementation of EMS can result in significant energy savings. The EMS can promote stronger operational control and employee stewardship. Local government entities are also using EMSs to manage growth. In addition to the advantages available for local governments, state agencies benefit by extending the coverage of their CWSRF by making more efficient and effective use of their loan funds in achieving water quality benefits.

### *Eligibility for Funding*

The EPA is pursuing a policy of actively promoting the adoption of EMSs. **The Clean Water State Revolving Fund can be used for developing an EMS, provided it is part of the construction,**

**modification or expansion of a POTW.** While CWSRF loan funds can be used to help establish an EMS program in the context of wastewater treatment, CWSRF funds may not be used to maintain or operate the EMS. However, research shows that EMS development costs usually far exceed the costs of implementing the EMS. Again, only EMS development costs are eligible and only those costs can only be funded as part of the construction, modification, or expansion of a POTW. EMS projects are not eligible for loans as a stand alone activity.

### **Learning by Example**

While CWSRF funds were not used to develop and set up the following EMS projects, these projects would have been eligible for funding as part of a POTW construction, expansion or modification.

**The City of Lowell, Massachusetts, Lowell Wastewater Utility** was selected as a project participant in the USEPA EMS Pilot Program for Local Government Entities. The Utility is an activated sludge wastewater treatment facility providing primary and secondary treatment to 170,000 users in five communities. The EMS focused on waste stream management, chemical use management, energy reduction, odor control, and industrial notification. Energy reduction alone resulted in a savings of \$7,000 over a 10-month period. Other benefits include improved communication at all levels of the organization, greater participation in decision making, more creative solutions, employee empowerment, and increased operation efficiencies and better service to customers. These improvements resulted from a rather modest expenditure of about \$42,000. For more information contact Mark Young, (978) 970-4248, e-mail: myoung@ci.lowell.ma.us.

**The Wastewater Division within the City of Eugene, Oregon** has developed an EMS for a 49 million-gallon- per-day regional secondary wastewater treatment plant, a biosolids processing facility, a land application site for irrigation using vegetable cannery wastewater, and 49 local sewage pumping stations. The EMS centers on the Wastewater Division's core responsibilities of protecting health and environment, and clarifies guiding policies, ensures integration of the different functional components of the regional wastewater program to optimize environmental benefits, and helps to establish and maintain an effective documentation system. The EMS objectives target reductions in natural resources consumption, power consumption, non- recyclable wastes, and improvement of the quality of treated wastewater. For more information, contact: Peter Ruffier at (541) 682-8606 or via e-mail at Peter.J.RUFFIER@ci.eugene.or.us

**City of San Diego, California Metropolitan Wastewater Department's Operations and Maintenance Division.** The Department manages a regional sewer system service area of 4,560 square miles serving a population of two million people. Utilizing the ISO 14001 standard, the Division developed and implemented the first ISO-certified EMS for POTWs within the United States. The EMS established four system-wide environmental programs focusing on reductions in energy consumption, chemical usage, solid waste disposal, and potable water use. Successful implementation of the EMS resulted in a reduction of 10% in normalized electrical use by the

North City Reclamation Plant, and reductions of over 8% and 30%, respectively, of their normalized process chemical use for the Point Loma Wastewater Treatment Plant and the Metro Biosolids Center. The EMS has also prepared the Division to effectively respond to other regulatory and wastewater industry standards, like the US EPA's Capacity, Monitoring, Operations, and Maintenance (CMOM) Program requirements and the National Biosolids Partnership's EMS for Biosolids Initiative. For more information contact Chris Toth at (858) 654-4265, e-mail: CJT@sdcity.sannet.gov.

### **Challenges Ahead**

EPA has been encouraging the states to open their CWSRFs to the widest variety of water quality projects, while addressing high priority projects in targeted watersheds. EMSs are one important tool to help this process. Those interested in establishing an EMS (in conjunction with the construction, expansion or upgrade of a wastewater treatment plant) should contact their state for information on the CWSRF application process.

#### **For more information on Environmental Management Systems, please contact:**

The EMS web site (<http://epa.gov/owmitnet/ems.htm>) or Jim Horne at (202) 564-0571 or through email at [home.james@epa.gov](mailto:home.james@epa.gov).

#### **For more information on the CWSRF or for a program representative in your state, please contact:**

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