

INDIANA WATER ENVIRONMENT ASSOCIATION
VOLUNTARY
WASTEWATER LABORATORY ANALYST
CERTIFICATION PROGRAM

Program Information

Prepared by the

Indiana Water Environment Association

Laboratory Committee

INTRODUCTION

This brochure has been prepared by the Indiana Water Environment Association Laboratory Committee to assist and promote professional credentials and certification for wastewater laboratory analyst personnel within the State of Indiana. To this end, the Laboratory Committee has developed a voluntary certification program in order to 1) define and maintain universally recognized qualifications for laboratory analyst; 2) to promote uniformity of standards and practices in certification, and; 3) to assist utilities in setting and evaluating personnel standards for laboratory analyst. One mechanism for accomplishing these goals is through the use of national standardized certification examinations.

The Indiana Water Environment Association has joined with the Associated Boards of Certification (ABC) to develop this program. ABC standards and certification procedures are intended as a model program for certification authorities throughout the country. ABC provides the standardized testing materials and electronic grading of examinations. The Indiana Water Environment Association is responsible for the administration of the program within the state.

DUTIES OF A WASTEWATER LABORATORY ANALYST

In general, laboratory analyst are required to conduct skilled quantitative and qualitative laboratory analyses.

Laboratory analyst typically perform tasks that may include the following:

- Troubleshoots and adjusts computerized process control systems within established guidelines.
- Performs a variety of chemical, physical and biological analyses; monitors plant compliance with NPDES permit.
- Trains laboratory personnel and operations staff in analytical procedures, quality assurance and quality control procedures, safe lab practices, routine lab functions, and chain of custody procedures.
- Prepares, maintains, and updates the laboratory Quality Assurance/ Quality Control program.
- Collects, analyzes, interprets, and maintains laboratory and plant operations data and records.
- Develops, reviews, approves, updates and implements laboratory procedures.
- Coordinates activities with the plant operations and maintenance staff.
- Participates in the development and implementation of goals, objectives, policies, procedures, and priorities; recommends updates and implements resulting policies and procedures.
- Prepares and reviews compliance reports for submittal to state and federal regulatory agencies for correctness and completeness; ensures timely submittal of reports; remedy of noncompliance, and report submittal in the event of noncompliance.
- Stays abreast of new trends and innovations related to laboratory methods and practices.
- Collects water, wastewater, and sludge samples from a variety of sources.

The above areas are intended only as typical responsibilities of laboratory analyst. Actual responsibilities for operation personnel will vary with each utility. In addition, specific methods of accomplishing various tasks will vary. The ABC certification program is intended to provide certification in universally accepted tasks and methods of operation and does not necessarily reflect what may be occurring in your community.

CLASSIFICATION OF LABORATORY ANALYST

All wastewater laboratory analyst that conduct analysis on effluent water that ultimately discharges into receiving bodies of water shall be classified as Class I, Class II, Class III, or Class IV. Class levels were created based on lab tests run as follows:

CLASS I		CLASS II	CLASS III	CLASS IV
Acidity	Odor	Class I plus: Conductivity Nitrogen Oil & Grease Phosphorus SOUR	Class II plus: Bioassay Cyanide Inorganics Metals Organics Phenol Salinity	Supervisors running all of the previous classes lab test at an advanced level
Alkalinity	Oxygen Uptake			
Biological	PH			
Examination	SDI			
BOD	Settleable Solids			
CBOD	SS			
Chlorine	SVI			
COD	TDS			
Coliforms	TS			
Color	Turbidity			
Dissolved	VS			
Oxygen	VSS			
MLSS	Temperature			

QUALIFICATIONS FOR CERTIFICATION

An applicant's qualifications for certification shall be based on satisfying certain minimum education and experience requirements and passing the appropriate certification examination. The education, experience, and examination requirements are co-requisites. Education and experience requirements are as follows:

Class I

- High school diploma, GED, or equivalent; and
- One year of acceptable lab experience, or operator experience of a Class I or higher utility.
- No substitution of experience shall be permitted.

Class II

- High school diploma, GED, or equivalent; and
- Three years of acceptable lab experience, or operating experience of a Class I or higher utility.
- A maximum of 675 contact hours, or 68 CEU's, or 45 semester credits of post high school education in the environmental control field, engineering or related science may be substituted for one and one-half years of operating experience.

Class III

- High school diploma, GED, or equivalent; and
- 900 contact hours, or 90 CEU's, or 60 semester credits of appropriate post high school education in the environmental control field, engineering or related science; and
- Four years of acceptable operating experience of a Class II or higher utility, including two years of direct responsible charge.

- A maximum of 900 contact hours, or 90 CEU's, or 60 credits of appropriate post high school education in the environmental control field, engineering or related science may be substituted for two years of operating experience; however, the applicant must still have one year of direct responsible charge experience.
- A maximum of one year of direct responsible charge experience in a Class II or higher position may be substituted for 450 contact hours, or 45 CEU's, or 30 semester credits of post high school education in the environmental control field, engineering or related science.

Class IV

- High school diploma, GED, or equivalent; and
- 1,800 contact hours, or 180 CEU's, or 120 semester credits of appropriate post high school education in the environmental control field, engineering or related science; and
- Four years of acceptable operating experience of a Class III or higher utility, including two years of direct responsible charge or lab supervisor experience.
- A maximum of 900 contact hours, or 90 CEU's, or 60 credits of appropriate post high school education in the environmental control field, engineering or related science may be substituted for two years of operating experience; however, the applicant must still have one year of direct responsible charge experience.
- A maximum of two years of direct responsible charge experience in a Class III or higher position may be substituted for 900 contact hours, or 90 CEU's, or 60 semester credits of post high school education in the environmental control field, engineering or related science.

SUBSTITUTIONS

- Education applied to operating and direct responsible charge experience requirements shall not also be applied to education requirements.
- Operating or direct responsible charge experience applied to the education requirements shall not also be applied to the operating or direct responsible charge experience requirements.
- One year of operating or direct responsible charge experience may be substituted for two years of grade school education, without limit.
- One year of operating or direct responsible charge experience may be substituted for one year of high school education, without limit.
- Where applicable, related experience in maintenance, laboratories, other environmental control utility positions and allied trades, or other certification categories, may be substituted for one-half of the operating or direct responsible charge experience requirements; however, the applicant for Class III and IV must still have one year of direct responsible charge experience.
- The maximum amount of education and related experience for operating or direct responsible charge experience shall not exceed fifty percent of the stated operating or direct responsible charge experience requirement.

IN-TRAINING CERTIFICATIONS

An 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 level certification class, except for Class I applicants which must fully meet the established qualifications. The individual sitting for the upgraded certification shall be issued an In-Training certificate provided he/she has passed the appropriate certification examination. In-Training certifications may be upgraded to full certificates upon satisfactory fulfillment of all certification requirements during the effective period of the certificate by submitting proof of eligibility (e.g. training, education, and experience) has been met. Proof of eligibility must be submitted with an exam application, along with the fee associated with the certification being requested.

CERTIFICATION PERIOD - A certificate shall be issued for no less than 3 years if continuing education requirements are administered with the program. Certification holders will be notified if continuing education requirements are administered with the program.

ADMINISTRATION

Evaluation of Applications

A sub-committee appointed by the IWEA Wastewater Laboratory Committee will review and evaluate applications and qualifications documentation submitted by applicants. The applications will be reviewed for accuracy and fulfillment of minimum education and experience requirements for each certification classification. Applicants will be notified in writing of the results of the evaluation procedures. If it is determined that an applicant has met all criteria for the examination, he/she will be notified of the date(s) and location(s) of the next examination. If an applicant is determined to not qualify for examination, he/she will be notified regarding the additional amount of education and/or experience necessary to qualify for the classification being sought.

Locations and Times of Examinations

The Wastewater Laboratory Committee will be scheduling certification examinations in April and October each year, as dictated by the number of applicants. Examinations are normally conducted in locations determined by accessibility to applicants and/or availability of appropriate examination facilities. Locations and dates of examinations will be regularly noted in publications by the IWEA and/or response letters to applicants.

Examination Procedures

Each applicant should bring at least two No. 2 lead pencils with erasers to the certification examination. While the examination proctor may have pencils available, the applicant should not rely on IWEA providing these materials. The applicant may use a calculator during the course of the examination. These are the only items which will be permitted in the examination room, other than materials supplied by the examination proctor.

Each applicant will be provided with a test booklet, which includes standard formulas for various calculations, answer sheet, and other materials as provided by ABC for the administration of the

examination. When the examination is completed by each examinee, all test materials will be collected by the proctor.

Examination Grading

All examination questions are multiple choice. Each answer sheet will be electronically graded by ABC. A passing grade for the certification examination is a minimum of 70%.

Notification of Results

Grading of examinations may take thirty to forty-five days. Each examinee will be notified in writing of this test score, as soon as results are obtained from ABC. This notification letter will indicate the certification classification being sought as well as the test score. If the examinee has successfully passed the examination, a certificate will be issued within a reasonable time following this notification.

Appeals Procedure

The certification Program Administrator will maintain copies of each examination booklet and answer sheet for a period of forty-five days following receipt of test scores from ABC. During this time period, an examinee may request to review the test materials. It should be noted, however, that the answer sheets are electronically graded and will not reflect either correct or incorrect responses to questions.

In order to appeal the grading of an examination, the examinee must have completed a form provided with each examination. This form allows the examinee to comment on any given test question which he/she feels does not provide an appropriate answer or may not be clearly stated. Failure to complete this standard form will result in the examinees forfeiture of appeals rights. It should be noted that the ABC examination questions are straight-forward and do not contain "trick" questions. The applicant should select the best appropriate answer from the available selections.

Costs

This voluntary certification program is designed to be self-sustaining. All labor to administer and oversee this program is based upon volunteers from the IWEA Laboratory Committee. At present, many of the program costs including telephone, postage, typing, printing, reproduction, and other similar costs are provided by the volunteers and/or their employers. In this manner, we are attempting to control the costs to our operators. IWEA does incur direct costs from ABC, however, in the form of annual membership fees as well as costs associated with providing and grading examinations. The only financial support for this program comes from application fees, which are structured to cover costs only. For this reason, all application fees are not refundable. Application fees will be adjusted periodically to reflect the costs of the program. The current fees to sit for the examination can be found on the most recently approved application.

TRAINING OPPORTUNITIES AND MATERIALS

Laboratory analyst need to adequately prepare for taking the certification examination. Materials which may be of benefit to applicants include, but are not limited to, the following:

- Indiana Water Environment Association. 2019. Quality Assurance Manual for Indiana Wastewater Laboratories, 4th Edition
- Association of Boards of Certification, ABC Need-to-Know Criteria for Wastewater Laboratory Analysts (www.abccert.org/pdf_docs/abc2005wwlabntk2.pdf)
- Standard Methods of the Examination of Water & Wastewater (latest EPA-approved edition). Washington, DC: APHA. (www.apha.org)
- California State University, Sacramento (CSUS) Foundation, Office of Water Programs. 2001. Operation of Wastewater Treatment Plants, Vol. I and II. Sacramento, CA: CSUS Foundation. (www.owp.csus.edu)
- California State University, Sacramento (CSUS) Foundation, Office of Water Programs. 2001. Utility Management. Sacramento, CA: CSUS Foundation. (www.owp.csus.edu)
- California State University, Sacramento (CSUS) Foundation, Office of Water Programs. 2005. Manage for Success. Sacramento, CA: CSUS Foundation. (www.owp.csus.edu)
- Code of Federal Regulations. "Occupational Safety and Health Standards." Title 29 (Labor), Chapter XVII, Part 1910. (www.gpo.gov)
- Code of Federal Regulations. Title 40 (Protection of Environment), Chapter I, Parts 136, 261, 433, 501, and 503. (www.gpo.gov)
- Csuros, Maria. 1994. Environmental Sampling and Analysis for Technicians. Boca Raton, FL: CRC Press. (www.crcpress.com)
- Csuros, Maria. 1997. Environmental Sampling and Analysis Lab Manual. Boca Raton, FL: CRC Press. (www.crcpress.com)
- Csuros, Maria, and Csaba Csuros. 1999. Microbiological Examination of Water and Wastewater. Boca Raton, FL: CRC Press. (www.crcpress.com)
- Smith, Roy-Keith. 1995. Water and Wastewater Laboratory Techniques. Alexandria, VA: Water Environment Federation. (www.wef.org)
- U.S. Environmental Protection Agency (US EPA). 1979. Handbook for Analytical Quality Control in Water and Wastewater Laboratories. EPA Number 600/4-79-019. Cincinnati, OH: US EPA. (www.epa.gov/nepis/)
- U.S. Environmental Protection Agency (US EPA). 1983. Methods for Chemical Analysis of Water and Wastes. EPA Number 600/4-79-020. Cincinnati, OH: US EPA. (www.epa.gov/nepis/)
- Water Pollution Control Federation and Michael Richard. 1989. Activated Sludge Microbiology. Alexandria, VA: Water Environment Federation. (www.wef.org)