

Region 1

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

Regional Center Coordinates Assistance and Outreach

New England Interstate Environmental Training Center

Each of EPA's ten regions has been given the opportunity to organize and promote its 104(g)(1) programs in the way that best suits its individual region's needs. One of the unifying aspects of Region 1's program is the New England Interstate Environmental Training Center (NEIETC), located in Lowell, Massachusetts.

EPA Region 1, the six New England states, NEIETC, the New England Water Environment Association, and state operator associations work as a team to identify and meet the training needs of the region's wastewater treatment plant operators. All 104(g)(1) technical assistance providers in Region 1 are state agencies, except for the NEIETC itself.

The NEIETC receives 104(g)(1) funding to provide some on-site technical assistance; however, NEIETC's role is largely as a coordinator of the region's classroom wastewater training programs, as well as 104(g)(1) meetings, technology transfer conferences, and specialized public education projects. In addition to their educational value, these events have enhanced the operators' professional development and sense of pride in their careers.

"This technical assistance program for municipalities has been highly successful in achieving compliance with state and federal water quality goals. Furthermore, our emphasis on technical assistance rather than enforcement has helped us avoid legal conflicts with municipalities and prevent water quality degradation in the first place."

—Robert W. Varney, Commissioner
Department of Environmental Services, State of New Hampshire

Technical assistance and classroom training have made a significant difference in compliance at wastewater treatment plants around the region. For instance, after the program provided technical assistance, operator training, and related services for 10 years, only one Connecticut facility out of 82 was exceeding its discharge limits. Regionwide, 309 wastewater treatment plants were brought into compliance during the program's first 10 years.

Region 1 states and the NEIETC take a lot of pride in these statistics. The 104(g)(1) funding provides training and on-site assistance so that residents of New England can continue to avail themselves of "the carefree flush."

Small Community Faces Up to Treatment Responsibilities

Readsboro WWTP, Vermont

As in many small Vermont communities, there was a feeling in Readsboro that the town's wastewater treatment plant had been foisted upon them by the state. Beyond having an operator at the plant, local officials remained detached from the plant's operation, financing, and especially its problems. That attitude changed in 1990 when Vermont's Department of Environmental Conservation (DEC) alerted the town of impending enforcement action against the neglected treatment facility.

Because of delays in needed sludge removal projects and due to repeated permit violations, the DEC issued Readsboro an assurance of discontinuance. The assurance included an upfront penalty of \$16,000, as well as a list of maintenance and equipment replacement activities that the town would be required to carry out.

Readsboro is a community of just over 400 residents and was not in a position to both fund improvements and repairs to its facility *and* pay the fine. Fortunately, the 104(g)(1) program was able to assist Readsboro by providing both financial management and technical assistance.

Assistance providers worked with Readsboro on budget preparation, recovery of delinquent accounts, facility staffing issues, and implementation of a new connection fee. As a result of this 104(g)(1) assistance, staffing was increased at the facility, the O&M budget increased from \$32,000 to \$50,000 per year, a contingency fund was established, and delinquent user fees dropped from 18 percent to

one percent. In addition, Vermont's DEC agreed that the fine money owed by Readsboro could be applied to the required plant improvements rather than going to the state's general fund.

A 104(g)(1) technical assistance provider from the DEC then assisted the facility in a long-neglected lagoon sludge cleanout project, an electricity-saving retrofit and upgrade of the aeration system, and installation of needed equipment. Before these alterations the Readsboro plant was experiencing monthly biochemical oxygen demand violations, as well as regular violations of total suspended solids limits and pH violations. No violations occurred in the year following the 104(g)(1) on-site assistance.

The dramatic alteration of attitude and operation at the Readsboro WWTP won it second place in EPA's Most Improved Plant Award category for 1993.



The backview of the Richmond Cheese Company factory showing the 25,000 gallon equalization tank and blower/sampler building, installed as a result of permit change and an order coming out of the 104(g)(1) assistance project, which imposed hourly BOD limits to force equalization of the plant's loading.

Industrial Waste Complicates Treatment Needs

Richmond WWTP, Vermont

Richmond is a small town that borders the western slopes of Vermont’s Green Mountains. It is located on the edge of the rapidly growing greater Burlington area. Increasing population, however, was not the key to the problems



A dissolved oxygen probe in the aeration tank controls the mechanical aerator at Richmond WWTP.

plaguing Richmond’s WWTP in the early 1990s. In addition to residential waste, the facility had to deal with the unique problems associated with industrial waste from a local cheese factory.

In 1992, the Richmond facility was in significant non-compliance for exceeding its wastewater discharge permit limits for biochemical oxygen demand for three quarters in a row. Furthermore, the facility reported a number of total suspended solids and fecal coliform violations. In the 17 months prior to technical assistance there had been 10 violations of the monthly average effluent biochemical oxygen demand limit. Describing the plant as a facility in “desperate need” of assistance, officials from the state’s permits and compli-

ance division contacted Paul Olander, a 104(g)(1) technical assistance provider with Vermont’s Department of Environmental Conservation, to assess Richmond’s problems.

“Having just completed work with another municipality and a dairy pretreater, I suspected, as did the Richmond Chief Operator, that the organic loading from Richmond Cheese, some 60–80 percent of the total plant load, was the major impact here. I also saw that this 20 year old plant was understaffed...and was suffering from neglect,” Olander reported of his initial assessment.

The number of reportable discharge permit violations dropped from 60 in 1992–1993 to only one violation in 1996.

The plant had a variety of difficulties which were addressed through the program— financial management, process control, solids management, and maintenance. The technical assistance included work on continuous dissolved oxygen monitoring of aerators,



Dennis Bryer and Paul Olander of VTDEC installing the original mid-tank clarifier baffles. Dennis is mounting cleats on the wall, and Paul is checking the gas detector (clarifiers are confined spaces).

return sludge flow control, staffing, dechlorination, and clarifier mid-tank baffle installation. In addition, the 104(g)(1) trainer worked with Richmond Cheese and with Vermont's discharge permits section to change the dairy's permit to require and implement more effective load equalization.

“These are positive, self-help programs that foster municipal responsibility, promote compliance and increase facility longevity. These are the kinds of programs that will maintain the nation's investment in the 15,000 municipal wastewater facilities constructed in the last thirty years.”

—Christine Thompson, Chief, O&M Section
Department of Environmental Conservation
Agency of Natural Resources, State of Vermont,
describing the 104(g)(1) program

Results from the 104(g)(1) assistance to Richmond have been spectacular. The number of reportable discharge permit violations dropped from 60 in 1992–1993 to only one violation in 1996. The 104(g)(1) assistance fostered community cooperation and enhanced the relationship between the treatment facility and the cheese factory. The Richmond WWTP was the national winner of EPA's 1997 Most Improved Plant award.

Problems at Plant Threaten Fishing Industry

Stonington Sanitary District, Maine

The Stonington Sanitary District system, located in Maine's Penobscot Bay, is a primary treatment facility which discharges to marine waters that support a significant commercial fishing industry. In addition, the area supports some tourist industry. In 1995, local officials and inspectors were concerned with the Stonington Sanitary District's inconsistent fecal coliform test results.

To maintain low bacteria counts, chlorine dosages had to be very high, resulting in very high dosages of the dechlorination agent and imposing a financial burden on the District. There were also some mechanical problems in the system that controlled the chlorine dosing pumps. Thus, at times, the effluent was over-chlorinated, and at other times there was no disinfection of the effluent.

Because of 104(g)(1) assistance, the Stonington Sanitary District is saving approximately \$1,000 a year in reduced chlorine and dechlorination chemical costs.

Richard Darling, a 104(g)(1) technical assistance provider with the Maine Department of Environmental Protection, found that the treated effluent was being contaminated from a dripping pipe. The system's vent pipes were fitted with risers to prevent this contamination. He recommended replacing faulty baffles, cleaning the chlorine contact chamber more frequently, and altering the method used to pace the chlorine pumps.



As a result of 104(g)(1) assistance, the Stonington facility is no longer experiencing the frequent and alarming violations of fecal coliform limits. Instead, the facility shows more consistent compliance with few violations. In addition, the District is saving approximately \$1,000 a year in reduced chlorine and dechlorination chemical costs.

Program Assists Town With New Technology

Mars Hill Utility District WWTP, Maine

While many 104(g)(1) projects are initiated in reaction to severe non-compliance or other problems at a facility, sometimes the 104(g)(1) assistance is more *proactive*. Technical assistance can provide the help needed for successful transition to more advanced treatment or other alterations that a small community might find it needs to implement. This was true of the 104(g)(1) work at Mars Hill, Maine.

For approximately the first 25 years of its operation, the wastewater treatment plant at Mars Hill provided only primary treatment. It became apparent in the late 1980s, however, that despite the best efforts of its operators, the aging plant was unable to meet the increasingly stringent water quality requirements set by the state.

To meet the need for more advanced treatment options, Maine's Department of Environmental Protection had spent years studying lagoon systems and refining how they work in Maine, where weather and flow conditions vary seasonally. When the Mars Hill Utility District chose to build an aerated lagoon system for secondary treatment, 104(g)(1) technical assistance providers with Maine's DEP understood the technology well, having already worked with such systems in many towns in the state.

A 104(g)(1) technical assistance provider who was particularly experienced in the operation of such systems helped with the planning and start-up of the plant, including assistance with chlorination, flow monitoring, and general lagoon operation. "Having [the 104(g)(1)] assistance during the licensing and start-up of our plant helped us make the major switch from primary to secondary treatment," wrote officials from Mars Hill, in their description of the project.

Widely varying seasonal flows are a big problem for Maine's wastewater treatment plants. For instance, flows are low (around 0.1 million gallons per day) in the summer and extremely high during the springtime melts (as high as 1.6 million gallons per day). "Having an experienced lagoon operator as our DEP regional contact has been very helpful to us dealing with these seasonal changes," Mars Hill officials wrote. "His experience at other lagoon plants as an operator and inspector gave him knowledge that he passed on to us. As we learned more about lagoons and their peculiarities, having [him] to answer our questions or respond to our ideas helped us make sure the plant ran without any violations."

The lagoon system was started up in 1993. The plant's remarkably smooth transition to secondary treatment, and the enthusiastic work of all those involved, won the Mars Hill Utility District the EPA Most Improved Plant Award in 1998.

Ongoing Relationship Provides Valuable Support

Sunapee WWTP, New Hampshire

Wastewater treatment is seldom static—after operators learn to deal with one problem, they can be fairly certain that a different challenge is just around the corner. For this reason, an ongoing, supportive relationship with 104(g)(1) trainers is a real bonus in helping operators to successfully “roll with the punches.”

For instance, during the first half of the 1990s, operators at the Sunapee WWTP were faced with upgrades to their facility, a more stringent NPDES permit, changes in personnel and personnel responsibilities, periodic compliance problems, and equipment problems. The facility, located in southern New Hampshire, relied heavily on assistance from 104(g)(1) trainers to overcome these challenges.

“The support, encouragement, and technical assistance provided by the trainer has given the operators the ability to handle the unique problems of Sunapee. The EPA 104(g)(1) Program has given the operators increased confidence, professional approach, and [positive] attitude toward their positions,” the chief operator of Sunapee wrote in his description of the plant's history.

In 1989, when Sunapee operators noted that their influent contained elevated levels of oil and grease, 104(g)(1) trainers from the New

Hampshire Department of Environmental Services advised them how to raise community awareness about laws governing proper disposal. Then, in 1990, Sunapee began having filamentous bacteria problems, resulting in bulking problems. The 104(g)(1) trainer helped the operators identify the type of filament present and helped network New Hampshire facilities to share techniques for troubleshooting filamentous problems. When Sunapee's new NPDES permit required more tests and the system began to struggle with toxicity levels, 104(g)(1) trainers worked closely with the operators to evaluate and solve the problem.

With guidance from the 104(g)(1) program and because of its successful management of these and other challenges, Sunapee won EPA's Most Improved Plant Award in 1996.

State and Local Partnerships Help Plant Meet Challenges

Block Island WWTP, Rhode Island

The Block Island WWTP project offers an example of the way that 104(g)(1) projects often enhance partnerships between regulatory agencies and local governments. In 1994, the Rhode Island Department of Environmental Management (DEM) and the New Shoreham Sewer Commission determined that seasonal demands on the Block Island WWTP had exceeded normal operating parameters beyond acceptable limits. The facility was plagued with rising operating costs, discharge violations, and odor complaints. Both the commission and the DEM recognized that without a proactive position, the town would be facing enforcement actions in response to the non-compliance.

The resulting 104(g)(1) technical assistance project was a model of state and local cooperation. State trainers coordinated with plant operators and the town's consultant to pinpoint specific technical and training needs. Upgrades were planned and designs drawn up. With the town's eagerness evident, the state reorganized its priority list of projects to be funded, enabling New Shoreham to start work quickly.

Just as construction was being completed, the community found itself facing another challenge. The plant operator left for another job in a less demanding environment than Block Island, and a new, less experienced operator was handed the reins. On-site technical assistance funded through the 104(g)(1) training program provided the young staff with much-needed support. The state helped the operators maintain compliance during the final construction phase and provided the technical fundamentals necessary to coordinate with the town's consultant, construction crews, and regulators.

Continued visits by state trainers and state-subsidized classroom training provided critical information after construction, and each training session provided the operators with motivation as well as information. The DEM encouraged the town to supply its operators with a microscope, and the 104(g)(1) training showed the new operators not only how to use their new equipment, but also how laboratory testing and microscopic examination can improve process control.

Importantly, the 104(g)(1) training helped operators implement new safety protocols. One of DEM's biggest concerns was maintenance of the new and old equipment, and training on maintenance programs resulted in

a first-rate maintenance plan that since its inception has kept the facility in top shape.

Thanks to training and encouragement provided by the 104(g)(1) program, the town's non-compliance issues are over, the staff has been well trained, and neighbors and tourists no longer complain about the smell. In 1994, the Block Island WWTP won an EPA O&M award for Most Improved Plant. The 104(g)(1) technical assistance provider, Bill Patenaude, also won EPA's Trainer of the Year for his work at the Block Island facility.

“Rhode Island DEM has long valued pre-emptive efforts to prevent pollution through technical assistance rather than respond to problems after the fact. The federal 104(g)[1] program is crucial for our work in helping local communities be on the cutting edge of wastewater treatment.”

—Jan Reitsma, Director,
Rhode Island Department of Environmental Management

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