



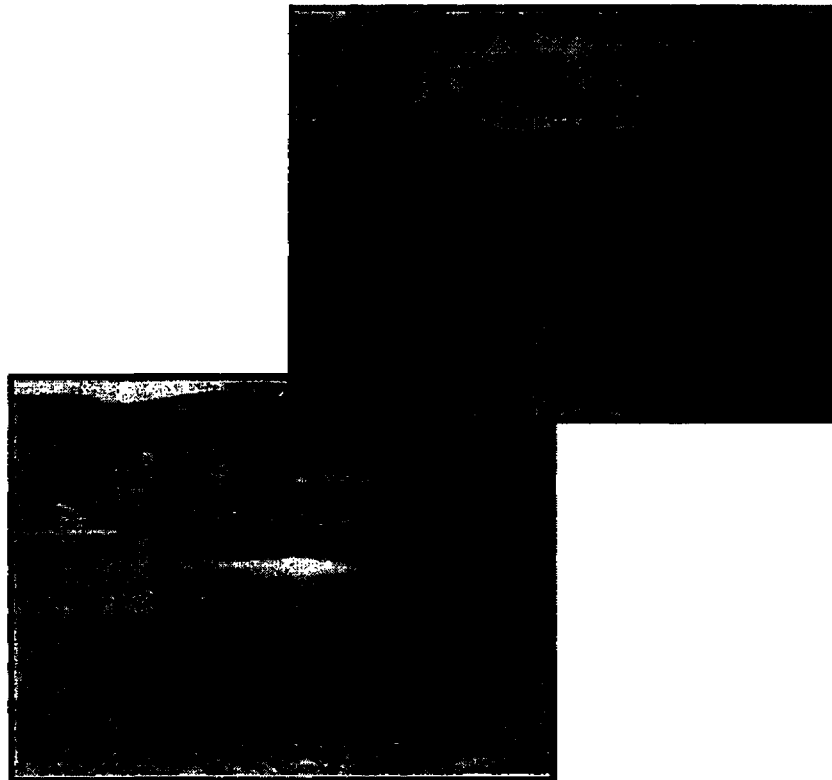
United States
Environmental Protection
Agency

Office Of
Water
(4204)

EPA-832-R-00-004
April 2000

**Wastewater Treatment Plant
Operator On-Site
Technical Assistance
Training Program - 104(g)(1)**

**End of Year 1999
Accomplishment Report**



EPA
832-
R-
00-004

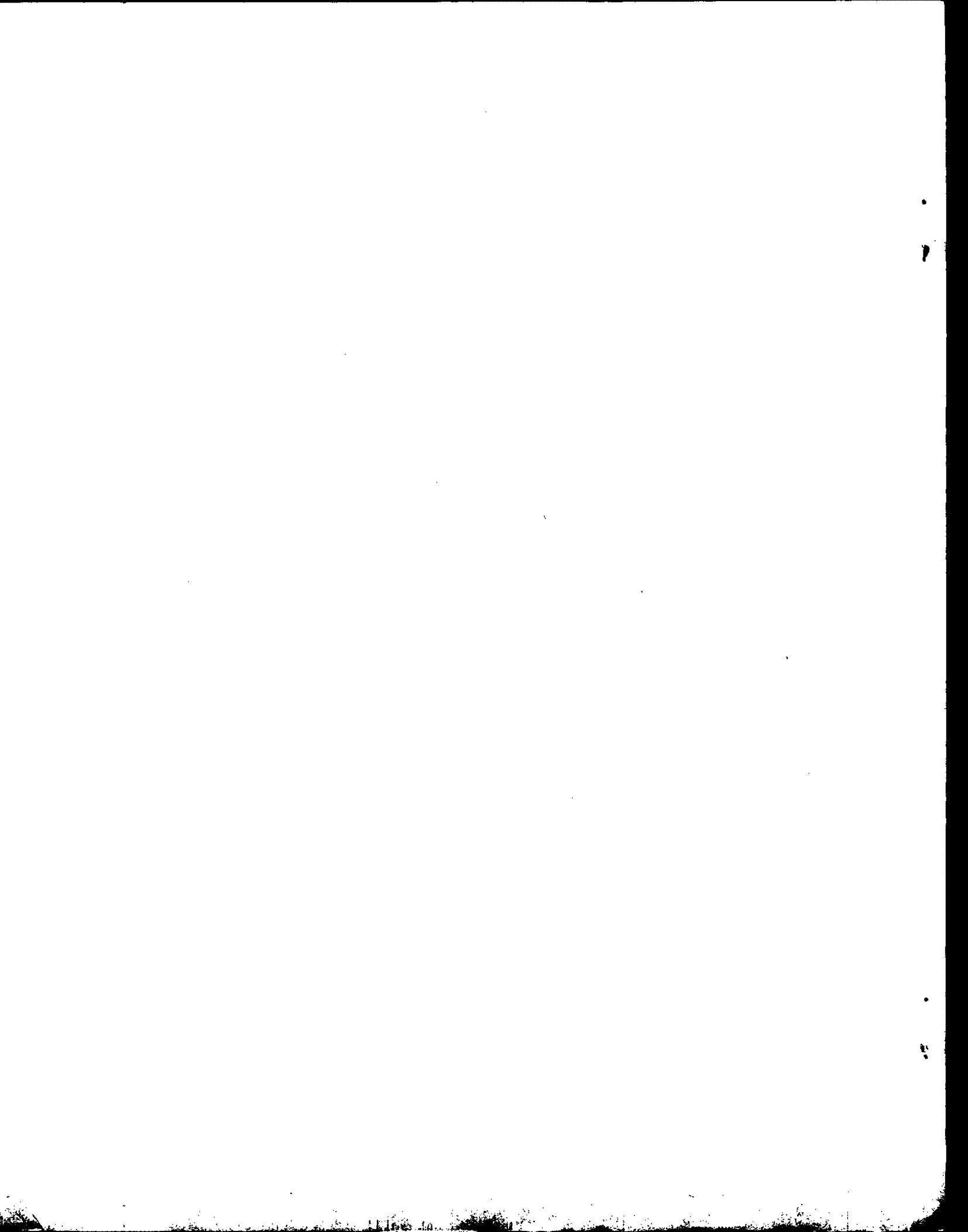


Table of Contents

Program Background.....	pg. 2-3
Recent Programmatic Achievements.....	pg. 3-5
Success Stories.....	pg. 5-9
Future.....	pg. 10
Regional Office 104(g)(1) Coordinators.....	pg. 11
Table B - Number of Facilities that have Completed Training Assistance.....	pg. 12
Table C - Number of Facilities that are Continuing Training Assistance.....	pg. 12
Appendix "A" Definitions of the following terms: achieved compliance, maintained compliance, improved performance, and no improvement; under the sub-categories of training assistance completed and training assistance continuing.....	pg. 13

WASTEWATER OPERATOR TRAINING PROGRAM - 104(g)

Section 104(g)(1) of the 1982 Clean Water Act authorizes funding for the Wastewater Treatment Plant Operator On-Site Technical Assistance Training Program. Assistance is provide to small, publicly-owned wastewater treatment with effluent discharges of less than 5 million gallons per day. The program was implemented to provide on-site technical assistance to wastewater treatment plants struggling with compliance and performance issues. The assistance efforts of the program helps to protect human health, improves water quality, and safeguards capital expenditure investments and upgrades at these treatment plants. Federal funding for the program is administered through grants to States, often in cooperation with educational institutions or non-profit agencies. In most cases, assistance is administered by an environmental training center.

The facilities the program assists each fiscal year fall into two different categories, those that have completed training, and those at which training is continuing. Completed training is defined as the assistance work at the facility has produced the desired result, and assistance is longer needed at that time. Continued training is defined as the facility requires further aid, and support will continue until the fulfillment of the desired result. In fiscal year 1999 the program:

- **Assisted 988 facilities;**
- **Achieved or maintained compliance, or improved performance at 915 of these facilities, a 92.6% success rate;**
- ★ **Completed training at 445 of these facilities; and**
- ★ **Achieved or maintained compliance, or improved performance at 427 of the 445 above-mentioned facilities, a 96% success rate.**

Program Background:

The need for individualized technical assistance is real. There are over 12,500 municipal wastewater treatment plants that discharge less than 1 million gallons per day operating in this country. Over half of these plants have sophisticated activated sludge treatment technologies which require highly-developed operating skills. Operator turn-over rates at small wastewater treatment plants are high, budgets and salaries are low, and community support may be lacking. These are the ingredients for wastewater treatment plant failure/non-compliance. These types of small community wastewater treatment plants are candidates for the Wastewater Treatment Plant Operator On-Site Technical Assistance Training Program.

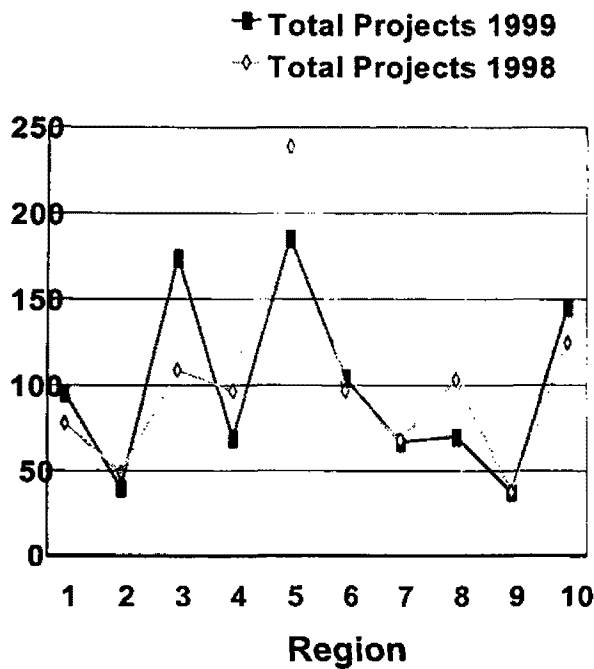
The goal of the program is to provide direct on-site assistance to operators at small community wastewater treatment facilities, to help the facility achieve and maintain consistent permit compliance. Consistent permit compliance maximizes the community's investment in improved water quality. The program is a cooperative effort with EPA regional office coordinators, states, state training centers, municipalities, Indian tribes, and operators. Assistance focuses on issues such as wastewater treatment plant capacity, operation training, maintenance, administrative management, financial management, trouble-shooting, and laboratory operations. These organizations work in tandem with compliance and enforcement programs to improve water quality throughout the United States. There is no cost incurred by the facility in need of assistance. The only requirement of the program is the willingness to work with a trainer to correct the facility's problems.

The program also helps identify any need to repair or build new facilities to meet existing or future permit limits, assists the town during the process of selecting consultants and design review, recommends ways to improve preventive maintenance of equipment and structures, and often reduces energy and chemical costs through more efficient operation techniques. Most importantly, the program gets plant operating staff and local elected officials working together on the problems at the treatment plant, to improve water quality through efficient use of treatment equipment for maximum environmental benefit.

Congress appropriated \$1.794 million for the Operator Training Program in fiscal year 1999. In some cases, federal funds act as "seed money" for the program training centers to access additional funds for providing assistance. However, in other instances the only addition to the 104(g) allotment is the required 25% match from the grantee. Funding levels for this program have remained relatively constant over the past six years.

Recent Programmatic Achievements:

The Wastewater Treatment Plant Operator On-Site Technical Assistance Training Program, through the EPA Regional Offices and state partners, assisted 988 facilities throughout fiscal year 1999. Compliance was achieved, maintained, or performance was improved at 915 (92.6%) of these facilities. Comparatively, in fiscal year 1998, the Program assisted 999 facilities. Compliance was achieved, maintained, or performance was improved at 890 of these facilities. Although the overall number of assisted facilities decreased by 11, the number of facilities that achieved or maintained compliance, or improved performance grew by 25, a 3% increase. A summary of achievements by EPA Region is detailed in Tables A, B, and C on pages 4 and 12 respectively.



The majority of the work that was conducted in the program for fiscal year 1999 consisted of assisting facilities to achieve compliance and improve performance. Facilities that completed training activities in fiscal year 1999 needed the most assistance in achieving compliance at the treatment plant site. The facilities that continued training activities from fiscal year 1999 into fiscal year 2000 needed assistance mainly in the area of improving performance at the treatment plant location. See Tables B and C on page 12 for more details. This pattern is the same as in fiscal year 1998.

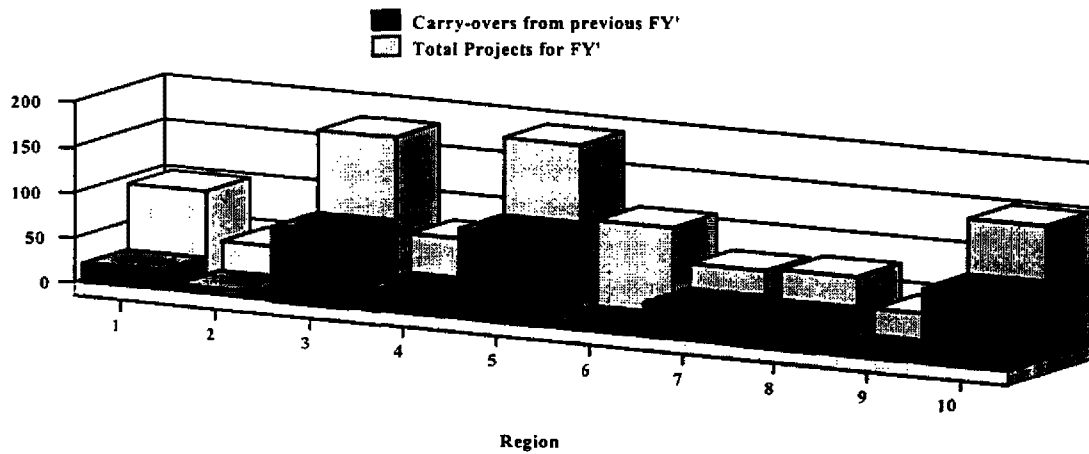
Total Number of Facilities Assisted in Each Region for Fiscal Year 1999
"TABLE A"

REGION	1	2	3	4	5	6	7	8	9	10	TOTAL
NO. OF FACILITIES ASSISTED FY-99	95	40	175	69	186	104	66	70	37	146	988

A total of 445 facilities completed training in fiscal year 1999, 427 of which achieved or maintained compliance, or improved performance, a 96% success rate. One hundred and seventy four (174) of these facilities have achieved compliance, 131 maintained compliance, and 122 facilities improved plant performance (preventative maintenance). Eighteen facilities had no improvement, and have decided to try and achieve compliance at their wastewater treatment plants through alternative methods. For a more detailed explanation see Table B on page 12.

A total of 543 facilities are continuing training from fiscal year 1999 into fiscal year 2000; 91 of these facilities have achieved compliance, 66 maintained compliance, and 331 facilities improved performance. Fifty-five facilities have had no improved performance, but are still being trained by a program training center. These facilities have decided to continue to work with the program to achieve compliance at their wastewater treatment plant. For a more detailed explanation see Table C on page 12.

New Projects (vs.) Carry-Overs for FY 1999



Of the facilities assisted in fiscal year 1999, 578 of them were not assisted in fiscal year 1998, while 410 were “carry-overs” from fiscal year 1998.

Success Stories:

HOT SULPHUR SPRINGS, COLORADO

The cover photograph on the lower left-hand side of this document is Hot Sulphur Springs Wastewater Treatment Plant located in Hot Sulphur Springs, Colorado - Region VIII. This facility was assisted by representatives from the Red Rocks Community College 104(g) Environmental Training Center.

The Hot Sulphur Springs facility is an aerated lagoon system designed to handle 0.09 million gallon per day, and receives approximately 0.03 million gallons per day of influent flow. The facility was having problems with compliance on a seasonal basis. The town has 412 residents and is located in the northwestern mountains of Colorado. A comprehensive performance evaluation at the facility was conducted by the Red Rocks training center, the evaluation indicated infiltration and influent flow meter problems. A sludge profile was also performed, and a significant volume of sludge build-up was found in the facility's lagoons. It was also discovered that excessive algae and duckweed growth was adding to the facility's problems.

The town's 16,8500 feet of collection system lines were televised, 75 minor problems were identified and are being corrected on a priority basis. Furthermore, a new influent meter was installed at the facility, and the sludge build-up issue will be addressed in the town's budget for fiscal year 2000.

As a result of the 104(g) program's assistance, the town is now in compliance. Furthermore, the completion of the above-mentioned action items should eliminate the Hot Sulphur Springs Wastewater Treatment Plant's seasonal non-compliance problems and put the facility on the path of long-term compliance.

ARGUSVILLE, NORTH DAKOTA

The Argusville Wastewater Treatment Plant is located in the City of Argusville, North Dakota - Region VIII. The 104(g) trainer from the North Dakota Department of Health assisted this facility.

The City of Argusville has a population of 161 people and is located in the eastern part of the State. The city is served by a three-cell 0.02 million gallon per day wastewater stabilization pond. As you can see the from the picture below, the facility's wastewater stabilization pond was overflowing. As a result of this unauthorized discharge, the facility was under a consent agreement with the North Dakota Department of Health.



Overflowing lagoon at the Argusville North Dakota Wastewater Treatment Plant.

In the fall of 1998 the 104(g) representative from the North Dakota Department of Health met with Argusville's new wastewater treatment plant superintendent to discuss proper wastewater treatment and to evaluate the facility. Since the 104(g) trainer's visit, the wastewater stabilization pond has been reworked, a new cell has been added to the stabilization pond, a lift station has been built, the consent agreement has been closed, and the plant operator has become properly certified.

SAGUACHE, COLORADO

The cover photograph on the upper right-hand side of this document is the Saguache Wastewater Treatment facility, located in Saguache, Colorado - Region VIII. The facility was assisted by representatives from the Red Rocks Community College 104(g) Environmental Training Center.

The Saguache facility is located in the San Luis Valley in the south central mountains of Colorado and is surrounded by mountain peaks. Saguache is hit by spring snow melt run-off every year. The facility had numerous compliance violations, some of which were related to the seasonal run-off issue. The facility is one of the last remaining facultative lagoon systems in the State, has a design flow of 0.15 million gallons per day, receives an annual flow of 0.105 million gallons per day, and seasonal peak flows of 0.25 million gallons per day (167% greater than the design capacity flow).

A comprehensive performance evaluation of the facility indicated infiltration problems, as well as general operational control problems and sampling errors. There were also problems with excessive weed growth in and around the lagoons, and chlorine contact chamber short-circuiting.

A composite correction program was developed and implemented to address these problems. Training was conducted for proper sampling procedures and general maintenance, such as weed removal in and around the lagoons and repair of the chlorine contact chamber. A chlorine leak was discovered and repaired, and an on going program to address excessive infiltration was instituted. *The composite correction program produced a reduction of 17% in effluent BOD, 56% in effluent TSS, and a 13% reduction in fecal coliform, all numbers being below the facility's NPDES permit discharge limits.* Effluent flow continues to be a problem on a season basis.

SAINT JAMES, MISSOURI

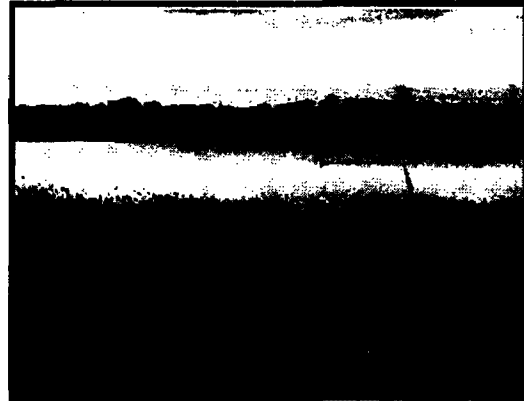
The Saint James Missouri Wastewater Treatment facility - Region VII, is an activated sludge plant with two oxidation ditches. The facility received assistance from the 104(g) Environmental Resource Center at Missouri's Crowder College.

The Saint James Wastewater Treatment facility operator requested training in proper process control and sludge wasting procedures. Michael Jefferson, 104(g) trainer at Missouri's Crowder College, recommended alterations in operation, resulting in a 56% reduction in the facility's solid waste handling. Prior to the adjustments made to the facility, 400 loads of solid waste per year were hauled to disposal sites. Now approximately 175 loads per year are hauled to disposal sites. The plant is now saving several thousand dollars per year in labor and equipment costs.

PORTAL, NORTH DAKOTA

The City of Portal North Dakota's wastewater needs are served by a 0.0348 million gallon per day, two-cell wastewater stabilization pond system that discharges to a constructed wetland system. In September of 1998 the new superintendent of the Portal Wastewater Treatment Facility requested that North Dakota's 104(g) Program trainer assist him in how to properly operate the treatment facility.

Portal is a very small community of 192 people located in northwestern North Dakota near the United States and Canadian border. The Portal facility had fallen into disrepair. Furthermore, very unexpectedly the treatment facility found itself without their old operator, and with a new operator with very little experience.



Constructed wetlands area at the Portal - North Dakota Wastewater Treatment Plant.

As a result of the program trainer's visit, the facility is back on track and running very smoothly. The operator has become properly certified, and has even established a constructed wetland system into which the discharge flows. The constructed wetland not only provides excellent treatment for wastewater, but also furnishes the local wildlife with an important natural habitat.

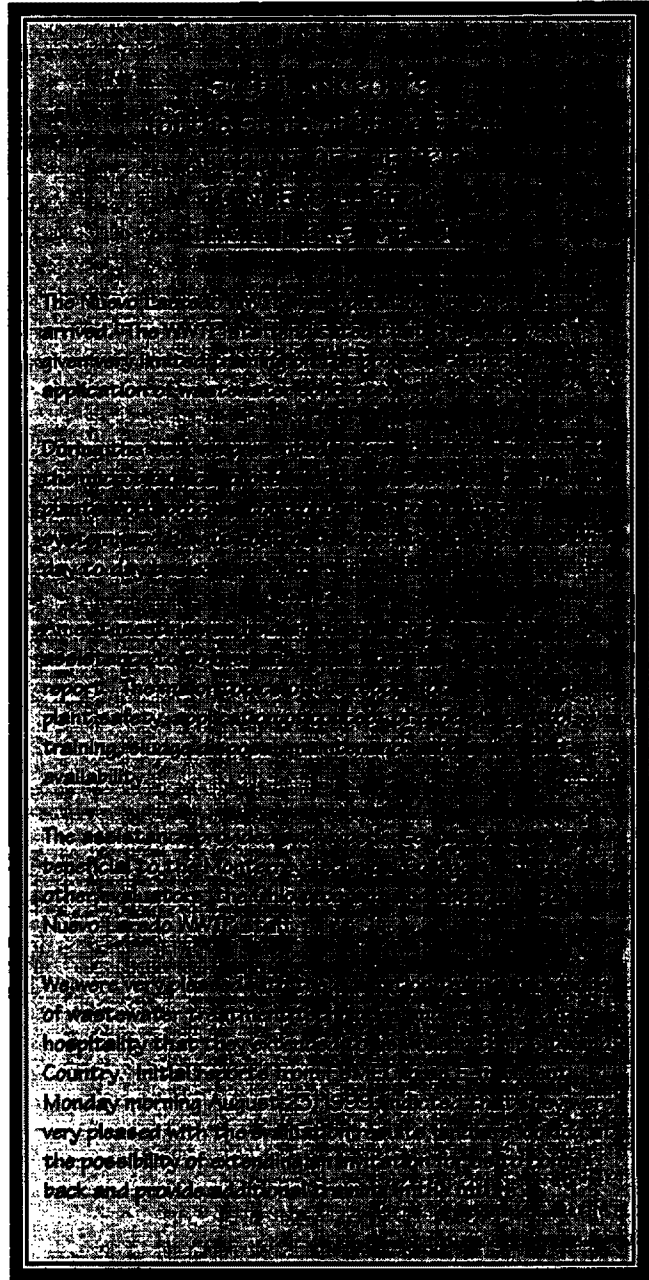
The State of Ohio's Environmental Protection Agency - Region V Technical Assistance Training Trip Nuevo Laredo, Tamaulipas, Mexico

Scott Ankrom and Jim Borton, the 104(g) trainers with the Ohio EPA, traveled to Nuevo Laredo, Tamaulipas, Mexico the week of August 16 - 20, 1999 to participate in a joint Mexican/United States Comprehensive Performance Evaluation (CPE) of the Nuevo Laredo, Mexico WWTP. Participants in the evaluation included representatives for both the Mexican and U.S. Sections of the International Boundary and Water Commission (IBWC), Nuevo Laredo WWTP operator and personnel, and two professors from the Monterrey Technical College who were working under a grant from Fundacion Mexico eua para la Ciencia (FUMEC) to develop this program. Funding for the entire program and evaluation, including the 104(g) trainer's expenses were covered by FUMEC.

The Ohio 104(g) program was involved because of its reputation as one of the leaders in the country for performing WWTP evaluations, and for training and trouble shooting WWTP problems. The recommendation to involve the Ohio 104(g) program was made by an individual at Texas A&M University who had learned about the Ohio 104(g) program through U.S. EPA and from a presentation that the Ohio 104(g) program gave at the National 104(g) Conference last year.

Ohio's role in this evaluation was to train the individuals from the Monterrey Technical College on how to perform WWTP CPE's, utilize training and trouble shooting techniques so that they can develop a program in Mexico similar to the Ohio EPA's 104(g) compliance assistance program. However, Ohio wound up taking the lead on the project due to their experience (at the request of the other evaluators), to insure that the WWTP received a through and complete evaluation.

Currently, only the major cities in Mexico have secondary WWTPs and many of them are along the Mexican/U.S. border. Many of Mexico's plants along the border were partially funded by U.S. dollars. However, smaller plants are starting to be built throughout the country, and such a program could be used to make sure that proper training and assistance is provided to smaller facilities.



"The plant staff and other members of the team were very eager to learn as much as possible about wastewater treatment and ways to optimize the operation of their plant. If operators in Ohio were as interested and as eager to learn our jobs would be a lot easier!"

- Scott Ankrom, Ohio EPA

Because of the work done by the 104(g) program trainers, the above-mentioned treatment facilities were able to realize a tremendous cost savings. These are just a few examples of the value of the Wastewater Treatment Plant Operator On-Site Technical Assistance Training Program -104(g)(1).

Future:

- Continue to work with EPA Regional Offices and state partners to improve water quality through the 104(g) program's assistance efforts;
- Working with EPA's Regional Offices on tracking pollutant reduction amounts through the creation of a national assistance Lotus Approach database, to exhibit outcome based environmental benefits of the 104(g) Program's assistance efforts; and
- The Office of Water's Indian Strategy, which was issued in December of 1998, states several program objectives regarding wastewater issues: 1) By the year 2005, EPA has committed to reduce the number of homes in Indian country with inadequate wastewater sanitation systems by twenty-five percent (25%). 2) The strategy also discusses the need to increase coordination with other Federal and State agencies and organizations to provide support to Tribes to develop their financial management and operational capacity to operate wastewater systems successfully. Through section 104(g) of the CWA, a Tribal training center will be established to provide no-cost, direct on-site training and technical assistance to small, under-served Tribal wastewater treatment facilities. Regions will work with Tribal colleges, institutes, and organizations to consider the establishment of a Tribal training center to address Tribal wastewater concerns. Proposal have been received and evaluated. A candidate will be chosen to establish this center and the grant will be made to that grantee in fiscal year 2000.

If you have any question, comments, or require more information on this subject matter please do not hesitate to contact Curt Baranowski at 202-260-5806, or you may access this Program's Internet web-page at www.epa.gov/owm/tomm.htm.

Regional Office 104(g) Coordinators

- **David Chin**
REGION I {CT, ME, MA, NH, RI, and VT}
John F. Kennedy Federal Building
1 Congress Street
Boston, MA 02114

Office of Ecosystem Protection /
Municipal Assistance Unit
Telephone: 617-918-1764
Fax: 617-918-2064
E-mail: chin.david@epa.gov
- **John Mello**
REGION II {NJ, NY, PR, AND VI}
290 Broadway
New York, NY 10007-1866

Division of Environmental Planning
and Protection
Telephone: 212-637-3836
Fax: 212-637-3891
E-mail: mello.john@epa.gov
- **James Kern**
REGION III {DE, DC, MD, PA, VA, and WV}
1650 Arch Street (3WP23)
Philadelphia, PA 19106

Water Management Division
Telephone: 215-814-5788
Fax: 215-814-2318
E-mail: kern.jim@epa.gov
- **James Adcock**
REGION IV {AL, FL, GA, KY, MS, NC, SC, and TN}
61 Forsyth Street
Atlanta, GA 30303

Municipal Facilities Branch
Telephone: 404-562-9248
Fax: 404-562-9224
E-mail: adcock.james@epa.gov
- **Russell Martin**
REGION V {IL, IN, MI, MN, OH, and WI}
77 West Jackson Boulevard (WN-16J)
Chicago, IL 60604-3590

NPDES Support/Technical Assistance Branch
Telephone: 312-886-0268
Fax: 312-886-0168
E-mail: martin.russell@epa.gov
- **Bill Black**
REGION VI {AR, LA, NM, OK, and TX}
Fountain Place 12th Floor, Suite 1200
1445 Ross Avenue
Dallas, TX 75202-2733

Water Management Division
Telephone: 214-665-7168
Fax: 214-665-6490
E-mail: black.billy@epa.gov
- **Rao Surampalli**
REGION VII {IA, KS, MO, and NE}
901 North 5th Street
Kansas City, KS 66101

Wastewater Management Division
Telephone: 913-551-7453
Fax: 913-551-7765
E-mail: surampalli.rao@epa.gov
- **Pauline Afshar**
REGION VIII {CO, MT, ND, SD, UT, and WY}
999 18th Street
Suite 500
Denver, CO 80202-2466

Office of Partnerships and Regulatory Assistance
Telephone: 303-312-6267
Fax: 303-312-6131
E-mail: afshar.pauline@epa.gov
- **Helen McKinley**
REGION IX {AZ, CA, HI, NV, AS, GU}
75 Hawthorne Street WTR-6
San Francisco, CA 94105

Water Management Division
Telephone: 415-744-1943
Fax: 415-744-1078
E-mail: mckinley.helen@epa.gov
- **Terry Moan**
REGION X {AK, ID, OR, and WA}
1200 Sixth Avenue
Seattle, Washington 98101

Water Division-Financial Assistance Section
Telephone: 206-553-1837
Fax: 206-553-1280
E-mail: moan.terry@epa.gov

Fiscal Year 1999, COMPLETED Training Assistance / "TABLE-B"

REGION	NUMBER OF FACILITIES THAT HAVE ACHIEVED COMPLIANCE ⁽¹⁾	NUMBER OF FACILITIES THAT HAVE MAINTAINED COMPLIANCE ⁽²⁾	NUMBER OF FACILITIES THAT HAVE IMPROVED PERFORMANCE ⁽³⁾	NUMBER OF FACILITIES THAT HAVE HAD NO IMPROVEMENT ⁽⁴⁾	TOTALS
1	16	31	1	0	48
2	4	4	4	0	12
3	35	6	31	5	77
4	7	2	20	2	31
5	32	54	26	3	115
6	11	17	3	3	34
7	16	5	5	4	30
8	14	10	13	1	38
9	5	0	1	0	6
10	34	2	18	0	54
TOTALS	174	131	122	18	445

Fiscal Year 1999, CONTINUING Training Assistance / "TABLE-C"

REGION	NUMBER OF FACILITIES THAT HAVE ACHIEVED COMPLIANCE ⁽⁵⁾	NUMBER OF FACILITIES THAT HAVE MAINTAINED COMPLIANCE ⁽⁶⁾	NUMBER OF FACILITIES THAT HAVE IMPROVED PERFORMANCE ⁽⁷⁾	NUMBER OF FACILITIES THAT HAVE HAD NO IMPROVEMENT ⁽⁸⁾	TOTALS
1	15	17	14	1	47
2	4	18	4	2	28
3	7	2	87	2	98
4	7	0	28	3	38
5	22	10	32	7	71
6	19	3	33	15	70
7	4	1	19	12	36
8	4	2	19	7	32
9	6	10	13	2	31
10	3	3	82	4	92
TOTALS	91	66	331	55	543

See APPENDIX "A" for an explanation of foot notes 1 through 8.

APPENDIX "A"

1. Achieved Compliance starts with the facility out of compliance with its NPDES permit at the beginning of the compliance assistance. After the facility has completed its assistance, the facility was in compliance with its NPDES permit. In order to be rated as achieved compliance at the end of assistance, the facility needs to be in compliance with all elements of its NPDES permit for three consecutive months.

2. Maintained Compliance starts with the facility in compliance with its NPDES permit at the beginning of the compliance assistance. However, the facility is demonstrating performance problems which could lead to non-compliance with its NPDES permit. After the facility completed its assistance, the facility has halted any further deterioration in performance, improved its performance, and continued to stay in compliance with its NPDES permit. The underlying theme with compliance maintenance facilities is that there is "something wrong" with performance but it is not "wrong" enough to exceed NPDES permit levels.

- This type of assistance continues to increase as compliance levels progress, trainers become more skilled, and monitoring and communications improve between operators and trainers.

3. Improved Performance starts with the facility out of compliance with its NPDES permit at the beginning of the compliance assistance. However, compliance assistance is leading the facility to better operation and maintenance. After the assistance has been completed at the facility, "total" compliance may have not been achieved on a consistent basis, but the facility is definitely operating better. The facility has reduced periods of non-compliance, reduced levels of pollutants discharged, or has had significant increases in efficiencies such as: lower energy usage, better (and often lower) chemical usage for proper operation, and adequate financial support enabling operators to better address problems in a more timely fashion. The facility may not be in "total" compliance with its NPDES permit, but it has "significantly" increased its performance. The facility has completed its compliance assistance training with the Program and may still be out of compliance, this is due to circumstances beyond the Program's control such as, the need for an upgrade to the treatment facility.

- Money saved by better operation can be utilized to finance needed improvements necessary for longer term compliance.

4. No Improvement starts with the facility out of compliance with its NPDES permit at the beginning of the compliance assistance training, and continues to be out of compliance with little or no improvement. The facility has opted to discontinue its participation in the Program.

5. Achieved Compliance starts with the facility out of compliance with its NPDES permit at the beginning of the compliance assistance. Even though the facility has achieved compliance, it is continuing its assistance to ensure a permanent compliance status.

6. Maintained Compliance starts with the facility in compliance with its NPDES permit at the beginning of the compliance assistance. However, the facility is demonstrating performance problems which could lead to non-compliance with its NPDES permit. After the facility has completed its assistance, the facility has halted any further deterioration in performance, improved its performance, and has continued to stay in compliance with its NPDES permit.

7. Improved Performance starts with the facility out of compliance with its NPDES permit at the beginning of the compliance assistance. However, the assistance is leading the facility to better operation and maintenance. After the assistance has been completed at the facility, "total" compliance may have not been achieved, but the facility is definitely operating better. The facility has reduced periods of non-compliance, reduced levels of pollutants discharged, or has had significant increases in efficiencies such as; lower energy usage, better (and often lower) chemical usage for proper operation, and adequate financial support enabling operators to better address problems in a more timely fashion. The facility may not be in "total" compliance with its NPDES permit, but it has "significantly" increased its performance. The facility continuing its compliance assistance with the Program is working on bringing the facility into "total" compliance with its NPDES permit, but has not achieved this status on a consistent basis.

8. No Improvement starts with the facility out of compliance with its NPDES permit at the beginning of the compliance assistance training, and continues to be out of compliance with little or no improvement. The facility has decided to continue to work with the Program to solve its compliance problems.

