



Certified Water Technologist Candidate Handbook

Association of Water Technologies

9707 Key West Avenue, Suite 100

Rockville, MD 20850

Phone: 301-740-1421

Fax: 301-990-9771

<http://www.awt.org>

CHECK LIST

Have you:

- Read the handbook cover to cover
- Read and agreed to be bound by the AWT Code of Ethics, policies and procedures as outlined in this handbook
- Filled out the application form in its entirety
- Signed your application form
- Completed Work Experience Forms
- Made a copy of your entire application packet for your records
- Solicited your 4 References
- Paid the appropriate application fee
- Signed your application form
- Mailed your application packet to:

**AWT
Certification Program
9707 Key West Avenue, Suite 100
Rockville, MD 20850**

- Made 4 copies of page 22 and mailed them to your 4 references

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1. OVERVIEW

A. PURPOSES

The Certified Water Technologist (CWT) program is sponsored by the Association of Water Technologies as a service to those companies that are committed to the professional development of the individuals who are the backbone of their companies and the industry. The purposes of the CWT program are:

- (a) To provide professional recognition for individuals involved in water treatment science and technology to indicate to the general public, coworkers, employers, and others that an impartial organization has used a recognized method to assess the individual's experience, knowledge and education;
- (b) To build confidence in the professionalism of certified individuals working in the field of water treatment by securing a declaration of ethics stating their determination to give due consideration to the best interests of the public, to apply themselves diligently and responsibly to their work, to act ethically in all matters, and to profess competence and make recommendations only in areas in which they are qualified by knowledge and ability;
- (c) To encourage the growth and updating of knowledge and understanding of the complexities of water treatment mechanisms through continuing dissemination of topical information to all professionals working in the field;
- (d) To provide the individual with a sense of achievement through professional advancement in their chosen field of industrial water treatment.

B. JOB ANALYSIS

A job analysis study was conducted to ensure that the CWT program reflects current practices of the industry. Practitioners from across the U.S., Canada, and several other countries, were surveyed to help evaluate the level of knowledge, skills and ability expected within the industry. The CWT job analysis survey was used to identify and help define the different activities that are performed in commercial/industrial water treatment. This study was also used to evaluate the significance of the various activities water treatment professionals perform, with regard to public protection, and to establish the relative importance of the activities for those entering the profession.

C. PROCESS SUMMARY

In order to become certified, the following requirements must be met:

1. You must take and pass the CWT written exam (see Appendix A)
2. You must complete and return the enclosed application (see Appendix B)
3. You must meet the Work Experience requirements, completing forms 1 & 2
4. You must submit four (4) appropriate references
5. You must pay the appropriate application fee

2. ELIGIBILITY REQUIREMENTS

A. EXAM

Anyone in the water treatment industry can take the exam. There is a waiting period involved for candidates who did not pass a previous attempt at the CWT exam (see 8B).

B. CERTIFICATION

1. Work Experience

Five (5) years of "Acceptable Work Experience" are requisite.

Acceptable Work Experience

a. "Acceptable work experience" is considered to be documented experience in a position related to industrial water treatment with general responsibility for (a) direct sales and/or service of water treatment applications, (b) technical support of sales and/or service personnel, or (c) technical consulting in the field of industrial water treatment. The term industrial water treatment is defined as treatment of boiler & cooling water systems associated with manufacturing facilities or HVAC operations.

b. "Acceptable work experience" is considered to be documented work experience in the field of water treatment which includes (a) the investigation of water treatment problems, (b) the implementation of corrective control procedures, (c) the servicing of water treatment applications, or (d) teaching of water treatment technology, any of which should be at a level of responsibility requiring initiative, technical ability, and independent judgment. The applicant need not be in administrative or supervisory control of the work. However, it is necessary that the applicant be in technical control and have technical responsibility. The distinguishing characteristic should be considered to be the ability to deal creatively with a set of circumstances relating to water treatment problems and to deduce or synthesize a competent course of action.

Alternative to Work Experience

a. A college degree in any discipline will be given 12 months credit toward fulfilling the work requirement.

b. A technical degree (i.e. chemistry, physics, biology, engineering, etc.) will be given an additional 6 months of credit toward the work requirement.

c. Credit will be given for work in a related field at the rate of 3 months for each year up to a maximum of 1 year. However, experience of this type will be evaluated on an individual case-by-case basis, and the burden will lie heavily on the applicant to demonstrate that the work performed meets the above criteria established under "Acceptable Work Experience."

2. Passing the CWT Exam

The CWT exam is organized into five sections relating to industrial/commercial water treatment as follows: 1) General Water Treatment Knowledge; 2) External Treatment; 3) Boiler Water Treatment; 4) Cooling Water & Closed System Treatment; and 5) Health, Safety & Environmental Regulations. A description of each content area is provided in the Content Outline (see 4A).

C. EXEMPTION

The Certified Water Technologist Program has been designed to have clear and reasonable requirements. No exceptions to the requirements are granted to any persons applying to participate in the program.

D. REVIEW PROCEDURE

A complete application with all necessary supporting documents must be submitted to AWT Headquarters on the appropriate form (see Appendix A & B).

When the completed application is received at AWT Headquarters, it is checked for completeness and to determine whether the applicant meets criteria for consideration. The applicant may be contacted for clarification and additional information if necessary.

When the applicant's file is completed, that file is submitted by AWT Headquarters to the Certification Committee for review to assure that all criteria have been met by the applicant. A favorable decision by the Certification Committee is required for approval, resulting in certification of the applicant. Any of the subcommittee members reviewing the application can request additional information or clarification. Unless the applicant specifically requests his/her application be reviewed before taking the test, the file will be submitted after the applicant has successfully passed the exam.

AWT Headquarters will advise the applicant when a decision has been reached by the Certification Committee. If the applicant is accepted for certification, the applicant is sent a certificate. Preparation of the certificate typically takes 4 - 6 weeks. Applications are reviewed on a first completed, first reviewed basis. AWT regrets that it cannot accommodate requests to "jump the queue" made by persons desiring to obtain certification on an expedited basis. If the applicant is not accepted, the applicant will be advised of the basis for non-acceptance. It should be noted that there are several common reasons for major delays in processing applications: incomplete applications, applications submitted in any format other than the approved format, and applications containing requests for exemptions or modifications to any program requirements.

E. APPEAL PROCESS

If you do not meet the criteria to become a Certified Water Technologist, your application packet will be returned with a letter stating why you are not eligible. You can appeal this decision simply by stating that you wish to do so by writing or faxing staff at AWT offices **within 30 days** of receipt of your letter of denial. If you decide NOT to appeal, you have 30 days from receipt of your letter of denial to state you do not wish to appeal the decision and to request your refund. Upon receipt of your written request for a refund we will send your refund, minus a \$75 processing fee.

F. TIME LIMITATION FOR COMPLETION OF CERTIFICATION

IMPORTANT: Applicants have 12 months to complete the certification process from the time they pass the certification exam. Applications on which there has been no activity for one year or more will be considered "inactive," deleted from the list of pending active applications, and will receive no further reminders from AWT. Reapplication will require repayment of the full appropriate fees in effect at the time of reapplication.

3. FEES

Examination Fee:

Members: \$175.00

Non-members: \$250

CWT Processing Fee:

Members: \$250.00

Non-members: \$500.00

Re-evaluation Fee: \$ 50.00

Re-certification Fee:

Members: \$125.00

Non-members: \$250.00

Additional Certificate Charge:

Ordered in advance, with this application: \$10.00 each*

Ordered after the original has been issued: \$25.00 each

*** Note: Due to the considerable time and expense associated with processing, we strongly recommend that CWT candidates request duplicate certificates (if desired) in advance. Please be sure to indicate on your CWT application that you would like additional certificates. Simply specify how many total certificates you desire and enclose the appropriate fee. Remember, the first certificate is complimentary.**

Bad Check Service Charge: \$25.00

Any person whose check is returned to AWT as "uncollectible" for any reason will have to submit a new payment plus a "Bad Check Service Charge." Upon collection of the payment, the Certification process will resume.

Reinstatement Fee: \$10.00

4. EXAMINATION CONTENT OUTLINE

The examination is made up of timed sections that cover separate areas of expertise. Each examination is considered a single unit. Applicants either pass or fail the examination as a whole. In case of failure, the complete examination must be retaken.

The exam is divided into 5 basic sections as described in the Content Outline. The exam has 200 multiple-choice questions. Four (4) answers are provided for each multiple-choice question. Only one answer of the four is correct. There are no "trick" questions, and there is no penalty for guessing. In other words, if you aren't sure, make your best guess. You will have four (4) hours to complete the exam. Because this is a competency exam, and because it's not supposed to measure your "academic excellence," the exam is scored as either pass or fail.

A. CONTENT OUTLINE FOR CERTIFIED WATER TECHNOLOGIST EXAM

The CWT exam covers a broad range of water treatment material related to the following general categories:

- I. General Water Treatment Knowledge
 - a. Basic Water Treatment Chemistry & Terminology
 - b. Metallurgy
 - c. Feed Control Equipment & Instrumentation
 - d. Heat Transfer Principles
 - e. Survey
 - f. Boiler & Cooling Water System Monitoring
 - g. Federal Environmental & Transportation Affairs
- II. External Treatment
 - a. Zeolite
 - b. Boiler Feedwater Deaeration
 - c. External Treatment Terminology
 - d. Basic Water Chemistry
- III. Boiler Water Treatment
 - a. System Design
 - b. System Inspection Procedures
 - c. Sampling & Analytical Testing Procedures
 - d. Corrosion & Deposit Problems and Treatments
 - e. Water Treatment Program Limitations
- IV. Cooling Water and Closed System Treatment
 - a. System Knowledge
 - b. System Sampling & Analytical Testing Procedures
 - c. Cooling Water Corrosion
 - d. Cooling Water Deposits and Scale
 - e. Cooling Water Microbiological and Fouling
 - f. Closed (loop) Systems
- V. Health, Safety, and Environment
 - a. Maintaining Personnel & Physical Plant Safety
 - b. Identification of Federal Regulations
 - c. Proper Disposal of Treated Waters

B. SAMPLE QUESTIONS

1. If a fresh water sample's total alkalinity (M) is higher than the total hardness, it indicates that: (A)
(A) all hardness is in the bicarbonate form
(B) no hardness is in the bicarbonate form
(C) some hardness is in the bicarbonate form
(D) all hardness is in the carbonate form

2. To calculate boiler blowdown heat recovery savings, the water technologist must know: (C)
(A) make-up water temperature
(B) thermal losses due to deposits
(C) BTU content of fuel
(D) condensate temperature

3. The normal bed depth in an ion exchange softener is: (B)
(A) 24 inches
(B) 36 inches
(C) 42 inches
(D) 48 inches

4. Which coagulant operates best at pH 6.8? (A)
(A) Aluminum sulfate
(B) Ferric sulfate
(C) Ferric chloride
(D) Aluminum chloride

5. If a boiler cycles the feedwater eight times, what is the percent blowdown? (B)
(A) 8%
(B) 12.5%
(C) 15%
(D) 17.5%

6. To prevent condensate from hanging up in a condensate line, the line must have adequate: (B)
(A) separators
(B) pitch
(C) traps
(D) treatment

7. Which of the following materials would need the most frequent replacement as a sacrificial anode in a cooling water system? (B)
(A) Aluminum
(B) Magnesium
(C) Cadmium
(D) Zinc

8. A recommended copper corrosion inhibitor used in closed systems is: (D)
(A) DEHA
(B) sulfite
(C) nitrite
(D) tolyltriazole

9. MSDS contains: (C)
(A) all formulation information
(B) a list of all ingredients, in order of concentration
(C) safety, handling, spills, and fire information
(D) information on how to use the product

10. The MSDS at a customer plant must be:

(D)

- (A) in a bound book
- (B) discarded after product is delivered
- (C) maintained by the purchasing agent
- (D) available to all plant personnel

C. SUGGESTED PREPARATION MATERIALS

- AWT Technical Reference and Training Manual
- AWT Raw Materials Specifications Manual
- “Water Treatment: Industrial, Commercial and Municipal”
- AWT Reference Guide for Water Treatment Companies
- “Cooling Water Treatment: Principles & Practice”

(Please note that all reference materials listed are available for purchase through AWT’s Bookstore.)

5. MAKING YOUR EXAM RESERVATION

A. SCHEDULING

The Candidate should visit the AWT website at <http://www.awt.org/Cwtlist1.htm> to print out the exam registration application. Once completed, this application can be faxed to (301) 990-9771 or mailed to AWT Headquarters. If you do not have web access, please call AWT directly at (301) 740-1421 to have an application faxed to you.

B. RESCHEDULING

To reschedule an exam, you must notify AWT at least one week before your scheduled exam date. The full exam fee from your first reservation will be applied to your new exam date. You **WILL NOT** be able to change your reservation if it’s less than one week before your scheduled exam. If you do not reschedule within these guidelines, you will be held responsible for the entire exam fee. You will be required to pay for the exam you missed before you will be eligible to make another reservation to take the exam.

C. CANCELING

What if you want to cancel your examination reservation? Immediately call AWT to cancel the appointment. If you do not you will be considered absent and forfeit all application fees. If you want to reschedule, follow the above guidelines.

D. FAILING TO APPEAR FOR A SCHEDULED EXAM

If on the day you are scheduled to take the exam you do not appear, and you have not rescheduled or cancelled your exam, you will lose the full exam fee. To take the exam in the future, you will need to resubmit full exam payment.

There are five acceptable reasons for failing to appear for a scheduled exam without prior cancellation or rescheduling. If your reason is accepted, you will be allowed to reschedule your exam—free of charge—one time. You will need to state your reason in writing within four (4) days of the scheduled exam date to the same address that is listed above.

Here are the only acceptable reasons for failing to appear:

- Serious illness--either you or an immediate family member
- Death in the immediate family
- Disabling traffic accident
- Court appearance or jury duty
- Unexpected military duty call-up

Note: AWT reserves the right to request additional evidence to support your reason for failing to appear.

E. ACCOMMODATIONS FOR CANDIDATES WITH DISABILITIES

AWT pledges to comply with the provisions of the Americans with Disabilities Act (42 USCG Section 12101, et. seq.), and with Title VII of the Civil Rights Act, as amended (42 U.S.C. 2000e, et. seq.). If you need us to make special arrangements because of a disabling condition, you may ask for special testing services. This request **must** be noted when making a reservation to take the exam. Upon such notification the candidate will receive a brief documentation form which must be completed to ensure that AWT can accommodate any special needs.

All test locations have access for candidates with disabilities. If a candidate needs special testing arrangements due to impaired sensory, manual or speaking skills, or other disabilities, the candidate **must** send AWT a letter from a licensed physician, optometrist, social worker, psychologist or other appropriate professional.

The letter must be written on the healthcare professional's letterhead and include the professional's title, address and telephone number. The letter must also include a diagnosis of the disabling condition, and explain why special testing arrangements are necessary. The letter must have an original signature from the professional. Faxes and photocopies will not be accepted.

Once approved, AWT will then decide on the time and place of the specially arranged exam. All special arrangements are subject to the policies of AWT. These arrangements will be provided at no additional charge.

6. EXAMINATION DAY

A. WHAT TO BRING

You must bring a form of signature identification. Your signature identification must have an imprint of your name in addition to bearing your signature (Driver's License, Passport) and must include a photo of you. It must bear the same name as the one you registered with for the exam. You will be provided with supplemental materials including some formulas, a non-scientific calculator and two #2 pencils.

If you do not have the required identification with you on your scheduled exam day, you will not be allowed to take the exam. You will be considered absent, and will lose the full exam fee. You will be required to reapply for the exam and pay all applicable fees.

Please note that visitors are not allowed in the exam room. Childcare is not provided.

B. REPORT TIME

Exams are usually scheduled at 8:00 a.m. Be sure to get to the testing location at least 30 minutes before the scheduled examination time.

C. LATE ARRIVAL

Candidates who arrive late for their exam will lose their reservation. They will be considered absent, and according to policy Item 5D, "*Failure to Appear for a Scheduled Exam*" will apply. **There are no exceptions to this rule.**

D. BAD WEATHER

The exam will be delayed or canceled only in emergencies. If severe weather or a natural disaster makes the testing center inaccessible or unsafe, the exam will be canceled. Local radio stations will broadcast any cancellations on the day of the exam. Exams that are canceled due to bad weather will be rescheduled as soon as possible, without additional charge. Candidates should call AWT during business hours to find out when the exam has been rescheduled.

7. TAKING THE EXAM

A. STRATEGIES

The exam evaluates the skills and knowledge of water treatment professionals. It is not something for which you can study or "cram." It is also not meant to judge your "academic excellence." It is designed to measure your competence. The reference list in this handbook is provided as a guide for those areas in which you may need extra review.

Please note AWT does offer training courses and other educational materials. These programs are strictly for education and training purposes only. AWT neither endorses nor sponsors any review courses for the Certified Water Technologist Examination. Strict security measures are taken to prevent the removal and/or reproduction of examination questions. Use caution when purchasing study guides or paying for review courses that may claim to address actual examination items.

The following steps may be helpful as you prepare for the exam:

1. The major subjects that will be included on the exam can be found in the Content Outline, in Section 4 of this handbook.
2. Sample exam questions are provided (attached) to assist you in evaluating your level of understanding. This will also help you estimate the level of detail covered in the exam. The sample questions are arranged in content code order. On the exam, they may be scrambled.
3. Answer all of the sample questions to see if there are any subjects you have difficulty answering. You should review those subjects.
4. Study the format of the sample questions. The exam questions will follow the same format. All of the questions are multiple-choice. All will have only one correct answer, and all can be answered on their own.
5. Attached is a list of some AWT Reference Materials. AWT does not recommend you read all of these books. However, they can be especially helpful for certain subjects in which you might wish to have additional review.
6. Know the best way to get to the test site before the exam day. Make sure you know the exact location of the center, where parking can be found, and the actual location of the testing room.
7. Remember that you are not competing with anyone. There is no limit to the number of people who can pass the exam.

B. TIPS

1. **Relax.** This will help you be more alert and reduce your physical stress.
 2. **Find the right work pace.** Don't rush or go too slowly. Find a pace that is comfortable.
 3. **Follow the directions and work carefully.**
 4. **Read all of the options** for each question before you mark your answer.
 5. **Skip difficult questions.** Or, mark them for later review, and come back to them.
- If you are not sure of an answer, **make an informed guess.** There is no penalty for guessing. Questions that you don't answer and wrong answers are both counted as wrong responses. Whether you pass is based on your total number of correct responses.

8. EXAMINATION SCORING

A. FAILING THE EXAM

All examinations may be retaken after the established waiting period has expired. The minimum waiting period is three (3) months. The Candidate must resubmit his or her examination fee. The examination fee is calculated to cover AWT's costs of handling the examination which are essentially the same for re-takes as for initial attempts.

B. EXAM SECURITY

Any candidate who gives (or receives) help to others during the exam will be asked to leave the center. Anyone involved in such behavior will be reported to the Association of Water Technologies and his/her exam will not be scored. Examination fees will not be refunded and the candidate may be prohibited from taking the Certified Water Technologist examination again.

The performance of all candidates is monitored and may be analyzed to detect fraud. This data is given to the AWT Certification Committee. Candidates who violate security measures will not have their exam scored.

All exam materials, including all questions and all forms of the exam, are copyrighted and the property of AWT. Any distribution of these materials through reproduction, or oral or written communication, is strictly prohibited and punishable by law.

9. VALIDITY OF CERTIFICATION

Certified Water Technologist certification is valid for five (5) years. During that time, use the designation "CWT" behind your name to show that you are certified. You will receive a certificate, and AWT will also list your name on the CWT Web page on the AWT Web site. It is your responsibility to keep AWT informed of any changes of address.

10. RECERTIFICATION

A. RECERTIFYING

To keep your CWT status, you must recertify every five (5) years. Recertification is necessary to ensure that an individual continues his/her professional development. The requirements for recertification will be published once the job analysis project has been completed.

B. GRACE PERIOD

A three month grace period for application and completion of the recertification process is granted following the last day of the month in which Certification lapses for any reason. Once the grace period has elapsed, a reinstatement fee must be paid in addition to the renewal fee. Until successful completion of the recertification process, and receipt of the reinstatement fee and the recertification fee at AWT Headquarters, a lapsed Certification will be classified as "Inactive" (see 2F).

Any person recognized under this program whose Certification has been inactive for a period of three or more years must reapply as a new applicant and must meet the criteria current at the time of their reapplication, including payment in full of appropriate fees in effect at that time. No exceptions are made. Persons who reapply will be reissued their original Certification number upon meeting the requirements.

Should an inquiry be made regarding the Certification status of a person who's Certification has become inactive, the inquirer will be informed that the person's certification is inactive; no further information will be supplied to the inquirer.

Please contact AWT at (301) 740-1421 if you have any questions about recertification.

11. OTHER INFORMATION

A. WEBSITE

A digital version of this Certified Water Technologist Handbook is available on the AWT website at <http://www.awt.org>. The **Candidate Handbook** is accessible by clicking on *Certification*.

B. AWT STAFF

The AWT staff can be reached Monday - Friday between 8:30am and 5:00pm (Eastern Standard Time). You may contact AWT staff at the following address:

AWT
Certification Program
9707 Key West Avenue, Suite 100
Rockville, MD 20850
Email: awt@awt.org
Fax: (301) 990-9771

C. ADDRESS CHANGE

AWT makes every effort to keep the most current mailing addresses of its Candidates and Certified Water Technologists. However, your assistance in this regard is essential. If you move or change your mailing address, please contact AWT as soon as possible and staff will update your contact information.

12. THE APPLICATION

Failure to follow directions and/or legibly complete this application will result in summary rejection of this application.

A. DIRECTIONS

1. All information requested on the accompanying forms must be legibly printed in **black ink** or typewritten suitable for photocopying.
2. All information requested **MUST** be provided. **Incomplete applications will be rejected.**
3. Completed forms must be accompanied by appropriate fees in US dollars, made payable to AWT. Refer to Section 3 of the Candidate Handbook to calculate applicable fees.
4. Make and keep a copy of your forms for your records. **AWT can assume no responsibility for forms lost in transit.**
5. Completed forms should be mailed to:

AWT
Certification Program
9707 Key West Avenue, Suite 100
Rockville, MD 20850

6. For assistance, please contact AWT staff at (301) 740-1421.

B. DESCRIPTION

1. APPLICANT INFORMATION

- 1a. Applicant name, address, and phone number

- 1b. Applicant affidavit
- 1c. Fee calculation worksheet
- 1d. Names of your qualification references
- 1e. Other information

2. DECLARATION OF ETHICS

3. WORK EXPERIENCE DOCUMENTATION

Work Experience **Form 1**: Summary of Water Treatment Work Experience

Work Experience **Form 2**: Individual Job Experience

4. QUALIFICATION REFERENCES

Important!!!! - Before you mail this application, check to be sure you have done the following:

- a. Completely filled out this Application.
- b. Enclosed a credit card number with expiration date, money order, or check made payable to AWT for the correct amount, in US funds.
- c. Provided all information requested. **Do not, however, submit documentation in excess of that requested. Documentation in excess of that requested will not be considered as part of your application.**
- d. Distributed the **Qualification Reference** forms to four persons who will complete and return the forms to AWT. You may want to provide each reference with a pre-addressed, stamped envelope to expedite this process.

Note: AWT cannot be responsible, and accepts no responsibility for delays caused by incomplete, inaccurate, or illegible information.



Appendix A:

CWT Exam Registration Form

- One completed registration form required per person.
- You may fax completed form with credit card payment to 301-990-9771 or mail forms with check payment to:
AWT, 9707 Key West Avenue, Suite 100, Rockville, MD 20850
- Make checks payable to AWT. *Exam registration will not be processed unless accompanied by payment!*
- The CWT exam is offered in conjunction with the Annual Convention and Technical Training Seminars
- Exam registrations must be received no later than 3 weeks prior to the test date.

Please enter your test location:

Name _____
Company _____ Title _____
Address _____
City _____ State _____ Zip _____
Telephone: () Fax: () Email _____

CWT Exam Fees:
Members: \$175
Nonmembers: \$250

Payment \$ _____

Check Enclosed Check #: _____
Credit Card: Visa MasterCard AmEx

Name as it appears on card: _____
Card Number: _____ Expiration Date: _____

Signature: _____



Appendix B:

CWT Processing Application Form

**Complete this process only if you have already passed the written exam.*

1a. APPLICANT NAME, ADDRESS, AND PHONE NUMBER

Last Name: _____ First: _____ MI: _____

Home Address: _____ Home Phone: () _____ - _____

City: _____ State: _____ Zip Code: _____

Company Name: _____ AWT Member: Yes ___ No ___

Business Address: _____ Email: _____

City: _____ State: _____ Zip Code: _____

Business Phone: () _____ - _____ Fax: () _____ - _____

Other Certifications held: _____

1b. APPLICANT AFFIDAVIT

I understand that if I knowingly provide false information in connection with any part of my application for recognition under this program, it will be grounds for disciplinary procedures against me.

Signature: _____ Date: _____

Printed Name: _____

1c. FEE CALCULATION WORKSHEET

Processing fee \$ _____

Members: \$250.00

Nonmembers: \$500.00

Extra Certificate: \$10.00 each (if ordered now, with this application)

How many additional certificates would you like to purchase now, at \$10/each? _____

Payment Method

___ Enclosed is a check payable in US Dollars to AWT

___ Money Order payable in US Dollars to AWT

___ Visa, MasterCard, American Express credit card payment (*see below*)

Credit Card Number: _____ Expiration Date: _____

Name on Card: _____

Signature: _____

NOTE: Any person whose check is returned to AWT as "uncollectible" for any reason will have to submit a new payment plus a "Bad Check Service Charge" of \$25.00. Upon collection of the payment, the application process will resume.

Full payment of fees must be made before an application will be reviewed, and/or before any test may be taken.

Once filed, the Application Fee is non-refundable and non-applicable to any other AWT product or service. Once a particular examination has been taken, the fee for that examination is non-refundable and non-applicable to any other AWT product or service.

1d. NAMES OF YOUR QUALIFICATION REFERENCES

A qualification reference is a person who will vouch for your technical competence. **Four Qualification References are required.** You are asked to give the names of four persons (unrelated to you and not more than one from your company) who have personal knowledge of your employment in the field of industrial water treatment or of your teaching in a water treatment-related field. Acceptable references include present supervisor, present clients, previous supervisors, previous clients, professors and instructors.

NOTE: You are to send each of these persons a **Qualification Reference Form** which they should complete and return directly to AWT. This is your responsibility, and you should follow up with these people to ensure that they complete and return the form.

Name #1: _____

Name#2: _____

Name #3: _____

Name #4: _____

1e. OTHER INFORMATION

Educational Background (Optional):

Include only if you desire work experience credit for education. Twelve months credit is given for a college degree in any field. An additional six months is granted for a degree in any technical discipline.

<u>Name of College or University</u>	<u>Degree Received</u>	<u>Date Awarded</u>
_____	_____	_____
_____	_____	_____

Non-Water Treatment Work Experience (Optional):

Include only if you desire work experience credit for non-water treatment related employment. Three months credit, up to a maximum of one year, is given for each year worked in plant or facilities engineering, operations, or maintenance. Please attach a copy of this page if additional space is needed.

Summary of Non-Water Treatment Work Experience:

From (Mo/Yr): ____ / ____ To (Mo/Yr): ____ / ____

Job Title: _____

Company Name: _____

Brief Job Description: _____

From (Mo/Yr): ____ / ____ To (Mo/Yr): ____ / ____

Job Title: _____

Company Name: _____

Brief Job Description: _____

Other Optional Data:

Please provide any additional information which you wish to have considered by the Application Review Subcommittee (such as, but not limited to: education not included above, publications on water treatment subjects, other technical papers or books that you have written or co-written, any patents you have obtained as a direct result of your efforts, etc.). Please describe below.

You may attach a maximum of two, single sided pages of additional information if you desire. Attachments of more than two single-sided pages will be returned to you without review, and will not be considered as part of your application.

2. DECLARATION OF ETHICS

I hereby:

- (a) Recognize and acknowledge that the proper control of industrial water treatment problems can be critical to the safety and welfare of the general public and industrial facilities.
- (b) Recognize and acknowledge that the control of industrial water treatment problems is obligatory to maximize conservation of our material resources and to reduce economic losses.
- (c) Recognize and acknowledge that the entire field of industrial water treatment encompasses the application of the knowledge and experience of many diverse disciplines and levels of technical competence which must often be consulted.
- (d) Recognize and acknowledge that only through continual association and cooperation with others in this field can the safest and most economical solutions be found to the many types of industrial water treatment problems.
- (e) Recognize and acknowledge that the quality of my work reflects on the entire industrial water treatment profession.

For these reasons I:

- (a) Agree to give first consideration in my water treatment work to safety and public welfare.
- (b) Agree to apply myself with diligence and responsibility to the water treatment work that lies within my area of competence.
- (c) Agree to pursue my work with fairness, honesty, integrity and courtesy, ever mindful of the best interests of the public, my employer, and of fellow workers in the field of industrial water treatment.
- (d) Agree to not represent myself to be proficient or make recommendations in phases of water treatment work in which I am not qualified by knowledge and experience.
- (e) Agree to avoid and discourage untrue, sensational, exaggerated, or unwarranted statements regarding my work or products in oral presentations, written texts, or advertising media.
- (f) Agree to treat as confidential my knowledge of the business affairs or technical process of clients, employers, or customers when their interests so require.
- (g) Agree to inform clients or employers of any business affiliations, interests, or connections which might influence my judgment.
- (h) Agree to uphold, foster, and contribute to the achievement of the published objectives of the AWT.

I understand that my failure to comply with these requirements could result in disciplinary action against me.

Signature: _____ Date: _____

Printed Name: _____

3. WORK EXPERIENCE DOCUMENTATION

Directions

- a. Carefully read these directions before proceeding.
- b. Make as many copies of Work Experience Form 2: Individual Job Documentation as you need to document the work experience required.

NOTE: For the purpose of these forms, "job" is defined as "a position in which you are/were regularly employed for a period of time." For example: "I had a 'job' for AAA Chemical Company as a sales representative for two years." Work performed as part of an educational experience (eg. work study, summer jobs, graduate research, etc.) may be included. You may have more than one "job" per employer, for example, if you were promoted.

c. Completely fill out one copy of **Work Experience Form 2** for each job you want included in your work experience assessment. If you move from one "job" to another with the same employer, you must fill out separate forms for each "job." You must provide complete information. If you are self employed, provide names and addresses of specific individuals at major clients who can verify your work history.

d. Summarize the information from each copy of **Form 2** you completed onto **Work Experience Form 1: Summary of Water Treatment Work Experience**.

e. Arrange your forms in order of most recent experience first, followed by less recent experience. Number pages consecutively. If you have 12 pages of forms, the first page is page 1, and the other pages should be numbered 2 through 12.

Work Experience Form 1: Summary of Water Treatment Work Experience

Make and use as many copies of this form as needed. Please provide the information requested per the directions provided. Information must be printed legibly in black ink or typed. Illegible information can seriously delay, or even stop, your application process.

Please summarize below the information that you have detailed on each copy of Work Experience Form 2: Individual Job Documentation

From (Mo/Yr): ____/____ To (Mo/Yr): ____/____

Job Title: _____

Company Name: _____

Brief Job Description: _____

From (Mo/Yr): ____/____ To (Mo/Yr): ____/____

Job Title: _____

Company Name: _____

Brief Job Description: _____

From (Mo/Yr): ____/____ To (Mo/Yr): ____/____

Job Title: _____

Company Name: _____

Brief Job Description: _____

Work Experience Form 2: Individual Job Experience

Use one of these forms for each period of work experience ("job") you wish to document. Make and use as many copies of this form as you need. Please provide the information requested per the directions and definitions provided. For assistance with this form, contact AWT Headquarters.

JOB INFORMATION

From (Mo/Yr): ____/____ To (Mo/Yr): ____/____

Job Title: _____

Company Name: _____

From (Mo/Yr): ____/____ To (Mo/Yr): ____/____

Job Title: _____

Company Name: _____

Who can AWT contact to verify this experience?

Name: _____

Company: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone: _____ FAX: _____

Please describe, in detail on the back of this sheet your water treatment-related duties in this job.

4. QUALIFICATION REFERENCE

APPLICANT: Make four (4) photocopies of this form. Legibly (typewritten or printed in **black ink**) complete Items **4a** and **4b.**, then forward this form to the four people you have listed as references in section **1D** on your application. Ask this person to complete the rest of this form, and return it directly to AWT. This is your responsibility, and you should follow up with this reference to ensure that this form has been completed correctly.

4a. Applicant's full name: _____

4b. Name, title, company address, telephone, and fax of person who is familiar with the employment covered on this form:

Reference Name: _____ Title: _____

Company: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone: _____ Fax: _____

REFERENCE: The applicant named above has submitted your name as a reference in his or her application for certification by the Association of Water Technologies (AWT). This recognition is very important to the applicant, and it is requested that you complete the information requested on both pages of this form, and send it directly to: AWT Certification Program, 9707 Key West Avenue, Suite 100, Rockville, MD 20850, as quickly as possible. **This information should remain confidential and should not be sent to the candidate.**

4c. To be acceptable, qualification references must be submitted by persons who either hold AWT Certification, are registered or chartered engineers, present and/or previous supervisor(s) of the applicant, present and/or previous clients of the applicant, and/or professors and instructors. Please check the appropriate box(s) and complete the information beside it.

I am: AWT Certified, Certificate Number: _____

Registered engineer: State _____ Branch: _____ No: _____

Present or _____ previous supervisor of applicant

Present or _____ previous client of applicant

Previous professor or instructor of applicant

4d. I have known the applicant for _____ years.

4e. From personal knowledge, my assessment of the applicant's character and personal reputation is that it is (check one):

1. excellent 2. average 3. below average 4. I do not know

4f. From personal knowledge, I know that the quality of the applicant's work in the field of industrial water treatment is:

1. excellent 2. average 3. below average 4. I do not know

4g. Based on this personal knowledge, I know that the applicant has been engaged in industrial water treatment work for:

____ years ("industrial water treatment work" being defined as "work in the field of boiler and cooling water treatment at any level, the investigation of corrosion, scaling and deposit mechanisms, and/or the investigation, design, and implementation of water treatment control procedures, and/or the teaching of water treatment related technology.")

4h. The applicant is proficient in the following phases of industrial water treatment:

4i. Would you employ, or recommend the employment of, the applicant for employment in the field of industrial water treatment you have described in Item **4h**?

____ Yes ____ No

4j. Please describe some of the major projects or activities in which the applicant has been engaged in the field of industrial water treatment. Describe only those where you had personal knowledge of the applicant's work. Describe these briefly but give enough detail to show the degree of responsibility exercised by the applicant, the complexity of the project or activity, the degree of knowledge or skill required, etc. Additional sheets may be attached.

4k. Other comments (optional, not required)

Signature: _____ Date: _____

Printed Name: _____

Please return completed form to:

**AWT
Certification Program
9707 Key West Avenue, Suite 100
Rockville, MD 20850**