

Chapter 21 Station Service Electrical System

21-1. Auxiliary Power Distribution

a. Low-voltage stations. In low-voltage stations, auxiliary loads of 480 volts and below are most conveniently distributed by means of a power panel(s) either mounted in a vertical section of the motor control center or in a strategic location along a station wall. This power panel(s) should be fed from a circuit breaker or fusible disconnect switch in the motor control center. A separate auxiliary or lighting service may be required to obtain the optimum rate schedule from the utility.

b. Medium-voltage stations. In medium-voltage stations, packaged unit substations are available that conveniently incorporate a high-voltage load interrupter switch, a 4160/480-volt transformer section, and a power panel section. It is not necessary to provide a main breaker on the power panel since the high-voltage interrupter switch provides a disconnecting means. Three-phase voltmeters should be provided to monitor the 480-volt service. A separate auxiliary or lighting service may be required to obtain the optimum rate schedule from the utility.

21-2. Lighting System

In general, 208/120-volt, three-phase, four-wire systems are recommended for lighting loads. A minimum of 20-percent spare circuits should be provided for future expansion. Operating floor lights, floodlights, and other lights that may be used for considerable periods of time should usually be of the high-pressure sodium-type due to their efficiency. Where possible, several operating floor fixtures should be furnished with quartz restrike lamps, automatically switched so that light is available immediately upon energization or during restrike. If selected fixtures do not have quartz restrike as an option, several incandescent fixtures should be provided for this purpose. Following are typical foot-candle levels for various pumping station areas:

<u>Location</u>	<u>LUX</u>	<u>(Foot-candles)</u>
Operating Floor	325	30
Control Room	540	50
Lavatory	215	20
Sump Catwalk	215	20
Forebay	55	5
Roadway	10	1