



To: Candidates for Class IV Water System and Wastewater Treatment Works Certificates

From: Kevin Swiadek, Operator Certification Unit

Date: February 16, 2022

Re: Class IV Certification

Attached is information regarding certification as a Class IV water system or wastewater treatment works operator. A guide to preparation of the examination for certification is also included.

To be a candidate for Class IV certification:

1. In accordance with OAC Rule 3745-7-06(C)(2), an applicant must have held a valid Class III certificate in the field for which the application is submitted for a minimum of three years, with two of those years consisting of management experience at a Class III or IV facility in the field for which the application is submitted. "Management experience" is defined as experience obtained while supervising, directing, or controlling the affairs associated with a public water system or treatment works. Such experience shall include, but not be limited to, being directly responsible for plant operations, supervising operating staff, and being responsible for personnel issues. Experience gained in the position of shift supervisor at a Class III or IV facility shall qualify as management experience.
2. Must submit a written examination which **details** the candidate's experience, specifically as being a Class III operator with management experience at a Class III or Class IV public water system or wastewater treatment works. The examination must include discussions on experience, administration, budget, plant, system, safety, planning, research, design, staff training and development and publications. The examination will be evaluated on its content and the applicability of the information submitted. The exam **must** follow the Class IV Exam Guidance furnished by the Operator Certification Advisory Council (Council).
3. Applicants may be requested to appear before the Council to discuss the information presented in their Class IV exam.

The Council recognizes the significance and importance of Class IV certification and intends to preserve its integrity and prestige by deliberate and careful review of the examination.

The Class IV process is separated into two parts. The first part is the application, which is used to detail an applicant's experience and education. Ohio EPA uses the application to

determine the applicant's eligibility to take the Class IV examination. The electronic application shall be submitted through the Ohio EPA eBusiness Center (eBiz). The examination fee is \$145 and can be paid online with credit card or electronic check or mailed in with a paper check or money order. Paying electronically is the fastest and easiest method to pay the application fee. Once you have completed the application in eBiz you will be required to print and submit a copy of an application signed by you and your supervisor. The application should be emailed with an official table of organization with individual names, signed by your immediate supervisor and your position description to opcrt@epa.ohio.gov. Make checks, or money orders, payable to "Treasurer, State of Ohio" and mail to Ohio EPA, Office of Fiscal Administration, P.O. Box 1049, Columbus, Ohio 43216-1049. All fees are non-refundable.

The second part is the written examination as described in this document. An applicant must be approved to take the examination before submitting the examination.

Please note this exam and guidance document contains several clarifications in the information to be submitted as compared to previous guidance. Please review these instructions carefully and make sure you address each area in detail. The information requested herein serves as the basis for the Council to decide as to whether the applicant meets the eligibility requirements under Ohio Administrative Code (OAC) Rule 3745-7-06. Therefore, you must provide all the requested information in order for your application and examination to be considered.

Applicants should also review Rule 3745-7 entitled "Water Supply Works and Wastewater Works Personnel". A copy of this rule may be obtained from the web page at <https://epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/certified-operators> or by contacting the Certification Unit at (614) 644-2752.

PLEASE NOTE: Your exam should not include lengthy descriptions prepared by others, such as facility plans, annual reports, engineering reports, etc. The exam must be **in your own words**, concise and address all the above issues. All exams should be carefully proofread for spelling, grammatical and sentence structure errors prior to submittal. It is recommended that you have both industry professionals and individuals outside the industry proofread your examination.

Ohio EPA

CLASS IV EXAM AND GUIDANCE

Submit the following exam electronically to opcert@epa.ohio.gov. All pages of your exam must be numbered and each of the twelve sections should be separated. If the document is too large to send as an attachment, you may email the Operator Certification Unit for instructions on submitting a large attachment. Please do not send multiple files, or individual sections of your exam. Your exam will be returned by the Operator Certification Unit if your exam is submitted in multiple files. All information included in your Class IV examination shall be written in your words. The use of material written by other individuals is prohibited.

1. EXPERIENCE:

Describe in detail your water and wastewater treatment experience, following the format specified below:

<u>From</u> <u>(Month/Year)</u>	<u>To</u> <u>(Month/Year)</u>	<u>Name of Plant</u>	<u>Job Title</u>	<u>Immediate Supervisor</u>
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Describe your duties and give dates of promotions. **(Do not attach formal position/job descriptions; provide a detailed explanation of your job duties in your own words.)** Describe related experience which may be relevant. Your entire experience in the water or wastewater treatment field should be covered. (This might include past jobs, training, schooling or volunteer experiences. Include skills acquired and licenses/certifications obtained.)

2. ADMINISTRATION:

Provide details of your administrative experience. Discuss how many people are working at your facility. Explain their duties and responsibilities. (Explain employees' job duties; do not attach position/job descriptions.) Discuss the manner in which you supervise their daily activities. (Describe and discuss how you: assign duties and responsibilities; provide feedback to your employees on performance; ensure that information is exchanged between you and other staff and shifts; including units that do not directly report to you, motivate employees including financial and non-financial incentives.) Provide an applicable table of organization for the system with individual names and job titles, including upper management not in the treatment plant (ie. mayor, council, board of directors, etc.). All positions at your facility should be discussed. Be sure to include discussion on how laboratory, maintenance, pretreatment, and operational duties are completed.

3. BUDGET:

Provide a copy of the most recent budget for the plant(s) upon which your experience is based. Describe and discuss the budget preparation process and your personal involvement. (Explain the various steps of the budgeting process; how budget amounts are developed; who is responsible for submitting what information; who reviews and approves the budget at each step in the process. Discuss the purchasing processes. Discuss any long-term budgeting processes, such as capital improvement budgeting and 2, 5, or 10 year

budget forecasting.) Discuss how expenditures are tracked. It is not necessary to submit voluminous supporting material (for example, copies of purchase orders, budget status reports, vendor lists, etc.). Discuss how emergency purchases are made, including spending limits. Provide a brief explanation of budget accounts, how they are developed and how you prioritize expenditures from year to year.

4. **PLANT:**

Drinking Water:

Describe and discuss all treatment process units and compare their operation with respect to design vs. actual performance (include raw water supply, recycled streams, etc.). Provide data on approved rates vs. what you actually run the unit daily). If there is degradation in performance which affects the operation of any unit, discuss what caused the degradation and how you are dealing with the loss in performance. Include a discussion of specific water quality/operational goals and plant performance relative to those goals. (For example, operational parameters such as settled water turbidity or what determines when a filter is backwashed, finished water quality goals, etc.) Discuss how the plant was designed to operate, how it is currently operating, how you would like the plant to operate and your greatest challenges in meeting your water quality and operational goals. Describe what information is utilized and how this information is gathered to make treatment chemical dosage adjustments and how these adjustments are determined and made (manually or automatic). Describe any current or future need for operational and mechanical improvements or concerns about water quality or quantity. Describe and discuss residuals reuse/disposal practices. (Include the operation of the liquid and solids handling processes and compliance with pertinent permits or regulations.) Provide a flow diagram and a 12-month summary of actual operating data (i.e. monthly averages and/or ranges of data such as pumping, chemical doses, treatment parameters, raw and finished water quality, etc.). **Do not include copies of monthly operating reports.** Provide any additional information relative to the plant and its performance which may be pertinent. Provide a detailed discussion on filter operation, along with filter media specifications. Discuss your SCADA system in detail and who maintains it. Discuss your backup power situation and protocols. Provide generator specifications. Summarize your contingency plan and discuss your biggest concerns. Summarize your current year monitoring schedule. Summarize, if applicable, any NPDES permits/requirements. Provide a discussion on the plant's source water. Provide specifics on size (area), capacities, pollution sources, SWAP, etc. Lastly, discuss your facility's cybersecurity protocol as it relates to your automated plant processes and SCADA. Discuss any trainings or programs that are in place for the employees related to cybersecurity.

Wastewater:

Describe and discuss all treatment process units and compare their operation with respect to design vs. actual hydraulic and organic loadings. Discuss and compare how the plant was designed to operate and how it is currently operating. (The discussion should include process control methodologies and any additional loadings such as I & I flows, industrial,

septage, leachate, side streams, etc.) Discuss how you would like the plant to operate and your greatest challenges in meeting your effluent permit limits and operational goals.

Describe any need for operational or mechanical improvements. Describe and discuss the effects (including biological, chemical, or physical impacts) of the effluent discharge on receiving waters. Describe and discuss the residuals reuse/disposal practices (include the operation of the liquid and solids handling processes and a discussion on compliance with pertinent Ohio Administrative Code requirements). Provide a plant flow diagram that clearly shows the path of the wet stream, the solids stream, and any side streams. Provide a summary, by month, for the last 12 months of actual operating data [This should include items such as the monthly averages of: plan flows, process control flow rates and solids concentrations, chemical doses, % removals, sludge volume index (SVI), mean cell residence time (MCRT), settleable solids, influent, and effluent quality, etc.]. Provide a discussion on the data, including discussion on any values that do not meet your operational targets or permit requirements. **Do not include copies of monthly operating reports.** Provide any additional information relative to the plant and its performance which may be pertinent. Provide a plant flow diagram that clearly shows the path of the wet stream, the solids stream, and any side stream. Provide a discussion on the data, including discussion on any values that do not meet your operational targets or permit requirements. Lastly, discuss your facility's cybersecurity protocol as it relates to your automated plant processes and SCADA. Discuss any trainings or programs that are in place for the employees.

5. DISTRIBUTION OR COLLECTION SYSTEM:

Drinking Water:

Describe and discuss the water distribution system and how it operates. Submit a system map (in lieu of submitting a map, you may discuss how and where the system map is maintained). Summarize your routine Distribution Sampling Plans, including lead and copper, total coliform bacteria, TTHMs and HAA5s. Provide information on major piping sizes, piping materials, pumping rates, system pressures (pressure districts/zones), consumption rates (for example residential, industrial and seasonal demands), fire flow (provide and summarize the distribution system ISO rating-contact local Fire Chief if necessary), disinfection residuals, backflow prevention, (discuss your program, type used, requirements, enforcement, issues, etc.), metering (type used, sizes, discuss meter replacement program, issues, etc.) and percent unaccounted for water (provide a discussion of results and improvement strategies). Discuss any effects the distribution system may have on the quality of the finished water (disinfection byproducts, lead, copper, taste and odor, discolored water, etc.). Discuss problem areas (quality and quantity) and describe the need for improvements (include improvements necessary due to new regulatory requirements).

Describe and discuss booster pumping stations (limit to the 5 largest). Provide information on the areas served, rechlorination, number of pumps, types of pumps, flow rates, system pressures, control devices, emergency power supply. Discuss problem areas and describe the need for improvements to the booster stations.

Describe and discuss the number and types of storage facilities, storage capacity, tank turnover, monitoring and control devices and any supervisory control and data acquisition (SCADA) systems. Describe any routine maintenance or inspections programs. Provide a

detailed discussion about the prevalence of lead service lines in the Distribution System and how this is being handled.

Wastewater:

Describe and discuss the wastewater collection system and how it operates. Submit a system map that clearly shows the major services areas, trunk lines, pump stations, and significant problem areas. Provide a discussion on all of the above, as well as routine maintenance, emergency response, etc.

Provide a discussion of the major piping sizes, piping materials, flow rates, inflow and infiltration (I & I) and odor/corrosion problems. Describe and discuss any sanitary sewer overflows (SSOs) and combined sewer overflows (CSOs). Discuss problem areas and describe the need for improvements. Discuss programs for the reduction of SSOs, water in basement (WIB), CSO long term control plans, I & I reduction programs, and their current status.

Describe and discuss collection pump stations (limit to 5). Provide detailed information on collection areas, type of station, number of pumps, types of pumps, level control devices, force main size, flow rates and emergency power supply. Discuss any pump station problem areas and describe the need for improvements.

6. SAFETY PROGRAM:

Describe and discuss the safety program including the risk management plan, if required, at your facility. Discuss your personal involvement in the development and implementation of the safety program. Include a listing of personal safety equipment for plant workers and other safety equipment available at the plant. Include a copy of the minutes from the most recent safety committee meeting. Provide a summary or outline of your facility's safety manual. Indicate how your facility's safety program addresses provisions of the general OSHA standards (Code of Federal Regulations 29-1910 and 1926) such as chemical safety, confined space, hazard communication, lock/tag out, personal protective equipment.

7. PLANNING:

Describe and discuss your experience related to planning for a plant or system related project. This includes planning for a new plant, improvements, or expansions, any plans for future regulatory compliance and equipment or process changes. If you have no direct experience in planning for a plant change then describe a plant/system related event that required you to use planning skills such as a plant shutdown/start-up, emergency planning, etc. Discuss the **various steps** in the planning process and the end result of your planning efforts as well as the extent of your responsibilities. Please include discussion on your facility's 5 to 10 year plans. Providing a list of projects without description and discussion is not acceptable. A thorough description of one topic is preferred over short descriptions of multiple topics. Include a discussion on how projects are, or will be, funded.

8. RESEARCH:

Describe and discuss any investigations or research programs you have participated in related to water and wastewater treatment. The projects could be completed or currently underway. Research experience may include anything from full scale studies to minor

process modifications related to the treatment facility. Show the degree of your responsibility, dates, results, and conclusions of the research, etc. Submit abstracts of reports, if any. [This section should follow the format of developing a hypothesis (goal), experimentation, analyzing results and developing conclusions.] Providing a list of projects without description and discussion is not acceptable. A thorough description of one topic is preferred over short descriptions of multiple topics.

9. DESIGN:

Describe and discuss your personal involvement in plant/system design. This section could cover minor improvements suggested and/or implemented by you and/or your involvement on major plant/system improvements. Discuss your involvement on major plant improvements, including how they are selected and your interaction with them. Providing a list of projects without description and discussion is not acceptable. Provide a list of projects without description and discussion is not acceptable. A thorough description of one topic is preferred over short descriptions of multiple topics.

10. STAFF TRAINING AND DEVELOPMENT:

Describe and discuss how and by whom employees are trained to operate and maintain your plant. Is training provided in-house? Do employees attend outside training? How have you assisted your co-workers in furthering their advancement in the field? Give names and Ohio EPA certificates obtained for persons you have assisted in their advancement. Describe your related teaching experience.

11. PUBLICATIONS:

Describe publications you prepared, presented and/or published, when and where, co-authors, if any. Discuss your degree of contribution to the publication. Submit abstracts of papers. Publications could include consumer confidence reports, brochures, standard operating procedures, annual reports, etc.

12. ADDITIONAL INFORMATION:

Indicate any additional information related to your experience in the water or wastewater field which is not listed above.

REFERENCES:

Choose three references that are familiar with your professional responsibilities. Indicate the occupation of each reference along with their address and phone number. Ask each of the three to complete the attached reference form, addressing your technical competency, managerial ability, character, integrity and contributions to your field, and **submit it directly to the opcrt@epa.ohio.gov**

PLEASE NOTE: Your exam should not include lengthy descriptions prepared by others, such as facility plans, annual reports, engineering reports, etc. The exam must be **in your own words**, concise and address all the above issues. All exams should be carefully proofread for spelling, grammatical and sentence structure errors prior to submittal. It is recommended that you have both industry professionals and individuals outside the industry proofread your examination.

All information included in your Class IV examination shall be written in your words. The use of material written by other individuals is prohibited.

Use of material that is not your own will be considered falsification and appropriate disciplinary measures regarding your certificate may be initiated.

**Ohio EPA Class IV Examination
REFERENCE FORM**

APPLICANT NAME: _____

REFERENCE NAME: _____

TECHNICAL COMPETENCY:

MANAGERIAL ABILITY:

CHARACTER:

INTEGRITY:

CONTRIBUTIONS TO THE FIELD:

REFERENCE SIGNATURE: _____

REFERENCE PHONE NUMBER: _____

REFERENCE RELATION TO APPLICANT: _____

Email to: opcrt@epa.ohio.gov

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