

Grade 1 Distribution Systems Operator Need-To-Know Criteria (Subject Areas)

The following list of categories suggests topics of information that are important to know in order to be a successful and proficient Grade 2 Distribution Systems Operator. The list may not be all-inclusive, and knowledge of additional topics may be of benefit.

Category of Information: Processes

Conveyance

- Piping
- Valves
- Hydrants
 - Parts
 - Flushing
- Service Connections

Pressure Control

- Booster Pumps
- Regulators & Gauges

Storage

- Ground Tanks
- Elevated Tanks
- Standpipes
- Hydropneumatic Pressure Tanks

Metering

- Displacement
- Velocity
- Differential Pressure

Leak Detection and Repair

- Sonic Devices
- Pressure Devices
- Volume
- Visual

Disinfection

- Tanks
- Lines

Cross Connections

- Air Gap
- Reduced Pressure Principle Assembly
- Double Check Valve Assembly
- Vacuum Breakers
- Backflow
- Backpressure
- Backsiphonage
- Cross Connection

Category of Information: Support Systems

Motors

- Single-Phase
- Three-Phase
- Variable Speed

Drives

- Coupled
- Direct

Pumps

- Centrifugal
- Positive Displacement (Piston Plunger; Diaphragm)
- Turbine
- Metering

Generators

- AC

Pipes

- Ductile Iron
- PVC
- Asbestos Cement

Joints

- Flanged
- Compression/Dresser
- Gas
- Threaded

Valves

- Ball
- Check
- Globe
- Gate
- Pressure Control
- Vacuum Relief
- Butterfly
- Air Release
- Foot (on pump at intake)
- Altitude

Fittings

- Coupling
- Union
- Plug/Caps
- Corporation
- Curb Stop

Category of Information: Support Systems (continued)

Measuring and Control

- Signal Generators
 - Magnetic Flowmeter
 - Venturi
 - Propeller Meter
 - Ultrasonic
 - Pitot tube
- Signal Transmitters
 - Electric
 - Pneumatic
 - Mechanical
 - Telemetry
- Signal Receivers
 - Counters
 - Indicators
 - Totalizers
 - Recorder
- Meters
 - Electrical – Amp
 - Electrical – Watt
 - Electrical - Multi – VOM
 - Electrical - Multi – MA
- Alarms
- Controls
 - Pneumatic
 - Float
 - Hydraulic
 - Electrical
 - Telemetry
 - Timers

Cathodic Protection Devices

- Anode Rod/Bags
- Cathode Rod/Bags
- Rectifiers
- Galvanic Corrosion
- Dissimilar Metals

Chemical Feeders

- Booster Chlorinator
- Hypochlorinators
- Gas

Rolling Stock

- Service Vehicles
- Trucks
- Lawn Mowers
- Loaders
- Portable Pumps
- Generators

Safety

- Personal Protection Gear
- Traffic Control (Warning Devices; Barricades)
- Hazard Detection
- First Aid/Hygiene
- Confined Space

Security

- Attack
 - Prevention
 - Detection
 - Recovery

Category of Information: Lab Tests

Lab Tests

- Disinfectant residual
- Disinfectant demand
- Total Coliform
- Orthophosphate
- pH
- Temperature
- Sample Collection
- THM
- HAA5
- Lead and Copper

Category of Information: General Information

Units of Expression

- Definition
- Conversion

Electrical Concepts (Basic)

Hydraulic Concepts (Basic)

Sources and Characteristics

- Quality/quantity

Maps/Plans