

## Need To Know Criteria Wastewater

Class A    Class B    Class C    Class D

### Regulations

- |   |   |   |   |   |
|---|---|---|---|---|
| • Knowledge of the Stream Standards                       | x | x | x |   |
| • Knowledge of Regulation 84                              | x | x | x |   |
| • Knowledge of Regulation 100                             | x | x | x | x |
| • Knowledge of Clean Water Act and the purpose of the act | x | x | x | x |
| • Knowledge of CDPHE Guidance Manuals                     | x | x |   |   |
| • Knowledge of Regulation 64                              | x | x | x |   |

### Safety

- |   |   |   |   |   |
|---|---|---|---|---|
| • Knowledge of safety regulations   | x | x | x | x |
| • Ability to identify potential safety hazards and recognize unsafe work conditions | x | x | x | x |
| • Knowledge of personal protective equipment and its use                            | x | x | x | x |
| • Familiarity with "worker's right to know" and OSHA regulations                    | x | x |   |   |
| • Ability to design and administrate a safety program                               | x | x |   |   |
| • Ability to design and administrate a confined space entry program                 | x | x |   |   |
| • Familiarity with materials safety data sheets                                     | x | x | x | x |
| • Familiarity with safe practices for chemical handling and storage                 | x | x | x | x |
| • Knowledge of confined space protocols   | x | x | x | x |
| • Knowledge of electrical safety  | x | x | x | x |
| • Knowledge of lock out and tag out   | x | x | x | x |

### Discharge Water

- |  |   |   |   |   |
|--|---|---|---|---|
| • Knowledge of Colorado stream standards   | x | x | x | x |
| • Knowledge of TMDLS and impact on discharge and receiving streams                 | x | x |   |   |
| • Knowledge of groundwater standards   | x | x | x | x |
| • Knowledge of discharge permits standards and how they relate to stream standards | x | x | x |   |



## Wastewater Treatment Operations

• Knowledge of and Ability to adjust chemical feed rates	x	x	x	x
• Ability to calculate dosages	x	x	x	x
• Chlorine disinfection with gaseous chlorine, sodium hypochlorite or calcium hypochlorite	x	x	x	x
• Ability to perform basic wastewater mathematic calculations and physical measurements	x	x	x	x
• Dechlorination	x	x	x	x
• Knowledge of tertiary treatment	x	x		
• Disinfection with ultraviolet light	x	x	x	x
• Knowledge of wastewater reuse	x	x	x	
• Knowledge of operating characteristics for process control evaluation	x	x	x	x
• Ability to diagnose and troubleshoot treatment processes	x	x	x	
• Knowledge of basic activated sludge and trickling filter operations	x	x	x	
• Knowledge of wastewater treatment processes and design parameters	x	x	x	
• Ability to evaluate microscopic biolife	x	x	x	
• Knowledge of general biology, chemistry and microbiology	x	x	x	
• Knowledge of nutrient removal processes, especially nitrogen	x	x	x	
• Knowledge of nutrient removal processes, especially phosphorus	x	x		
• Knowledge of primary and secondary treatment processes	x	x	x	x
• Knowledge of lagoon operation	x	x	x	x
• Instrumentation and control	x	x		
• Knowledge of biosolids handling	x	x	x	

## Mechanical

• Knowledge of centrifugal and positive displacement pumps	x	x	x	x
• Knowledge of chlorinators and chlorine systems and dechlorination equipment	x	x	x	x
• Knowledge of pipes, valves and fittings	x	x	x	x
• Chemical feed systems	x	x	x	
• Mixers and diffusers	x	x		
• Mechanical drive systems	x	x	x	

## Hydraulics

- |  |   |   |   |   |
|--|---|---|---|---|
| • Pressure   | x | x | x | x |
| • Headloss   | x | x | x | x |
| • Velocity and flow in pipes and open channels           | x | x |   |   |
| • Knowledge of weirs and using them for flow measurement | x | x | x |   |

## Administration

- |  |   |   |   |   |
|--|---|---|---|---|
| • Budgeting  | x | x | x |   |
| • Purchasing   | x | x |   |   |
| • Knowledge of basic HR skills, programs and regulations | x |   |   |   |
| • Knowledge of record keeping requirements               | x | x | x |   |
| • Ability to create and administrate training programs   | x |   |   |   |
| • Public relations                                       | x | x |   |   |
| • Emergency response                                     | x | x | x | x |
| • Vulnerability assessment                               | x | x |   |   |
| • Supervision  | x | x |   |   |
| • NPDES reporting  | x | x | x |   |
| • Housekeeping   | x | x | x | x |

## Math

- |  |   |   |   |   |
|--|---|---|---|---|
| • Ability to calculate tank volumes, draw down and detention time                    | x | x | x | x |
| • Ability to calculate chemical dosages and daily use of chemicals                   | x | x | x | x |
| • Ability to calculate treatment costs   | x | x | x | x |
| • Ability to calculate horsepower  | x | x | x |   |
| • Ability to calculate pumping rates   | x | x | x | x |
| • Ability to calculate dilutions   | x | x | x |   |
| • Ability to calculate loading rates, SRTS, MCRTS--basic process control mathematics | x | x | x |   |

## Laboratory

• Interpretation of lab results	x	x	x	x
• Temperature testing	x	x	x	x
• Glassware	x	x	x	x
• Chlorine residual testing	x	x	x	x
• Jar Testing	x	x		
• MLSS testing	x	x	x	
• Proper influent and effluent sampling, knowledge of composite samples testing	x	x	x	
• Alkalinity testing	x	x	x	
• pH testing	x	x		
• DO sampling, including Winkler method	x	x	x	x
• Knowledge of sampling procedures and standard methods used	x	x		
• WET testing	x	x		

## Chemical Handling

• Knowledge of proper application, handling and storage of chemicals	x	x	x	x
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## Security

• Basic concepts of security	x	x	x	x
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## Basic Science

• Chemical Formulae and Reactions	x	x		
• Concentrations – molarity and normality	x	x		
• Basic microbiology	x	x		
• Oxygen saturation	x	x		