



ABC Operator Certification Application

General Instructions

1. Please read and follow all instructions carefully and **complete all sections** fully and accurately.
2. Application review fee is \$120.00. **All fees are non-refundable.** Make check or money order payable to: Association of Boards of Certification.
3. If you are required to take an exam, additional proctoring fees will be assessed by the proctor.
4. To qualify for ABC Certification without examination (reciprocity), you must meet all of the following criteria:
 - Taken a certification exam equivalent to ABC's Standardized Exam (refer to the enclosed chart).
 - Received a score of 70% or above on your certification exam.
 - An active license which is in good standing in the area of certification for which you are applying.
 - Met the specific class certification standards for which you are applying (see page 2).
5. If you are not certified, you must meet the certification standards listed on page 2 in order to take an ABC exam. You must begin with the Class I Exam.
6. You must complete a separate application for each type of certificate you wish to receive.
7. All ABC certificates are valid for two years. Certificate renewal (after two years) requires a fee of \$110.00 and documentation of completion of 2.4 CEUs (24 contact hours) of continuing education in your area of certification.
8. Please allow four weeks for processing before inquiring about application status.
9. Mail completed application to: ABC • 2805 SW Snyder Blvd., Suite 535 • Ankeny, Iowa • 50023 • Phone (515) 232-3623

I am applying for certification by: (please check only one)

Class level: (please check only one)

Reciprocity Exam OIT Fulfillment¹

OIT² I II III IV

Category: (please check only one)

Water Treatment Operator Wastewater Treatment Operator Very Small Water Systems Operator Collection Operator
 Distribution Operator Biological Industrial Waste Operator Physical/Chemical Industrial Operator

General Information

Name _____ Work Phone _____
 Address _____ Fax _____
 _____ Home Phone _____
 City, State/Province _____ E-mail Address _____
 Zip/Postal Code _____ Birthdate (dd/mm/yyyy) - -
 Country _____ Social Security Number (last 4 digits only)³

Current Certification

If you are currently certified, complete this section and enclose a copy of your certificate.

Valid certificate number _____
 Issuing agency _____
 Title of certificate and/or class _____
 Percentage score you received on exam _____
 Month/year you took the exam _____

Operator Experience

Total years of Operator Experience _____
 Total years of Direct Responsible Charge⁴ _____
 Are you currently working or seeking certification in order to work at a treatment facility in Indian Country? Yes No

¹In-Training certificates can be upgraded to full certificates upon satisfactory fulfillment of all certification requirements during the effective period of the certificate.
²An applicant may sit for an examination before he/she satisfies the education and/or experience requirements if he/she is fully certified at the next lower certification class (except applicants for Class I are not required to have existing certification). This individual shall be issued an In-Training certificate provided he/she has passed the appropriate exam. In-Training certificates do not qualify an applicant as fully certified.
³For U.S. citizens/residents only. If outside the U.S. provide the last 4 digits of your government issued national identification number in the space provided.
⁴Direct Responsible Charge (DRC) is active day to day technical direction and supervision or active day to day accountability and/or authority for process control decisions of a facility or major segment of a facility that directly impacts public health and/or the environment.

Education

High School Diploma or GED Yes No

Name of High School _____

Graduation Year _____

College Graduate

Yes Some College No College

If *some college*, number of years completed*

If yes: B.A. B.S.

Associate Degree Masters Degree

Major* _____

Name of College _____

*Attach college transcript listing major.

Important Checklist

Please use this checklist before mailing your application. Your application will be delayed if the following is not included:*

- _____ 1. Copy of High School Diploma, GED, or equivalent
- _____ 2. Copy of all transcripts/documentation of post-secondary education
- _____ 3. Contact information and letter from supervisor describing job title, job duties, and dates of employment
- _____ 4. Classification worksheets
- _____ 5. Copy of current certification (if applicable)
- _____ 6. Nonrefundable application fee

*If supporting documents are not written in English, a certified translation into English must be provided.

Nondiscrimination

It is the policy of ABC that it shall not discriminate among applicants as to age, sex, race, religion, national origin, disability, sexual orientation, or marital status.

Acknowledgement

I, the undersigned, certify that I am the above applicant; that all statements made and information contained in this application are true and correct to the best of my knowledge and belief; that I understand that any omissions or misrepresentations may result in ineligibility for certification or revocation of any certificate granted. I understand that the enclosed fee is non-refundable and that an additional processing fee may be charged if the application is completed incorrectly or is unreadable. Further, should I have received the certification under false circumstances, I will immediately surrender the certificate to ABC. I also consent to a thorough investigation of my application for the purpose of verification of my qualifications for certification. I also understand that by signing below I give ABC the authority to use and report this information and my test results. I waive all claims and agree to indemnify and hold harmless ABC for any action taken pursuant to the rules and standards of ABC with regard to my application, the ABC examination(s) and/or my certification except claims based on gross negligence or lack of good faith.

Signature of Applicant _____ Date _____

Certification Standards

- Submit a letter from your supervisor or Human Resources department which provides your job title, a description of your job duties, and dates of employment in the position. If applicable, the number of years of direct responsible charge experience (DRC)² should be specified. If your position is part-time or DRC is part-time, an estimate of the number of hours spent doing various job duties should also be provided. Finally, the letter should contain contact information for your supervisor (e.g.: telephone, e-mail, mailing address).
- Class III and IV applicants must complete the enclosed plant classification worksheet.

Class I

- High school diploma, GED, or equivalent
- 1 year of acceptable experience directly related to the area of certification being sought

Class II

- High school diploma, GED, or equivalent
- 3 years of acceptable experience directly related to the area of certification being sought

Class III

- High school diploma, GED, or equivalent
- 90 CEUs¹ of post high school education in the environmental control field, engineering, or related science
- 4 years of acceptable experience in a Class II or higher utility, including 2 years in DRC²

Class IV

- High school diploma, GED, or equivalent
- 180 CEUs¹ of post high school education in the environmental control field, engineering, or related science
- 4 years of acceptable experience in a Class III or higher utility, including 2 years in DRC²

VSWS

- 0.6 CEU¹ of VSWS education
- 6 months of acceptable experience directly related to the area of certification being sought

¹1 CEU = 10 contact hours, 1 semester credit = 1.5 CEU, 1 quarter credit = 1.0 CEU

²Direct Responsible Charge (DRC) is active day to day technical direction and supervision or active day to day accountability and/or authority for process control decisions of a facility or major segment of a facility that directly impacts public health and/or the environment.

Exam Arrangements

- ABC exams are computerized. If your application is approved, arrangements will be made with Applied Measurement Professionals (AMP) to administer the certification exam to you. Your exam must be completed within six months of application approval. AMP charges a proctoring fee of \$64.00 in the U.S. and \$150.00 outside the U.S. These fees are subject to change without notice. Paper and pencil exams may be available in some locations. Please inquire about the availability of this option if needed.
- If you require special accommodation due to a disability that may impair your ability to take the examination, ABC will endeavor to meet those special needs. You are responsible for submitting the Request for Accommodation Form with this application and providing documentation of the need for a special accommodation. A letter from a physician or a medical specialist knowledgeable of your disability must accompany the completed application. Please contact ABC to request a copy of the Request for Accommodation Form.

Substitutions

The Association permits substitution of the education and experience requirements. Substitutions may not exceed 50% of any requirement except as noted. Related experience may not be substituted for education. Decisions on the acceptance of substitutions will be made on a case-by-case basis.

Experience for Education

Experience used to meet the experience requirement may not be reused as substitution for the education requirement.

- For all classes, instruction of environmental control courses may be substituted for the education requirement on the basis of: 10 contact hours = 1 CEU. Credit will be given only once for each course instructed.
- For VSWS, no substitution of education shall be permitted.
- For Class I - IV, experience can be substituted for education without limit as follows:
1 year experience = 1 year high school education
- For Class III operators, a maximum of 1 year of DRC experience in a Class II or higher position may be substituted for 45.0 CEUs of post-high school education.
- For Class IV operators, a maximum of 2 years of DRC experience in a Class III or higher position may be substituted for 90.0 CEUs of post-high school education.

Education for Experience

Education used as substitution for experience must be formal post-high school education in the environmental control field, engineering or related science. Education used as substitution for experience may not be reused to meet the education requirement.

- For VSWS and Class I, no substitution of education for experience is allowed.
- For Class II, a maximum of 67.5 CEUs of post-high school education may be substituted for 1.5 years of operating experience.
- For Class III and IV operators, a maximum of 90.0 CEUs of post-high school education may be substituted for 2 years of experience; however, the applicant must still have 1 year of DRC¹ experience.

Classifying Your Plant/System

A separate worksheet must be completed for each system/treatment plant needed to fulfill the experience requirement of the class for which you are applying. If the worksheet is missing, please call the ABC office. To calculate the point rating of your plant(s), please complete the appropriate plant classification worksheet(s). The values are listed next to each category. Enter these values in the blanks provided and add to determine the total point rating of your plant(s). A separate sheet must be used for each system.

Distribution and Collection Systems classification is based on population as follows:

Class I.....1,500 or less
Class II.....1,501 to 15,000
Class III.....15,001 to 50,000
Class IV.....50,001 and greater

Very Small Water Systems¹ (VSWS), Water Treatment, Wastewater Treatment, and Industrial Waste classification is based on the following point system:

VSWS¹.....30 points or less and a maximum population of 500 persons
Class I.....30 points or less
Class II.....31 - 55 points
Class III.....56 - 75 points
Class IV.....76 points and greater

¹VSWS means a community public water system that serves 500 persons or less or a noncommunity public water system and has no treatment other than disinfection or has only treatment which does not require any chemical treatment, process adjustment, backwashing or media regeneration by an operator (e.g. calcium carbonate filters, granular activated carbon filters, cartridge filters, ion exchangers).

WATER TREATMENT PLANT POINT RATING SYSTEM

A water system with a groundwater supply and only (non-gaseous) chlorination is considered a distribution system, not a water treatment facility. A water system with the addition of any chemical to a public water supply other than for chlorination shall be considered a treatment facility and should use this rating worksheet to determine the classification of the facility. Each unit process should have points assigned only once.

Employment and Facility Information			
Facility	Plant Name		
	Street		
	City		State
Supervisor	Name		Title
	Phone	Email	
Dates employed as an operator at this facility		Start date	End date
Is this treatment facility in Indian country? <i>Yes</i> <i>No</i>			

Item	Points Possible	Your Plant
Size (1 point minimum to 20 point maximum)		
Design flow average day, or peak month's average day, whichever is larger (1 point per 0.5 MGD. Round up.) Design flow: Consider this to be the design capacity of the plant. Examples: 9.2 MGD = 19 points 4.7 MGD = 10 points	1 - 20	
Water Supply Sources (Rating based on public health significance)		
Seawater/saltwater	0	
Groundwater	0	
Groundwater under direct influence of surface water (GWI)	8	
Surface water	10	
<u>Average Raw Water Quality Variation (0 to 10 point maximum)</u> . Applies to all sources (surface and groundwater). Key is the effect on treatment process changes that would be necessary to achieve optimized performance. <ul style="list-style-type: none"> • Little or no variation - no treatment provided except disinfection (0 points) • Minor variation - e.g. "high quality" surface source appropriate for slow sand filtration (1 point) • Moderate variation in chemical feed, dosage changes made: monthly (2 points), weekly (3 points), or daily (4 points) • Variation significant enough to require pronounced and/or very frequent changes (5 points) • Severe variation - source subject to non-point discharges, agricultural/urban storm runoff, flooding (7 points) • Raw water quality subject to agricultural or municipal waste point source discharges (8 points) • Raw water quality subject to industrial waste pollution (10 points) 	0 - 10	
Raw water quality is subject to:		
• Taste and/or odor for which treatment process adjustments are routinely made ¹	2	
• Color > 15 CU (not due to precipitated metals) - <i>see exceptions in Note 1 at end of table</i> ¹	3	
• Iron or/and manganese > MCL: Fe (2 points), Mn (3 points) (3 points maximum allowed) - <i>see exceptions in Note 1 at end of table</i> ¹	2 - 3	
• Algal growths for which treatment process adjustments are routinely made ¹	3	

Item	Points Possible	Your Plant
Chemical Treatment/Addition Processes		
Fluoridation	4	
<u>Disinfection/Oxidation</u> (Note: Points are additive to a maximum of 15 points allowed for this category.) CHECK <input checked="" type="checkbox"/> ALL THAT APPLY: <ul style="list-style-type: none"> • Chlorination: <ul style="list-style-type: none"> ○ Hypochlorites..... <input type="checkbox"/> (5 points) <ul style="list-style-type: none"> ▪ If generated on site..... <input type="checkbox"/> (1 point) ○ Chlorine gas..... <input type="checkbox"/> (8 points) ○ Chloramination..... <input type="checkbox"/> (10 points) ○ Chlorine dioxide..... <input type="checkbox"/> (10 points) • Ozonation..... <input type="checkbox"/> (10 points) • UV Irradiation..... <input type="checkbox"/> (2 points) • Iodine, Peroxide, or similar..... <input type="checkbox"/> (5 points) • Potassium permanganate (without greensand filtration)..... <input type="checkbox"/> (4 points) 	0 - 15	
pH adjustment for process control (e.g. pH adjustment aids coagulation)	4	
Stability or Corrosion Control (If the same chemical is used for both Corrosion Control and pH adjustment, count points only once)	4	
Coagulation/Flocculation & Filter Aid		
Primary coagulant addition	6	
Coagulant aid / Flocculant chemical addition (in addition to primary coagulant use)	2	
Flocculation	2	
Filter aid addition (Non-ionic/anionic polymers)	2	
Clarification/Sedimentation		
Sedimentation (plain, tube, plate)	4	
Contact adsorption	6	
Other clarification processes (air flotation, ballasted clarification, etc.)	6	
Upflow clarification ("sludge blanket clarifier") ²	8	
Filtration		
Granular media filtration (Surface water/GWI) ≤ 3 gpm/sq ft	10	
Granular media filtration (Surface water/GWI) > 3 gpm/sq ft	20	
Groundwater filtration	6	
Membrane filtration <ul style="list-style-type: none"> • For compliance with a primary regulation (10 points) • For compliance with a secondary regulation (6 points) 	6-10	
Diatomaceous earth (pre-coat filtration)	10	
Cartridge/bag	5	
Pre-filtration (staged cartridges, pressure sand w/o coagulation, etc.): add one point per stage to maximum of 3 points	1 - 3	
Slow sand	5	
Other Treatment Processes		
Aeration	3	
Air stripping (including diffused air, packed tower aeration)	5	
Ion-exchange/softening	5	
Greensand filtration	10	
Lime-soda ash softening (includes: chemical addition, mixing/flocculation/clarification/filtration - do not add points for these processes separately)	20	

Item	Points Possible	Your Plant
Other Treatment Processes (<i>continued</i>)		
Granular activated carbon filter (do not assign points when included as a bed layer in another filter)	5	
Powdered activated carbon	2	
Blending sources with significantly different water quality <ul style="list-style-type: none"> To achieve MCL compliance (4 points) For aesthetic reasons (2 points) 	2-4	
Reservoir management employing chemical addition	2	
Electrodialysis	15	
Residuals Disposal		
<ul style="list-style-type: none"> Discharge to surface, sewer, or equivalent (0 points) On-site disposal, land application (1 point) Discharge to lagoon/drying bed, with no recovery/recycling – e.g. downstream outfall (1 point) Backwash recovery/recycling: discharge to basin or lagoon and then to source (2 points) Backwash recovery/recycling: discharge to basin or lagoon and then to plant intake (3 points) 	0 - 3	
Facility Characteristics		
Instrumentation - Use of SCADA or similar instrumentation systems to provide data, with: <ul style="list-style-type: none"> Monitoring/alarm only, no process operation - plant has no automated shutdown capability (0 points) Limited process operation - e.g. remote shutdown capability (1 point) Moderate process operation - alarms and shutdown, plus <u>partial</u> remote operation of plant (2 points) Extensive or total process operation - alarms and shutdown, full remote operation of plant possible (4 points) 	0 - 4	
		Total Points

Notes:

¹ **Raw water quality is subject to:**

- Taste and/or odor for which treatment process adjustments are routinely made (2 points): 1) T&O issue has been identified in a pre-design report, etc., 2) a process has been installed to address, and 3) operational control adjustments are made at least seasonally. Do not give points for T&O when there is no specific additional impact on operation. E.g. if a system is already pre-chlorinating for disinfection, give no points for T&O.
- Color > 15 CU (not due to precipitated metals) (3 points) **with following exceptions.** Color will be considered elevated and points assigned when levels exceed 75 Color Units (CU) for conventional filtration, 40 CU for direct filtration, or 15 CU for all other technologies, except reverse osmosis (no points given for color for reverse osmosis).
- Iron and/or manganese > MCL: Fe (2 points), Mn (3 points) (3 points maximum allowed) **with following exceptions.** Iron and manganese levels will be considered elevated and points assigned if they are greater than the MCL, except for applications of manganese greensand filters. For applications of manganese greensand filters, iron and manganese levels will be considered elevated when their combined level exceeds 1.0 mg/L (3 points allowed).
- Algal growths for which treatment process adjustments are routinely made (3 points): Raw water will be considered subject to algae growths when treatment processes are specifically adjusted due to the presence of high levels of algae on at least a weekly basis for at least two months each year.

² **Upflow clarification** ("sludge blanket clarifier") – 8 points – Also known as sludge blanket clarification. Includes such proprietary units as Super-Pulsator. These units include processes for flocculation and sedimentation. Important note: these are not the same as adsorption clarifiers.

Water Treatment Definitions

Definitions reprinted from "Master Glossary of Water and Wastewater Terms," [<http://www.owp.csus.edu/glossary/glossary.php>], with permission from Office of Water Programs, California State University, Sacramento.

Adsorption

The gathering of a gas, liquid, or dissolved substance on the surface or interface zone of another material.

Aeration

The process of adding air to water. Air can be added to water by passing air through water or passing water through air.

Air stripping

A treatment process used to remove dissolved gases and volatile substances from water. Large volumes of air are bubbled through the water being treated to remove (strip out) the dissolved gases and volatile substances.

Chloramination

The application of chlorine and ammonia to water to form chloramines for the purpose of disinfection.

Diatomaceous earth

A fine, siliceous (made of silica) "earth" composed mainly of the skeletal remains of diatoms.

Direct filtration

A method of treating water which consists of the addition of coagulant chemicals, flash mixing, coagulation, minimal flocculation, and filtration. The flocculation facilities may be omitted, but the physical-chemical reactions will occur to some extent. The sedimentation process is omitted.

Electrodialysis

The selective separation of dissolved solids on the basis of electrical charge, by diffusion through a semipermeable membrane across which an electrical potential is imposed.

Reverse osmosis

The application of pressure to a concentrated solution which causes the passage of a liquid from the concentrated solution to a weaker solution across a semipermeable membrane. The membrane allows the passage of the water (solvent) but not the dissolved solids (solutes).

SCADA system

The Supervisory Control And Data Acquisition system is a computer-monitored alarm, response, control and data acquisition system used by drinking water facilities to monitor their operations.

Stabilization

Processes that convert organic materials to a form that resists change. Organic material is stabilized by bacteria which convert the material to gases and other relatively inert substances. Stabilized organic material generally will not give off obnoxious odors.