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SUBJECT: Requests waiver of compliance re TS 3.8.1.2, "AC Sources - Shutdown," per LER 90-012 dtd 900625.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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June 26, 1990  
G02-90-112  
Docket No. 50-397

JD Partlow, Associate Director for Projects  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Gentlemen:

Subject: NUCLEAR PLANT NO. 2, OPERATING LICENSE NPF-21  
REQUEST FOR WAIVER OF COMPLIANCE RELATIVE TO  
TECHNICAL SPECIFICATION 3.8.1.2, A.C. SOURCES  
- SHUTDOWN

Reference: Licensee Event Report 90-012, "Fire in Division One Emergency Diesel  
Generator Caused by Generator Thrust Bearing Failure", dated June 25,  
1990.

Action a. of the subject technical specification states that when less than the  
required A.C. power sources are available immediate corrective action shall be  
taken to restore a required power source to operable status as soon as practical.  
This letter requests a waiver of compliance from this requirement.

The requirements for which this waiver is requested and the circumstances  
surrounding the immediate situation are as follows:

As reported in the reference, on May 27, 1990 WNP-2 experienced a failure of the  
Division 1 generator slip ring end bearing approximately six hours into a 24 hour  
full load run. This bearing failure has been identified to have resulted from  
axial thrust applied from the opposite end of the generator as the thrust bearing  
at that end failed. Root causes for the thrust bearing failure relate to, among  
other issues, lack of or loss of oil from the bearing reservoir and the very  
narrow oil level operating band for this bearing.

The Division 1 generator has been removed from the plant and sent offsite for  
repair. While offsite, missing stator turn blocking and minor winding end turn  
displacement were found and electrical testing of the rotor showed shorted turns  
on two rotor poles. From preliminary evaluation, it is not believed that these  
generator problems were caused by the bearing failures. The decision has been  
made to rewind all of the Division 1 generator rotor poles. That process is  
currently ongoing.

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It is expected that the generator will be onsite by July 3 with installation and testing completed by July 8.

The Supply System has evaluated what actions should be taken relative to the Division 2 generator which is of similar design. Regarding the lack of or loss of bearing oil, it is known that one of the major root causes of Division 1 failure does not exist on the Division 2 generator. This is discussed in the referenced LER. However, there are other considerations regarding the oil inventory that must be evaluated for the Division 2 generator. Also, the issue of the shorted rotor turns and stator blocking and minor winding end turn displacement should be considered for the Division 2 generator. In-place electrical testing of the generator rotor and visual inspection of the stator would be of value in addressing these issues.

The Supply System believes that it would be desirable to take the following three actions on the Division 2 generator prior to restart:

- Confirm by field measurements that the marking on the oil level sight glass is correct. The operating band for this level is only 3/8 inch. This activity will take about eight hours to complete and only require about ten minutes to restore the diesel to operable status should that be necessary. The activity would involve removal of a coupling guard and a measurement from the shaft to the sight glass.
- Perform an in place pole-drop-voltage test per IEEE 115 on the rotor windings. This activity would take about sixteen hours and would require about two hours to restore the diesel to operable status should that be necessary. This activity would involve gaining access to the slip ring and winding pole connections and manual rotation of the diesel.
- Perform a visual inspection by boroscope of the stator physical condition. This would be performed while access is available to the generator internals.

On June 27 we will be required to perform a surveillance run on the Division 2 diesel generator. Performing the above action of confirming that the required level is correctly marked prior to this surveillance would eliminate a commercial risk to the Supply System.

Performing the pole-drop-voltage tests and visual inspections at the same time as verifying bearing oil level indication, rather than waiting for the return of the Division 1 generator and establishing its operability are also of benefit. They will allow the Supply System to assess the impact of any negative findings in a more timely manner.

Performing these three Division 2 activities on the proposed schedule (i.e., with Division 1 out of service) is not consistent with the above mentioned technical specification action statement that requires power sources be restored as soon as practical. However, by completing these activities as proposed, we will complete those corrective actions required to confirm and achieve operability of both diesels on an earlier schedule.

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The request for this waiver could not have been avoided as the bearing failure occurred during the current outage and the draft root cause analyses has only recently been completed. That analysis identified the narrow oil level operating band as one potential cause of the bearing failure. The shorted turns were not found until the bearing repair activity was near completion. The electrical test was performed as a routine activity prior to generator assembly to confirm that no damage occurred during the repair activity.

We believe that the safety significance and potential consequences of performing the above two tasks while the Division 1 diesel is out of service are acceptable in view of the following:

- WNP-2 will have been shutdown for 68 days and approximately 28 percent of the core is fuel that makes a negligible contribution to decay heat. As such, the decay heat level is very low. Should a loss of offsite power occur and the full two hours mentioned above be required to restore the Division 2 diesel or an offsite power source, the reactor coolant temperature would only increase from the current temperature of 135 to 159 degrees F. A temperature of up to 200 degrees F would be acceptable for this condition.
- Under these conditions, the spent fuel pool temperature would increase from 90 to 92 degrees F. A temperature of at least 125 F would be acceptable.
- The reactor coolant pressure boundary status is that the reactor pressure vessel head is on and tensioned.
- High Pressure Core Spray with its diesel will be available for ECCS and alternate shutdown cooling. This would provide adequate decay heat removal for more than a day.
- The reliability of the Bonneville Power Association (BPA) grid has been evaluated to be very high. This is particularly true at this time in that Pacific Northwest is operating with an energy surplus.

During the performance of the above discussed activities, should the waiver be granted, we would take the following compensatory actions:

- Maintenance activities and surveillance on the plant A.C. electrical systems will be carefully controlled so as to reduce the risk of any plant centered loss of offsite power.
- No core alterations, handling of irradiated fuel, crane operation over the spent fuel pool, or activities that could potentially drain the vessel will be performed while the Division 2 diesel is inoperable.

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- Secondary Containment will be maintained.
- The planned work and "back out" activities will be prestaged to the extent practical to keep the out-of-service time to a minimum and to allow for rapid recovery to an operable status should that be necessary.
- These activities will be performed under an approved trouble-shooting plan.
- We will communicate to the Bonneville Power Administration the need to control any maintenance activities on those portions of the 500, 230 and 115 kV systems that if failed would have high risk of causing a loss of that supply to WNP-2.
- Prior to initiating this activity we will contact the weather service for any forecast of thunderstorm or other severe weather.
- The plant electrical distribution system will be lined up with offsite power supplied from the 500 kV source. This will allow automatic sequential transfer to the 230 and 115 kV sources upon loss of the 500 kV source.
- During the performance of either of the three activities, should any of the offsite sources be lost for more than a few seconds we will back out of the activity (e.g., restore Division 2 operability as soon as practical). We will not resume the activity until the reliability of that source has been established.

The Supply System concludes that the proposed activity does not involve a significant hazards consideration for the following reasons:

- It would not involve a significant increase in the probability or consequences of an accident. In the very unlikely case of a loss of shutdown cooling for two hours the resulting reactor coolant temperature increase would not challenge the fuel cladding or any of the other fission product boundaries. Likewise the increase in spent fuel pool temperature would be acceptable.

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- It would not create the possibility of a new or different kind of accident. With the current plant status, the only significant accident considerations are losses of shutdown and spent fuel pool cooling, both of which are previously evaluated events.
- It would not create a significant decrease in a margin of safety as the temperature increases that would accompany a loss of shutdown cooling and spent fuel cooling do not challenge previously established margins.

The issuance of the requested waiver would have no environmental consequences even should the postulated loss of shutdown cooling and spent fuel cooling events occur. This request has been approved by the WNP-2 Plant Operations Committee.

Very truly yours,



C.M. Powers  
Plant Manager, WNP-2

AGH/slr

Attachments

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