Wisconsin Department of Natural Resources
Wastewater Operator Certification

UNIQUE TREATMENT SYSTEMS STUDY GUIDE

Subclass U

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Wisconsin Department of Natural Resources
Operator Certification Program
PO Box 7921, Madison, WI 53707

http://dnr.wi.gov

INTRODUCTION

The Unique Treatment Systems (subclass U) Study Guide is written in essay format for unique, more complicated wastewater treatment systems with a Wisconsin Pollutant Discharge Elimination System (WPDES) permit that do not fit well in our existing subclass categories, yet require a certified wastewater treatment plant operator to ensure they are properly operated and maintained. Some examples include treatment systems for groundwater remediation systems, river clean-up/dredging projects, pH neutralization, and oil/water separation. If you have any questions to whether your facility requires a subclass U operator, please contact your regional DNR Engineer. The exam, in essay format, contains 12 questions that you will need to answer thoroughly and accurately to fully demonstrate your knowledge in operating, maintaining, and managing a unique treatment system.

The Basic General Wastewater certification exam is not required for Subclass U certification. Once the subclass U exam is passed, you will be an Operator-In-Training (OIT). One year of experience operating such a facility is required to become an operator at the *Basic Level* certification. Experience should be documented on the Wastewater Operator Experience Form (Form 3600-066A). *Advanced Level* certification may be required in some cases for treatment systems that meet advanced level criteria. Once certified, continuing education credits are required to maintain this certification. Subclass U certification is facility specific and generally cannot be transferred to another facility.

Preparing for this exam:

1. Study your facility's WPDES permit and O&M manual. They are the two most important resources for you to obtain the knowledge and information you will need to successfully pass this exam.
2. Gain some hands-on operational experience first before taking this exam. Actual operating experience will allow you to more easily answer some of the questions.
3. Read, study, and be fully prepared to completely answer <u>every</u> one of the knowledges in this study guide.

1. WASTEWATER TREATMENT

1.1 Discuss why wastewater is treated in general and why it is treated at your plant specifically.

1.2 Make a sketch showing flow through your plant's treatment units.
Use solid lines to show the liquid flow and dashed lines to show the solids and sludge flow. Show chemical addition points and any inline process monitoring points. If you have a few different treatment trains, show them separately.

1.3 List and describe each wastewater treatment process used at your facility and state the purpose of the process (what the process does).
Refer to the diagram you drew in the previous question. Include all processes at your plant that treats the liquid wastewater and those that process and handle solids or sludge (if applicable).

1.4 Describe what devises are used for measuring flows coming into the treatment facility (influent) and being discharged (effluent) from your treatment facility. State how often each flow is monitored and how it is recorded and/or reported.

1.5 Name the most significant pollutants treated and reduced in your facility by your liquid process treatment.
The most significant pollutants are those in your plant's Wisconsin Pollutant Discharge Elimination System (WPDES) permit. Explain why it is important to treat for these pollutants and their environmental significance.

1.6 Describe what process control monitoring (manual or automatic) is performed at your facility.
Many wastewater facilities measure certain parameters or perform certain tests to provide information for the operator to operate the treatment processes more efficiently. Explain how and why they are done as regards to operational decisions/adjustments.

1.7 Describe the preventative maintenance program, each task, and frequency of each task that are performed at your facility.

1.8 Write the instructions you would leave for your substitute regarding the daily and weekly O&M tasks that must be performed in your absence.
Be specific.

1.9 List the most important reports that must be completed and sent to the Wisconsin Department of Natural Resources and how often.
The Wisconsin Department of Natural Resources requires regular reporting of your wastewater treatment processes and discharges at your facility as stated in your plant's WPDES permit.

1.10 **Describe at least two operational problems** which were experienced at your plant and how they were discovered, addressed, and ultimately resolved.

1.11 **Describe the safety precautions and measures** that an operator must take and be aware of when working at this facility.

1.12 **Describe your plant's emergency action plan** that would be followed and the notifications that must be made in case of a major problem, upset, or spill at your treatment facility.

2. RESOURCES

2.1 Wisconsin Pollutant Discharge Elimination System (WPDES) permit and your facility's O&M manual

Your WPDES permit and O&M manual are two of the best references for studying for your Unique Treatment Systems exam. The O&M manual should also list other references as it pertains to the particular treatment processes. Further information may be obtained from your facility's consultant or DNR Wastewater Engineer.

2.2 Operation of Municipal Wastewater Treatment Plants

Water Environmental Federation (WEF) (2008). Manual of Practice (MOP) No. 11 vol. I, II, III (6th ed.). New York, New York: McGraw-Hill
www.wef.org

2.3 Operation of Wastewater Treatment Plants

Office of Water Programs, California State University, Sacramento (2008). Operation of Wastewater Treatment Plants (7th ed.). Sacramento, California: University Enterprises, Inc., California State University
www.owp.csus.edu/training/