



**Wastewater Treatment Operator  
Certification Examination Content Outline  
Classes 1-4**

Class 1

Class 2

Class 3

Class 4

### 1. Laboratory Analysis

- |  | Class 1 | Class 2 | Class 3 | Class 4 |
|--|---------|---------|---------|---------|
| A. Follow laboratory Standard Operating Procedures (SOPs).           |         |         |         |         |
| B. Collect samples for the following:                                |         |         |         |         |
| 1. bacteriological analyses.   |         |         |         |         |
| 2. biological analyses (e.g., BOD, CBOD).                            |         |         |         |         |
| 3. chemical analyses (e.g., COD, nutrients, metals).                 |         |         |         |         |
| 4. physical analyses (e.g., pH, temperature, DO, settleable solids). |         |         |         |         |
| C. Conduct the following:  |         |         |         |         |
| 1. bacteriological analyses.   |         |         |         |         |
| 2. biological analyses (e.g., BOD, CBOD).                            |         |         |         |         |
| 3. chemical analyses (e.g., COD, nutrients, metals).                 |         |         |         |         |
| 4. physical analyses.  |         |         |         |         |
| 5. process control laboratory testing.                               |         |         |         |         |
| 6. required regulatory laboratory testing.                           |         |         |         |         |
| D. Interpret data from the following:                                |         |         |         |         |
| 1. bacteriological analyses.   |         |         |         |         |
| 2. biological analyses (e.g., BOD, CBOD).                            |         |         |         |         |
| 3. chemical analyses (e.g., COD, nutrients, metals).                 |         |         |         |         |
| 4. physical analyses (e.g., pH, temperature, DO, settleable solids). |         |         |         |         |

### 2. Equipment Evaluation and Maintenance

- |   | Class 1 | Class 2 | Class 3 | Class 4 |
|---|---------|---------|---------|---------|
| A. Calibrate meters (e.g., flow, pressure sensors).                           |         |         |         |         |
| B. Follow safety rules and guidelines when working with chemical equipment.   |         |         |         |         |
| C. Follow safety rules and guidelines when working with mechanical equipment. |         |         |         |         |
| D. Monitor flowmeters.  |         |         |         |         |
| E. Monitor telemetry systems.   |         |         |         |         |
| F. Perform basic electrical troubleshooting.                                  |         |         |         |         |
| G. Perform preventative maintenance on equipment.                             |         |         |         |         |
| H. Inspect the following equipment:   |         |         |         |         |
| 1. aeration basins.   |         |         |         |         |
| 2. aeration systems (e.g., blowers, surface aerators, diffusors).             |         |         |         |         |
| 3. aerobic digesters.   |         |         |         |         |
| 4. air compressors.   |         |         |         |         |
| 5. anaerobic digesters.   |         |         |         |         |
| 6. analyzers (e.g., DO, pH, H <sub>2</sub> S, ORP).                           |         |         |         |         |
| 7. attached growth / fixed film (e.g., RBC, trickling filter).                |         |         |         |         |
| 8. bar screens.   |         |         |         |         |

The blue shading indicates that a given task statement is not applicable for the class or classes shown.



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	Class 1	Class 2	Class 3	Class 4
9. chemical feed systems (e.g., polymer, ferric).				
10. chlorination systems.				
11. clarifiers / sedimentation basins.				
12. conveyors.				
13. dechlorination systems.				
14. disinfection equipment (e.g., UV, ozone).				
15. filtration and exchange units (e.g., sand, membranes).				
16. flow equalization systems.				
17. gates and valves.				
18. generators.				
19. grit removal processes.				
20. hand tools.				
21. heavy equipment.				
22. hoists and cranes.				
23. instrumentation (e.g., flow, pressure, telemetry).				
24. mechanical dewatering equipment (e.g., presses, centrifuges).				
25. mixers.				
26. motors.				
27. odor control devices (e.g., biofilters, scrubbers).				
28. ponds / lagoons.				
29. power tools.				
30. pumps - centrifugal.				
31. pumps - positive displacement.				
32. SCADA systems.				
33. solids thickening processes (e.g., DAF, belt, rotary drum).				
34. suspended growth (e.g., activated sludge, MBR, SBR).				
I. Maintain the following equipment:				
1. aeration basins.				
2. aeration systems (e.g., blowers, surface aerators, diffusors).				
3. aerobic digesters.				
4. air compressors.				
5. anaerobic digesters.				
6. analyzers (e.g., DO, pH, H2S, ORP).				
7. attached growth / fixed film (e.g., RBC, trickling filter).				
8. bar screens.				
9. chemical feed systems (e.g., polymer, ferric).				
10. chlorination systems.				
11. clarifiers / sedimentation basins.				
12. conveyors.				
13. dechlorination systems.				
14. disinfection equipment (e.g., UV, ozone).				
15. flow equalization systems.				
16. gates and valves.				



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17. generators.				
18. grit removal processes.				
19. hand tools.				
20. heavy equipment.				
21. hoists and cranes.				
22. instrumentation (e.g., flow, pressure, telemetry).				
23. mechanical dewatering equipment (e.g., presses, centrifuges).				
24. mixers.				
25. motors.				
26. odor control devices (e.g., biofilters, scrubbers).				
27. ponds / lagoons.				
28. power tools.				
29. pumps - centrifugal.				
30. pumps - positive displacement.				
31. SCADA systems.				
32. solids thickening processes (e.g., DAF, belt, rotary drum).				
33. suspended growth (e.g., activated sludge, MBR, SBR).				
<b>3. Equipment Operation</b>				
A. Analyze data to evaluate and adjust equipment.				
B. Check filters for proper operation.				
C. Conduct wastewater pipe repairs.				
D. Follow safety rules and guidelines when working with chemical equipment.				
E. Follow safety rules and guidelines when working with mechanical equipment.				
F. Follow Standard Operating Procedures (SOPs).				
G. Monitor lift stations to ensure equipment is operating properly.				
H. Monitor motor control center.				
I. Transport biosolids offsite for disposal / reuse.				
J. Operate the following:				
1. aeration basins.				
2. aeration systems (e.g., blowers, surface aerators, diffusors).				
3. aerobic digesters.				
4. air compressors.				
5. anaerobic digesters.				
6. analyzers (e.g., DO, pH, H <sub>2</sub> S, ORP).				
7. attached growth / fixed film (e.g., RBC, trickling filter)				
8. bar screens.				
9. chemical feed systems (e.g., polymer, ferric).				
10. chlorination systems.				
11. clarifiers / sedimentation basins.				
12. conveyors.				



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	Class 1	Class 2	Class 3	Class 4
13. dechlorination systems.				
14. disinfection equipment (e.g., UV, ozone).				
15. filtration and exchange units (e.g., sand, membranes)				
16. flow equalization systems.				
17. gates and valves.				
18. generators.				
19. grit removal processes.				
20. hand tools.				
21. heavy equipment.				
22. hoists and cranes.				
23. instrumentation (e.g., flow, pressure, telemetry).				
24. mechanical dewatering equipment (e.g., presses, centrifuges).				
25. mixers.				
26. motors.				
27. odor control devices (e.g., biofilters, scrubbers).				
28. ponds / lagoons				
29. power tools.				
30. pumps - centrifugal.				
31. pumps - positive displacement.				
32. SCADA systems.				
33. solids thickening processes (e.g., DAF, belt, rotary drum).				
34. suspended growth (e.g., activated sludge, MBR, SBR).				
<b>4. Treatment Process Monitoring, Evaluation, and Adjustment</b>				
A. Add chemicals to disinfect and deodorize water and other liquids (e.g., ammonia, chlorine, lime).				
B. Analyze laboratory data to evaluate and adjust processes.				
C. Follow industry safety rules and guidelines applicable to treatment processes.				
D. Implement changes as indicated by laboratory results.				
E. Operate chemical feed systems (e.g., polymer, ferric).				
F. Operate odor control systems (e.g., biofilters, scrubbers).				
G. Operate SCADA systems.				
H. Operate the preliminary treatment processes (e.g., screening, grit, flow equalization).				
I. Operate the primary clarification / sedimentation processes.				
J. Operate the following secondary treatment processes:				
1. attached growth / fixed film processes (e.g., RBC, trickling filter).				
2. pond / lagoon systems.				
3. secondary clarification / sedimentation processes.				
4. extended aeration processes (e.g., package, SBR, oxidation ditch).				



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5. conventional activated sludge processes (e.g., step feed, plug flow, complete mix, MBR).				
K. Operate the nutrient removal systems.				
L. Operate the following tertiary treatment processes:				
1. nutrient removal systems.				
2. filtration / ion exchange systems (e.g., sand, membranes).				
3. filtration systems (e.g., solids, liquid).				
M. Operate the following disinfection treatment processes:				
1. chlorination processes.				
2. dechlorination processes.				
3. disinfection processes (e.g., UV, ozone).				
N. Operate the following solids treatment processes:				
1. aerobic digestion process.				
2. anaerobic digestion process.				
3. mechanical dewatering processes (e.g., presses, centrifuges).				
4. solids thickening processes (e.g., DAF, belt, rotary drum).				
<b>5. Security, Safety, and Administrative Procedures</b>				
A. Adhere to established safety procedures (e.g., lock-out / tag-out, confined space, hazard communication, fall protection).				
B. Assist in the selection of equipment for use in wastewater processing.				
C. Assist with budget preparation.				
D. Assist with the industrial pretreatment program in regard to effluent quality standards.				
E. Complete operation reports.				
F. Complete required regulatory reports.				
G. Conduct routine security checks.				
H. Ensure compliance with all applicable regulations.				
I. Generate maintenance reports (e.g., daily, monthly, annual).				
J. Identify personnel training needs.				
K. Implement spill notification policy.				
L. Inspect SCBA equipment.				
M. Manage plant staff.				
N. Participate in studies related to increasing capacity, changes in treatment requirements or facility upgrades.				
O. Receive chemical deliveries and store.				
P. Respond to customer service requests and complaints.				
Q. Schedule routine activities (e.g., maintenance, operations).				
R. Update spill notification policy.				
S. Update Standard Operating Procedures (SOPs).				