

Hydroelectric Plant Chief Operating Engineer

Qualifications

Minimum age - Adult

Education - High School Diploma / GED or equivalent

Experience - Five years

Examination - Written (Oral or Practical when necessary)

Minimum time in previous grade – One year

Prime Mover Horsepower (unsupervised) - Unlimited

Curriculum at the Minimum:

- General Safety
- Catchments Area
- Average Inflow
- Environmental Aquatic Effects
- Water Level Regulation
- Seasonal Inflow
- Long-Term Records
- Predictions
- Seasonal Control Curve
- Monitoring and Control of Headworks, Dams, Gates, Spillways, Canals, Forebay, Tailrace
- Generation, Transmission and Distribution
- Interconnected Power System
- Power System Security
- Load Dispatcher's Duties
- Frequency Control
- Economic Generation Dispatch
- AGC - Automatic Generation Control
- Characteristics of Generation (Fossil, Nuclear and Hydro)
- System Voltage Control
- Production of Reactive Power
- Pumped Storage
- Switchyard Layout and Equipment
- Features of Transformers, Circuit Breakers and Disconnects
- Station Service Supply
- Black Start Capability
- Auxiliary Power Distribution
- D.C. Power Supply and Application
- Critical A.C. Supply
- Uninterruptible Power Supplies
- Operational Safety Requirements
- Clearance Procedures
- Operating Parameters
- Sensors, Indicators, Recorders
- Alarms
- Excitation Control
- Power Factor
- Active and Reactive Power

- Generator Protective Devices
- Generator Electrical Protection Relays
- Digital Controls
- SCADA
- Power Plant Personnel Management
- Power Plant Computer Management
- Power Plant Preventative Maintenance
- General Management