

**From:** CLINE, LEONARD M  
**Sent:** Wednesday, June 29, 2016 2:08 PM  
**To:** Mary.lampert  
**Subject:** Violation of the SSW pump bearings

Dear Mary:

Please see the results of our review of your concerns regarding Pilgrim salt service water that you provided to Art Burritt and Bill Dean on May 26, 2016. Our responses to your questions are provided below.

1. **Testing Protocol:** I understand that when an SSW pump is declared inoperable and removed from service Tech Specs require that the other pumps and some other equipment be tested ASAP. If the testing fails the plant must be shutdown in 24 hours. If the testing is OK the plant can continue to run and the pumps must be tested daily.
  - a. Did Entergy follow the testing protocol? Did NRC check? If Entergy did not follow the protocol, what was NRC's response?
  - b. We understand that the testing is a challenge to the plant equipment; is this correct and if so what follow up is required to assure the testing did not cause a problem?

The salt service water (SSW) system at Pilgrim consists of two subsystems, each containing two SSW pumps, the A and B pumps in the A subsystem, and the D and E pumps in the B subsystem. The system also includes a swing pump, the C pump, which can be connected to either subsystem to support subsystem operability if one pump is inoperable. The technical specification limiting condition for operation for the SSW system requires two operable subsystems. With less than two operable pumps in a subsystem, the associated SSW subsystem is not operable. In accordance with Pilgrim technical specifications, with one SSW subsystem inoperable, the inoperable subsystem must be restored to operable status within 72 hours. If an inoperable subsystem is not restored within 72 hours or both subsystems are determined to be inoperable, the unit must be shut down within 24 hours.

The testing that you described in your email does not apply to the Pilgrim SSW pumps. Therefore, Entergy was not required to perform additional testing for SSW. We are also not aware of challenges caused by SSW system testing or challenges that adversely impact the SSW system's ability to meet its testing requirements.

2. **Selector Switch:** There is a selector switch in the control room that sets which loop of SSW the "C" SSW pump will then go to in the event of a loss of plant power.
  - a. Is it in Pilgrim's procedure for loss of a SSW pump? If it is not in the procedure, why not and will NRC require it to be put into Pilgrim's procedures?

The normal SSW operating configuration is SSW Pumps A, C, and D operating, B and E pumps in standby and the A and B SSW subsystems cross-connected via the two C pump discharge isolation valves that are both open during normal operation. As discussed in our response to your previous questions, for a SSW subsystem to be considered operable – capable of supplying adequate flow to all its loads – it must include at least two operable pumps. As described above the A and B pumps are aligned to the A subsystem and powered by A train of electrical power, the D and E pumps to the B subsystem and powered by the B train of electrical power. The C pump power supply can be aligned to either subsystem and either train of electrical power. It is preferentially powered from the A train, but includes degraded and

undervoltage relays to transfer it to its alternate power source when necessary. The SSW subsystem that the pump is aligned to is controlled by the loop selector switch.

The purpose of the C pump loop selector switch is to ensure that at least one SSW subsystem remains capable of supplying adequate flow to all subsystem loads when a loss of offsite power occurs. During a loss of offsite power, the position of the switch determines to which subsystem the C pump is assigned. The system control logic assumes that the C pump is assigned to a loop in which one of the normal SSW pumps is out of service and the system operating procedure directs that the system be aligned in this way. In this alignment, with a loss of power to the pumps of the subsystem to which the C pump is assigned, the system logic isolates that subsystem. This leaves the C pump and the remaining operable pump to supply that subsystem. When there is a loss of power to the pumps in the subsystem selected by the C loop selector switch, no automatic action is required. The SSW system retains three operable pumps capable of supplying the loads on both loops

The C pump loop selector switch is not mentioned in the procedure for loss of a salt service water pump because the normal salt service water system operating procedure provides the necessary guidance for operating the switch. In accordance with the site procedure, during normal operation, with all pumps available, the C pump loop selector switch can be placed on either loop, but when all pumps are not available the procedure states that the switch should be placed on the loop with an inoperable pump. Considering this procedure guidance and the purpose of the switch as discussed above, there is no need to direct manipulation of this switch in the procedure for the loss of an SSW pump. The position of this switch is not changed during the immediate response to a loss of a SSW pump, however, it may be repositioned during the recovery from a loss of one pump in accordance with the guidance in the systems normal operating procedure. Following a loss of one pump, this guidance ensures that the system recovered alignment will meet its design basis, even with a loss of power to one train of pumps.

I hope that this addresses your concerns regarding operation and testing of the SSW pumps at Pilgrim. However, if you do have additional questions or concerns regarding these issues, please feel free to contact me at [leonard.cline@nrc.gov](mailto:leonard.cline@nrc.gov).