2.5.8 Lightning Protection and Grounding System

1.0 Description

The lightning protection and grounding system provides equipment grounding and instrumentation and control system grounding.

2.0 Electrical Considerations

2.1 Surge arrestors are provided for main step-up transformers (MSU), normal auxiliary transformers (NAT) and emergency auxiliary transformers (EAT).

2.2 Main generator, emergency diesel generator (EDG) and station blackout diesel generator (SBODG) neutrals are bonded to the station ground grid.

2.3 AC distribution system transformer neutral points are connected to the station ground grid.

2.4 Ground bus of ac distribution system switchgear, load centers and motor control centers (MCC) listed in Table 2.5.1-2—Class 1E Emergency Power Supply Electrical Equipment Design, is connected to the station ground grid.

2.5 Plant instrumentation grounding system is connected to the station grounding grid.

2.6 Insulation coordination is achieved on surge arrestors on MSUs, NATs, and EATs.

3.0 Inspection, Tests, Analyses and Acceptance Criteria

Table 2.5.8-1 lists the lightning protection and grounding system ITAAC.

Table 2.5.8-1—Lightning Protection and Grounding System ITAAC (2 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
2.1	Surge arresters are provided for MSUs, NATs and EATs.	An inspection will be performed.	The surge arresters are provided for MSUs, NATs and EATs.
2.2	Main generator, EDG and SBODG neutrals are connected to the station ground grid.	An inspection will be performed.	The main generator, EDG and SBODG neutrals are connected to the station ground grid.
2.3	AC distribution system transformer neutral points are connected to the station ground grid.	An inspection will be performed.	The ac distribution system transformer neutral points are connected to the station ground grid.
2.4	The ground bus of ac distribution system switchgear, loads centers and MCCs listed in Table 2.5.1-2 is connected to the station ground grid.	An inspection will be performed.	The ground bus of the ac distribution system switchgear, load center and MCCs listed in Table 2.5.1-2 is connected to the station ground grid.
2.5	Plant instrumentation grounding system is connected to the station grounding grid.	An inspection will be performed.	The plant instrumentation grounding system is connected to the station grounding grid.
2.6	Insulation coordination is achieved on surge arrestors on MSUs, NATs, and EATs.	a. An analysis will be performed.	a. Analysis concludes: • The lightning impulse protective ratio of the chopped wave withstand to the front-of-wave protection level is equal to or greater than 1.2. • The lightning impulse protective ratio of the basic lightning impulse insulation level to the lightning impulse protective level is equal to or greater than 1.2. • The switching impulse protective ratio of the basic switching impulse insulation level to the switching impulse protective level is equal to or greater than 1.15.

Table 2.5.8-1—Lightning Protection and Grounding System ITAAC (2 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
		b. An inspection will be performed.	b. The insulation ratings for MSU, NAT, and EAT surge arrestors meet the analysis criteria.

Next File