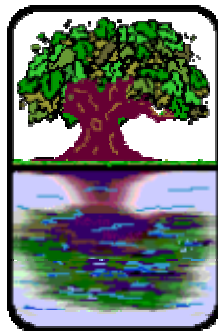


**OFFICE OF WATER PROGRAMS  
CSUS FOUNDATION**

**REPORT FOR FISCAL YEAR  
1997 – 1998**

**WITH SUMMARIES FOR  
1972 THROUGH JUNE 1998**



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**CALIFORNIA STATE UNIVERSITY, SACRAMENTO**

**July 1, 1998**

## **Office of Water Programs**

The Office of Water Programs, CSUS Foundation, provides resource training materials and operator training programs for operators, supervisors and administrators of drinking water distribution and treatment facilities and wastewater collection and treatment facilities. We are an adjunct to the School of Engineering and Computer Science, Department of Civil Engineering, California State University, Sacramento, and operate on a financially self-sustaining basis.

The Office of Water Programs has been designated by the U.S. Environmental Protection Agency (U.S. EPA) as a *SMALL PUBLIC WATER SYSTEM TECHNOLOGY ASSISTANCE CENTER*. The World Health Organization has informed the Office of Water Programs that “we are in the process of finalizing arrangements for the Office of Water Programs at California State University to be recognized as a PAHO/WHO Collaborating Center.”

### **Mission Statement**

Our mission is to provide – at the lowest possible cost – the best possible operator training programs and operation and maintenance training manuals.

### **Priorities**

- ▶ Provide service for persons and entities purchasing our materials,
- ▶ Assist students enrolled in the training programs,
- ▶ Maintain technically accurate and up-to-date training manuals and training programs, and
- ▶ Promote available operator training programs.

### **Training Materials Published by the Office of Water Programs**

- ↵ OPERATION OF WASTEWATER TREATMENT PLANTS, *Volumes I and II*
- ↵ ADVANCED WASTE TREATMENT
- ↵ INDUSTRIAL WASTE TREATMENT, *Volumes I and II*
- ↵ TREATMENT OF METAL WASTESTREAMS
- ↵ PRETREATMENT FACILITY INSPECTION
- ↵ SMALL WASTEWATER SYSTEM OPERATION AND MAINTENANCE, *Volume I*
- ↵ OPERATION AND MAINTENANCE OF WASTEWATER COLLECTION SYSTEMS, *Volumes I and II*
- ↵ COLLECTION SYSTEMS: METHODS FOR EVALUATING AND IMPROVING PERFORMANCE
- ↵ OPERATION AND MAINTENANCE OF WASTEWATER COLLECTION SYSTEMS TRAINING VIDEOS
- ↵ WATER TREATMENT PLANT OPERATION, *Volumes I and II*
- ↵ SMALL WATER SYSTEM OPERATION AND MAINTENANCE
- ↵ WATER DISTRIBUTION SYSTEM OPERATION AND MAINTENANCE
- ↵ UTILITY MANAGEMENT



## HISTORY

### How Did It Start?

During the 1960s, operators of wastewater treatment plants asked Ken Kerri to develop a training program so they could learn how to do their jobs better. Ken said he would help if they did all the work.

The Operator Training Committee of California Pollution Control Association (now California Water Environment Association) prepared a grant proposal for submittal by the Sacramento State College Hornet

Foundation (now California State University, Sacramento Foundation) to the Federal Water Quality Administration (now U.S. EPA). The grant was awarded and a training program was developed. After the field tests were completed, the U.S. EPA asked us to administer and monitor the home-study operator training program on a financially self-sustaining basis. The Office of Water Programs has maintained the technical currency of the training materials and has been financially self-sufficient ever since.

The first manual – **OPERATION OF WASTEWATER TREATMENT PLANTS** – was published in 1972. Used as a home-study or correspondence course by persons wishing to learn how to do their jobs safely and successfully and to prepare for state certification examinations, this new training opportunity was enthusiastically received. Many operators had been unable to obtain the training and help they needed and wanted. Either no suitable programs were available or operators were prevented from taking advantage of courses offered because of their work schedules and/or the distance to and from the classes.

The success of our first training program prompted many requests for similar programs in other areas. In response to these requests, a new manual, **OPERATION AND MAINTENANCE OF WASTEWATER COLLECTION SYSTEMS**, was published in 1976 to help operators working in the collection system field learn to do their jobs more effectively and safely.

In 1983, new training materials were developed for operators of drinking water distribution and treatment facilities: **WATER TREATMENT PLANT OPERATION**, Volumes I and II, and **WATER SUPPLY SYSTEM OPERATION AND MAINTENANCE**.

Throughout the last 25 years, operator training manuals and other training aids have been developed in response to requests from people in the field who desired good training materials and operation and maintenance manuals. Sixteen different manuals are now available. Revisions of manuals, expansions into multi-volume editions, and development of new training materials always focus on the needs of operators in the field and incorporate suggestions and other feedback from the users of the training materials.

In recent years, the Office of Water Programs also produced a series of six training videos which complement and enhance the existing training manuals, **OPERATION AND MAINTENANCE OF**



**WASTEWATER COLLECTION SYSTEMS**, Volumes I and II. Interest in and enthusiasm for these videos is prompting the development of additional and more detailed video training programs.

The Office of Water Programs continually seeks to respond to the needs of our customers by developing additional videos, pursuing on-line delivery of training opportunities, creating CD-ROMs, publishing and revising operation and maintenance training materials, and providing whatever other training assistance operators, managers, administrators, and supervisors tell us they need. Our website (<http://www.owp.csus.edu>), is continually updated as we attempt to keep everyone up to date about available training opportunities and how to take advantage of the many services we provide.

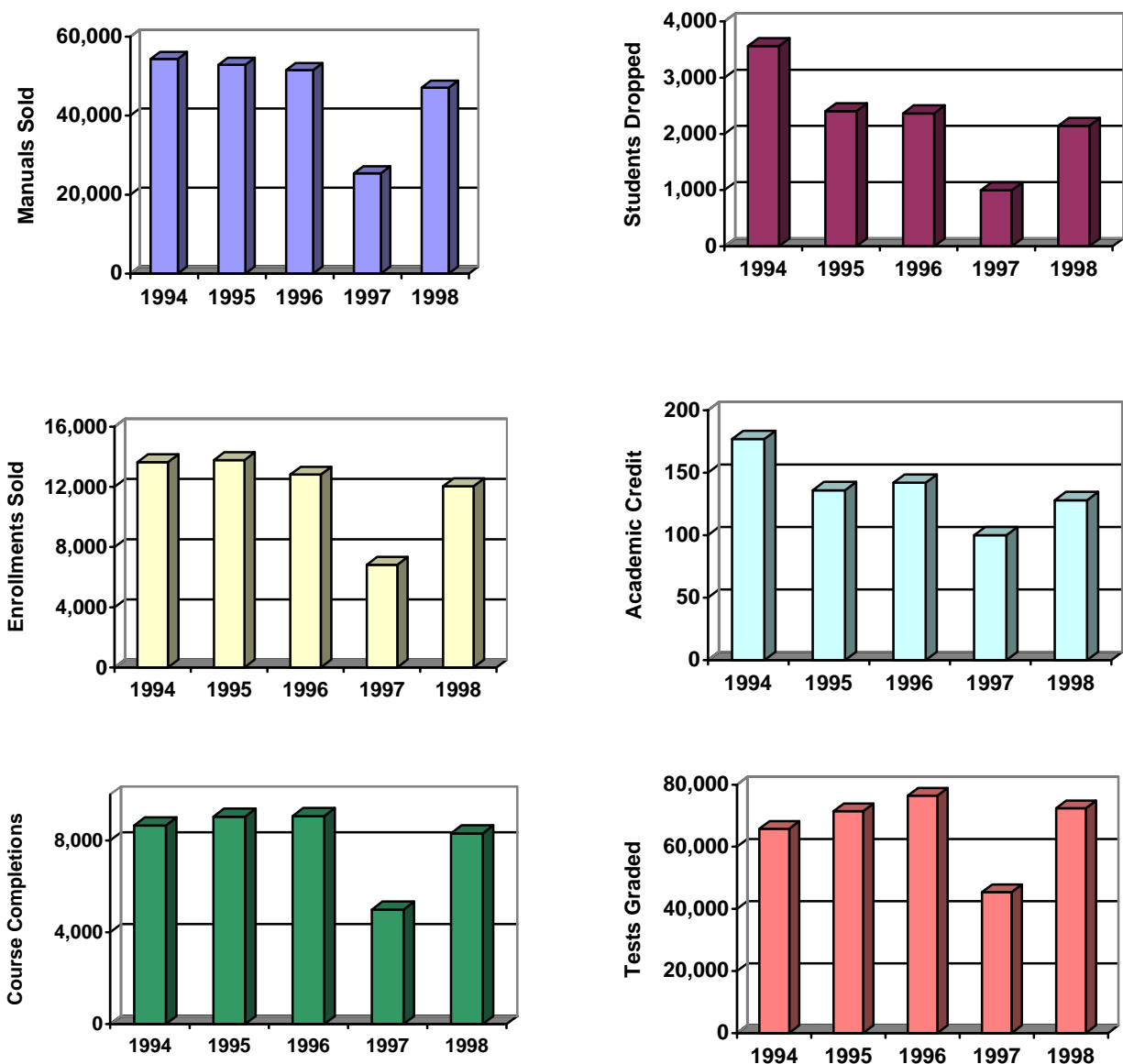


The following pages provide brief background summaries of the materials offered by the Office of Water Programs as well as graphs showing statistics relating to the years 1994 through June 1998. From 1972 until 1997, annual reports depicting the overall growth of the programs were based on a calendar year; in July 1997 the report period changed to a fiscal year. Each report provides a combined historical summary as well as totals for each individual course. Areas discussed and for which statistics are provided include:

- ↵ *Manuals* – number of manuals sold to individuals, colleges and universities, libraries, utilities, companies, and other organizations; we currently sell 16 different titles.
- ↵ *Enrollments* – number of enrollments sold in the 15 continuing education training programs we offer.
- ↵ *Completions* – number of people successfully completing our training programs either through CSUS (by correspondence) or through another entity.
- ↵ *Dropped* – number of students who enrolled and never completed the course work. Prior to 1979, dropped-student counts were determined by counting anyone who enrolled, regardless of whether or not they submitted any work or began working but did not complete. Beginning in 1979, only persons who actually started a course and did not finish were counted as drops.
- ↵ *Registered* – number of students registering for lower division university academic credits. The “CE” in the course number refers to “Civil Engineering.”
- ↵ *Colleges and Universities* – number of educational institutions purchasing manuals for use in onsite classes.
- ↵ *Foreign Countries* – number of foreign countries to which our manuals have been shipped.

## OVERVIEW

Since 1972, more than 620,000 manuals have been purchased, over 150,000 enrollments have been sold, in excess of 600,000 tests have been graded, and 88,720 people have successfully completed a program. Figure 1 shows a summary of statistics for the period 1994 through June 1998.\*



\*1997 data are for January through June.

**Figure 1. Summary of Statistics for the Office of Water Programs**

# **OFFICE OF WATER PROGRAMS**

## **SUMMARY BY TITLE**

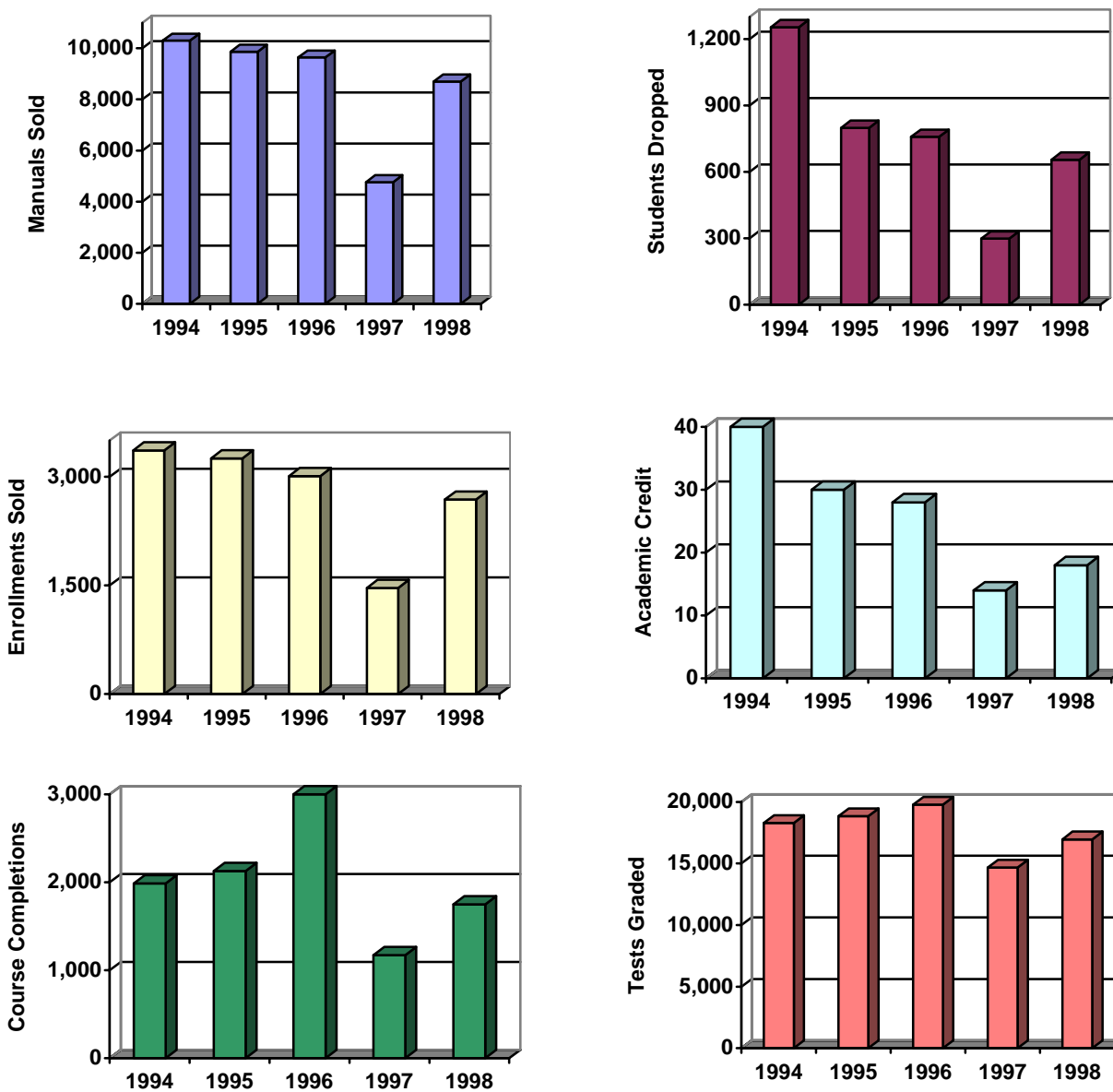


Brief summary paragraphs and statistical charts for each title are presented in the following pages. The charts cover only the period 1994 through June 1998; the 1997 data are for the period of January through June. Subsequently, we began reporting on a fiscal year basis instead of a calendar year basis.

***OPERATION OF WASTEWATER TREATMENT PLANTS***, first available in 1972 as a loose-leaf, 3-hole-punched document, was distributed chapter by chapter until all 16 chapters had been developed and field tested. Over the next nine years, 42,097 copies of this one-volume, 16-chapter manual were sold; 8,777 operators successfully completed the training program; more than 300 colleges and universities adopted it for use as a text; and persons from over 30 foreign countries purchased and used the manual.

In 1980, this publication was revised and expanded into a new edition of three soft-cover, bound volumes.

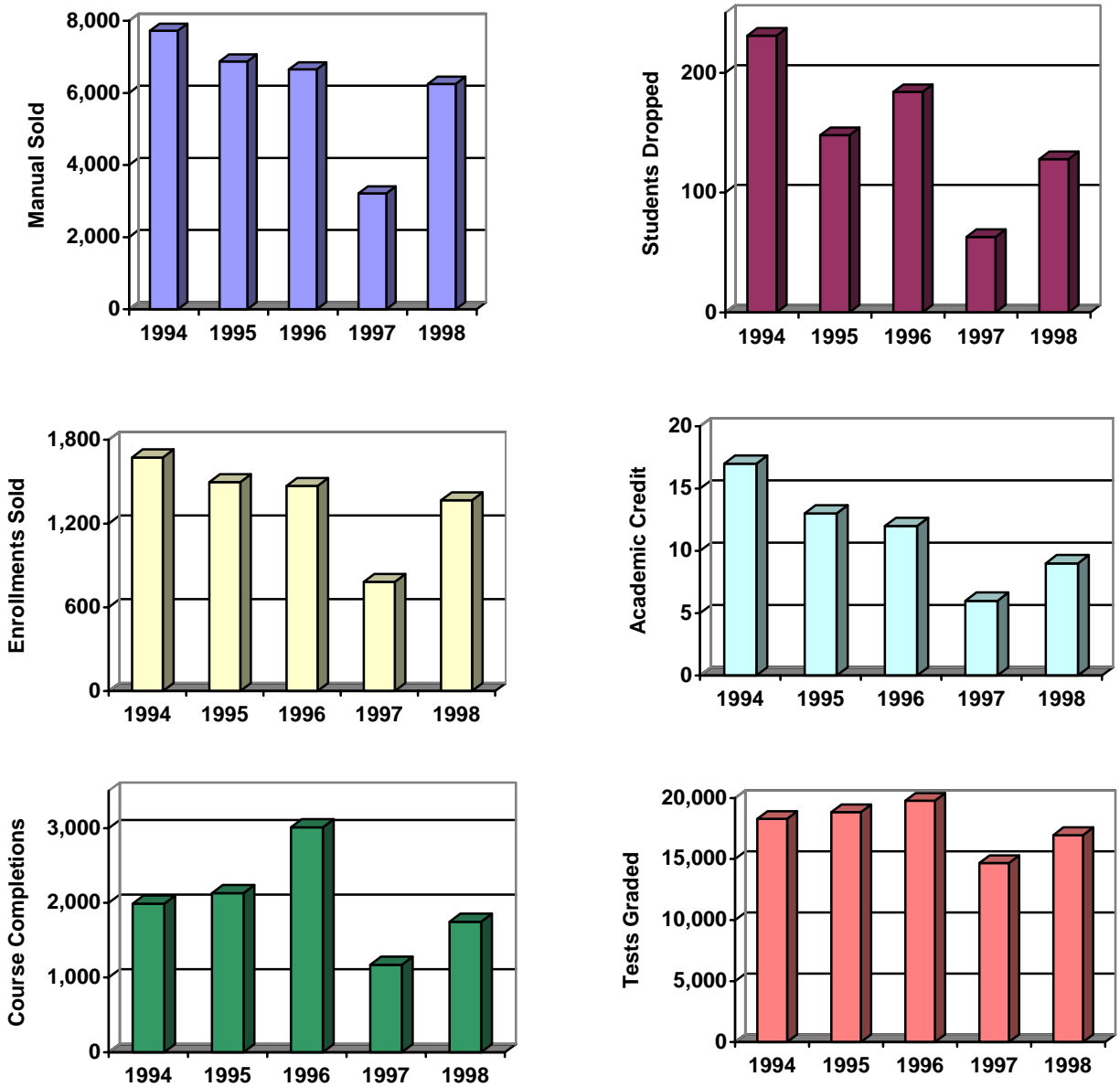
**OPERATION OF WASTEWATER TREATMENT PLANTS**, Volume I, has been available since 1980. More than 140,000 copies have been sold throughout the United States, in Canada, and in 58 foreign countries. Over 40,000 people have enrolled in, and more than 25,000 operators have successfully completed this course through correspondence and 360 colleges and universities have used the manuals as textbooks. Figure 2 summarizes the statistics for this course for the period 1997 through June 1998.\*



\*1997 data are for January through June.

**Figure 2. Summary of Statistics for OPERATION OF WASTEWATER TREATMENT PLANTS, Volume I**

Since 1980, over 100,000 copies of **OPERATION OF WASTEWATER TREATMENT PLANTS**, Volume II, have been sold throughout the United States, Canada and 56 foreign countries. Over 20,000 have enrolled in and more than 12,400 operators have successfully completed this course and 321 colleges and universities have purchased this manual. Figure 3 covers the period 1994 through June 1998.\*

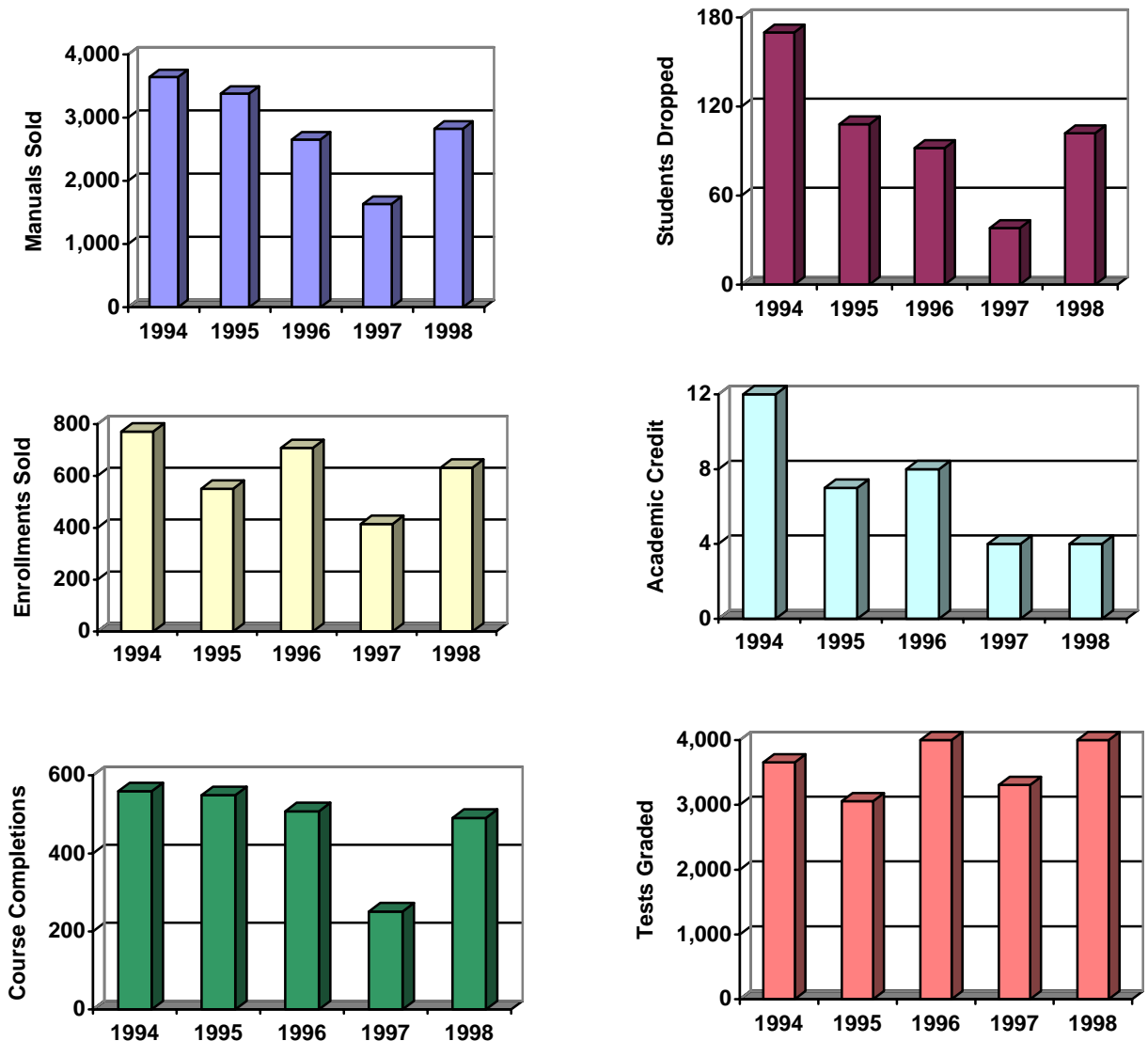


\*1997 data are for January through June.

**Figure 3. Summary of Statistics for OPERATION OF WASTEWATER TREATMENT PLANTS, Volume II**



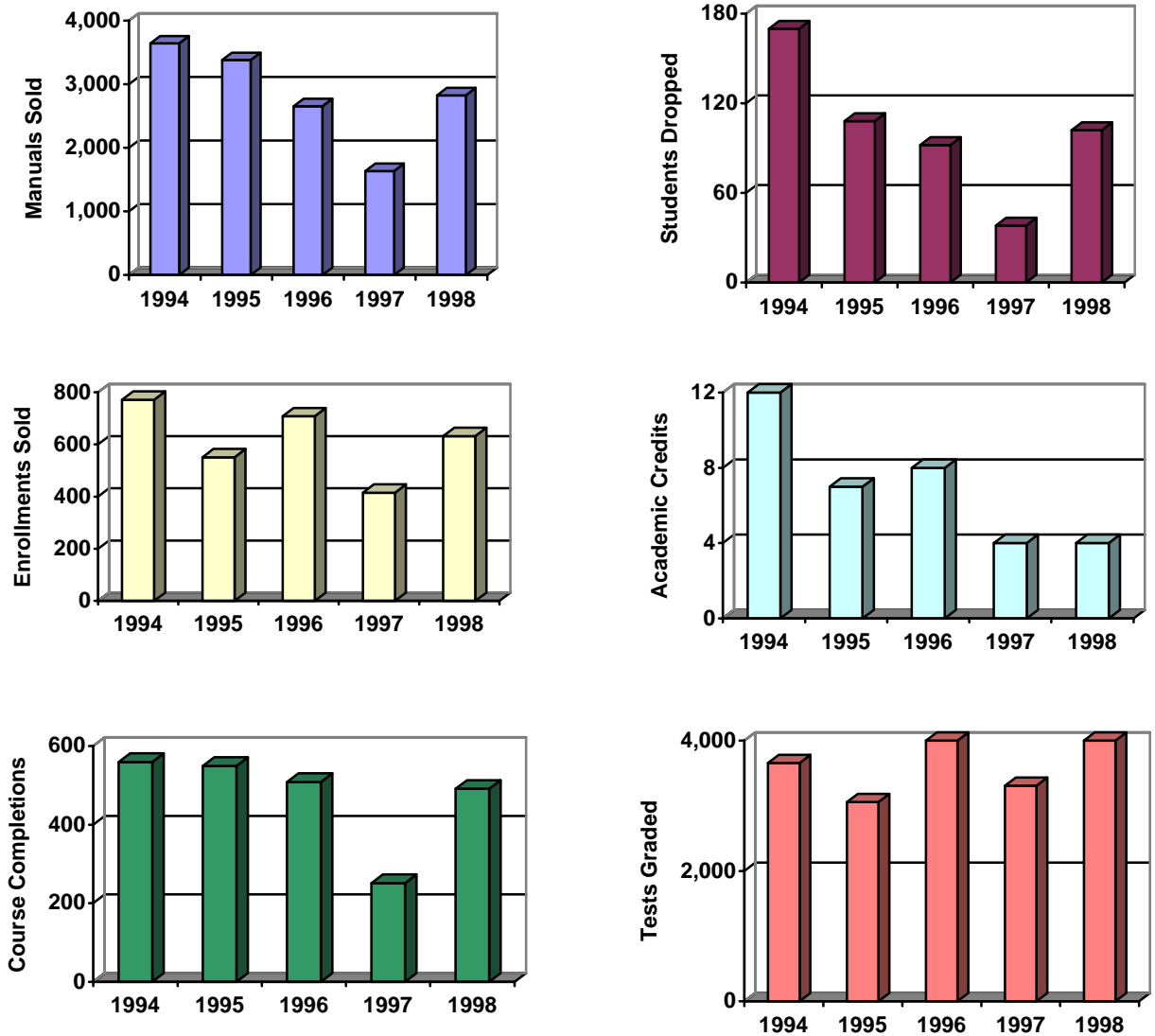
From 1980 through 1989, 13,282 manuals were sold and 2,203 people completed Volume III of **OPERATION OF WASTEWATER TREATMENT PLANTS**. At the suggestion of operators using Volume III, who strongly recommended splitting the book's two main subject areas into separate courses, two new volumes were developed. The first was **ADVANCED WASTE TREATMENT**. To date, 36,000 copies have been sold, more than 8,000 students have enrolled, and over 5,000 have successfully completed the course. Also, people in 45 foreign countries and 160 colleges and universities have purchased the manual. The 1994 through June 1998 statistics are shown in Figure 4.\*



\*1997 data are for January through June.

**Figure 4. Summary of Statistics for  
ADVANCED WASTE TREATMENT**

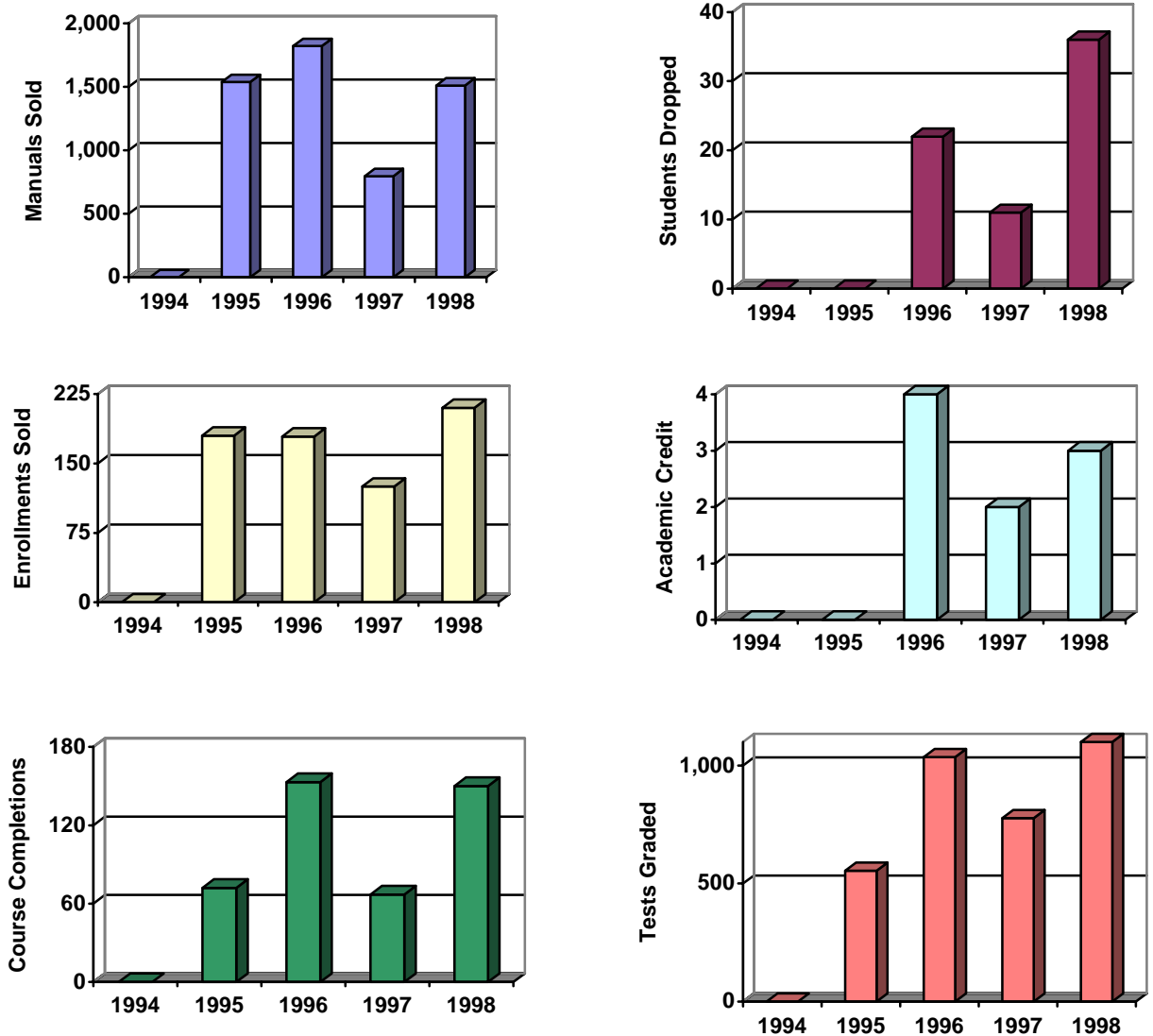
The second manual resulting from the split of Volume III was **INDUSTRIAL WASTE TREATMENT**. From 1987 to 1994, more than 21,000 copies were sold and over 1,960 people completed this course. However, as was the case with Volume III, increased interest and abundant new materials required that the first edition be split into two volumes. Volume I was released in 1994; a total of 11,700 copies have been sold, more than 1,200 people have completed the course, 126 colleges and universities use the manual, and the manual has been sent to 38 foreign countries. Figure 5 shows the statistics for the period of 1994 through June 1998.\*



\*1997 data are for January through June.

**Figure 5. Summary of Statistics for INDUSTRIAL WASTE TREATMENT, Volume I**

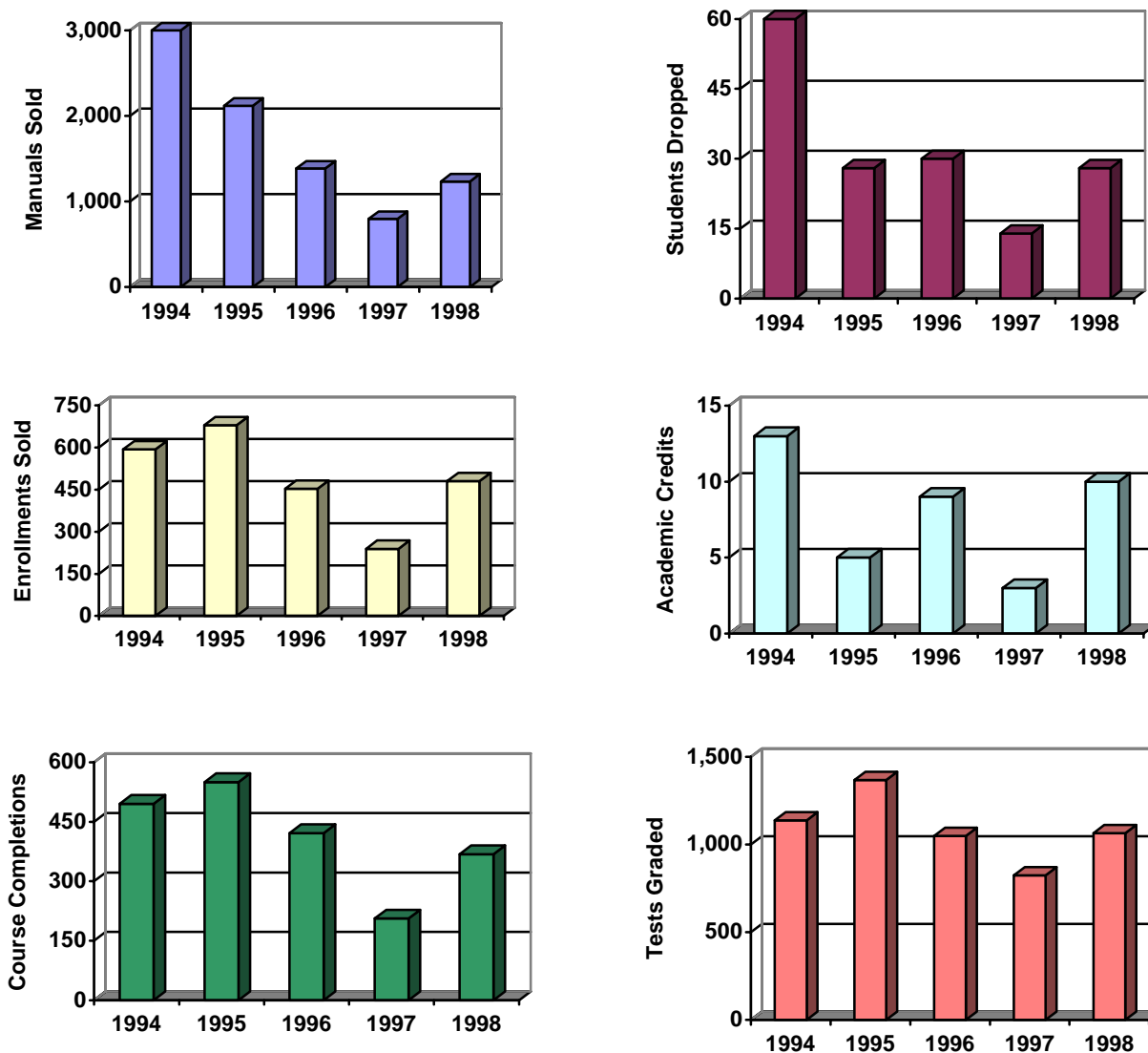
**INDUSTRIAL WASTE TREATMENT**, Volume II, was published in the spring of 1995 and since that time 5,700 copies have been sold, 697 people have enrolled, 442 have completed, and more than 62 colleges and universities have purchased the book. People in 33 foreign countries have purchased this manual. Figure 6 shows the statistics for the period 1994 through June 1998.\*



\*1997 data are for January through June.

**Figure 6. Summary of Statistics for INDUSTRIAL WASTE TREATMENT, Volume II**

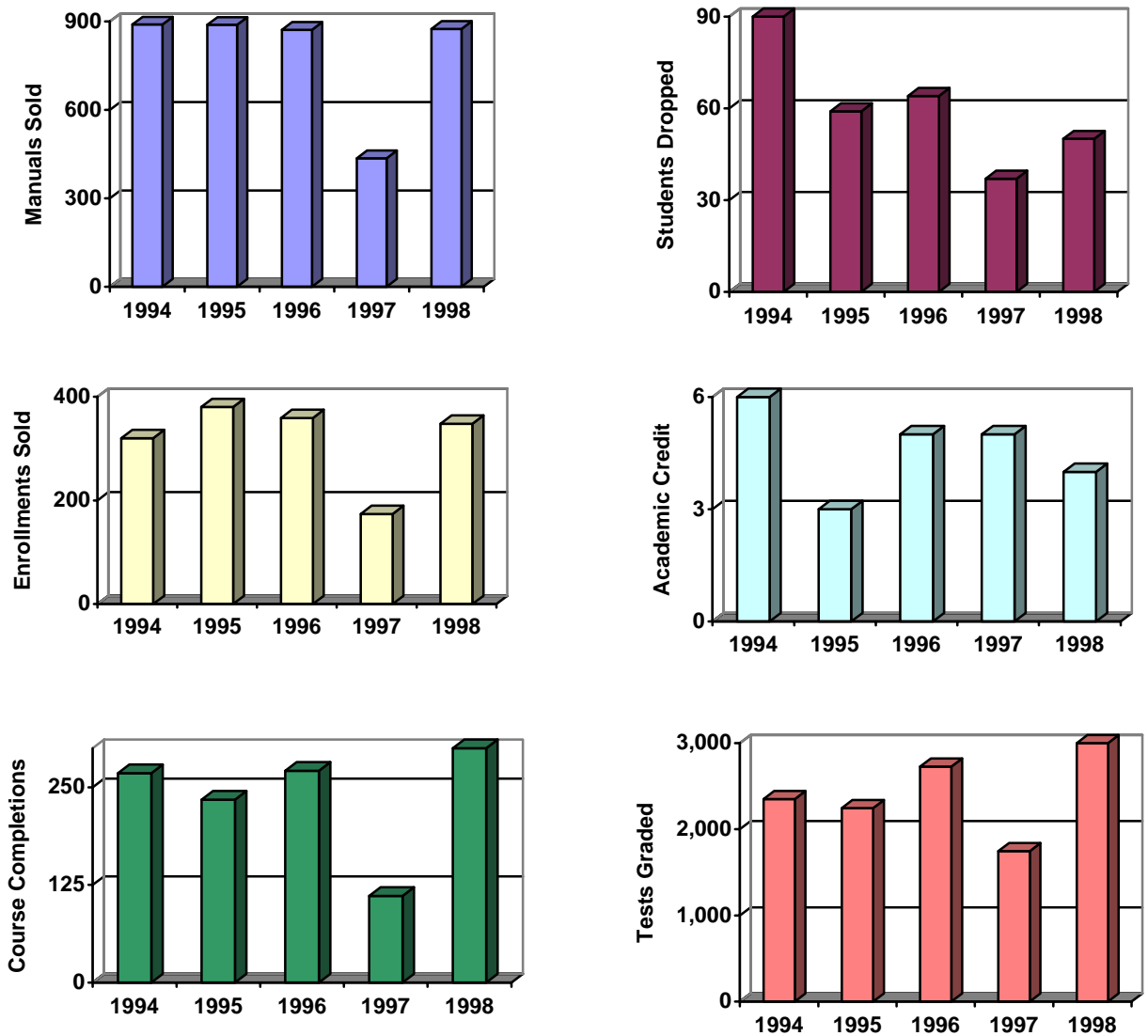
An interest in and demand for specific technical information resulted in the creation of a new wastewater treatment manual: Volume IV, subtitled **TREATMENT OF WASTEWATER FROM ELECTROPLATING, METAL FINISHING AND PRINTED CIRCUIT BOARD MANUFACTURING**. As this manual stood alone, it was renamed **TREATMENT OF METAL WASTESTREAMS**. Over 27,000 manuals have been sold throughout the United States, in Canada, and in 37 foreign countries, including 113 colleges. Enrollments total more than 5,100 and more than 4,570 students have completed this course. The charts in Figure 7 are for the period 1994 through June 1998.\*



\*1997 data are for January through June.

**Figure 7. Summary of Statistics for TREATMENT OF METAL WASTESTREAMS**

Requests for information and training in another area of expertise were answered by the development of a manual for inspectors of pretreatment facilities. The first edition of ***PRETREATMENT FACILITY INSPECTION*** was printed in 1988 and more than 11,000 copies have been sold, persons in 36 foreign countries have ordered this book, and 89 colleges and universities have adopted this manual. Total enrollments exceed 11,000 and more 2,600 people have completed this course. Figure 8 gives information for the period 1994 through June 1998.\*

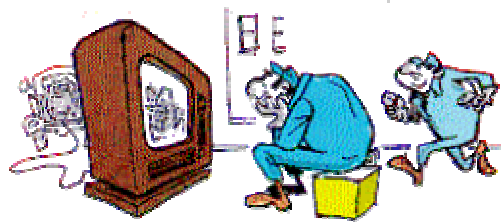


\*1997 data are for January through June.

**Figure 8. Summary of Statistics for PRETREATMENT FACILITY INSPECTION**

The success of **OPERATION OF WASTEWATER TREATMENT PLANTS** brought many requests from operators of collection systems for a similar training course. In response, **OPERATION AND MAINTENANCE OF WASTEWATER COLLECTION SYSTEMS** was published in 1976. The first two editions of this manual were single volumes. Over 10,000 copies were sold and more than 2,250 people completed this correspondence course.

The manual was revised, updated, and divided into two volumes in 1987. Since that time, demand for these two courses has continued to grow. Today the two collection system operator training manuals are in their fifth edition. Figures 9 and 10 show summaries of recent sales and other statistics for these manuals and courses.



The Office of Water Programs recently (1997) produced a set of six training videos that demonstrate the equipment and procedures collection system crews use to safely and effectively operate and maintain their collection systems. The videos complement our printed training manuals, **OPERATION AND MAINTENANCE OF WASTEWATER COLLECTION SYSTEMS**, Volumes I and II. A total of 353 sets of the six-video training series were sold during the 1997-1998 fiscal year.

An additional resource for collection system operators was published in 1998 under a cooperative agreement between the Office of Water Programs and the U.S. EPA. This new manual, **COLLECTION SYSTEMS: METHODS FOR EVALUATING AND IMPROVING PERFORMANCE**, was written to assist collection system agencies and operators in evaluating the adequacy and effectiveness of operation and maintenance (O & M) programs and in identifying areas where improvements could be made. Sales to date in the United States and Canada total 234 copies, and one order has been sent to a foreign country. Six colleges and universities have purchased the manual.

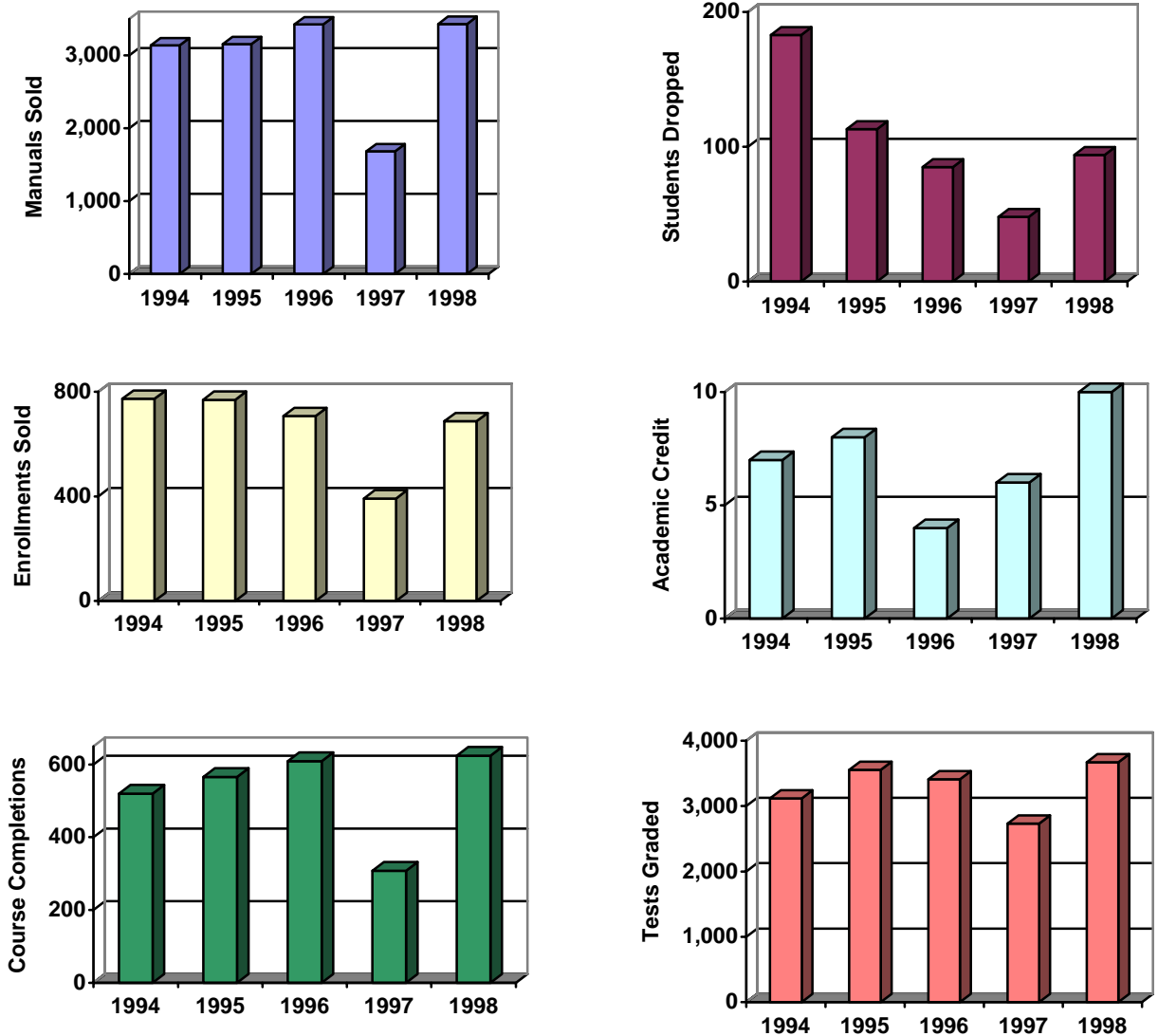


Check out the NEW RELEASE from California State University, Sacramento:

**COLLECTION SYSTEMS: METHODS FOR  
EVALUATING AND IMPROVING PERFORMANCE**

Volume I, **OPERATION AND MAINTENANCE OF WASTEWATER COLLECTION SYSTEMS**, has been sold to 139 colleges and universities and to customers in 44 foreign countries. Since 1987

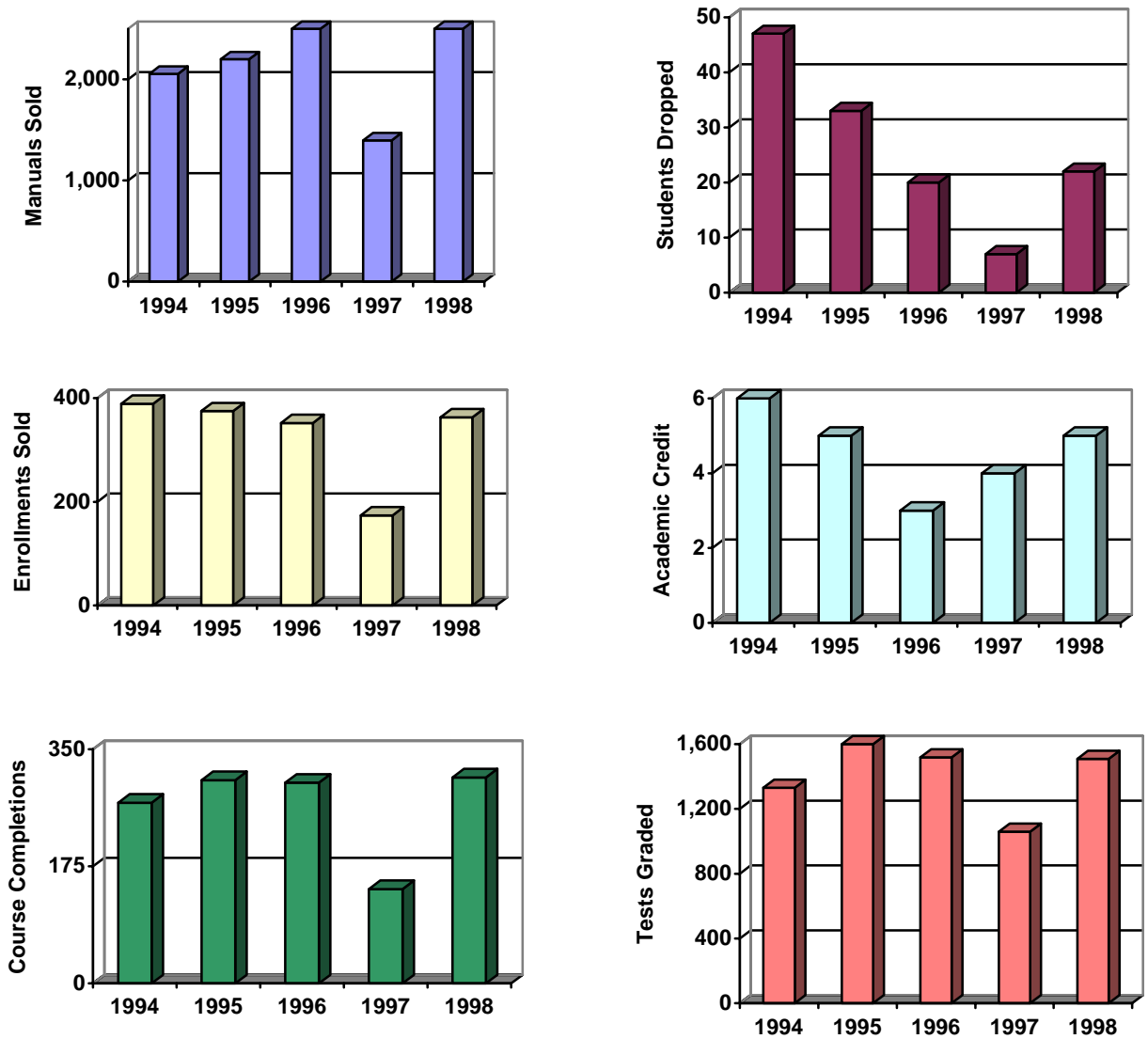
over 31,000 manuals have been sold, more than 7,000 people have enrolled and over 4,800 have successfully completed their course work. The charts in Figure 9 are for the period 1994 through June 1998.\*



\*1997 data are for January through June.

**Figure 9. Summary of Statistics for OPERATION AND MAINTENANCE OF WASTEWATER COLLECTIONS SYSTEMS, Volume I**

More than 23,000 copies of Volume II, **OPERATION AND MAINTENANCE OF WASTEWATER COLLECTION SYSTEMS**, have been sold to persons throughout the United States, in Canada, and in 42 foreign countries. One hundred and thirty colleges and universities have used this text. More than 3,500 persons have enrolled in and more than 2,500 have completed this course. Figure 10 shows the activity for the period 1994 through June 1998.\*



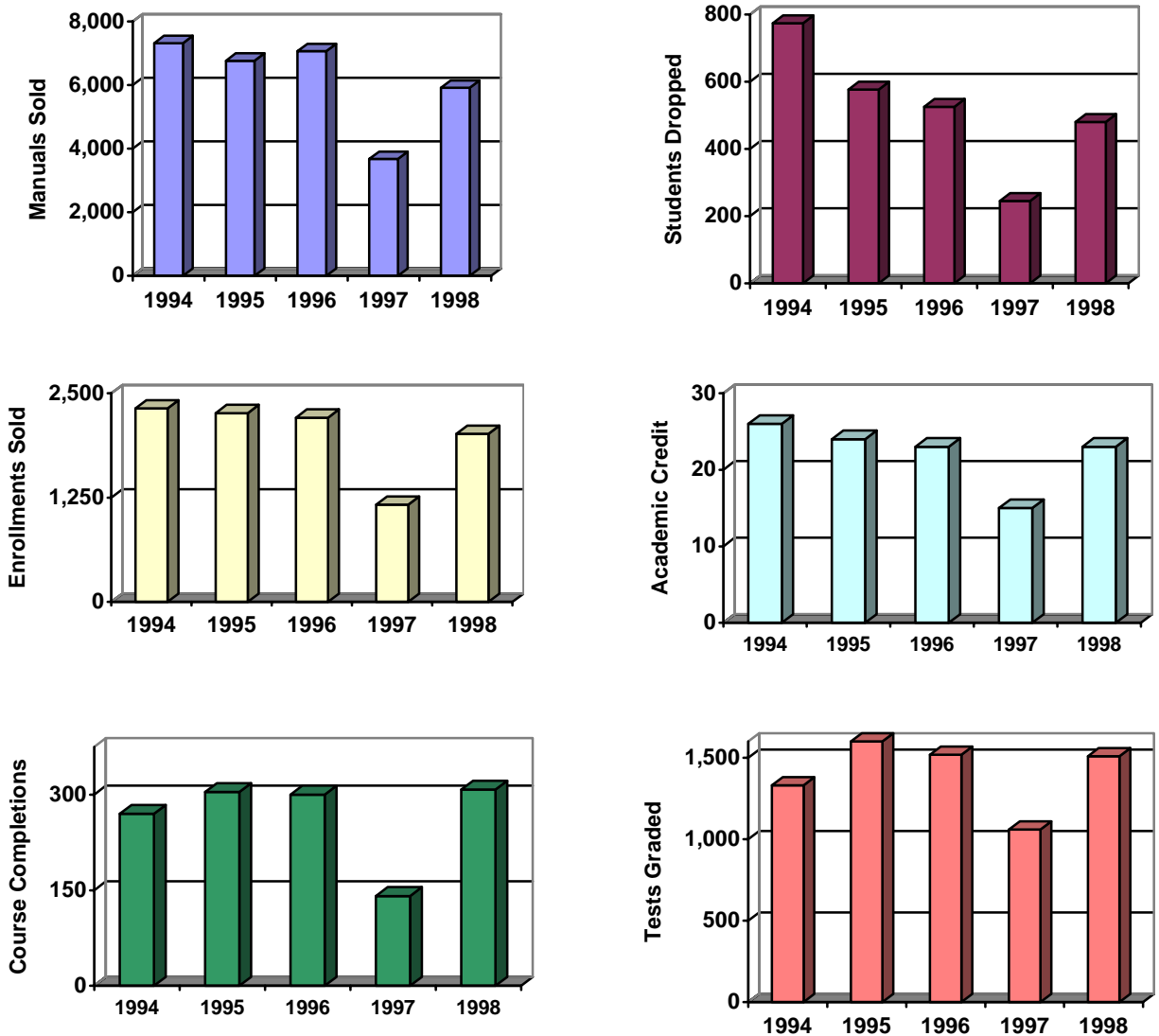
\*1997 data are for January through June.

**Figure 10. Summary of Statistics for OPERATION AND MAINTENANCE OF WASTEWATER COLLECTION SYSTEMS, Volume II**



Similar training programs for operators of drinking water distribution and treatment facilities were developed in 1983 – **WATER TREATMENT PLANT OPERATION**, Volumes I and II, and **WATER SUPPLY SYSTEM OPERATION AND MAINTENANCE**.

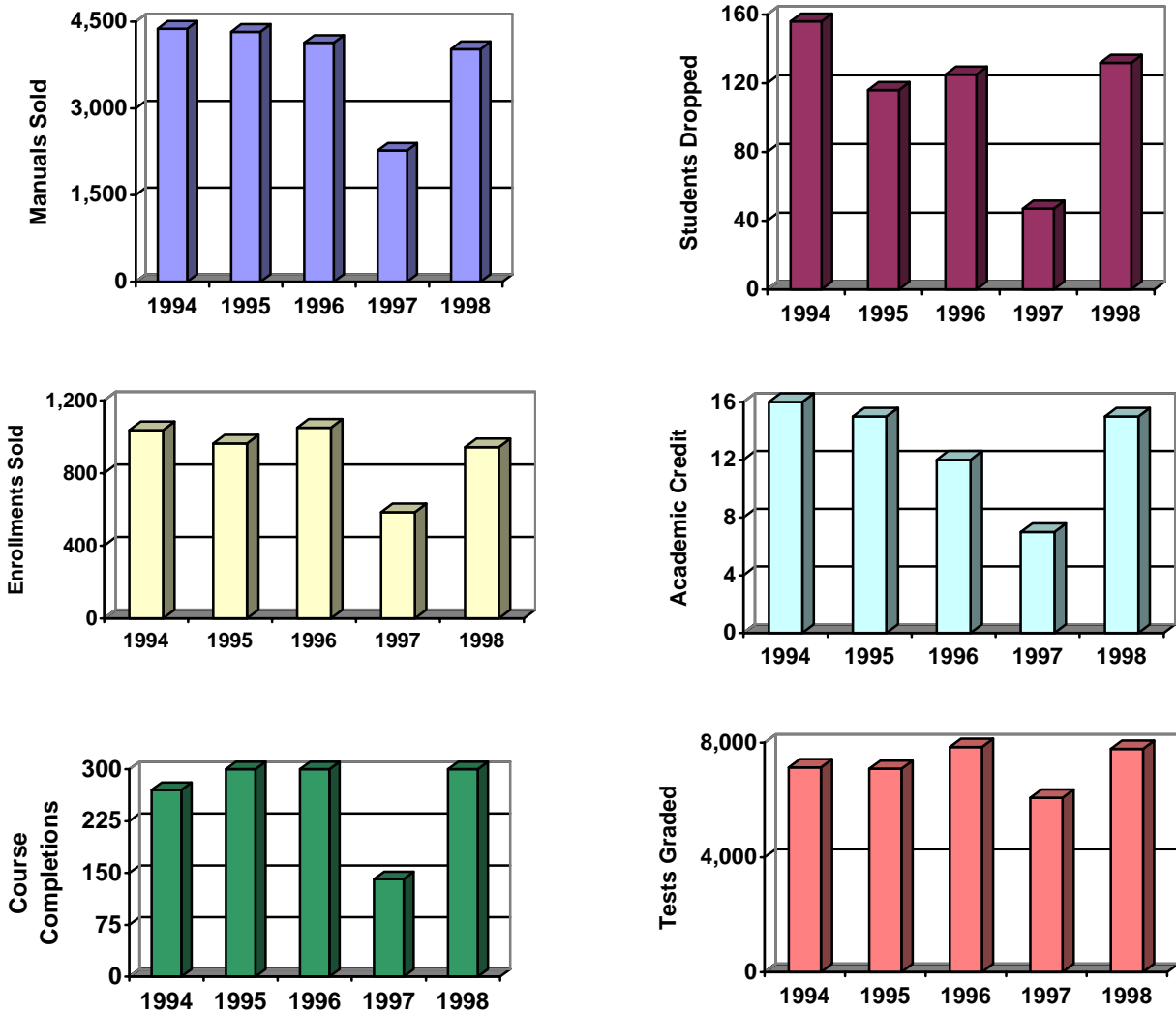
More than 75,000 copies of Volume I have been sold; 255 colleges and universities have adopted this manual, and people in 53 foreign countries have purchased it. In excess 23,000 people have enrolled in the Volume I course and over 13,000 have successfully completed the course. The 1994 through June 1998 numbers are described in Figure 11.\*



\*1997 data are for January through June.

**Figure 11. Summary of Statistics for WATER TREATMENT PLANT OPERATION, Volume I**

Volume II, ***WATER TREATMENT PLANT OPERATION***, has been sold to 218 college and universities, 48 foreign countries, and the total manuals sold throughout the world exceeds 46,000. Enrollments total more than 11,000 with over 6,600 completions. The 1994 through June 1998 activity is shown in Figure 12.\*

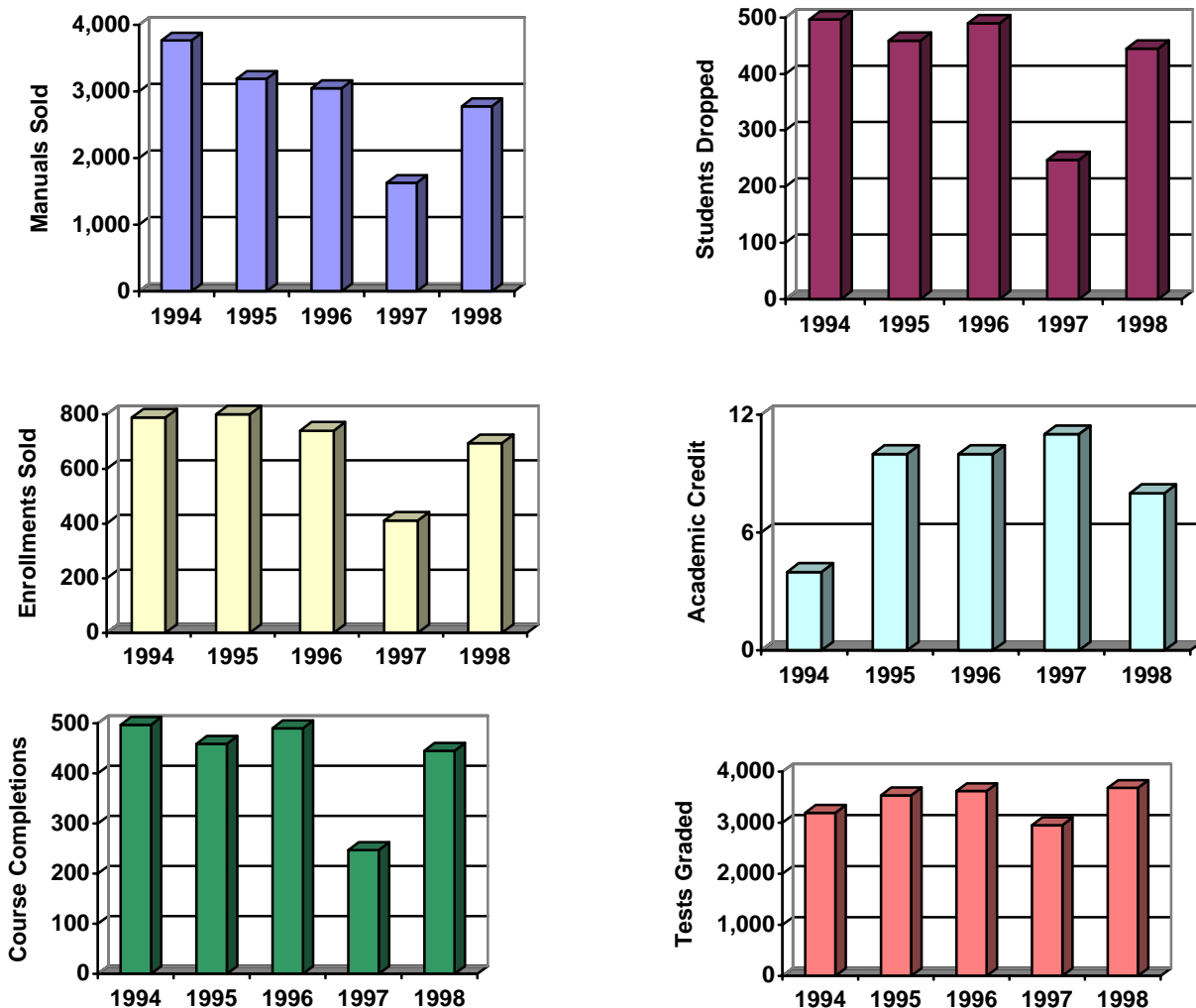


\*1997 data are for January through June.

**Figure 12. Summary of Statistics for WATER TREATMENT PLANT OPERATION, Volume II**

During the years 1983-1987, 6,233 copies of **WATER SUPPLY SYSTEM OPERATION AND MAINTENANCE** were sold with copies going to 59 colleges and universities and 9 foreign countries. More than 700 people completed this correspondence course. Subsequently, this manual was revised and split into two new courses.

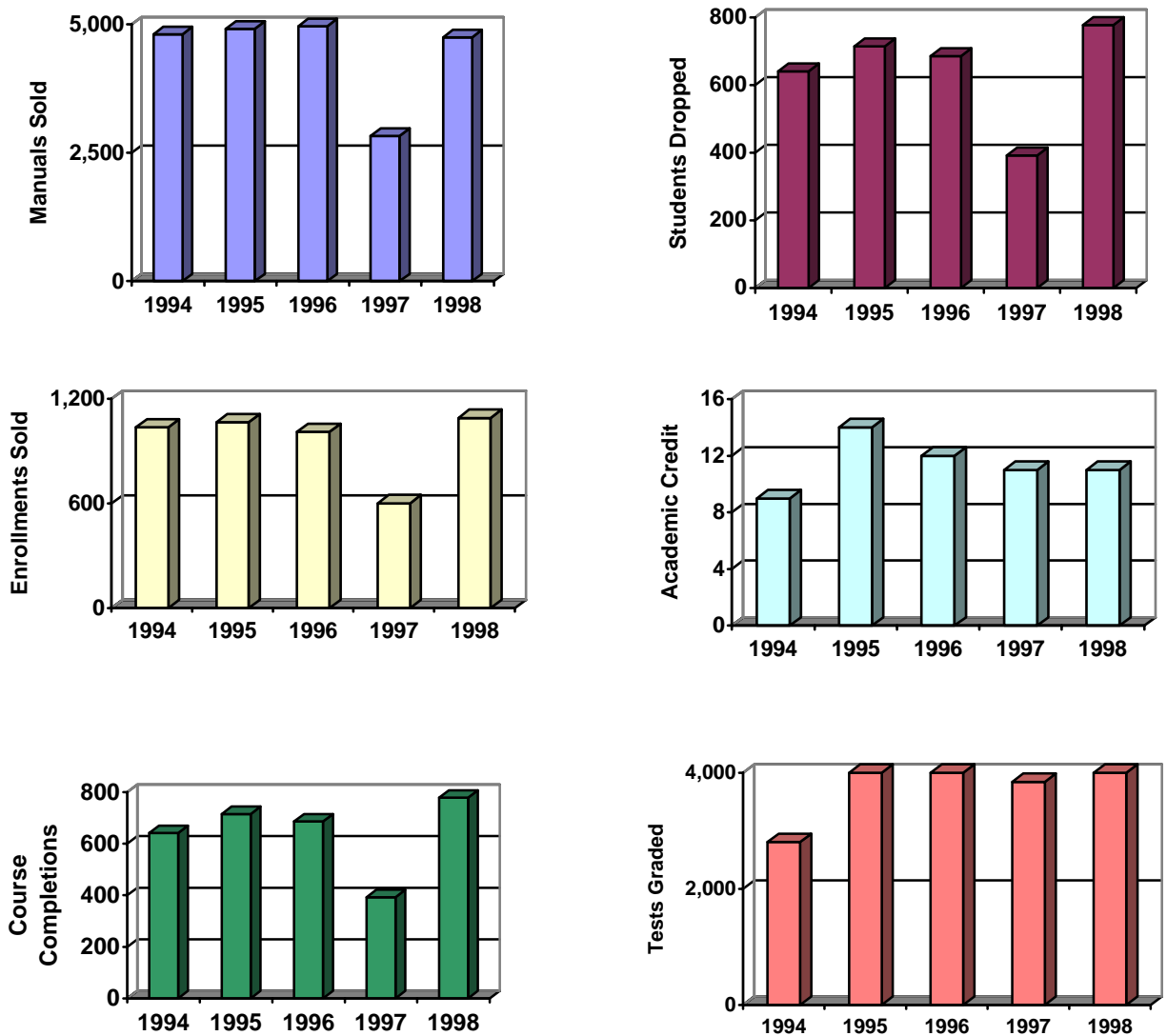
Since 1987, **SMALL WATER SYSTEM OPERATION AND MAINTENANCE** has been sold to 137 colleges and universities, 47 foreign countries, and the total sold throughout the world exceeds 34,000. Enrollments total over 7,000 and more than 3,800 have completed their course work to date. Figure 13 indicates 1994 through June 1998 activity.



\*1997 data are for January through June.

**Figure 13. Summary of Statistics for SMALL WATER SYSTEM OPERATION AND MAINTENANCE**

The second manual that resulted from the split of **WATER SUPPLY SYSTEM OPERATION AND MAINTENANCE** was **WATER DISTRIBUTION SYSTEM OPERATION AND MAINTENANCE**. During the period 1987 through June 1998, 47,000 copies have been purchased by 168 colleges and universities and by people in 49 foreign countries. Over 9,000 enrollments have been sold and more than 5,700 people have completed this course. Figure 14 displays the activity for the 1994 through June 1998 period.\*



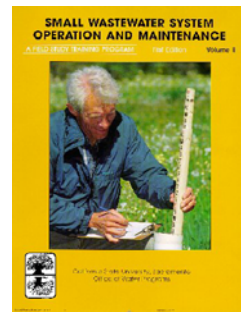
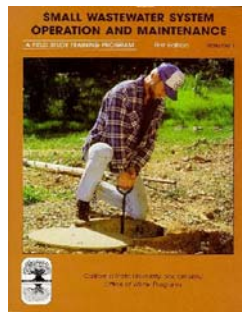
\*1997 data are for January through June.

**Figure 14. Summary of Statistics for WATER DISTRIBUTION SYSTEM OPERATION AND MAINTENANCE**

## Continuing and New Developments

In response to consumer requests, training material was developed in 1997 specifically for the operators of small wastewater systems who needed operation and maintenance education and information that differed from the material available in Volumes I and II of **OPERATION OF WASTEWATER TREATMENT PLANTS**. The new course, **SMALL WASTEWATER SYSTEM OPERATION AND MAINTENANCE**, Volume I, was designed to train operators in the practical, hands-on aspects of safely operating and maintaining small wastewater collection, treatment, and disposal systems.

To date, 353 copies of **SMALL WASTEWATER SYSTEM OPERATION AND MAINTENANCE**, Volume I, have been sold, 94 persons have enrolled and 18 have completed the course, and one student has registered for academic credits. A second volume for operators of small wastewater systems will be available in 1999.



The newest addition to the Office of Water Programs' set of manuals is **UTILITY MANAGEMENT**. This manual was developed as a home-study course for managers of water and wastewater utilities; it describes sound business practices for effectively managing a utility. We have sold 269 manuals, with some going to eight colleges and universities and two foreign countries. Forty-three of the 179 students enrolled in the course have already completed it.



New technologies in the fields of water treatment, water distribution, wastewater collection,

municipal and industrial wastewater treatment and utility management, as well as instruction and education, are ever changing and exciting. We look forward to continuing to maintain and prepare quality materials, develop better methods of training, and provide the best possible service to our customers.

