

Grade 2 Water Treatment Operator Need-To-Know Criteria (Subject Areas)

The following list of categories suggests topics of information which are important to know in order to be a successful and proficient Grade 2 Water Treatment Operator. The list may not be all inclusive, and knowledge of additional topics may be of benefit to the operator.

Category of Information: Processes

Pre-Treatment	Screens (Wells; Intake))
Aeration	Slat tray Cascade
Coagulation/ Flocculation	Mixers-in-line Mechanical Baffles
Clarification	Sedimentation Basins Tube settlers
Filtration	Rapid Sand Mixed Media Pressure Slow Sand Green Sand
Disinfection	Gas Chlorinators Hypochlorinators
Taste/Odor Control	Aerator Powdered Activated Carbon Potassium Permanganate Chlorine
Softening	Chemical Precipitation
Corrosion Control	Feeders
Iron/Manganese Removal	Chemical Precipitation Aerators Filters
Storage	Ground Storage Elevated Tanks Standpipes Hydropneumatic Tanks
Sludge Disposal	Land application of solids
Cross Connections	Basic concepts

Category of Information: Support Systems

Motors	Single Phase Poly Phase Variable Speed
Drives	Coupled Direct
Pumps	Centrifugal Positive Displacement (Diaphragm) Turbine Metering
Generators	AC
Engines	Gasoline
Joints	Flanged Compression/Dresser
Valves	Ball Check Globe Gate Pressure Control Vacuum Relief Butterfly Air Release Foot Altitude
Fittings	Coupling Union Plug/Caps Corporation Curb Stop
Measuring/ Control	Signal Generators (Magnetic Flowmeter; Parshall Flume; Proportional Weir; Rectangular Weir; Venturi; Propeller Meter; Ultrasonic; Pitot tube) Signal Transmitters (Pneumatic; Hydraulic)

**Category of Information: Support Systems
(continued)**

Measuring/ Control	Meters (Hydraulic/Rotameters; Electrical - Amp; Electrical - Watt; Electrical - Multi - VOM; Electrical - Multi - MA) Alarms Controls (Pneumatic; Hydraulic; Electrical; Telemetry; Timers)
Chemical Feeders	Solids Liquids Gas Slurry
Rolling Stock	Service Vehicles Trucks
H.V.A.C.	Dehumidifiers Fans Compressors
Safety Equipment	Personal Protection Gear Traffic Control (Warning Devices; Barricades) Hazard Detection First Aid/Hygiene

**Category of Information: General
Information**

Units of Expression	Definition Conversion
Sources and Characteristics	Characterization Quality/quantity Physical/chemical/biological characteristics
Electrical Concepts	Basic concepts
Hydraulic Concepts	Basic concepts
Maps/Plans	

Category of Information: Lab Tests

Lab Tests	Alkalinity Ammonia Calcium Chlorine Fluoride Iron Jar Test Manganese Nitrate Orthophosphate pH Specific Conductance Streaming Current Sulfate Sulfide Temperature Total Coliform Total Hardness TDS/Solids Turbidity (NTU) CO ₂
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