

Environmental Operators Certification Program
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Environmental Operator Certification Program Guide

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FOREWORD

A program for the voluntary classification of water and wastewater treatment systems and certification of facility operators has existed in British Columbia since 1966. On February 26, 1992 the *British Columbia Water and Wastewater Operators Certification Program Society* was incorporated as a non-reporting society pursuant to the Society Act under Certificate of Incorporation number S-28724. On November 1, 1995 the name was changed to *Environmental Operators Certification Program* (EOCP).

The offices of Sigalet, Maguire, Marsden, & Vlahos, Barristers & Solicitors, 2904 - 29th Avenue, Vernon, BC, V1T 1Y7 have been established with the Registrar of Companies as being the location of the Society's legal records and for serving all documents on the EOCP.

The Certification Program has established an office at Suite 201, 3833 Henning Drive. Burnaby, BC V5C 6N5 for the purpose of carrying out the day-to-day business of the Program. All records pertaining to individual certified operators, classified facilities, CEU's, and general information for operators and their employers are maintained at this office.

MISSION STATEMENT

To protect human health, the environment, and the investment in facilities through increased knowledge, skill, and proficiency of the members of the Program in all matters relating to water treatment and distribution and wastewater collection, treatment, reuse, and disposal.

STRATEGY

The EOCP focuses its activities to accomplish its mission in the following areas:

1. establish, update, and implement a system of classification for water treatment, water distribution, wastewater collection, and wastewater treatment systems/facilities;
2. establish, update, and implement examinations and prescribe tests of qualification suitable to qualify for admission to the Program;
3. cooperate with other organizations having similar allied objectives and to join, associate with, and affiliate with such other organizations upon such terms and conditions as may be mutually desirable;
4. communicate with members and others;
5. undertake such other activities as may be deemed appropriate.

The mission of the EOCP shall be carried out without the object of gain for its members or officers and any profits or other accretions to the EOCP shall be used in promoting its purposes. This provision is unalterable.

DEFINITIONS

Certification - the process by which a duly constituted body assesses the credentials, including education, experience, and examination results, of an operator in one of the four areas of focus of the program.

Classification - the process of evaluation of the components of a facility whereby a level of complexity is conferred upon the facility.

Continuing Education Unit (CEU) - a measure of the education credit to be awarded for various educational activities an operator may undertake. A fuller discussion is given on page 14.

Direct Responsible Charge (DRC) - individual accountability for and performance of daily, on-site operation of the facility or system, or a major segment of the facility or system.

Class - the complexity of a facility or system is assessed and ranked from Small System, usually the smallest and/or least complex to Class I through Class IV, the most complex.

Level - the degree of qualification of an operator is evaluated according to experience, education, and examination results and categorized progressively from Small System and Operator-in-Training through Level I to Level IV, the most complex or highest.

Chief Operator – where shift operation is not required, the chief operator has “direct responsible charge”, accountability for and performance of active, daily on-site operation of the environmental control utility (facility/system) or a major segment of the facility or system.

Where shift operation is required, the chief operator has “direct responsible charge”, accountability for the performance of active, daily on-site operation of an operating shift or a major segment of the environmental control utility (facility/system).

OPERATOR - DESCRIPTION OF DUTIES

Water and Wastewater Treatment Operator - performs any combination of tasks pertinent to controlling the operation of a water or wastewater treatment facility including but not limited to:

- control of flow and processing of water/wastewater, residuals, and finished water/effluent.
- monitor gauges, meters, and control panels and observe variations in operating conditions;
- interpret test results to determine processing requirements;
- operate valves and gates either manually or by remote control;
- start and stop pumps, engines, and generators to control and adjust flow and treatment processes;
- maintain shift logs and record meter and gauge readings;
- collect samples and perform routine laboratory tests and analyses;
- perform routine maintenance functions and custodial duties;
- operate power generating equipment and incinerators;
- make operating decisions in the absence of supervisory personnel;
- perform duties of shift supervisor in his/her absence; and other related tasks.

Water Distribution and/or Wastewater Collection Operator - performs any combination of tasks pertinent to installation and control of the operation of a water distribution or wastewater collection system including but not limited to:

- excavation and backfilling of material prior to installation or for the repair of any of the described systems;
- installation of pipe and related appurtenances;
- control of flow of water/wastewater;
- monitor gauges, meters, and control panels and observe variations in operating conditions;
- operate valves and gates either manually or by remote control;
- start and stop pumps, engines, and generators to control and adjust flow;
- maintain shift logs and record meter and gauge readings;
- collect samples and perform routine field analyses;
- perform routine maintenance functions and custodial duties;
- operate power generating equipment;
- make operating decisions in the absence of supervisory personnel;
- perform duties of shift supervisor in his/her absence; and other related tasks.

The term “operator” shall not normally apply to those individuals who do not have direct "hands-on" responsibilities in the facilities described elsewhere in this guide. It is not intended that this title include city, regional district, or industry managers, directors of public works, engineers, technical superintendents, or equivalent, whose duties do not include the actual operation or direct on-site supervision of systems and operators. It shall not apply to welders, equipment operators, carpenters, truck drivers, and others whose work is limited to a single activity, the performance of which does not include direct responsibility for safeguarding public health or the environment in the practice of disciplines described in the guide.

FACILITY – DESCRIPTION OF FACILITY OR SYSTEM

Wastewater Collection System - that portion of a wastewater system including pumping stations in which wastewater is conveyed from the property line in the case of a residential or commercial connection or the perimeter of a unit process in the case of an industrial connection to the wastewater treatment plant or the receiving water.

Wastewater Treatment Plant (also referred to as Pollution Control Facility) - that portion of a wastewater system which improves or alters the physical, chemical, or microbiological quality of the wastewater other than through the process of screening, comminution, and/or disinfection prior to discharge to the receiving environment.

Water Distribution System - that portion of a potable and/or process water system in which water is conveyed from the water treatment plant or point of supply to the point of consumption/use.

Water Treatment Plant - that portion of the water system, exclusive of the act of disinfection or fluoridation, which improves or alters the physical, chemical, or microbiological quality of the water being treated.

AFFILIATIONS

The Environmental Operators Certification Program (EOCP) is an independent body, duly constituted as a society in the Province of British Columbia. Because of the overlap of activities of the EOCP with others, the Program maintains official and unofficial affiliations with a number of organizations within the province and outside.

Association of Boards of Certification (ABC)

In 1973, the certification bodies from a number of jurisdictions came together to harmonize their activities and provide mutual benefits to their members. British Columbia was one of the Charter Members of this organization and remains an active participant in the various programs. ABC provides examinations and marking that is used in BC, the basis of a common program with other jurisdictions, a model for reciprocity between certification agencies, and the opportunity to network with other certification professionals throughout North America.

Reciprocity Agreement

In 1977 BC and Manitoba signed the first reciprocity agreement between Canadian certification programs. This agreement has subsequently been modified a number of times and now includes most of the Canadian certification jurisdictions. Because of this agreement, an operator from BC can go to another province to work and be granted full certification at the level earned in BC.

British Columbia Water and Waste Association (BCWWA)

The Environmental Operators Certification Program and the British Columbia Water and Waste Association both work in British Columbia to advance the profession and professionalism of water

and wastewater facility and system operators. However, the two organizations, while often serving the same people, are separate and distinct organizations. **BCWWA provides operator training in B.C. and Yukon. EOCP administers certification exams and classifies facilities in B.C. and Yukon.** While many people are members of both organizations, membership in one does not confer membership in the other. The organizations maintain separate offices, staff, financial records, and membership services.

The BCWWA is also the avenue for membership, by operators, in either the American Water Works Association or the Water Environment Federation. The Board of the EOCP encourages all operators to avail themselves of the benefits of membership in these organizations.

BENEFITS OF A CERTIFICATION PROGRAM

A certified operator is the most valuable resource in a water and/or wastewater system. With the water and wastewater employees properly certified, the public, the corporation, regulatory agencies, owners and managers, and peers can be confident that the certified employee has the skills, knowledge, abilities, experience, and judgement necessary to competently perform his/her job.

Certified employees can maximize the performance of water and wastewater facilities, which will in turn minimize health risks and environmental concerns, optimize the costs of operations, protect the investment in infrastructure, and provide greater return on the utility's or industry's capital investment.

Certifying the water and/or wastewater operator establishes his/her job as a profession. Certification provides a means of recognition to peers, owners and managers, and the public. Certification has resulted in improved safety and reduced accident rates for the certified operator as well as improved compliance with water and pollution control legislation and regulations. Certification also enhances career opportunities for certified operators and aids employers in hiring, promoting, and establishing salary levels based on certification.

Benefits of a certification program include:

1. Defining minimum qualification standards through application and requiring the operator to pass a comprehensive, job-based, certification exam;
2. Establishing a focus for the development of training materials and certification exams based on "Need to Know" criteria and job analysis;
3. Developing a pool of qualified operators.

The key elements of the Certification Program are:

1. Classification system for water and wastewater systems and facilities;
2. Establishment of qualifications for water/wastewater facility operators;
3. Administration of validated Certification examinations;
4. Issuance and renewal of certificates;
5. Maintenance of records (CEU's, Facility Classification, Personal Records, etc.);
6. Achievement of reciprocity between provinces and states regarding operator certification.

CERTIFICATION IN NORTH AMERICA

In North America today there are over sixty (60) certifying authorities representing all Canadian provinces except Quebec, 50 American states, and over 110,000 water and wastewater operators.

Since 1918, certification of water and wastewater operators has been recognized as beneficial to the protection of public health and the environment. International organizations such as the American Water Works Association, the Water Environment Federation (formerly Water Pollution Control Federation), Environment Canada, and the United States Environmental Protection Agency have stated their support for facility classification and operator certification.

OPERATOR CERTIFICATION BOARD

The Environmental Operators Certification Program in British Columbia is directed by a Board elected by the members from candidates drawn from various areas of water and wastewater activity throughout the province. The Board consists of nine directors from the following categories:

Five (5) members who, at the time of their election, are certified operators.

One (1) person who:

- Is a member-at large, or
- is an instructor/teacher at a post secondary institution, and,
- has water or wastewater as his/her major field of study/interest

One (1) person who is:

- a consultant; and,
- is directly involved in water and/or wastewater facility design and/or operation.

One (1) person who is:

- employed in a provincial or federal government department, ministry, or agency directly concerned with the regulatory or enforcement aspects of the water and/or wastewater field.

One (1) person who is:

- a representative of a municipality, regional district, or industrial or other private sector operation who employs certified operators and who holds the position of city engineer, director of public works, technical superintendent, or an equivalent position.

Board members are elected by secret ballot by the membership and serve a term of two (2) years. The Board is divided into two groups such that five (5) directors are elected in one year and four (4) directors are elected in the next. If for any reason a Board member is unable to complete his/her term of office, the Board may appoint a replacement to serve the balance of his/her term. In so doing the Board must insure that the majority of Board members are certified operators.

The Board is responsible for conducting all work associated with the promotion, administration, and record-keeping activities required to maintain and expand the program. These duties include: establishing and applying classification standards for all water and wastewater systems and facilities in the province, establishing and applying qualification standards for certification and membership in the Program, establishing, upgrading, and administering certification examinations in the province, and maintaining records of the certification and qualifications of members of the Certification Program.

Members of the Board elect from their number a: Chairman, Secretary, and Treasurer. The chairman appoints individual Board members to take responsibility for the following: Education Liaison (BCWWA), Exam Co-ordinator, Facility Classification, Industrial Waste, Constitution & Bylaws, CEU Assessment, Office Manager, Newsletter Editor, and such other activities as the Board may determine.

PROGRAM OPERATING PRINCIPLES

The development of a certification program and a classification scheme for water and wastewater that each involve multiple levels has been done by design in virtually all jurisdictions. The basic reason for doing so is to match the levels of qualification of operators with the complexity of the systems they will operate and “assure” that the facilities are operated by appropriately qualified personnel.

The Program believes that all water and wastewater systems/facilities should be operated by appropriately certified personnel. Similar areas of activity (power engineers) covered by other jurisdictions have such mandatory certification and many others of lesser consequence (travel agents and realtors) must show evidence of qualification. In the interest of public health and the preservation of our environment, the EOCP will continue to advocate the implementation of mandatory certification in all jurisdictions for all operating personnel working in water and wastewater systems/facilities where their actions could be of direct consequence to the successful operation of the system/facility.

The Program recognizes an operator’s competence develops over time and so provides a staged process whereby an entry level operator can successfully advance in a stable working environment to a position of responsibility for the system. In order to accommodate entry level operators, an Operator-in-Training examination and certificate is available and should be applied for within three months of commencing employment (or transfer into) a water or wastewater system/facility.

At the other end of the scale, the complexity of many systems demands that only fully qualified personnel be given responsibility for their operation. Every facility in the province should be classified according to the criteria explained elsewhere in this guide and at least the “Senior Operator”, “Chief Operator”, or similar titled individual must be certified at the class of the facility (or higher).

Recognizing that there will be times when the Senior or Chief Operator is not available, the individual in Direct Responsible Charge of a Class III or IV system/facility should be certified at not less than one level below that of the plant and at no time less than Level II.

The Program believes that all operators in a system/facility should be certified at an appropriate level. In large systems/facilities subject to mandatory certification requirements, that employ “single” task employees (including tradesmen) or “labourers”, these individuals will not be considered to be gaining operating experience for the purpose of eventual certification if they later apply to be certified.

FACILITY CLASSIFICATION

Classification of a facility provides an indication of the degree of knowledge and training that will be required of an operator of that facility. Since 1975, facilities in British Columbia have been classified on a voluntary basis using standards adopted by the Association of Boards of Certification. These standards are continually upgraded to reflect the ever increasing complexity of modern water and wastewater treatment systems and facilities. Classification of these systems follows two paths. Water distribution systems and wastewater collection systems are classified based on flow, and complexity. Water treatment, and municipal and industrial wastewater treatment facilities are classified based on flow, complexity of operation, variability of influent and effluent requirements, and analytical laboratory controls carried out at the facilities. Facilities are classified from Small Systems to Class I through IV with Class IV systems being the largest or most complex. Figure 1 summarizes the facility classification point system.

The Ministry of Environment, Lands, and Parks (MELP) mandated wastewater treatment plant a system of classification of municipal wastewater treatment facilities effective August 1, 1993. The program is administered by the Environmental Operators Certification Program. Municipal liquid waste discharge permits issued by the MELP were amended commencing March 1993 to include this provision. Effective July 1999, the MELP Municipal Sewage Regulation also requires facility classification. Facility classification forms are available at the Program office.

Small Water and Wastewater Systems

Typically, small water distribution, water treatment, wastewater collection, or wastewater treatment facilities have operators who are not required for full-time attention. The systems are relatively simple, serve only a small population and/or are operating for only a portion of any given year.

Most operators of such facilities are not able to meet the minimum requirements for Level I-IV certification; in particular, achieving the operating experience (2000 hours) required to write a Level I exam in a reasonable period of time. Small System classification and operator certification is intended to insure the qualification of operators who work on systems that may not normally fit within the regular certification process. There are three types of facility classification and operator certification for Small Systems:

- Small Water System (includes distribution and treatment)
- Small Wastewater System – lagoons (includes collection and treatment)
- Small Wastewater System – mechanical (includes collection and treatment)

Small System Criteria

The criteria for Small System classification and operator certification have been developed in conjunction with other jurisdictions in Canada and the U.S. and follow the guidelines as identified with the Association of Boards of Certification.

1. the facility/system serves a maximum population of 500 people or per capita equivalents;
2. the treatment component of the facility/system is classified as a Class I or Class II facility;
3. the operator has at least six calendar months (minimum 50 hours) of hands-on operating experience operating the facility/system or one equivalent to it or higher;
4. the operator must have completed appropriate training for which a minimum of 1.2 continuing education units have been awarded.

Each of the Small System exams is comprised of 50 multiple-choice questions. An operator holding a Small System certificate will be recognized as a certified operator only at facilities considered Small Systems. A Small System certificate does not preclude an operator from writing exams to obtain a full Level I-III certificate once the required experience and/or education is acquired. An operator holding a Level I or higher certificate is recognized as a certified operator in all facilities including Small Systems up to the level of his/her certificate.

Figure 1 - Facility Classification System

Facility	Units	Class I	Class II	Class III	Class IV
Water Distribution	Point range	<31	31-55	56-75	>75
Wastewater Collection	Point range	<31	31-55	56-75	>75
Water Treatment	Point range	<31	31-55	56-75	>75
Wastewater Treatment	Point range	<31	31-55	56-75	>75
Industrial Wastewater Treatment	Point range	<31	31-55	56-75	>75
Small Water System	Point range		<55	N/A	N/A
Small Wastewater System	Point range		<55	N/A	N/A

Notes:

- a) *"In-line" activities such as booster pumping, coarse screening, chlorination, or fluoridation, are considered an integral part of the water distribution system and not a water treatment facility.*
- b) *A facility which provides only comminution or screening of wastewater solids, lift stations, chlorination, or odour control prior to discharge to a receiving water is considered an integral part of the collection system and not a wastewater treatment facility.*

Under certain circumstances, the class of a particular plant determined by the point system may not reflect the most appropriate level of operator needed for that facility (by reason of special features, design, or other characteristics). In these rare cases the Board may adjust the class up or down to bring the plant in line with what it should be.

Facility classification provides both the facility operator and the owner with an indication of the level of certificate the facility operators should hold. Under a system of mandatory facility classification it is the owner's responsibility to ensure that operators have access to the training activities needed to upgrade their certificates and the operator's responsibility to ensure that he/she obtains the necessary level of certification. In order for an operator to become certified at a Level III or IV it is first necessary that the facility in which he/she is employed be classified.

OPERATOR CERTIFICATION

Water and wastewater operators will generally be certified as Small Water or Wastewater System, Level I, Level II, Level III, or Level IV operators with IV being the highest or most advanced, paralleling the facility classification. In addition, water and wastewater operators may be certified as an Operator-in-Training. Figure 2 at the end of this section summarizes the combinations of education/training and experience required for eligibility to write the examinations for each level of certification.

The requirements for each level of certification are in accordance with the following outline. The Board will consider a variation in the requirements on a case-by-case basis upon presentation of a request to do so and sufficient explanation of special circumstances.

Small Water System and Small Wastewater System Operator

- Minimum 1.2 continuing education units (CEU's), and
- Minimum of at least six (6) calendar months (minimum 50 hours) of hands-on experience operating the facility/system or one equivalent to it or higher.

Operator-in-Training

- High school diploma, GED, or equivalent, and
- Three (3) months operating experience in a Class I or higher facility or completion of an approved basic operator-training course.

Operator, Level I

- High School diploma, GED, or equivalent, and
- One (1) year operating experience at a Class I or higher system/facility.

Operator, Level II

- High School diploma, GED or equivalent, and
- Three (3) years operating experience at a Class I or higher system/facility, and
- A Level I certificate.

Operator, Level III

- High School diploma, GED or equivalent, and
- Nine hundred (900) instructional hours, or ninety (90) CEU's, or ninety (90) quarter credits, or sixty (60) semester credits of post high school training/education in the water or wastewater field, including core and related education/training, and
- Four (4) years operating experience at a Class II or higher system/facility, and
- For Water Treatment and Wastewater Treatment Operators, two (2) years of direct responsible charge (DRC) operation at a Class II or higher facility, and
- A Level II certificate.

Operator, Level IV

- High School diploma, GED or equivalent, and
- Eighteen hundred (1800) instructional hours, or one hundred eighty (180) CEU's, or one hundred eighty (180) quarter credits, or one hundred twenty (120) semester credits of post high school training/education in the water or wastewater field, including core and related education/training,, and
- Four (4) years operating experience at a Class III or higher facility, and
- For Water Treatment and Wastewater Treatment Operators, two (2) years of direct responsible charge (DRC) operation at a Class III or higher facility, and
- A Level III certificate.

Where applicable, training/education may be substituted for operating and direct responsible charge (DRC) experience as specified below:

1. For Level I, no substitution for operating experience shall be permitted.
2. For Level II, a maximum of four hundred fifty (450) instructional hours, or forty five (45) CEU's or forty five (45) quarter credits or thirty (30) semester credits of post high school training/education in the water or wastewater field, including core and related education/training may be substituted for up to one (1) year of operating experience.
3. For Level III and IV a maximum of nine hundred (900) instructional hours, or ninety (90) CEU's, or ninety (90) quarter credits, or sixty (60) semester credits of post high school training/education in the water or wastewater field, including core and related education/training may be substituted for two (2) years of experience; however, the applicant must still have a minimum of one (1) year of direct responsible charge experience.
4. Training/education applied to operating and/or DRC experience may not also be applied to the training/education requirement.

Where applicable, operating and direct responsible charge experience may be substituted for training/education as specified below:

1. One (1) year of operating experience may be substituted for two (2) years of grade school education,
2. One (1) year of operating experience may be substituted for one (1) year of high school education,
3. For Level III, a maximum of one (1) year of direct responsible charge experience (DRC) in a Class II or higher facility may be substituted for four hundred fifty (450) contact hours, or forty five (45) CEU's or forty five (45) quarter credits or thirty (30) semester credits of post high school training/education in the water or wastewater field, including core and related education/training.
4. For Level IV, a maximum of two (2) years of direct responsible charge experience (DRC) in a Class III or higher facility may be substituted for nine hundred (900) contact hours, or ninety (90) CEU's, or ninety (90) quarter credits. or sixty (60) semester credits of post high school training/education in the water or wastewater field, including core and related education/training.
5. Operating and/or direct responsible charge experience (DRC) applied to the training/education requirement may not also be applied to the experience requirement.

At the discretion of the Board, related experience in maintenance, laboratories, other water and pollution control positions, other similar operating positions, and allied trades such as plumbing, millwrighting, or other certification categories, may be substituted for up to one half of the experience requirement.

Figure 2 - Education and Experience Requirements

Category	Level I		Level II		Level III			Level IV		
	Educ.	Exp.	Educ.	Exp.	Educ.	Exp.	DRC	Educ.	Exp.	DRC
Water Treatment (WT)	12	1	12	3	14	4	2	16	4	2
Water Distribution (WD)	12	1	12	3	14	4		16	4	
Municipal or Industrial Wastewater Treatment (MWWT or IWWT)	12	1	12	3	14	4	2	16	4	2
Wastewater Collection (WWC)	12	1	12	3	14	4		16	4	
Operator-In-Training (OIT)	12 yrs. education				3 months experience or completion of an approved course					
Small Water System (SWS)	1.2 CEU's				6 calendar months experience (min 50 hours) hands-on					
Small Wastewater System (SWWS)	1.2 CEU's				6 calendar months experience (min 50 hours) hands-on					

DIRECT RESPONSIBLE CHARGE (DRC)

The term "direct responsible charge" has specific meaning for the purposes of the Program and is an essential component of an operator's experience when being considered for Level III and IV exam eligibility. DRC goes beyond doing a good job and being responsible for one's own actions; it also includes responsibility for the overall operation of the facility or system and for the other operators under the supervision of the operator in DRC.

Where "direct responsible charge" credit is requested for more than one operator at a time for the operation of segments of a large facility or system, prior Board approval must be obtained including classification of the segments by the Program to assure that they meet the criteria for a Class II or Class III facility or system. DRC experience is required for the issuance of all Level III and Level IV certificates in the Wastewater Treatment and Water Treatment categories.

DRC experience may be substituted for up to one half of the post-secondary education requirements of all Level III and Level IV certificates.

CERTIFICATION EXAMINATIONS

The Certification Program has examinations available to be used in determining skill, knowledge, ability, and judgement in each of the following categories:

- Water Treatment, Level I through IV (100 multiple choice questions)
- Water Distribution, Level I through IV (100 multiple choice questions)
- Wastewater Collection, Level I through IV (100 multiple choice questions)
- Wastewater Treatment, Level I through IV (100 multiple choice questions)
- Operator in Training, WT, WD, WWC, or WWT (100 multiple choice questions per exam)
- Industrial Wastewater Treatment -Biological Systems, Level I through IV (100 multiple choice questions)
- Small Water System (50 multiple choice questions)
- Small Wastewater System – Collection and Mechanical (50 multiple choice questions)
- Small Wastewater System – Collection and Lagoon (50 multiple choice questions)

The certification examinations used by the Certification Program were initially developed by the Association of Boards of Certification (ABC) working in co-operation with all of the Canadian certification boards. The metric system is used throughout the exam series and a formula sheet is provided to each examinee. The examinations are designed to test the candidate in the following areas: general knowledge, support systems, process and quality control, and administration. Figure 3 lists the approximate apportionment of questions in each level of examination.

Figure 3 - Certification Examination Subject Matter

Category	Level I	Level II	Level III	Level IV
General Knowledge	15	15	5	5
Support Systems	20	15	15	10
Process/Quality Control	60	60	60	60
Administration	5	10	20	25
Totals	100	100	100	100

A detailed description of the tasks involved in each of the areas of general knowledge, support systems, process/quality control, and administration may be found in the "Need to Know" job analysis document published by the Association of Boards of Certification. A summary of the "Need to Know" document may be obtained from the Certification Program office.

APPLICATION PROCEDURE

All applications to write certification examinations must be made in writing using the form supplied by the Certification Program. This form provides the candidate an opportunity to demonstrate that he/she possess the requisite combination of education and experience as detailed in Figure 2 and on pages 9 to 11 of this guide. The information provided will be verified by the Board and entered into the certification database. It is important that the candidate take the time to fill out this form completely and accurately, as the information provided will form part of his/her personal file within the Certification Program.

In addition, applications to write an examination in any category must be accompanied by proof of eligibility and/or a job description from the employer and must be confirmed by a supervisor/owner. Application to write examinations must be submitted no later than **two weeks prior to the examination session**.

After the Board has reviewed the information provided by the candidate, he/she will be informed of his/her eligibility/ineligibility to write a certification examination. Eligible candidates will pay the following fees prior to writing the examination:

- examination fee (\$100.00 non-refundable, \$50.00 for Small System examinations)
- annual dues (\$50.00 if certified for the first time, refundable)
- PLUS GST

The fee structure is set by the Certification Board and subject to review at any time. It is available on request from the EOCP office staff or any Director. Examination sessions will be held at times and places set by the Certification Board, with a suitable advance announcement. Examinations may also be written at the Board office or by special arrangement with any member of the Certification Board.

The passing grade on each examination is 70%. Examinees will be provided with an individual report identifying his/her performance on the exam. Each report lists the total number of questions answered correctly by the examinee out of the total number of questions. The topics report includes reference coding which enables the examinee to identify reference material for further study.

Any examinee may rewrite a failed exam 60 days after receipt of his/her marks if he/she receives a mark of 69% or less. The purpose of the rewrite schedule is to allow the candidate sufficient time to prepare for the exam using the study material suggested in the examination report. Candidates who achieve a passing grade of 70% will be issued a certificate designating his/her qualification. The certificate will state the certified individual's name, the certification level, date of issuance, and the official certificate number.

TERM OF A CERTIFICATE

Certificates will be valid only so long as the holder uses reasonable care, judgement, and application of his/her knowledge in the performance of his/her duties. No certificate shall be valid if obtained or renewed through fraud, deceit, or the submission of inaccurate qualification data. The Certification Board may revoke a certificate at any time if any of the foregoing is determined to apply.

An operator whose certificate has been suspended or revoked shall be entitled, upon application to the Board, to a hearing before the Certification Board at its next regularly scheduled meeting or such special meeting as may be called prior to the next regular meeting. Appeal of the decision of the Certification Board may be made to a court of competent jurisdiction.

CERTIFICATE RENEWAL

Commencing January 1, 2008 certificates shall be renewed every two years through payment of bi-annual dues and completion of continuing education in accordance with criteria established by the EOCP Board as described below.

Members who, for any reason, fail to pay their dues may apply for reinstatement subject to the following restrictions:

1. If the member has been continuously employed as an operator and:

- A) their dues have not been paid for one to three years, they may re-enter at the level previously certified upon payment of back dues and late payment levies calculated at the applicable current rate; or
 - B) their dues have not been paid for more than three years, they may re-enter at one level below the previously certified level upon payment of back dues and late payment levies calculated at the applicable current rate.
2. If the member has not been continuously employed as an operator and:
- A) their dues have not been paid for one to three years, they may re-enter at one level below the previously certified level upon payment of back dues and late payment levies calculated at the applicable current rate.
 - B) their dues have not been paid for more than three years, they must re-enter program by successfully passing the Level I examination and paying the appropriate current fees.

During each two year renewal period, operators must complete continuing education appropriate to their work activities and the certificate(s) they hold. Operators holding SWS and/or SWWS certificates only will be expected to complete twelve (12) hours (1.2 CEU's) of approved post-secondary training directly applicable to their certificates. In the situation where an individual holds both certificates they will be expected to complete 50% (6 hr) of their training in each field.

Operators holding Level I-IV certificates will be expected to complete twenty-four (24) hours (2.4 CEU's) of approved, appropriate training in each two year renewal period. In the situation where an operator holds more than one certificate they will be expected to complete a minimum of twenty-five (25%) percent (0.6 CEU) of their training in each of the fields of their certificates.

Members who, for any reason, fail to complete their continuing education requirement for any or all of their certificates will be declared as inactive. Inactive members may apply for reinstatement subject to the following restrictions:

1. If the member has been continuously employed as an operator and:
- A) they are 2.4 CEU's or less in arrears, they may re-enter at the level previously certified upon confirmation that the required training has been completed and payment of the re-instatement fee at the applicable current rate; or
 - B) they are more than 2.4 CEU's in arrears, they may re-enter at one level below the previously certified level upon confirmation that the required training has been completed and payment of the re-instatement fee at the applicable current rate.
2. If the member has not been continuously employed as an operator and:
- A) they are 2.4 CEU's or less in arrears, they may re-enter at one level below the previously certified level upon confirmation that the required training has been completed and payment of the re-instatement fee at the applicable current rate; or
 - B) they are more than 2.4 CEU's in arrears, they may only re-enter the program by writing the Level I examination the field or fields in which they are presently working.

CONTINUING EDUCATION UNIT (CEU)

Most operators who seek to advance through the levels of certification will need to upgrade their level of education. Even those operators who have completed full year courses at post-secondary institutions will also need to take "short courses" to satisfy the mandatory continuing education requirement described above. While the Certification Program does not offer training, it does provide a mechanism for operators to register their "continuing education" or "professional growth credits". The Certification Board also provides a service to training organizations by assessing training materials and assigning continuing education units (CEU's). A permanent CEU record

serves as documentation for certification at a higher level, and a record of accomplishment in areas of technical and personal development. The term "continuing education unit (CEU)" is registered to the Council on the Continuing Educational Unit in Washington DC. The Council has defined one continuing education unit as *"ten contact hours of participation in an organized, continuing education experience under responsible sponsorship, capable direction, and qualified instruction."* The CEU relates only to non-credit continuing education experiences. The Board will evaluate all training materials/courses with the following criteria:

1. **Is a training need identified:** the training shall be relevant to continuing education and/or job requirements.
2. **Is a learning outcome named:** the program will specify skills, knowledge, and/or attitudes the learner should be able to demonstrate following the activity.
3. **Do the instructional personnel have:** a demonstrated subject competence, an understanding of the learning outcome, knowledge of the learning process to be used, and an ability to communicate.
4. **Is the course content:** consistent with objectives, sequenced in a logical manner, proceeds from basic to advanced levels, and permits the learner to participate and receive feedback.
5. **Course completion:** attendance should be 90% or more; satisfactory course completion, may be based on participant's ability to demonstrate what he/she learned.
6. **Training course assessment:** Formal - written examinations, written reports, completion of project, Informal - self-assessment, oral examination.
7. **Course evaluation:** major aspects of the course are evaluated by participant reaction and sponsor evaluation to maintain quality control.

CEU's will not be awarded for any program of instruction of less than three (3) hours duration or for the following activities:

- Non-educational activities, meetings, conferences, conventions of professional and/or occupational associations, trade shows or exhibits. However, specific seminars held in conjunction with such meetings may qualify if program criteria are met.
- Cultural performances and participation in travel groups unless an integral part of planned training.
- High school equivalency programs.
- Unsupervised study (other than recognized correspondence courses), independent writings, and research reports.
- Mass media programs unless an integral part of planned training.
- On the job training unless planned, structured, and supervised to meet program CEU criteria.

MATERIALS AVAILABLE FROM THE EOCP OFFICE

Forms:

Application for Certification Form
Direct Responsible Charge Registration Form
Facility Classification Application Form
Continuing Education Credit Registration Form

Need-to-Know Guide Summaries:

Water Distribution
Water Treatment

Wastewater Collection
Wastewater Treatment

Sample Examinations

Water Distribution
Water Treatment
Wastewater Collection
Wastewater Treatment

Educational Materials:

Correspondence Course Brochure - Sacramento State
ABC Certification Study Guide

Examination Study Guide and Reference Material

Each question in the current series of examinations has been referenced to one or more of the manuals developed for the Sacramento State correspondence courses.

Each examinee receives a mastery report and a sheet of reference materials for each Level I – IV exam written. The mastery report contains a listing of categories and the number of questions answered correctly or incorrectly. The examinee may develop a study program that will assist in preparing for future exams by using the reference sheet where the exam categories will be referenced to the appropriate chapter or appendix in the manual.

Correspondence courses may be obtained by contacting California State University, Sacramento; 6000 J Street, Sacramento, California 95819-6025; Phone: 916-278-6142; Fax: 916-278-5959; E-mail address: wateroffice@csus.edu Website: <http://www.owp.csus.edu>

Materials Available FOR REVIEW AT the EOCP Office

Correspondence Course Workbooks - Sacramento State
Controlling Wastewater Treatment Processes – Dan Cortinovis
AWWA Water Distribution Operators Handbook
AWWA Basic Chemistry for Water and Wastewater Operators
AWWA Basic Microbiology for Water and Wastewater Operators
National Occupational Guidelines for Water and Wastewater Operators prepared by Environmental Careers Organization (ECO) Canada