2.5.8 Lightning Protection and Grounding System

Design Description

1.0 System Description

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

2.0 Electrical Power Design Features

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

2.2 The main generator, emergency diesel generator (EDG), and station blackout diesel generator (SBODG) neutrals are connected to the station grounding grid.

2.3 AC distribution system transformer neutral points are connected to the station grounding 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 System Electrical Equipment Design, is connected to the station grounding 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.

Inspections, 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
Sheet 1 of 2

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
2.1	Surge arresters are provided for MSUs, NATs and EATs.	An inspection will be performed to verify that surge arresters are provided for each as-built MSU, NAT and EAT.	Surge arresters are provided for MSUs, NATs and EATs.
2.2	The main generator, EDG, and SBODG neutrals are connected to the station grounding grid.	An inspection will be performed to verify that the as-built main generator, EDG, and SBODG neutrals are connected to the station grounding grid.	The main generator, EDG, and SBODG neutrals are connected to the station grounding grid.
2.3	AC distribution system transformer neutral points are connected to the station grounding grid.	An inspection will be performed to verify that the as-built ac distribution system transformer neutral points are connected to the station grounding grid.	The ac distribution system transformer neutral points are connected to the station grounding 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 grounding grid.	An inspection will be performed to verify that the as-built ground bus of ac distribution system switchgear, loads centers, and MCCs are connected to the station grounding grid.	The ground bus of the ac distribution system switchgear, load centers, and MCCs listed in Table 2.5.1-2 is connected to the station grounding grid.
2.5	Plant instrumentation grounding system is connected to the station grounding grid.	An inspection will be performed to verify that the as-built plant instrumentation grounding system is connected to the station grounding grid.	The plant instrumentation grounding system is connected to the station grounding grid.

Table 2.5.8-1—Lightning Protection and Grounding System ITAAC
Sheet 2 of 2

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
2.6	Insulation coordination is achieved on surge arrestors on MSUs, NATs, and EATs.	a. An analysis will be performed to determine the insulation ratings for MSU, NAT, and EAT surge arrestors.	a. An 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 1.15. The lightning impulse protective ratio of the basic lightning impulse insulation level to the lightning impulse protective level is equal to or greater than 1.15. The switching impulse protective ratio of the basic switching impulse insulation level to the switching impulse protective level is equal to or greater than 1.2.
		b. An inspection will be performed to verify that the as-built insulation ratings for MSU, NAT, and EAT surge arrestors meet the approved design criteria.	b. The insulation ratings for MSU, NAT, and EAT surge arrestors meet the approved design criteria.

Next File