

7.2.3 Site Acceptance Testing

Site Acceptance testing will be completed per ANSI/IEEE Std 387-1984 section 6.3 and Reg. Guide 1.9 Rev. 3<sup>A</sup> as follows:

1. Start Test
2. Load-Run Test
3. Fast-Start Test
4. Loss-of-Offsite-Power (LOOP) Test
5. Safety-Injection-Actuation-Signal (SIAS) Test
6. Combined SIAS and LOOP Test
7. Single Load Rejection Test<sup>B</sup>
8. Full Load Rejection Test<sup>B</sup>
9. Endurance and Margin Test<sup>B</sup>
10. Hot Restart Test
11. Synchronizing Test
12. Protective Trip Bypass Test
13. Test Mode Change-Over Test<sup>C</sup>
14. Redundant Unit Test

## NOTES:

- A. Compliance to Reg. Guide 1.9 Rev. 3 is for the factory and site acceptance testing section only. Reg. Guide 1.9 Rev. 2 is used for other portions of this work as outlined in Appendix D of this Design Summary.
- B. These tests were successfully accomplished at the factory as indicated earlier. However, Wisconsin Electric will also perform these tests during the site acceptance testing.
- C. This test cannot be accomplished as outlined in Reg Guide 1.9 Rev 3 because of the design of the control scheme. This test will be performed to test the function of the control scheme as designed.

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The bus tie-breaker specifications have provisions that the required redundant decay heat removal for the shutdown unit and the required redundant shared engineered safety features for the other unit are operable. The specification that applies only to the defueled condition does not have the provision for the required redundant decay heat removal for the shutdown unit. It has provision for verifying the adequacy of a single train of spent fuel pool cooling in lieu of the consideration of decay heat removal for a reactor in cold shutdown.

The Point Beach DC electrical system has been modified so that each of the four main DC distribution buses, which are shared between the two units, has its own power supplies consisting of a safety-related station battery (D05, D06, D105, D106) and a battery charger. In addition to these bus-specific power supplies, a swing safety-related battery (D305) is installed which is capable of being connected to any one of the four main DC distribution buses. Swing battery chargers are also provided. Under normal circumstances, one battery and one battery charger are connected in each main DC distribution bus. The battery charger normally shall be in service on each battery so that the batteries will always be at full charge in anticipation of a loss-of-AC power incident. Under unusual circumstances, two of the five safety-related batteries may be out of service for a limited period of time provided one of the two out-of-service batteries is returned to service within the time periods specified in Specification 15.3.7.B.1.4i. These limiting conditions for operation ensure that adequate DC power will always be available for starting the emergency generators and other emergency uses.

The emergency diesel generators are the sources of standby emergency power. The support systems necessary to be operable to ensure the operability of the emergency diesel generators (EDGs) are the EDG starting air system, EDG fuel oil system, EDG ventilation system, and EDG DC control power. The standby emergency power supply for a 4160 Volt and associated 480 Volt safeguards bus consists of an operable EDG, including all required support systems, and an operable output breaker to that 4160 Volt safeguards bus.

The LCOs for the standby emergency power supplies require the redundant standby emergency power supplies to be started within 24 hours of entry into these LCOs. If the standby emergency power supply LCO is exited within 24 hours, then starting of the redundant standby emergency power supplies is not required. If the LCO was entered due to a standby emergency power supply failure and the LCO was exited within 24 hours, then an evaluation must be completed within 24 hours of entry into the LCO to show that the redundant standby power supplies are not susceptible to a common cause failure or the redundant standby emergency power supplies must be started to prove that a common cause failure does not exist within 24 hours of entry into the LCO.

The EDG starting air system is considered operable when 1) all three starting air bottles in each bank are operable, 2) the starting air banks can be maintained at a minimum pressure of 165 psig, 3) the air bank crossconnect valve is shut unless

bank pressures are being equalized and an operator is standing at the valve during pressure equalization, and 4) all four starting air motors and their associated valves and relays are operable.

The EDG fuel oil system is considered operable when 1) 11,000 gal. of fuel oil is initially available in the emergency fuel oil storage tank which supplies to the diesel generators [Because the EDGs consume approximately 205 gallons of fuel per hour when fully loaded, the 11,000 gallon fuel supply in the emergency fuel tank provides sufficient fuel to operate one EDG at design load for more than 48 hours.], 2) the EDG day tank for that EDG is operable and for G-01 and G-02 the associated motor-operated fill valve are is operable, 3) for G-01 and G-02, at least one of the two base-mounted sump tank fuel oil transfer pumps is operable, and 4) the fuel oil transfer pump system associated with the EDG is operable. However, both the fuel oil transfer pumps and their associated piping and valves are system is allowed to be out of service for four hours for G01 and G-02 due to a combined four-hour supply of fuel oil in the diesel base and day tanks which do not require a fuel oil transfer pump for flow to the associated EDG. The fuel oil transfer system is allowed to be out of service for two hours for G-03 and G-04 due to a two-hour supply of fuel oil in the day tank. The pumps transfer system may be out of service for longer than four hours periods if an appropriate alternate source of fuel is made available to the diesel generators.

The EDG ventilation system is considered operable when diesel room temperature can be maintained  $\leq 120^{\circ}\text{F}$  with the diesel engine operating at full load. Temperature will be maintained  $\leq 120^{\circ}\text{F}$  if 1) all gravity-operated louvers are operable, and 2) both diesel room exhaust fans are operable OR for G-01 and G-02; one diesel room exhaust fan is operable and outside air temperature is  $\leq 80^{\circ}\text{F}$ .

Normal DC control power must energize all DC circuits for the associated EDG to be operable. ~~The following DC circuits are required to be powered for the associated EDG to be considered operable:~~

<u>G-01</u>	<u>Circuit</u>	<u>G-02</u>
D18-20	Start 2	D16-20
D12-01	Control	D14-01
D12-11	Start 1	D14-11
D12-13	Annunciator	D14-13
D11-28	Field Flash	D13-28

The original AEC Safety Evaluation for PBNP states, "Onsite fuel storage capacity is sufficient for a minimum of seven days' operation of the required safety feature loads which is acceptable." Therefore, to satisfy this requirement, at least 34,500 gallons of fuel oil will be maintained available for the emergency diesel generators at Point Beach at all times when EDG operability is required.