

Training Provider Manual

for the Pennsylvania Water and Wastewater System Operator Training Program



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DEPARTMENT OF ENVIRONMENTAL
PROTECTION

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Safe Drinking Water

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TITLE: Training Provider Manual for the Pennsylvania Water and Wastewater System Operator Training Program

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AUTHORITY: Water and Wastewater Systems Operator's Certification Act

POLICY: The Department of Environmental Protection (DEP) and the State Board for Certification of Water and Wastewater System Operators will follow the guidance and procedures in this document to direct and support the water and wastewater system operator training program.

PURPOSE: The purpose of this document is to establish uniform procedures and protocol for reviewing and approving water and wastewater training courses for pre-certification and continuing education of water and wastewater system operators, and to ensure application of appropriate credit to operators for training taken.

APPLICABILITY: This guidance applies to all operators of regulated water and wastewater systems, the State Board for Certification of Water and Wastewater System Operators and DEP.

DISCLAIMER: The policies and procedures outlined in this guidance document are intended to supplement existing requirements. Nothing in the policies or procedures shall affect regulatory requirements.

The policies and procedures herein are not an adjudication or a regulation. There is no intent on the part of DEP to give these rules that weight or deference. This document establishes the framework within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this policy statement if circumstances warrant.

PAGE LENGTH: 53 pages

DEFINITIONS: See Appendix A of the document.

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1. General Information

A. Introduction

This manual explains and describes how to apply to become an approved provider (sponsor) of water and wastewater training in Pennsylvania and how to obtain approval of training activities taught to Pennsylvania water and wastewater operators. This manual also describes sponsor responsibilities, various training activity guidelines, and other elements of the Pennsylvania water and wastewater training approval process.

The Pennsylvania Department of Environmental Protection (DEP) conducted a needs assessment prior to implementing the training approval program in 2002. DEP reviewed both water and wastewater needs. With the help of water and wastewater work groups, made up of industry volunteers, DEP identified the major knowledge and skills that operators need to know, and the major tasks that they need to perform to do their jobs. The results of the needs assessment are summarized in Appendix C. DEP encourages course developers and training providers to review these needs prior to developing a course to fulfill both pre-certification and continuing education requirements of operators.

In order for Pennsylvania water and wastewater operators to receive credit for training toward pre-certification experience or continuing education, the training activity must be approved by DEP. DEP approval ensures that competent providers are offering the training and that the training is relevant and meaningful to the operators. DEP approves training providers interested in participating in the water and wastewater operator training program as training *sponsors*. To become a sponsor of water or wastewater operator training courses, refer to Section 2 of this manual. *DEP must review and approve training activities for contact hours before the training will be worth credit for Pennsylvania operators.* To obtain approval of training courses and contact hours, refer to Section 3 of this manual. Applicants can expect an administrative review and response from DEP within 45 days of receipt of sponsor and course applications and the corresponding application fee payment.

B. Overview of the Operator Training Approval Program

1. Sponsor Approval

A training provider wishing to deliver training courses that will count toward pre-certification or continuing education credit for Pennsylvania water or wastewater operators must first obtain approval from DEP to be a training sponsor.

Training providers may apply to become an approved provider, known as a sponsor. In addition to becoming a sponsor, providers have the added option of submitting additional information to obtain accreditation of their entire training program (see Section 2). Courses submitted for approval by sponsors who have a DEP-accredited training program are eligible for a streamlined or brief review process (see Section 3).

Sponsors are expected to adhere to the sponsor responsibilities and reporting requirements found in Section 8 of this manual. DEP may suspend or revoke approval of a sponsor (see Section 10 for details).

2. Training Activity Approval

Sponsors must obtain DEP approval of training activities before they will count toward pre-certification or continuing education credit for water or wastewater operators. The approval process establishes that the training activity content is relevant to drinking water or wastewater system operations, is of creditable substance, and uses effective adult education concepts and learning techniques.

Training courses submitted by sponsors for approval will go through a detailed review. However, the course is eligible for a streamlined or brief review if either of the following conditions is met:

- a. A state- or nationally-accredited college or university has reviewed and approved the course for Continuing Education Units (CEUs).
- b. The sponsor has a DEP accredited training program (see Section 2 for information required for an accredited training program).

The main difference between a brief review and a detailed review is that a detailed review requires the submission of detailed course content information, such as an instructor's guide and student manual or handouts, and instructor qualifications.

Conferences and certificate or associate's degree programs go through separate approval processes.

3. Application Submissions and Fees

All applications for approval of sponsors, courses, conferences, and certificate or associate's degree programs are handled through the web-based training approval system (Global TAPS) at the following address:

<https://www.ahs.dep.pa.gov/GlobalTAPS/>.

Application instructions can be found in Sections 2 through 6 of this document.

Application fees are as follows:

- Sponsor Application: \$90
- Course Application – Brief: \$115
- Course Application – Full: \$300
- Conference Application: \$70
- Course Rosters: \$1 per name (billed quarterly)

4. Post-Presentation Credit

Post-presentation credit refers to a water or wastewater operator's request to DEP to obtain credit for a training course that DEP has not pre-approved. In such instances, it is the operator's responsibility to submit information about the course and the course provider, using the application form shown in Section 6, as soon as possible after completing the course. However, DEP will not accept Post-presentation Credit applications beyond 90 days following an operator's cycle expiration date. This topic is included in this manual to make training providers aware that operators have this option available to them.

5. Retroactive Award of Credit

Retroactive award of credit refers to the award of credit to an operator for a course or conference session that was not approved until after it was completed by the operator. In order for the operator to receive credit, DEP approves the course or conference before the operator's certification expiration date.

C. Contact Information

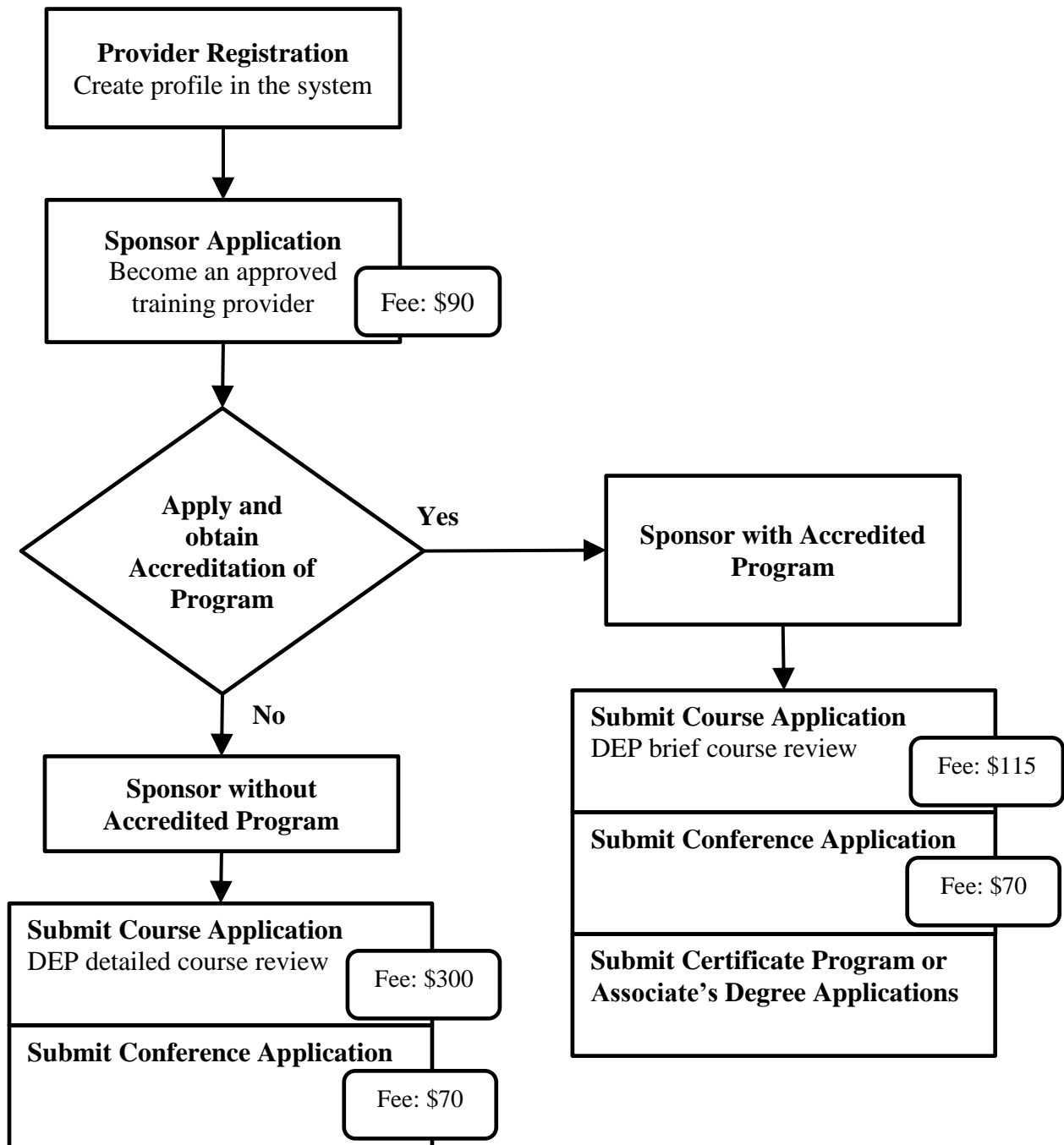
This manual and the web-based training approval process can be found at <https://www.ahs.dep.pa.gov/GlobalTAPS/>.

If you have questions related to this manual, contact DEP at:

PA DEP
Bureau of Safe Drinking Water
Training, Technical and Financial Assistance Division
Training Section
P.O. Box 8467
Harrisburg, PA 17105-8467

Phone: 717-772-0122
Fax: 717-772-5630
E-mail: DEPWSTechtrain@pa.gov

D. DEP Operator Training Approval Process at a Glance



2. Application for Training Sponsor Approval and Training Program Accreditation

A. Introduction

Any training provider who wants to offer training to Pennsylvania water and/or wastewater operators for pre-certification or continuing education contact hours must first be approved as a sponsor by DEP. **Before applying to become a Pennsylvania sponsor, applicants should first read Sections 8 and 9 of this manual to ensure that they can comply with all the sponsor responsibilities and course guidelines.**

In addition to becoming a sponsor, providers have the added option of submitting additional information to obtain accreditation of their entire training program. Although DEP-accreditation is not necessary, course applications that are submitted for approval by sponsors who have a DEP accredited training program will undergo the brief review process.

Allow 45 calendar days for processing of sponsor applications following receipt of application payment. Allow 60 calendar days for processing of applications that include a request for accreditation of a training program. Incomplete submissions may delay the process. There are no renewal requirements.

Requests for additional information or clarification will be conveyed electronically by the Global TAPS system. Applicants are required to make changes and additions to the application within Global TAPS and resubmit to DEP. Approval and denial letters, and application fee invoices are also delivered electronically.

Sponsors agree to comply with the sponsor responsibilities and reporting requirements listed in Section 8 of this manual. DEP may suspend or revoke sponsorship (see Section 10), or the sponsor may voluntarily withdraw from being a sponsor.

B. Instructions for Completing Sponsor Application

The sponsor application is completed through the web-based approval system (Global TAPS) at: <https://www.ahs.dep.pa.gov/GlobalTAPS/>.

If you are not registered in the system, follow these steps:

- Click on “Provider Registration” in the left menu
- Fill out Part I “Contact Information” and create a username and password.
- In Part II “Training Partner Information”, click on “New Training Partner” to create registration information for the partner.
- Fill-in the training partner contact information. In question 4, click “Yes” to proceed to the sponsor application.

1. Sponsor Application – Part I

Select the accreditation category that applies to your organization. If your organization falls into one of the following three categories, you will be asked for a summary of your program in Part II:

- State-accredited school district.
- Nationally- or state-accredited institution of higher learning such as a college, university, or technical school.
- International Association of Continuing Education and Training (IACET) authorized provider.

2. Sponsor Application – Part II: Sponsor Approval

If your organization meets one of the three categories listed in Part I above, you will be asked for a brief description of your training program and how it relates to operator certification training needs. You will then be taken to the end of the application process.

If you do not fall into one of the three accreditation categories listed in Part I, you will be taken to Section B of the application. Please complete the information pertaining to:

- Instructional materials
- Delivery methods
- Qualifying course instructors/developers
- Assessing achievement of course objectives
- Providing learner support
- Scheduling and advertising courses
- Tracking course registrations
- Tracking student attendance
- Issuing satisfactory course completion certificates
- Post-course or program evaluations
- Reporting operator completions to Pa. DEP

You have two options at this point in the application process.

1. Apply for accreditation of your training program by continuing to Part III. This will require you to respond to more detailed questions about your training program and the submission of your materials. Upon accreditation, your courses are eligible for a brief review and a reduced application fee of \$115 per course.
2. You may skip the accreditation portion and proceed to Part IV to complete the sponsor application process. Your courses will be subjected to the detailed course review and the associated fee of \$300 per course.

3. Sponsor Application – Part III: Program Accreditation

If choosing program accreditation, please complete the training program details pertaining to:

- Brief history of your company or organization
- Leading products and services
- Primary market
- Identification of a continuing education or training unit
- Credentials of key training staff
- Reporting structure
- Mission statement and goals on continuing education
- Written policies and standards for needs assessments, determining course objectives, planning training courses, evaluating and approving your own course content, ensuring consistency between multiple instructors, evaluating and approving instructional methods, ensuring a suitable learning environment, conducting course audits, and establishing and implementing review procedures to ensure training courses meet Pa. DEP criteria.
- Administrative procedures for personnel performance reviews, record retention, and reporting procedures to DEP.

4. Sponsor Application – Part IV: Attachments

You will be asked to upload certain required attachments in this step of the application, such as sample student tracking forms, sample PowerPoint files, and a sample course evaluation form.

5. Sponsor Application – Part V: Certification

In the electronic application, you are asked to check the “I Agree” box to certify that you have read the sponsor responsibilities and course guidelines of the Pennsylvania Water and Wastewater Training Program and agree to abide by those responsibilities and guidelines.

Upon clicking “Finish” on the Confirmation page, you will be emailed an invoice and confirmation that we have received your application.

3. Application for Training Course Approval

A. Introduction

If you are not an approved training sponsor in Pennsylvania, you must first apply to become one before you can submit course applications electronically. Contact hours are awarded only for courses of instruction that have been approved by DEP. Courses may not be advertised or otherwise promoted as approved for Pennsylvania water or wastewater pre-certification or continuing education credit until they have been approved in writing. **A course will not carry Pennsylvania contact hours until written approval of the course has been issued to the sponsor by DEP. All training courses are expected to conform to the course guidelines listed in Section 9 of this manual.**

Allow 45 calendar days for processing of course or course content applications following receipt of application payment. Incomplete submissions may delay the process. A separate electronic application form is required for each training course for which approval is requested. Requests for additional information or clarification will be conveyed electronically by the Global TAPS system. Applicants are required to make changes and additions to the application within Global TAPS and resubmit to DEP. Approval and denial letters, and application fee invoices are also delivered electronically.

A training course consists of both content and delivery. Therefore, a training course will not have any Pennsylvania water or wastewater operator contact hour value until the entire course is approved and linked to an approved sponsor who will administer and deliver the course. It is recommended that you limit the number of course applications that are submitted at any one time. This will help to keep DEP's application process efficient. It will also help to avoid wasting time in the event that applications are incomplete.

B. Instructions for Completing Application for Approval of Training Course or Course Content

The course application is completed through the web-based approval system (Global TAPS) at: <https://www.ahs.dep.pa.gov/GlobalTAPS/>.

To log-in, use the credentials that you established during the training sponsor registration process. To begin a new application:

- Click on "Course Applications" in the left menu
- Click on the "Add New" button below the right side of the application table

1. Part I: Applicant Description

The system will automatically populate your information in the fields shown based on your log-in, with the exception of the Contact Name. Use the drop-down box to choose the appropriate contact for the application. The Brief Review Criteria section will also be prepopulated based on your accreditation status.

2. Part II: Standard Course Information

1. Enter the course title.
2. Check the box for Proprietary or Public Domain. If you have created or have permission to use the course materials, check “Proprietary”. Very few courses are public domain and you may still need permission to use these materials.
3. Describe all the ways in which the course content materials exist.
4. If the applicant plans to use content from a previously approved course, check “yes”. You will then be asked to select the sponsor and course title of the previously approved course.
5. From the list shown, check all applicable categories of topics that the course content covers.
6. You will see Step 6 if your courses meet the brief review criteria. Add the names and descriptions of all course materials.

3. Part III: Course Information

1. Indicate the suggested level of the course.
2. Indicate whether the course applies to drinking water, wastewater, or both.
3. The brief description of the course should summarize the course information as you would in a brochure. DEP will use this information to answer inquiries on available Water and Wastewater Operator Training and publish the information to the course catalog at www.earthwise.dep.state.pa.us/edu.
 - a. Describe the background and purpose in less than 100 words.
 - b. Use bulleted statements to briefly describe course content.
 - c. Briefly describe who should attend the course (e.g., water or wastewater operators, plant superintendents, authority or board members, etc.)
4. Course Availability
 - a. Indicate whether the course is available on an ongoing basis or just a single event.
 - b. Indicate if the course is available to the public or if it is designed for company employees only. DEP will not direct outsiders to courses designated as in-house only.
5. Briefly describe the educational need for the learning experience.

6. Check whether the course is designed for classroom, distance education format, or a combination of both.
7. List course objectives or expected training course learning outcomes. Each outcome should be only a few words or a sentence. Refer to Appendix D for examples of acceptable and unacceptable course objectives as well as a verb list for objective construction.
8. Indicate the timeframe of course delivery. For example, is it a single 8-hour session or is it self-paced correspondence or Web-based training?
9. Indicate if the course has been assigned academic credits or Continuing Education Units (CEUs) by a state- or nationally-approved college or university or if the course has IACET CEUs.
10. For course approval, you are asked to submit a course outline, including time spent on each topic. Show breaks and meal time periods. An example of an acceptable outline is shown in Appendix E. You will be asked to upload this near the end of the electronic application.
11. Indicate how many Pennsylvania water/wastewater contact hours you are requesting for this course (see Section 7 for the proper method of calculating contact hours).
12. Select all of the teaching techniques used for this course from the list. If it is a correspondence course, you should check “self-paced reading/activities” and generally would not check “interactive activities.” All other types of courses, including classroom and Web-based courses, should contain techniques other than self-paced reading.
13. Select all of the teaching tools used for this course from the list.
14. Select which method(s) listed below you will use for assessing the achievement of learning outcomes (course objectives). Also indicate the performance standards or requirements you will use associated with each assessment method used. Indicate only the methods and associated standards that apply to this course. All courses are expected to have at least one additional assessment method other than attendance.

Assessment Method	Performance Standard or Requirement
Attendance	Indicate acceptable percentage of attendance.
Homework	Does it count toward course completion? If so, how?
Quizzes/Tests	Do you require completion or passing grade?
Project, problem solving or skill check exercises, or other demonstration of learning (Describe)	Do you only require completion, or do you use a subjective observation or evaluation?

15. Describe the course setting or learning environment in which you expect to present this course (college or high school classroom, hotel, firehall, Internet, etc.).
16. If this is a classroom course, indicate if you ever expect to teach to a class of more than 40. If “Yes,” explain how you will effectively utilize adult education concepts and maintain a quality learning environment.

4. Part IV: Attachments

For both brief and full course reviews, you are required to upload the course agenda. For full course reviews, you will also be required to upload course materials, such as PowerPoint presentations, instructor guides, and workbooks. For web-based courses, submit an electronic version of the course, or provide full temporary access to the course on the Internet by uploading the username and password. For correspondence courses, submit the entire course.

For detailed course reviews, you are also required to upload a resume, or a completed Instructor Qualifications Verification form (refer to Appendix F) for each instructor teaching the course.

5. Part V: Certification

In the electronic application, you are asked to check the “I Agree” box to certify that you have read the sponsor responsibilities and course guidelines of the Pennsylvania Water and Wastewater Training Program and agree to abide by those responsibilities and guidelines.

Upon clicking “Finish” on the Confirmation page, you will be emailed an invoice and confirmation that DEP received your application.

4. Application for Approval of Certificate or Associate's Degree Program

A. Introduction

A sponsor may offer a certificate program or associate's degree program in water and/or wastewater, i.e., an entire curriculum or series of DEP-approved training courses. Upon completion of a certificate or associate's degree program, the participant would receive a certificate or diploma from the sponsor indicating satisfactory completion of all the courses and requirements of the program. Operators will receive credits for each of the DEP-approved courses in the program. More importantly, operators completing a DEP-approved certificate or associate's degree program will be eligible for reduced operating experience necessary to qualify for certification.

The key elements of a certificate or associate's degree program are:

1. A DEP-accredited training program.
2. For a certificate program, at least 180 contact hours (18 CEUs or 12 college credits) of DEP-approved courses specifically organized into a curriculum for either the drinking water or wastewater disciplines. Normally a certificate program will involve either drinking water or wastewater, not both. DEP may consider a certificate program for both if the sponsor demonstrates it contains a sufficient number of hours or college credits to adequately address both disciplines. For example, a program approved for both water and wastewater would require at least 180 hours of courses approved for drinking water and 180 hours of courses approved for wastewater. However, courses approved for both drinking water and wastewater may be applied to both 180-hour minimums.
3. For an associate's degree program, at least 360 contact hours (36 CEUs or 24 college credits) of DEP-approved courses specifically organized into a curriculum for either the drinking water or wastewater, or both. When the degree involves both water and wastewater, the sponsor is expected to demonstrate that it contains a sufficient number of hours or college credits to adequately address both disciplines. For example, a program approved for both water and wastewater would require at least 360 hours of courses approved for drinking water and 360 hours of courses approved for wastewater. However, courses approved for both drinking water and wastewater may be applied to both 360-hour minimums.
4. An appropriate mix of DEP-approved industry-specific, technical courses that will provide a well-rounded education in water and/or wastewater operation, as determined by DEP.
5. The program may consist of additional courses that are not approved by DEP, provided the minimum number of drinking water and/or wastewater hours or college credits is met.
6. The sponsor should organize the courses into a logical sequence or progression of topical areas related to drinking water and/or wastewater. The sponsor should

also indicate courses that are not approved by DEP but are contained in the program.

7. The sponsor should provide additional information about its certificate or associate's degree program that supports the usefulness and the value of the program's content. Include any restrictions or rules imposed by the sponsor upon the certificate program candidates.

B. Instructions for Completing Application for Approval of a Certificate or Associate's Degree Program

The Certificate and Associate's Degree application is completed through the web-based approval system (Global TAPS) at: <https://www.ahs.dep.pa.gov/GlobalTAPS/>.

Allow up to 45 calendar days for processing of applications. Incomplete submissions may further delay the process. There is no application fee for the certificate or associate's degree (individual course application fees still apply).

Requests for additional information or clarification will be conveyed electronically by the Global TAPS system. Applicants are required to make changes and additions to the application within Global TAPS and resubmit to DEP. Approval and denial letters, and application fee invoices are also delivered electronically.

To log-in, use the credentials that you established during the training sponsor registration process. To begin a new application:

- Click on "Certificate Applications" in the left menu
- Click on the "Add New" button below the right side of the application table.

1. Part I: Applicant Description

All applicants complete this part. Your information, with the exception of the "Contact Name" will be prepopulated based on your log-in.

2. Part II: Certificate or Associate's Degree Program Information

Enter all information about your drinking water and/or wastewater certificate or associate's degree program. Use the drop-down menu in item 4 to associate your approved courses with the program.

3. Part III: Certification

In the electronic application, you are asked to check the "I Agree" box to certify that you have read the sponsor responsibilities and course guidelines of the Pennsylvania Water and Wastewater Training Program and agree to abide by those responsibilities and guidelines.

Upon clicking "Finish" on the Confirmation page, you will be emailed a confirmation that DEP received your application.

5. Water and Wastewater Industry Conferences

A. Using Conferences for Continuing Education Credit

Approved training sponsors may apply to have conferences approved for continuing education credit.

- Conferences are valued at one contact hour per one half-day of conference session. One half-day equals at least 2.5 hours of continuous, active, technical session time, not counting mealtimes. For complete information on conference credit, see the guidelines for awarding of continuing education credit in Section 7, Special Conference Standards.
- Conference contact hours count toward operator continuing education, but do not count toward pre-certification experience.

To obtain approval for a conference, the conference provider must be an approved Pennsylvania sponsor or the conference must be co-sponsored or sanctioned by an approved sponsor, and the sponsor submits a Conference Application to DEP. The sponsor has ultimate responsibility for tracking attendance and reporting a roster of attendees who are Pennsylvania certified operators to DEP according to the Sponsor Reporting Requirements (see Section 8).

Upon approval of the Conference Application, DEP will assign a separate course ID number worth one contact hour to each half-day session and will designate whether the contact hours apply to water, wastewater, or both. The sponsor is responsible for tracking and reporting successful completions for each half-day segment separately.

Contact hours may be awarded for DEP-approved training courses offered in conjunction with a conference. Training providers should pre-register participants for approved courses at conferences to ensure proper preparation, or set a pre-determined maximum class size and close the class when the maximum size is reached. The sponsor may award credit to an operator for either half-day conference sessions or for approved training courses, but not both during the same time frame on a given day (see Section 7).

B. Instructions for Completing Conference Notification Form

The conference application is completed through the web-based approval system (Global TAPS) at: <https://www.ahs.dep.pa.gov/GlobalTAPS/>.

Please allow up to 45 calendar days for processing of conference notifications following receipt of application payment. Incomplete submittals may delay the process. There is a \$70 conference application fee.

To log-in, use the credentials that you established during the training partner registration process. To begin a new application:

- Click on “Conference Applications” in the left menu.
- Click on the “Add New” button below the right side of the Pending Conference Applications table.

1. Part I: Applicant Description

The system will automatically populate your information in the fields shown based on your log-in, with the exception of the Contact Name. Use the drop-down box to choose the appropriate contact for the application.

2. Part II: Conference Information

1. Enter the name of the conference as indicated on any brochures or advertisements for the conference.
2. Indicate if this is a conference, ½ day seminar, or full day seminar. Generally, conferences are multiple day events.
3. Indicate whether this conference applies to drinking water, wastewater, or both.
4. Briefly describe how you will track conference attendance. That is, how will you determine if attendees participate in the entire conference or only a portion of the conference
5. Fill-in the conference start and end dates. Click on “Auto Generate Sessions” and Item 6 will populate with each half-day session.
6. Each line in the Conference Session Details table represents one half-day conference session. This information is automatically generated from the information in Item 5. You may then click the “Edit” or “Delete” button to adjust each session. You can also use the “Add” button to add additional half-day sessions.

3. Part II: Conference Information (Continued)

1. If you are holding DEP-approved courses during the conference, please indicate the date, time, sponsor, and course title.
2. Provide the conference agenda or schedule by uploading an electronic version. Alternatively, you may select “Add Web Site”, which will allow you to add relevant web link information. You may also select “Add Mail In” to indicate that you will receive a copy.

4. Part III: Certification

In the electronic application, you are asked to check the “I Agree” box to certify that you have read the sponsor responsibilities and course guidelines of the Pennsylvania Water and Wastewater Training Program and agree to abide by those responsibilities and guidelines.

Upon clicking “Finish” on the Confirmation page, you will be emailed an application fee invoice and confirmation that DEP received your application.

6. Application for Post-Presentation Credit Approval

A. Introduction

Post-presentation credit refers to an operator's request to obtain credit for a training course that has not been pre-approved by DEP. This topic is discussed in this manual to make training providers aware that operators have this option available to them.

This process is the only way an operator can obtain credit for a course that has not been DEP-approved. Operators should be aware that there is no guarantee that they will obtain credit through this means. The main elements of the DEP post-presentation credit process are as follows:

- It is the water or wastewater operator's responsibility, not the training provider's responsibility, to apply for post-presentation credit.
- The water or wastewater operator submits the application and requested information about the course and course provider as soon as possible after successful completion of the course. DEP will not accept Post-presentation Credit applications more than 2 years following an operator's cycle expiration date. DEP will only award the requested credit to an operator upon approval of the application.
- To be considered for post-presentation credit, the operator should demonstrate that the course and the training provider meet the course and sponsor standards in accordance with this manual.
- Post-presentation credit is not applicable to conferences.
- Approval of contact hours for an operator through the post-presentation process does not constitute approval of the training course. Training sponsors are responsible for obtaining approval of their training courses using the application shown in Section 2.

B. Instructions for Completing the Post Presentation Application

Certified operators access the application at <https://www.ahs.dep.pa.gov/GlobalTAPS/> and by choosing "Operator Registration." Once an operator has created a username and password for the system, access is granted to the Post Presentation Application on the left side menu.

Operators are charged a \$250 application fee for each Post Presentation Application.

7. Awarding of Continuing Education Credit

A. Credit Upon Completion of a Training Course

1. Credit for training is awarded as contact hours. Calculation of contact hours is determined as follows:
 - Only material that is relevant to water or wastewater treatment plant operators qualifies for credit.
 - Course content that applies to both industry types equally, such as first aid training, will be awarded contact hours to both drinking water and wastewater. For courses with industry-specific content, contact hours will be awarded for both industry types if exactly half of the course information applies to each industry type.
 - Only instructional and learning activities qualify for credit, i.e., activities that include planned learning experiences that take place in a suitable learning environment and involve interaction between learner and instructor or learner and materials that have been prepared to enhance learning.
 - The minimum approved length of any course is 0.5 contact hours, and courses are approved in terms of half-hour increments. That is, a course may be worth 2 contact hours or 2.5 hours, but not 2.25 contact hours. No training session may last more than a total of 8 hours per day including meals and breaks, unless otherwise approved by DEP.
 - College courses that are DEP-approved are worth 15 contact hours for each college academic credit. Courses with established CEUs from a recognized and reputable training organization such as a college, university, or the IACET are worth 10 contact hours for each CEU.
 - Contact hours for a typical classroom training course are calculated by adding up the minutes of all the active, meaningful sessions of instructional activity during which learning occurs and dividing that sum by 60. Another method is to take the total time spent in the course and subtract the time for all breaks, meal periods, and other periods of time when instructional activity and learning is not occurring.
 - Any fraction of an hour of instructional activity is calculated as follows:
 - 50-60 minutes = 1 contact hour
 - 30-49 minutes = .5 contact hour
 - < 30 minutes = not counted
 - Registration, breaks, lunch, social periods, reading assignments, homework, or take-home exams do not qualify for credit for classroom courses. Approved courses may not be conducted while attendees are eating a meal. Credit for extensive self-directed reading assignments or projects outside of class that are an integral requirement of the class may be considered, as negotiated by the provider and approved by DEP.
 - For correspondence courses, self-directed reading or study time counts because it represents an alternative to time spent in a classroom.
 - Credit for on-line or technology-based distant education courses (such as Web-based) is to be determined based on the average time it takes the

learner to complete the course in beta testing. DEP may consider other factors, such as amount of interactivity, assignments given and any off-line activities in determining the credit value.

2. The sponsor may not award partial credit. Full credit is awarded for satisfactory completion of a course. If the learner does not complete a course, no contact hours may be awarded.
3. Within 30 days of the end of a course, sponsors are expected to provide a certificate of completion or some other written instrument of notification to each participant who has satisfactorily completed the course. The notice of completion should contain, at a minimum, the information indicated in Section 8A, item 7 of Sponsor General Responsibilities.
4. Within 30 days of the end of a course, sponsors are expected to report information to DEP about each Pennsylvania certified water or wastewater operator who has successfully completed the course (see Sponsor Reporting Requirements in Section 8).
5. DEP reserves the right to withhold credit from Pennsylvania-certified operators who participated in a training event that was not delivered as approved by DEP or that otherwise does not meet the course guidelines in accordance with this manual. DEP further reserves the right to withhold credit from Pennsylvania-certified operators who participated in a DEP-approved training event that was delivered by a sponsor that does not meet sponsor responsibilities in accordance with this manual.

B. Special Conference Standards

1. Conferences offered by DEP-approved sponsors are valued as one contact hour per every one half-day of conference session. One half-day equals a minimum of 2.5 hours of continuous, technical, active conference session time, not counting meals. No more than two contact hours may be awarded for a 24-hour period. Additional structured training courses provided in connection with a conference may be worth credit if approved by DEP separately, just like any other training course.
2. For the same time frame on a given day, a certified operator may be awarded credit for either half-day conference sessions or for approved training courses, but not both. For example, suppose the morning segment of a conference consists of traditional conference presentations and the afternoon consists of a DEP-approved three-hour training course. The attendees would receive one contact hour for the morning half-day conference session and three contact hours for the afternoon training course (as properly tracked and reported by the sponsor).
3. Attendance at open conference exhibit areas count toward active conference session time, provided the exhibit area is open during the entire half-day session and provided the session includes at least 1.5 hours of technical presentations. That is, exhibit area availability alone does not constitute a half-day conference

session. Conference attendees may obtain credit for attendance at an approved conference session regardless of whether they are attending technical sessions or visiting an exhibit area that is open during the session.

4. To count a half-day conference session for both drinking water and wastewater, at least 1.5 hours of session time is expected to apply to both industry types. During conferences with concurrent sessions, the 1.5 hour criteria can be met by concurrent technical presentations that apply to each industry type separately, or presentations that count toward both.
5. Facilitated or guided water or wastewater system tours count toward active conference session time.
6. Business meetings or other related association or sponsor business activities do not count toward active conference session time.

C. Retroactive Award of Credit

DEP encourages providers to obtain prior approval of their courses to keep post-presentation applications to a minimum. However, training providers may offer courses that are not necessarily directed to water and wastewater operators. These courses may attract operators if the subject matter is relevant to their work (e.g., computer courses). If the provider is not already a sponsor, the provider may apply to become a sponsor and may apply for approval of the course.

DEP will award credit retroactively to any operator who successfully completes a training course or conference upon satisfaction of all of the following conditions:

- If certified, the operator successfully completed the course or conference before the operator's certification expiration date.
- The sponsor obtains approval of the course or conference from DEP before the operator's certification expiration date.
- The sponsor issues a successful completion certificate to the participant and reports the operator information to DEP as required under Sponsor Reporting Requirements (see Section 8) before the operator's certification expiration date.
- DEP has not denied, suspended, revoked or withdrawn approval of the course or conference.

8. Sponsor Responsibilities

A. Sponsor General Responsibilities

DEP expects the following:

1. Sponsors have provisions for administrative services adequate to deliver training courses or events in a proper and efficient manner, maintain records, and meet the reporting requirements of DEP.
2. Sponsors have a procedure to identify which course participants are Pennsylvania-certified water or wastewater operators who need to have their course completion information reported to DEP for continuing education credit. DEP recommends that sponsors ask course participants if they are Pennsylvania-certified water or wastewater operators. Sponsors should then obtain the information needed for submission of the operator roster reports as described in the Sponsor Reporting Requirements section.
3. Sponsors use qualified instructors who have demonstrated experience or are considered knowledgeable by their peers in the subject area. The sponsor is responsible for selecting, supervising, and, whenever appropriate, dismissing instructors.
4. Sponsors have an appropriate advertising method in place. Sponsors are not to advertise or otherwise promote a training activity as approved for Pennsylvania water or wastewater pre-certification or continuing education credit until it has been approved in writing. Sponsors may, however, advertise a course using language that reflects the application status, such as “pending DEP approval” or “applied for DEP approval.” Training activity titles and descriptions should accurately represent the content and training techniques of the activity. Correspondence courses should be clearly advertised as such. Courses on the Web that are merely online correspondence courses may not be advertised as Web-based courses.
5. Sponsors develop and apply effective procedures for attendance verification and tracking.
6. For training courses, sponsors employ adult learning principles and apply assessment processes that relate to the course objectives. Activities that provide a means of determining if participants have achieved the learning outcomes are appropriate (See Section 9, Course Guidelines). DEP does not consider self-assessment as a satisfactory assessment process.

7. Sponsors issue a certificate, letter, or other instrument of verification of successful completion to participants who have satisfactorily completed courses. Verification to participants should be provided no later than 30 calendar days after the completion of the course or event. DEP recommends that such verification include the following at a minimum:
 - Name of participant
 - Training provider name
 - Name of course (as approved by DEP)
 - Course dates or date of course completion
 - Contact hours or credits earned
 - Signature of training provider representative or other indication that the verification is an official course completion instrument of the provider
8. Sponsors use appropriate educational resources for students (i.e., textbooks, handouts). Sponsors are expected to use adequate physical facilities for training.
9. Sponsors agree to keep all records pertaining to each training event for at least three years following completion of the event. These records should be readily available to DEP upon request.
10. Sponsors develop and apply reliable course evaluation procedures.
11. Sponsors develop and apply comprehensive internal audit procedures for instructors and course materials.
12. Sponsors take into consideration the results of course evaluations and internal and DEP audits when making modifications to courses and training programs.
13. Sponsors' courses and related services conform to applicable provisions of the Americans with Disabilities Act of 1990.¹
14. Sponsors agree that representatives of DEP and/or its designees, in an official capacity, may:
 - Audit any training activity;
 - Review course materials, instructors' presentations, instructors' qualifications, course records, records of examination and attendance rosters;
 - Attend any course for the purpose of an audit without paying any fees.

Auditors will not be hindered, obstructed, delayed, prevented, or interfered with while conducting or attempting to conduct audit or review activities. Audits will be conducted with minimum disruption and will in no way interfere with course delivery.

¹ Americans with Disabilities Act of 1990, 42 U.S.C §§12101 *et seq.*

15. Sponsors who deliver technology-based training courses have or make provisions for adequate administration of the courses, based upon the type of technologies used. Technology-based training sponsors should provide technical support adequate to meet the needs of the learner.
16. Sponsors who deliver correspondence courses have a policy regarding the turnaround time for grading of the final test materials that is clearly stated to the student. The turnaround time for grading should not exceed 14 days.
17. Sponsors deliver training events as approved by DEP. DEP reserves the right to withhold credit for Pennsylvania certified operators that take courses or conferences that are not delivered as approved or in accordance with the guidelines in this manual.
18. Sponsors agree to perform the reporting requirements listed under Sponsor Reporting Requirements section:

B. Sponsor Reporting Requirements

Class Roster Reports

Within 30 days of the end of a training event, sponsors are expected to upload the course roster information to DEP's web-based training approval system at:

<https://www.ahs.dep.pa.gov/GlobalTAPS/>

Within the electronic system, a sponsor can only upload course completion information for their DEP-approved courses. The information required for upload to the DEP system includes the following:

- Course Date
- Course ID number
- Full name and Client ID number of certified operators that complete the course.

Only actively certified operators that successfully complete a DEP-approved course can be uploaded to the DEP system. Uncertified operator attendance information will be blocked from upload into the DEP system.

There are three roster types in the electronic reporting system.

- **Training Course** – Used to report classroom training events
- **Distance Education** – Used to report distance education, such as web-based training on a monthly basis.
- **Conference Roster Report** – For approved conferences, the sponsor is responsible for submitting roster information for each DEP-approved half-day conference session.

Pennsylvania certified operators that instruct a DEP-approved course may include themselves on the course session roster, but may do so only one-time per course, per certification renewal cycle. If multiple instructors shared in teaching the course, then

only an instructor teaching at least 50 percent of the course is entitled to credit for the course. On a case-by-case basis, and upon approval by DEP, the sponsor may include additional instructors involved with teaching less than 50 percent of the course on the roster report. DEP will consider the following in making such determinations:

- Involvement in course development
- Time spent in course activities
- Amount of involvement in course delivery
- Length of course
- Number of instructors involved with course delivery

Sponsors may be required to secure class participant authorization before submitting successful completion information to DEP about a participant (see Appendix H for a sample form that may be used).

C. Sponsor Status and Course Modifications

Sponsors should notify DEP within 30 days of any of the following:

1. If the primary contact for a sponsor changes, the new contact's information should be added to the web-based training approval system within 30 days.
2. Any significant changes that may affect the accuracy of the information as submitted in the sponsor application.
3. Any significant changes which affect the ability of a sponsor to meet any of the Sponsor General Responsibilities described above.
4. Any significant changes to a sponsor's training program as submitted in the sponsor application.
5. Any significant modifications to the content or delivery of a training course as approved by DEP; for example, if content is expanded or reduced, resulting in a different number of hours.
6. Any circumstances that alter the ability of a training activity to meet guidelines as described in this manual.

9. Course Guidelines

A. General Course Guidelines

The following criteria differentiate the course from a typical presentation. A presentation is intended to convey information without regard for the audience's grasp of the material. A training course, offered for contact hours, teaches important information or a particular skill and allows participants to demonstrate what has been learned.

The following guidelines and standards apply to all training courses regardless of format. However, DEP will use appropriate discretion in applying the guidelines related to adult learning concepts and interactivity when reviewing paper-based distance education courses (correspondence) for approval.

To be approved for contact hours, DEP expects the following:

1. Course content is accurate, current, and presented in a logical sequence.
2. Courses contain measurable training objectives or goals. See Appendix D for example objectives and a verb list for objective construction. The course content and delivery should fulfill the stated objectives.
3. All courses, regardless of length, employ adult learning principles to create an interactive environment that promotes active participation. At a minimum, courses are expected to include periodic interactivity with the course participants, such as posing predetermined questions to elicit discussion and feedback from the participants. An adult learning classroom course should not go longer than 30 minutes without an interaction with the participants. Asking the participants if they have any questions does not fulfill this interactivity requirement (see adult education concepts in Appendix B). Other adult learning concepts include:
 - A variety of learning methods (lecture, group activities, demonstrations, questioning).
 - A variety of instructional materials (PowerPoint, flipchart, video, whiteboard).
 - Relevant examples/exercises.
 - Hardcopy course material or reference material (see guideline 7 below).
 - Relevant exercises to practice skills.
 - Suitable methods to test for understanding (see guideline 4 below).
4. All courses, regardless of length, include a demonstration of learning by the participants. This is also called an assessment method. The assessment method should reinforce learning, monitor learner progress, and provide feedback on progress. Assessments are based on the course objectives. Assessments may take the form of performance demonstrations, problem solving scenarios, skill check exercises, written tests or quizzes, reports, or completion of a project. Any activities that provide a means of determining if participants have achieved the

learning outcomes are appropriate. DEP does not consider self-assessment or full-group question and answer as satisfactory assessment processes. If a course uses a quiz or test as the primary assessment method, the number of questions and difficulty should correspond with the content and objectives.

5. A minimum attendance requirement of 85 percent for successful completion and award of contact hours under the Pennsylvania operator training program.
6. Contact hours are calculated according to the methodology in Section 7, Awarding of Continuing Education Credit.
7. Classroom courses include hardcopy participant materials, such as student workbooks, manuals, and/or job aids as these are a visual tool for adult learners. Additional reference materials that are available electronically may supplement the in-class hardcopy materials, but cannot act as the sole course material.
8. Course content is relevant to the job of water or wastewater treatment plant operators, or both. Content should contribute directly to the professional competency, skills, or knowledge base of water or wastewater operators.
9. Classroom courses are to be held in an environment conducive to learning that minimizes distractions and provides ample space for the number of participants.
10. For classroom courses that exceed 40 participants, instructors should have experience in facilitating large groups. At a minimum:
 - Provide an additional instructor/facilitator for every 10 to 20 participants over 40, or as negotiated with DEP. Additional facilitators are to be actively involved in classroom management.
 - Instructors should repeat participant questions so the entire class is involved.
 - During the course, the instructor should move around the classroom to keep the participants engaged.
 - The demonstration of learning, as discussed in course guideline 4 above, may need to be adapted for a larger class size. For example, small group sizes should be kept to 5 or 6 participants, which will lead to a large number of groups. The training provider should ensure that enough facilitators are available to manage the groups.
11. Courses are presented during a reasonable time frame conducive to learning and make proficient use of instructional time. The course agenda should allow sufficient time for the assessment method and feedback.
12. Course instructors have the necessary practical and academic skills to conduct the course effectively, including knowledge of adult education concepts.
13. A course may not be intended to promote specific products or markets. Vendor-sponsored training is eligible for credit if the course covers operational fundamentals of a type of product or process, rather than the benefits of the

product itself. A course that provides education about a specific product or market and allows the operator to be better informed for his/her job responsibilities can be considered for credit.

14. Courses include opportunity for evaluation by participants.

B. Additional Guidelines for Asynchronous Technology-Based Distance Education Courses

In addition to the applicable course guidelines in Section A above, the following guidelines apply to asynchronous technology-based distance education courses (see definitions associated with Technology-Based Training in the Glossary of Terms). DEP expects the following:

1. Web-based courses are comprised of presentation, application, and feedback components.
2. Web-based courses include interactivity (scrolling or clicking “next page” does not constitute interactivity). At a minimum, the course should include periodic interactive tests for comprehension or review quizzes with feedback.
3. All asynchronous technology-based distance education courses include an assessment method as described in course guideline A.4.
4. Instructions and prompts are clear and consistent.
5. The average pace should match the credit value of the course.
6. The course has adequate technical support available.

Acceptable technical support includes the following:

- Ability to communicate with a human being by phone or e-mail
 - Help or assistance from a reliable, responsible source
 - Response within one workday
7. The course is controllable and flexible to allow the learner to control content flow. The learner should also be able to resume the learning process later when the course is interrupted.
 8. Graphics, animations, video, simulations, and participant interactions support the course objectives.
 9. The course is created specifically for the web-based learner. A recorded classroom course that was intended for a live audience does not meet this guideline.
 10. The technology supports the content. The course should focus on the content, not the technology used to deploy it.

C. Additional Guidelines for Synchronous Web-Based Training Courses

In addition to the applicable course guidelines in Section A above, the following guidelines apply to synchronous Web-Based Training (WBT) courses (see definition of synchronous learning in Appendix A). DEP expects the following:

1. All synchronous WBT courses include a written assessment method as described in course guideline A.4. An example of an assessment for synchronous WBT training is a post-session quiz. A time limit should be placed on submission of the quiz for grading.
2. All synchronous WBT courses employ adult learning principles to create an interactive and involving environment as described in course guideline A.3. At a minimum:
 - The session should not go longer than 15 minutes without an interaction with the participants (DEP recommends interactivity every 10 minutes). This can be accomplished using various methods, such as polling and posing predetermined questions with participant responses. Asking the participants if there are any questions does not fulfill this requirement.
 - The course objectives of the session should be stated at the start of the session.
 - The key points of the training should be summarized at the end of the session.
 - During the session, periodic reviews of the material and transitions between sub-topics should be included.
3. **Tracking Attendance:** In a synchronous WBT course, it is difficult to determine if a participant is paying attention and not checking email or working on a different program. To verify consistent attendance, the instructor or facilitator is required to pose questions at various times within the session. The instructor should stop content delivery during this portion. The participants should respond to the questions through the chat system or another method approved by DEP. Using questioning in this way, the instructor can verify that each participant is present and answering questions. This coincides with the required interactivity in synchronous WBT guideline C.2 above.
4. Course delivery includes a technical producer or facilitator in addition to the instructor. The producer is responsible for all technical aspects of the session.
5. Ground rules and technical instructions are clearly stated at the beginning of the session.
6. It is clearly stated that the students are required to participate throughout the webinar and complete the assessment method for credit.
7. During the session, only one participant per computer.

8. The number of participants cannot exceed 25, unless otherwise negotiated with DEP.
9. Quality audio during the session. Speaker phones for the instructor are generally not a good option.
10. Synchronous WBT course software applications that include:
 - Interactive features, such as the ability to chat
 - Audio options for Voice-over-Internet Protocol (VoIP) or standard phone call-in
 - Ability to track participants by name
11. Total content and assessment time that does not exceed 2 hours. A break should be incorporated into sessions that exceed 1 hour. More than 2 contact hours can be assigned to multiple-session synchronous web-based courses, which are delivered on separate days, but the individual sessions may not exceed 2 hours.
12. Participant handouts or a workbook in electronic or paper form. These materials should be sent to the participants at least one business day prior to the session time.
13. Contingency plans to deal with the potential for technical problems on the user and/or administrator side.
14. In addition to course guideline A.12 above, course instructors should be well-versed in synchronous WBT best practices and techniques.
15. The training provider is expected to allow the DEP Training Section to participate in the course, particularly if the provider is new to delivering synchronous WBT courses.

10. Quality Assurance and Training Program Administration

A. Quality Assurance

DEP may request information at any time from a sponsor about any training activities, which includes the sponsor organization and personnel, its policies and procedures, conferences, or courses. This is to ensure that sponsors are meeting guidelines described in Section 8, and that sponsors and training activities meet all other provisions described in this manual.

DEP may make such a request by phone, in writing, or by any other means to the responsible party of the sponsor. Such requests will include a reasonable time frame agreeable to both parties for responding to the inquiry. Sponsor or training course and conference deficiencies identified by DEP will be discussed and worked out to the mutual satisfaction of both the sponsor and DEP.

Training activity audits will be performed on a random basis subject to DEP's priorities and available resources and time. Audits may also be triggered by operator evaluations of courses, operator complaints or comments about the sponsor's training, or other information that warrants an audit.

Sponsors are subject to both announced and unannounced course audits by the DEP or its authorized agent to:

- Evaluate compliance with policies and procedures.
- Evaluate adherence to instructional procedures described by the sponsor.
- Evaluate whether course content is presented as approved.
- Evaluate the ability of a course to meet the intended learning outcomes.
- Evaluate the course content for appropriateness in meeting both the objectives of the course and the goals of the operator training program.
- Evaluate the quality of instruction presented by the instructor.
- Evaluate the quality and timeliness of instructor feedback (particularly with respect to distance education).
- Ensure that the training activity description as presented in any catalog or marketing materials is accurate.
- Evaluate the general effectiveness of a training activity.

DEP or its authorized agent will summarize the results of audits in a written report and send it to the sponsor.

B. Approvals, Disapprovals, Suspensions, and Revocations

Approvals and Disapprovals

By being approved by DEP, sponsors agree to accept and adhere to the Sponsor Responsibilities, Reporting Requirements, and all guidelines in this manual. Occasionally, a sponsor may dispute the outcome of an application for approval of a

training activity. If a dispute arises over the approval or disapproval of an application, DEP recommends the following procedures in the sequence listed below:

- Call DEP and discuss the disagreement with an operator training program representative, who will attempt to resolve the issue.
- If the dispute cannot be resolved, a training provider may file a written request stating the reason(s) for disagreement and requesting reconsideration of the decision. DEP will review the request and respond in writing within 10 business days. Send such requests to:

Pa. DEP

Bureau of Safe Drinking Water

Division of Training, Technical and Financial Assistance

Training Section

P.O. Box 8467

Harrisburg, PA 17105-8467

DEP will make every effort to discuss and work out a resolution to the mutual satisfaction of all parties. If a dispute cannot be resolved, either party may submit a written request to the Pennsylvania State Board for Certification of Water and Wastewater Systems Operators (Board) to review DEP's decision at:

Pennsylvania State Board for Certification

of Water and Wastewater Systems Operators

P.O. Box 8454

Harrisburg, PA 17105-8454

Suspensions

DEP may suspend approval of a sponsor if DEP finds:

- That a sponsor willfully and negligently withholds information affecting that sponsor's approval or accreditation of that sponsor's training program.
- That a sponsor fails to meet responsibilities in accordance with this manual.
- That a sponsor commits any fraudulent or unethical acts.
- That audits or evaluations of a sponsor or of training activities given by a sponsor reveal that responsibilities or guidelines in accordance with this manual are not being adhered to.
- Any activities of the sponsor are not in the best interest of the water and wastewater operator training program.

If approval of a sponsor is suspended, all training courses and conferences previously approved by DEP for that sponsor are automatically suspended. Operators attending suspended courses or conferences will not receive pre-certification or continuing education credit for those activities. However, operators that attended a course prior to suspension will receive course credit. Sponsors should notify operators that the sponsor's courses have been suspended. DEP will remove the courses from the approved course catalog.

DEP may suspend approval of a training course or conference if:

- It is not being presented as approved.
- The content is not current.
- The sponsor fails to meet its responsibilities.

Suspensions will remain in effect until the sponsor corrects the identified deficiencies to the satisfaction of DEP, at which time it will reinstate the sponsor and/or training course or conference approval in writing.

If the sponsor disagrees with DEP's suspension action, it should follow the same procedure outlined above under Approvals and Disapprovals. Sponsors and training activities will remain active while a Board review is in progress if the sponsor submits a written request to the Board within 30 days of a DEP suspension notice.

Revocations

DEP may revoke approval of a sponsor for cause. This may include situations where:

- A sponsor who is under suspension does not make the necessary corrections within a reasonable time frame stipulated by DEP; or
- A sponsor repeatedly or persistently violates any of the criteria for suspension listed above.

If approval of a sponsor is revoked, all training courses and conferences previously approved by DEP for that sponsor are automatically revoked. Operators attending revoked training activities will not receive pre-certification or continuing education credit for those activities. Sponsors should notify operators that the sponsor's courses and conferences have been revoked. DEP will remove courses from the approved course catalog.

In some instances DEP may revoke approval of a training course or conference without revoking the approval of a sponsor if it finds the deficiencies which were the basis for the course or conference suspension have not been corrected.

Revocations are permanent.

If the sponsor disagrees with DEP's revocation action, it should follow the same procedure outlined above under Approvals and Disapprovals. Sponsors and training activities will remain active while a Board review is in progress if the sponsor submits a written request to the Board within 30 days of a DEP revocation notice.

Appendix A: Glossary of Terms

There are a number of terms used in the education and training industry that may have different meanings to different audiences. To ensure a common understanding of the terms included or used in conjunction with this manual, we have included our definitions of these terms.

Asynchronous Learning: See **Technology-Based Training**.

Blended Learning: Learning that blends or combines different types of training formats, such as e-learning and classroom training.

Contact Hour: Standard unit of measure assigned by DEP for participation in a DEP-approved training event provided by a sponsor. One contact hour is equal to one hour of instruction or .1 CEU from a recognized and reputable training organization such as an IACET provider or the continuing education department of a university. One college academic credit is equal to 15 contact hours.

Continuing Education Unit (CEU): Unit of measure for continuing education issued by a recognized and reputable provider such as a college, university, or the International Association of Continuing Education and Training (IACET). One CEU is equal to 10 contact hours of instruction.

DEP-Accredited Training Program: An organized program for the development, administration, and delivery of quality training for water and wastewater system operators. A DEP-accredited training program includes well-defined standards, guidelines, and administrative procedures, including course delivery and records management. DEP accredits the entire training program of a sponsor who meets requirements described in Section 3 of this manual.

Distance Education: An educational system consisting of the methodologies and technologies that support learning when the learner and learning resources are separated by time and/or space. Distance education includes a wide variety of program designs that can be delivered through an array of media, including print, audio, video, and computers. Distance education may involve interaction between learners, instructors, and instructional materials at the same predetermined time (synchronous) or interaction at any time convenient for the learner (asynchronous). Correspondence courses and Web-based courses are types of distance education.

On-site Assistance: Assistance provided at water or wastewater sites. Examples include hands-on and troubleshooting assistance activities to address specific problems or to help optimize processes and operations at a specific water or wastewater site, generally by an outreach assistance provider. On-site assistance is not a training course and therefore does not count as pre-certification training or continuing education.

Post-presentation Credit: Pre-certification or continuing education credit for a training course not previously approved by DEP. An operator may obtain post-presentation credit upon application to DEP. Refer to Section 6 for details.

Proprietary Content: Course content protected by copyright law that can only be delivered by, or with permission of, the owner.

Public Domain Content: Course content that is not protected by copyright law and is eligible to be delivered by any training provider.

Sponsor: A training provider approved by Pa. DEP to administer and deliver training activities to Pennsylvania water and/or wastewater system operators for credit.

Synchronous Learning: See **Technology-Based Training**.

Technology-Based Training: A type of distance education involving computer or innovative technology that is generally interactive and most often developed in one or more of the following types of media:

Web-Based Training (WBT) – An entire training course designed to be taken interactively through a website and completed directly online. WBT involves learner interactivity and other elements of web-based training based on widely accepted web-based training instructional design and authoring principles. DEP does not consider online or electronic correspondence courses to be Web-based training. WBT can be delivered as asynchronous or synchronous learning:

Synchronous Learning: Web-based training course that involves interaction between learners, instructors, and instructional materials at the same predetermined time.

Asynchronous Learning: A type of web-based distance education in which learners complete coursework on their own time, such as a traditional web-based course.

Computer-Based Training (CBT) – An entire training course designed to be available on CD-ROM. Like Web-based training, CBT involves learner interactivity and contains other elements of computer training based on widely accepted computer-based training instructional design and authoring principles.

Training Activity: Any training course, conference session, certificate program or associate's degree program offered by a training provider for the Pennsylvania water and wastewater program.

Training Course Objectives: Also known as *learning outcomes*. Statements that describe the purpose of a training course or spell out what trainees will accomplish during training.

Training Course Outline (or Course Syllabus): An outline of the course, including approximate time spent on each topic. The syllabus should be presented in logical groupings of practical course content (see a sample course outline in Appendix E).

Training Format: The arrangement, manner, or setting used to deliver a training course. There are three basic training formats for water and wastewater operators: classroom, distance education, and conference.

Appendix B: Adult Education Design and Delivery

Adults learn best when they are actively involved in the learning experience and are given the opportunity to apply what has been taught.

DEP recommends using a 9-step course design process to ensure an interactive learning experience:

- Step 1 - Create an Introduction with Overall Training Objectives
- Step 2 - Create a Motivation
- Step 3 - Analyze content
- Step 4 - Create examples
- Step 5 - Make it relevant
- Step 6 - Create a method to check for comprehension
- Step 7 - Create a Summary
- Step 8 - Create transitions between concepts
- Step 9 - Make it interactive!

Adapted from *The Process of Effective Instruction* materials created by the Human Resources Employee Development Division in DEP.

Technical Classroom Training Tips

In addition to the 9-step process, DEP has compiled the following tips for delivery of technical training to adult learners:

- Begin the class by explaining what the participants are expected to learn (i.e. learning outcomes).
- Periodically pose questions to the students. This not only allows for interaction to maintain the learner's interest, it can also be used to determine if key concepts are being understood.
- Have students solve practice scenarios:
 - This can involve a handout with mock system circumstances and corresponding questions to answer about the situation.
 - After allowing the participants time to answer the questions individually or in groups, review the expected answers.
 - Practice exercises aid in learning since students have a break from listening and have an opportunity to process and practice the technical information.
 - During a testing situation, many students become stressed. Use application scenarios or small group exercises instead of tests to facilitate learning and check for comprehension.
 - Give students an opportunity to practice applying technical information after every 1-1.5 hours of listening.

- Give students a handout that contains the technical information you are covering.
 - This gives the students a reference for later use. Handouts can provide information that is too detailed for PowerPoint slides.
- Don't have more course objectives than you can reasonably cover during the course with time for practice included.
 - Technical training contains a myriad of details. If you find yourself saying "We don't have *time* for people to practice this information because we have too much to tell them", it may be time to separate the course into two courses.
 - Also, think about what information can be moved to a workbook appendix which is referenced during the course, rather than covered in detail.
- Practice a dry run of your technical training on co-workers (include someone from your intended audience if possible). This will help you with several important issues, including timing and determining if certain key points need more clarification.
- Don't put too many students in a classroom (beyond 35 or 40 it becomes increasingly difficult to effectively interact and assess the students). If more than 40 students are in attendance an additional instructor or assistant should be available for facilitating and assessing the students. Plan for the appropriate room space including enough table space for handouts and writing.

Presentations are not the same as technical training. The following table presents the differences between the two.

Training versus Presentations

Characteristic:	Technical Training	Presentation
Measurable training goals or objectives (i.e. what will the learner be able to do after this session?)	X	
Used to explain concepts and teach tasks	X	
Consistent interactivity between the instructor and participant	X	
Small chunks of information with opportunities for the learners to practice the concepts and receive feedback before moving on	X	
Measurement of learner comprehension through scenario/problem solving or skill check exercises, performance demonstrations, exams/quizzes, or completion of a project	X	
Frequently based on the results of a needs assessment	X	
Typically used to summarize information such as study results or product features.		X
Information dispensed in a given timeframe without regard for learner comprehension		X
No expectation of learner input and participation		X
PowerPoint used as the primary handout		X
Case Studies	X	X

Appendix C: Drinking Water Operator Training Needs Assessment Results

Highest possible score for IMPORTANCE OR KNOWLEDGE (based on 235 respondents) = 1175

Highest possible TOTAL SCORE (based on 235 respondents) = 2350

Highest possible AVERAGE SCORE (based on 5 each for IMPORTANCE and KNOWLEDGE) = 10

ID #	DRINKING WATER ABILITY OR KNOWLEDGE	RANK	IMPORT SCORE	KNOWL SCORE	TOTAL SCORE	AVERAGE
38	Collect Samples	1	1000	1042	2042	8.69
18	Chlorination O&M	2	1034	999	2033	8.65
149	Take Samples	3	997	1024	2021	8.60
113	Chlorine Safety	4	1037	977	2014	8.57
39	Check CL2 Residual Free and/or Total	5	924	1071	1995	8.49
13	Determine Proper Chemical Dose	6	1015	979	1994	8.49
43	Take Bacteria Samples	7	954	1028	1982	8.43
88	Leak Repair	8	972	1008	1980	8.43
167	Maintain Required Records	9	1008	971	1979	8.42
57	Preventive Maintenance	10	1005	965	1970	8.38
56	Equipment Maintenance (lube, adjust, align, etc.)	11	995	960	1955	8.32
145	Submit Reports to DEP	12	931	1022	1953	8.31
11	Perform Basic Math Calculations	13	957	992	1949	8.29
122	Customer Relations	14	961	979	1940	8.26
14	Chemical Feed Pump O&M	15	966	970	1936	8.24
120	Communication	16	968	964	1932	8.22
37	Check pH	17	887	1038	1925	8.19
155	Respond to Sample Results	18	943	977	1920	8.17
123	Water Quality Complaint Resolution	19	967	951	1918	8.16
58	Pump (water) O&M	20	960	938	1898	8.08
115	Understand MSD Sheets (Right to Know)	21	943	954	1897	8.07
141	Problem Solving	22	945	951	1896	8.07
83	Handle Water Complaints	23	936	959	1895	8.06
109	Chemical Storage and Handling	24	935	957	1892	8.05
124	Report to Authority	25	890	995	1885	8.02
129	Public Relations	26	929	953	1882	8.01
139	Emergency Response Plan	27	934	938	1872	7.97
34	Check Turbidity (and make required changes)	28	809	1062	1871	7.96
102	Disinfect New Lines	29	892	978	1870	7.96
16	Calibrate Chemical Feed Pumps	30	887	975	1862	7.92
114	Employee Safety Training	31	922	937	1859	7.91
84	Meter Reading	32	846	1011	1857	7.90
95	PA-One Calls	33	840	1016	1856	7.90
12	Process Control Calculations	34	902	953	1855	7.89
96	Inspect and Maintain Storage Tanks	35	905	949	1854	7.89
68	Flow Monitoring (incl. pumping to maintain tank levels)	36	899	953	1852	7.88
119	Listen to Employees	37	877	974	1851	7.88
97	Flushing	38	866	984	1850	7.87
138	Inventory and Order Chemicals	39	864	983	1847	7.86
157	Obtain and Maintain Proper Permit	40	848	997	1845	7.85
70	Evaluate Water Analysis and Make Approp. Trtmnt. Changes	41	858	986	1844	7.85
150	Interpret Analysis Results	42	865	967	1832	7.80
87	Backflow/Cross Connection	43	883	948	1831	7.79
116	Emergency First Aid	44	940	891	1831	7.79
127	Prepare Reports	45	863	965	1828	7.78
20	Calibrate pH Meter	46	818	1008	1826	7.77
154	Administer Water Quality Monitoring	47	851	973	1824	7.76

ID #	DRINKING WATER ABILITY OR KNOWLEDGE	RANK	IMPORT SCORE	KNOWL SCORE	TOTAL SCORE	AVERAGE
111	Develop Safety Program	48	908	912	1820	7.74
64	Maintain Maintenance Records	49	896	923	1819	7.74
82	Leak Detection	50	888	930	1818	7.74
85	Meter Repair and Replacement	51	811	1007	1818	7.74
153	Implement Lead and Copper Program	52	830	988	1818	7.74
130	Supervise Personnel	53	827	990	1817	7.73
65	Inventory and Order Spare Parts	54	850	966	1816	7.73
103	Install New Water Lines (service and mains)	55	785	1025	1810	7.70
108	Corrosion Control	56	855	952	1807	7.69
48	Control Filter Operation (including backwash)	57	746	1060	1806	7.69
121	Conflict Resolution	58	867	939	1806	7.69
112	Confined Space Entry	59	853	952	1805	7.68
7	Well Monitoring	60	819	984	1803	7.67
4	Well Head Protection	61	829	973	1802	7.67
106	Line Location	62	834	965	1799	7.66
62	Preventive Maintenance Records	63	875	922	1797	7.65
161	Operate and Maintain Monitoring Equipment	64	858	938	1796	7.64
59	Motor Control Trouble Shooting (incl. basic electric work)	65	829	964	1793	7.63
66	Operation and Maintenance Manual	66	863	930	1793	7.63
94	Upgrade System Mapping	67	806	986	1792	7.63
8	Well Pump O&M	68	818	969	1787	7.60
36	Check Alkalinity	69	751	1034	1785	7.60
90	Maintain Inventory of Distribution Parts	70	780	1003	1783	7.59
152	Conduct Public Notification	71	813	970	1783	7.59
3	Source Protection	72	863	915	1778	7.57
163	Operate and Maintain Filters	73	751	1027	1778	7.57
151	Compute Yearly Running Average Results	74	782	994	1776	7.56
98	Make Service Turn Ons and Turn Offs	75	751	1024	1775	7.55
134	Develop Maintenance Schedules	76	834	939	1773	7.54
137	Implement Draught Contingency Plan	77	762	1010	1772	7.54
42	NPDES Sampling, Analyses, and Reporting	78	737	1032	1769	7.53
67	Electrical Checks	79	801	968	1769	7.53
44	Control Coagulation Process	80	707	1061	1768	7.52
105	Valve O&M (including exercise program)	81	803	963	1766	7.51
107	System Mapping	82	819	947	1766	7.51
128	Oversee Contractors	83	783	983	1766	7.51
118	Work with Contractors	84	791	974	1765	7.51
143	Planning	85	822	936	1758	7.48
92	Make Water Taps	86	727	1028	1755	7.47
76	Instrumentation O&M (including calibration)	87	762	991	1753	7.46
49	Monitor Filter Head Loss	88	689	1062	1751	7.45
73	Calibrate Testing Equipment (lab and on-line)	89	765	985	1750	7.45
75	Calibrate Turbidimeter	90	719	1030	1749	7.44
117	Lab Safety	91	771	977	1748	7.44
53	Check Filters	92	705	1042	1747	7.43
5	Check Well Draw Down	93	761	985	1746	7.43
45	Control Flocculation Process	94	687	1058	1745	7.43
147	Basic Computer Skills - File Handling - Data Entry	95	755	989	1744	7.42
22	Analyze Bacteria Samples	96	697	1046	1743	7.42
140	Purchasing	97	751	982	1733	7.37
46	Control Sedimentation Process	98	674	1050	1724	7.34
23	Taste and Odor Test and Remediation	99	726	997	1723	7.33
135	Develop Operation Training Plan	100	758	965	1723	7.33
54	Keep Filter History	101	676	1044	1720	7.32
100	Dig Up and Install Curb Boxes	102	685	1035	1720	7.32

ID #	DRINKING WATER ABILITY OR KNOWLEDGE	RANK	IMPORT SCORE	KNOWL SCORE	TOTAL SCORE	AVERAGE
160	Calculate Contact Times	103	751	969	1720	7.32
63	Read Blueprints	104	768	949	1717	7.31
86	Hydrant O&M	105	750	967	1717	7.31
28	Lab Analysis Fe & Mn	106	647	1067	1714	7.29
21	Standardization of Reagents	107	722	988	1710	7.28
47	Inspect Filter Media	108	680	1030	1710	7.28
144	Collect Delinquent Water Bills	109	665	1043	1708	7.27
148	Prepare and Follow Sample Siting Plan	110	709	993	1702	7.24
74	Operation of On-Line Analyzers	111	682	1018	1700	7.23
166	Complete Monitoring Waiver Application	112	680	1019	1699	7.23
110	Knowledge of Types of Shoring	113	729	969	1698	7.23
132	Schedule Employees	114	703	994	1697	7.22
131	Evaluation of Technology	115	743	951	1694	7.21
133	Schedule Purchase of Budgeted Items	116	715	979	1694	7.21
61	Work on Back-Up Generator	117	665	1017	1682	7.16
30	Lab Analysis Hardness	118	636	1042	1678	7.14
125	Budget Report	119	681	996	1677	7.14
158	Evaluate and Re-evaluate Corrosion Control Program	120	714	962	1676	7.13
162	Use and Interpret Partnership Computer Software	121	666	1006	1672	7.11
31	Lab Analysis Nitrate	122	613	1058	1671	7.11
1	Reservoir Management	123	666	1003	1669	7.10
50	Monitor Filter Media Loss	124	650	1019	1669	7.10
165	Survey Source Protection Area	125	689	979	1668	7.10
60	Clean and Rebuild Valve Actuators	126	634	1031	1665	7.09
104	Hydrant Flow Test	127	679	985	1664	7.08
126	Schedule Work for Technicians	128	659	1002	1661	7.07
15	Dry Chemical Feeders O&M	129	633	1027	1660	7.06
71	Jar Testing	130	636	1024	1660	7.06
27	Lab Analysis Temp	131	581	1075	1656	7.05
77	Telemetry	132	614	1032	1646	7.00
32	Lab Analysis Chlorides	133	580	1056	1636	6.96
33	Run Inorganics Test	134	560	1076	1636	6.96
55	Draw Off Sludge	135	592	1039	1631	6.94
164	Delineate Source Protection Area	136	657	972	1629	6.93
156	Conduct Feasibility Study	137	618	1009	1627	6.92
142	Keep Employee Time Cards (know who is on call)	138	593	1033	1626	6.92
51	Use Filter Aid When Needed	139	557	1065	1622	6.90
35	PO4 Test	140	577	1044	1621	6.90
136	Prepare Block Grant Applications	141	511	1108	1619	6.89
81	Understand SCADA System	142	577	1041	1618	6.89
26	Lab Analysis Color	143	546	1058	1604	6.83
99	Work on Specialty Valves (altitude, pressure reduction, etc.)	144	609	989	1598	6.80
146	Work With Spreadsheets (computer)	145	584	1013	1597	6.80
52	Clean Sand From Filter (slow sand)	146	531	1065	1596	6.79
89	Manhole Inspection and Repair	147	597	999	1596	6.79
25	Lab Analysis Fluoride	148	495	1099	1594	6.78
78	Operate SCADA	149	555	1035	1590	6.77
17	Change Caustic Soda Drums	150	544	1042	1586	6.75
101	Cathodic Protection	151	573	1009	1582	6.73
159	Determine 3 Log Inactivation	152	520	1062	1582	6.73
2	Check Upstream	153	578	1002	1580	6.72
19	Fluoridation O&M	154	502	1078	1580	6.72
40	Test Water for Calcium Hardness and CaCO3, Satur. Index	155	523	1056	1579	6.72
6	Well Bubbler System Maintenance	156	508	1059	1567	6.67
80	Check Radio Telemetry Operation	157	50	1517	1567	6.67

ID #	DRINKING WATER ABILITY OR KNOWLEDGE	RANK	IMPORT SCORE	KNOWL SCORE	TOTAL SCORE	AVERAGE
24	Lab Analysis Hot Odors	158	490	1076	1566	6.66
69	Ion Exchange Softener O&M	159	466	1098	1564	6.66
91	Hydropneumatic System O&M	160	533	1028	1561	6.64
29	Lab Analysis Ba	161	471	1085	1556	6.62
93	Operate Boring Machine	162	501	1055	1556	6.62
79	Work with PLC (programmable logic controller)	163	518	1010	1528	6.50
9	Rake River Screens	164	436	1080	1516	6.45
10	Check Racks at Dam	165	424	1091	1515	6.45
41	CO2 Testing	166	447	1067	1514	6.44
72	Operate Sludge Press	167	421	1086	1507	6.41

Wastewater Operator Training Needs Assessment Results

Highest possible score for IMPORTANCE OR KNOWLEDGE (based on 235 respondents) = 1175

Highest possible TOTAL SCORE (based on 235 respondents) = 2350

Highest possible AVERAGE SCORE (based on 5 each for IMPORTANCE and KNOWLEDGE) = 10

WASTEWATER ABILITY OR KNOWLEDGE	RANK	IMPORT SCORE	KNOWL SCORE	TOTAL SCORE	AVERAGE
(A81) Ability to perform CPR	1	254	195	449	7.02
(A7) Ability to calibrate instruments	2	268	180	448	7.00
(K43) Knowledge of training packages available	3	221	224	445	6.95
(K57) Knowledge of the PA regulations for exceptional quality	4	208	229	437	6.94
(K56) Knowledge of the PA regulations for agricultural utilization	5	206	237	443	6.92
(K8) Knowledge of laboratory equipment and procedures	6	264	179	443	6.92
(K2) Knowledge of electrical & mechanical principles	7	243	199	442	6.91
(A80) Ability to conduct a pollution prevention and energy efficiency audit	8	201	241	442	6.91
(K61) Knowledge of first aid/CPR	9	258	183	441	6.89
(A6) Ability to calibrate equipment	10	266	175	441	6.89
(K51) Knowledge of the concepts to dispose of biosolids	11	261	179	440	6.88
(A76) Ability to convey to public impact of WWTP on stream	12	229	211	440	6.88
(K53) Knowledge of the PA regulations for incineration	13	176	263	439	6.86
(K14) Knowledge of potential causes and impact of disasters on facility	14	252	187	439	6.86
(A58) Ability to use gauges to trouble-shoot pumps	15	226	213	439	6.86
(K28) Knowledge of Standard Methods	16	231	207	438	6.84
(A53) Ability to develop a budget	17	224	214	438	6.84
(K55) Knowledge of the PA regulations for composting	18	190	246	436	6.81
(K45) Knowledge of simple exponential function application for pH and microorganisms	19	227	209	436	6.81
(K1) Knowledge of biological science	20	222	214	436	6.81
(A57) Ability to interpret pump curves	21	217	219	436	6.81
(K62) Knowledge of rehab procedures and different technologies	22	201	234	435	6.80
(K46) Knowledge of water uses and criteria of watershed	23	216	219	435	6.80
(K30) Knowledge of wastewater treatment concepts and treatment processes	24	272	163	435	6.80
(K12) Knowledge of normal chemical range	25	247	188	435	6.80
(A71) Ability to develop a P2 plan for the facility	26	222	213	435	6.80
(A54) Ability to develop a project budget	27	214	221	435	6.80
(K48) Knowledge of causes and sources of odor	28	260	174	434	6.78
(K27) Knowledge of sampling procedures	29	284	149	433	6.77
(A56) Ability to develop a public relations campaign	30	195	238	433	6.77

WASTEWATER ABILITY OR KNOWLEDGE	RANK	IMPORT SCORE	KNOWL SCORE	TOTAL SCORE	AVERAGE
(A1) Ability to adjust chemical feed rates, flow patterns, and process units	31	276	157	433	6.77
(K26) Knowledge of safety regulations	32	275	157	432	6.75
(K6) Knowledge of general chemistry	33	238	194	432	6.75
(A31) Ability to perform laboratory calculations	34	263	169	432	6.75
(A5) Ability to calculate dosage rates	35	266	166	432	6.75
(K50) Knowledge of the principle concepts of pollution prevention	36	260	171	431	6.73
(K47) Knowledge of principles of wasteload allocation	37	226	205	431	6.73
(K3) Knowledge of emergency plans	38	251	180	431	6.73
(A83) Ability to determine which method of rehab technology to use in each situation	39	189	242	431	6.73
(K52) Knowledge of benefits and requirements	40	230	200	430	6.72
(K25) Knowledge of regulations	41	268	162	430	6.72
(K21) Knowledge of proper application, handling, and storage of chemicals	42	285	145	430	6.72
(K20) Knowledge of process control instrumentation	43	258	171	429	6.70
(K7) Knowledge of general electrical principles	44	247	182	429	6.70
(K54) Knowledge of the PA regulations for landfilling	45	201	227	428	6.69
(A78) Ability to develop a public relations program	46	210	218	428	6.69
(A69) Ability to create a database	47	191	237	428	6.69
(A49) Ability to conduct training programs	48	229	199	428	6.69
(A13) Ability to diagnose and troubleshoot units	49	264	164	428	6.69
(A77) Ability to recognize public's concerns	50	245	182	427	6.67
(A55) Ability to negotiate contracts	51	187	240	427	6.67
(K40) Knowledge of compatibility of computer	52	199	227	426	6.66
(K11) Knowledge of normal characteristics of wastewater	53	270	156	426	6.66
(K36) Knowledge of principles of finance	54	191	234	425	6.64
(K4) Knowledge of facility operation and maintenance	55	281	144	425	6.64
(A70) Ability to compare economics and environmental benefits	56	197	228	425	6.64
(K58) Knowledge of simple statistical principles related to sampling and analysis	57	237	187	424	6.63
(A32) Ability to recognize abnormal analytical results	58	268	156	424	6.63
(A18) Ability to evaluate, diagnose, and trouble-shoot process units	59	262	162	424	6.63
(K31) Knowledge of public administration practices	60	187	236	423	6.61
(K23) Knowledge of quality control and assurance practices	61	251	172	423	6.61
(K59) Knowledge of algebraic and geometric concepts of these parameters	62	203	219	422	6.59
(K29) Knowledge of start-up and shut-down procedures	63	268	154	422	6.59
(K9) Knowledge of mechanical principles	64	253	169	422	6.59
(A44) Ability to perform impact assessments	65	195	227	422	6.59
(K38) Knowledge of mapping techniques	66	190	231	421	6.58
(K18) Knowledge of principles of public relations	67	228	193	421	6.58
(A9) Ability to communicate safety hazards verbally and in writing	68	273	148	421	6.58
(A3) Ability to assess likelihood of disaster occurring	69	233	188	421	6.58
(K39) Knowledge of compatibility of software	70	185	235	420	6.56
(K16) Knowledge of principles of management	71	221	199	420	6.56
(K13) Knowledge of personal protective equipment	72	275	145	420	6.56
(A2) Ability to adjust operation of equipment	73	280	140	420	6.56
(K10) Knowledge of monitoring & reporting requirements	74	260	159	419	6.55
(A23) Ability to maintain processes in normal operating conditions	75	280	139	419	6.55
(K41) Knowledge of different services	76	179	239	418	6.53

WASTEWATER ABILITY OR KNOWLEDGE	RANK	IMPORT SCORE	KNOWL SCORE	TOTAL SCORE	AVERAGE
(A75) Ability to use a simple software package to store and manipulate data i.e. "Excel"	77	200	217	417	6.52
(A51) Ability to write policies and procedures	78	211	206	417	6.52
(A42) Ability to generate capital plans	79	186	231	417	6.52
(A10) Ability to confirm chemical strength	80	236	181	417	6.52
(A82) Ability to read blueprints	81	243	173	416	6.50
(K17) Knowledge of principles of measurement	82	244	171	415	6.48
(K15) Knowledge of principles of general communication	83	243	172	415	6.48
(A25) Ability to monitor and adjust equipment	84	269	146	415	6.48
(A17) Ability to evaluate operation of equipment	85	260	155	415	6.48
(A36) Ability to select and operate safety equipment	86	263	151	414	6.47
(A79) Ability to organize a tour and brochure for plant	87	201	212	413	6.45
(A37) Ability to translate technical language into common terminology	88	236	177	413	6.45
(A20) Ability to identify potential safety hazards	89	281	132	413	6.45
(K34) Knowledge of record keeping practices	90	265	147	412	6.44
(A30) Ability to perform general maintenance	91	274	138	412	6.44
(K60) Knowledge of basic construction materials	92	222	189	411	6.42
(K32) Knowledge of human resource practices	93	182	229	411	6.42
(K19) Knowledge of principles of supervision	94	229	182	411	6.42
(A29) Ability to perform basic math and process control calculations	95	280	131	411	6.42
(A15) Ability to discriminate between normal and abnormal conditions	96	266	145	411	6.42
(K37) Knowledge of basic computer skills	97	229	181	410	6.41
(A40) Ability to generate short- and long-term plans	98	220	190	410	6.41
(K35) Knowledge of disciplinary procedures	99	206	203	409	6.39
(K24) Knowledge of record keeping functions & policies	100	258	151	409	6.39
(A26) Ability to monitor operation of equipment	101	269	140	409	6.39
(A24) Ability to measure and prepare chemicals	102	253	156	409	6.39
(A74) Ability to determine logarithms to base 10 using handheld calculator	103	173	235	408	6.38
(A11) Ability to demonstrate safe work habits	104	283	125	408	6.38
(A8) Ability to communicate observations verbally and in writing	105	259	149	408	6.38
(A68) Ability to enter data into spreadsheets	106	206	201	407	6.36
(A52) Ability to control employee activities	107	201	206	407	6.36
(A50) Ability to review reports	108	246	161	407	6.36
(K44) Knowledge of capabilities of different spreadsheets	109	176	230	406	6.34
(K33) Knowledge of principles of behavioral psychology	110	160	245	405	6.33
(A72) Ability to calculate arithmetic means, medians, range	111	219	186	405	6.33
(A62) Ability to attach document	112	176	229	405	6.33
(K22) Knowledge of proper lifting procedures	113	269	135	404	6.31
(A33) Ability to recognize unsafe work conditions	114	277	126	403	6.30
(K5) Knowledge of function of tools	115	264	138	402	6.28
(A34) Ability to record information	116	274	128	402	6.28
(A21) Ability to interpret and transcribe data	117	247	155	402	6.28
(A59) Ability to start computer	118	216	179	395	6.27
(A39) Ability to allocate resources	119	209	192	401	6.27
(A28) Ability to perform basic math	120	284	117	401	6.27
(A22) Ability to interpret Material Safety Data Sheets	121	260	141	401	6.27
(A19) Ability to follow written procedures	122	272	129	401	6.27
(A14) Ability to differentiate between preventive and corrective maintenance	123	253	148	401	6.27
(A12) Ability to determine what information needs to be recorded	124	255	146	401	6.27

WASTEWATER ABILITY OR KNOWLEDGE	RANK	IMPORT SCORE	KNOWL SCORE	TOTAL SCORE	AVERAGE
(A73) Ability to use a handheld calculator to calculate means and standard deviation	125	216	184	400	6.25
(A60) Ability to switch among drives	126	197	203	400	6.25
(A35) Ability to report findings	127	271	128	399	6.23
(K42) Knowledge of internet browsers and servers	128	159	239	398	6.22
(A65) Ability to find way through web sites	129	172	226	398	6.22
(A43) Ability to organize work activities	130	234	164	398	6.22
(A38) Ability to identify goals	131	226	172	398	6.22
(A4) Ability to assign work to proper trade	132	219	171	390	6.19
(A47) Ability to develop a work unit	133	198	198	396	6.19
(A48) Ability to motivate employee work activities	134	214	181	395	6.17
(A66) Ability to install software to use CD ROM	135	172	222	394	6.16
(A67) Ability to open word processing software	136	190	203	393	6.14
(A16) Ability to evaluate employee & facility performance	137	221	172	393	6.14
(A61) Ability to send and read e-mail	138	179	213	392	6.13
(A46) Ability to develop a staffing unit	139	191	201	392	6.13
(A41) Ability to conduct meetings	140	194	197	391	6.11
(A27) Ability to organize information & follow written procedures	141	247	144	391	6.11
(A64) Ability to locate websites	142	174	214	388	6.06
(A63) Ability to open documents	143	194	194	388	6.06
(A45) Ability to plan work activities	144	233	155	388	6.06
(K49) Knowledge of techniques of housekeeping and landscaping	145	225	157	382	5.97

Appendix D: Learning Objectives

The training course application requires that the sponsor list the training course objectives, or learning outcomes. Well written objectives are concise statements that describe what the learner will be able to do, or know how to do, as a result of the learning experience. Course objectives should begin with the phrase “At the end of this course, the participant will be able to...”

The following presents examples of acceptable and unacceptable course objectives, followed by a list of verbs to use in objective construction.

Acceptable Course Objectives/Learning Outcomes

Course Title: Corrosion Control Treatment Training for Operators

General Course Objectives/Learning Outcomes:

At the end of this training program, participants will be able to:

- Perform mathematical calculations for conversions and dosage feed rates.
- Calibrate chemical feed pumps.
- Perform water quality analysis (pH, alkalinity, phosphates).
- Achieve finished water stability through process control.
- Develop and/or update O&M plan for corrosion control treatment facilities (operating procedures, pump calibration procedures, sampling protocol).

Unacceptable Course Objectives/Learning Outcomes

Course Title: Corrosion Control Treatment Training for Operators

General Course Objectives/Learning Outcomes:

The following topics will be covered:

- Conversions and dosage feed rate calculations
- Chemical feed pumps
- Water quality analysis
- Finished water stability
- O & M plan development

These are not good objectives/learning outcomes for the following reasons:

1. They are not written from the learner’s point of view.
2. They do not tell what the learner will achieve upon course completion (e.g. upon completion of this course, the learner will be able to...list, solve, identify, explain, define, access, use, perform).

Verb List For Objective Construction

Knowledge Level

Attend	Designate	Imitate	Note	Select
Choose	Detect	Indicate	Omit	State
Collect	Differentiate	Isolate	Order	Tally
Complete	Discriminate	Label	Place	Tell
Copy	Distinguish	List	Point	Underline
Count	Distribute	Mark	Provide	
Define	Find	Match	Recall	
Describe	Identify	Name	Repeat	

Comprehension

Arrange	Convert	Gather	Relate	Underline
Attempt	Defend	Include	Reproduce	Volunteer
Categorize	Diagram	Itemize	Return	
Chart	Document	Locate	Search	
Cite	Estimate	Map	Signify	
Circle	Find	Organize	Sort	
Classify	Follow	Quote	Suggest	
Compile	Formulate	Record	Support	

Application

Adopt	Classify	Employ	Prove	Use
Apply	Collect	Exercise	Predict	Utilize
Avail	Develop	Illustrate	Relate	Wield
Capitalize	Devote	Organize	Show	
Consume	Discover	Operate	Solve	
Construct	Elaborate	Ply	Try	

Analysis

Analyze	Conclude	Discover	Induce	Present
Appraise	Contrast	Evaluate	Infer	Save
Breaks down	Criticize	Explain	Paraphrase	Show
Combine	Deduce	Formulate	Plan	Solve
Compare	Defend	Generate	Predict	Switch

Synthesis

Alter	Discover	Paraphrase	Reconstruct	Rewrite
Change	Expand	Propose	Regroup	Signify
Categorize	Extend	Question	Rename	Simplify
Design	Generalize	Rearrange	Reorganize	Synthesize
Develop	Modify	Recombine	Retell	Systematize

Evaluation

Appraises	Compare	Determine	Judge	Referee
Assay	Conclude	Evaluate	Prioritize	Settle
Accept	Contrasts	Explain	Rule	Summarize
Assess	Criticize	Grade	Rate	Support
Arbitrate	Describe	Interpret	Rank	Umpire
Award	Decree	Justify	Reject	Weigh

Appendix E: Acceptable Training Course Agenda

With each course application, the sponsor is required to provide a course agenda. An acceptable agenda includes the total course time, time spent on each topic, time spent on breaks, and the time designated for the assessment. The following is an example from a 3-day course.

Course Title: Corrosion Control Treatment Training for Operators

Course Length: 3 days; total of 21 hours

Course Times: 8 am to 4:30 pm; Lunch 12-1;
15 minute breaks at 10 am and 2 pm

Course Outline:

Day 1:

- Course Introduction (1/2 hour)
- Basic Corrosion Chemistry (1 hour)
- Lead and Copper Rule Overview (1 hour)
- Basic Units and Conversions (1.5 hours)
 - units and conversions
 - solving problems using units and conversions
- Water Quality Analysis (3 hours)
 - pH and temperature
 - pH and temperature workshop
 - alkalinity
 - alkalinity lab workshop
 - phosphate lab workshop

Day 2:

- Review of Day 1 and homework (1/2 hour)
- Corrosion of Lead and Copper (1 hour)
 - corrosion principles
- Corrosion Treatment Theory (1/2 hour)
- Corrosion Control Treatment (CCT) Chemicals (1 1/2 hours)
 - pH/alkalinity adjustment
 - phosphate/silicate inhibitors
- Chemical Feed (3 1/2 hours)
 - chemical feed systems
 - basic chemical feed calculations 1
 - pump calibration workshop

Day 3:

- Review Day 2 and homework (1 hour)
- Chemical Feed (cont.) (1 hour)
 - basic chemical feed calculations 3
- Process Control/Optimization (3 hours)
 - operational constraints/startup
 - stock solution/jar test workshop
 - process control and stability
 - process control workshop
- Course Summation (1/2 hour)
- Final Exam - open book (1 1/2 hours)

Appendix F: Instructor Qualification Verification



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER

INSTRUCTOR QUALIFICATION VERIFICATION

Sponsor Information

Sponsor Name	Sponsor ID #
I certify that the information on this form is true and correct to the best of my knowledge. It accurately represents the qualifications of the individual named on this form as an instructor. Further, I certify that the individual named as an instructor has been approved by this sponsor for the courses to which the individual is assigned to teach.	
_____ Typed/Printed Name of Sponsor Representative	_____ Title
_____ Signature	_____ Date

Instructor Information

Instructor Name (First, Middle, Last)		
Home Street Address		
City:	State:	Zip:
Business Phone:		Residence Phone:
Most relevant academic credentials:		
Certificate/Degrees in	Institution	Year Graduated
_____	_____	_____
_____	_____	_____
_____	_____	_____
Work Experience (starting with current)		
Employer	Your Title or Position	No. of Years
_____	_____	_____
_____	_____	_____
_____	_____	_____

Instructor Information (Continued)

Most relevant teaching experience (starting with most recent):

Organization	Position Title or Course Taught	Dates of Experience
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Licenses, certifications, or other relevant qualifications:

I certify that the information on this form is true and correct to the best of my knowledge, and that the information accurately represents my qualifications to teach training courses relevant to water or wastewater operators. I also agree to abide by all Pennsylvania guidelines regarding water and wastewater operator training.

Printed/Typed Name of Instructor

Signature

Date

Appendix G: Student Tracking Form

STUDENT TRACKING FORM

CLASS NAME: _____
 INSTRUCTOR NAME: _____
 CLASS LOCATION: _____

STUDENT NAME	ID #	DEP Client ID #	SESSION # DATE			SESSION # DATE			SESSION TOTALS A = TOTAL HRS. ATTENDED H = HOMEWORK REQUIREMENTS Q/T = QUIZZES & TESTS				COURSE COMPLETED Y or N
			A	H	Q/T	A	H	Q/T	A	H	Q/T		

INSTRUCTIONS: PLEASE LIST NAME AND SOCIAL SECURITY NUMBER OF STUDENT IN APPROPRIATE COLUMN. UNDER COLUMN TITLE "SESSION," LIST SESSION NUMBER AND DATE. THE LETTERS UNDER THE SESSION ARE FOR RECORDING THE FOLLOWING:

FOR SESSION TOTALS PLEASE LIST THE FOLLOWING INFORMATION

COLUMN A – STUDENT ATTENDANCE
 PLEASE USE THE FOLLOWING:
 + = STUDENT PRESENT
 - = STUDENT ABSENT
 0 = STUDENT DROPPED

COLUMN H – HOMEWORK ASSIGNMENTS
 PLEASE USE THE FOLLOWING:
 C = ASSIGNMENT COMPLETED
 F = FAILED TO TURN IN OR COMPLETE ASSIGNMENT
 N = NO HOMEWORK ASSIGNED THE SESSION

COLUMN Q/T – QUIZZES OR TESTS
 PLEASE USE THE FOLLOWING:
 P = PASSED QUIZ (Instructor Discretion on Scores)
 F = FAILED TEST OR QUIZ
 N = NO TEST OR QUIZ THIS SESSION

TOTAL NUMBER OF HOURS STUDENTS ATTENDED

NUMBER OF ASSIGNMENTS COMPLETED OVER THE NUMBER ASSIGNED (EXAMPLE 5/7)

NUMBER OF QUIZZES OR TESTS SUCCESSFULLY COMPLETED OVER THE TOTAL NUMBER OFFERED (EXAMPLE 3/4)

Appendix H: Class Participant Reporting Authorization Form

3900-FM-BSDW0010 2/2014



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER

Class Participant Reporting Authorization Form Authorization to Report Student Class Completion Information to DEP

Training Sponsor Name	Sponsor ID #
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I, _____, hereby authorize the above named sponsor to
(printed name)

notify the Pennsylvania Department of Environmental Protection of my completion status of:

Check one **→**

☐ Any training course provided to me by this sponsor

☐ The following training course only:

(Name of Course)

(Course ID#) (Start date of course) (End date of course)

I understand that this information will be used to determine my pre-certification and/or continuing education credit under the Pennsylvania Water and Wastewater Operator Training Program.

Typed/Printed Name of Course Participant	Signature	Date
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