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SUBJECT: PNO-IV-98-026B:on 980617,AIT activities for internal flooding caused by fire water sys valve rupture & termination of noue update made.Operation of pumps resulted in rapid reflood of reactor bldg risers & water hammer.

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PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE
PNO-IV-98-026B

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by Region IV staff in Arlington, Texas on this date.

Facility	Licensee Emergency Classification
Washington Public Power Supply System	Notification of Unusual Event
Washington Nuclear 2	Alert
Richland,Washington	Site Area Emergency
Dockets: 50-397	General Emergency
	X Not Applicable

Subject: AIT ACTIVITIES FOR INTERNAL FLOODING CAUSED BY FIRE WATER SYSTEM VALVE RUPTURE & TERMINATION OF NOUE

This preliminary notification updates information issued in PNO-IV-026A. At approximately 1:45 p.m. (PDT) on June 17, 1998, multiple fire alarms were received in the WNP-2 control room coincident with all four fire pumps automatically starting and several loud water hammer noises being heard from the control room. The apparent water hammer caused a valve to rupture in the fire protection system main header in the northeast stairwell of the reactor building. Water from the stairwell entered residual heat removal Pump Room C through an open watertight door and eventually submerged the pump motor. A valve located in a line connecting the sumps of the residual heat removal Pump C and low pressure core spray pump rooms failed to close, allowing water to enter the low pressure core spray pump room.

The augmented inspection team (AIT) has been onsite since June 19 and has completed its charter. The team is scheduled to leave the site today. An exit meeting at the site, open to public observation, will be scheduled following the team's debriefing of regional and headquarters management. The event was initiated by the actuation of a fire detector during cutting and grinding activities in the diesel generator building. The associated preaction valves (deluge) opened to fill the normally dry sprinkler line header. No actuation of the associated sprinklers occurred.

Depressurization of the fire water system during the filling of the preaction lines caused voiding in the upper portions of the reactor building fire main risers and the starting of all four fire water pumps. The operation of the pumps resulted in a rapid reflood of the reactor building risers and a water hammer that ruptured the fire protection system isolation valve (open) located in the reactor building northeast stairwell.

Flooding occurred in the stairwell, as well as, the residual heat removal Pump Room C. The associated water tight door between the stairwell and the residual heat removal room apparently was not adequately secured allowing the room to quickly flood. The single water tight doors for the Northeast stairwell access to the residual heat removal Pump Room C and low pressure core spray room were not designed or installed to prevent flooding from the stairwell.

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Flooding of the low pressure core spray room appears to have occurred primarily through an open isolation valve located between the residual heat removal and low pressure core spray pump rooms. This valve, which provides single isolation between the two rooms, had been identified as a deficiency and placed in the work control process, several months earlier. The as-built single valve isolation appears to be contrary to the flooding analysis description in the final safety analysis report, which indicated two isolation valves.

The water tight doors between the reactor core isolation cooling room and the residual heat removal Pump Room C, as well as, the door between the low pressure core spray room and the high pressure core spray room did not fully seal and allowed for minor water intrusion into these rooms. The fire protection system was returned to operable (but degraded) status with the preaction lines dry. Two fire pumps have been placed in service as a compensatory action to mitigate the initial depressurization, which occurs during the system actuation, to prevent further water hammer events. Several fire protection system and related design issues remain, including resolution of previous water hammer events during system actuations in the past.

The licensee exited the notification of unusual event on June 19 at 6:15 p.m. (PDT) following restoration of the fire protection system. The NRC exited the monitoring phase of the normal mode of operation at 6:55 p.m. (PDT). NRC Region IV briefed FEMA Region X and the state of Washington on the termination of the notification of unusual event and the NRC's monitoring phase.

The unit has remained shut down in Mode 4 with the reactor coolant system maintained between 120 and 140 degrees F following a forced outage that occurred during restart from an extended refueling outage. The licensee is maintaining residual heat removal system Pump A in decay heat removal mode. Pump B is also available for shutdown cooling. Condensate pumps are available to cool the core if the residual heat removal pumps are lost. Primary containment has been maintained and the offsite power supply is stable.

The state of Washington has been informed.

Region IV received notification of this occurrence by telephone from the senior project engineer onsite at 2:30 p.m. (PDT) on June 17, 1998. Region IV provided monitoring of the licensee's actions from the Region IV incident response center until the fire water suppression system was restored.

Region IV has informed the EDO, NRR, AEOD, and PA. This information has been discussed with the licensee and is current as of June 22, 1998, at 2 p.m. (PDT).

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