



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-4005

May 19, 2006

The Honorable Christine O. Gregoire  
Governor of Washington  
P.O. Box 4002  
Olympia, WA 98504-0002

Dear Governor Gregoire:

This is my second letter in response to your letter of December 9, 2005. Your letter requested the Nuclear Regulatory Commission (NRC) to look into specific nuclear safety concerns involving Energy Northwest, the operator of the Columbia Generating Station (licensee) near Richland, Washington. The concerns were contained in two letters provided to us with your letter.

As indicated in my December 29, 2005 letter, we determined that the actions taken by the licensee in response to the service water pump failures in the June 2005 time frame were sufficient to support subsequent plant operation. I also indicated that we were continuing our inspection of the licensee's actions in response to the pump failures and would include the concerns provided with your letter in our review. We have completed our review of these concerns in accordance with our process for follow up on allegations (documented in NRC Allegation File RIV-2005-A-0164).

Our inspection found that the licensee took appropriate actions in response to the pump failures at the time, but there were some problems with their preventive maintenance practices. As a result, we are inspecting the licensee's maintenance program for other equipment important to safety with a focus on preventive maintenance practices. We will provide the results of this inspection to Mr. Matt Steuerwalt of the Executive Policy Division when our report is complete. The inspection also determined that the licensee's actions and decisions in response to the service water pump failures were not documented and communicated well internally although we ultimately determined that appropriate actions were taken to support safe operation. Other inspections we have performed found that the licensee maintains a work environment where employees are free to raise safety concerns and they are reviewed timely with the appropriate priority based on safety significance.

Thank you for informing us of your concerns. We believe that our actions have been responsive to your concerns. We take our safety responsibilities to the public very seriously and will continue to do so within the bounds of our lawful authority. We recognize the importance of licensees establishing and maintaining a strong safety culture. I would like to make you aware that on July 1, 2006, the NRC plans to implement a change to our reactor oversight program that will enhance our inspection in this area. If you need additional information, please contact Mr. William Maier, NRC Regional State Liaison Officer, at

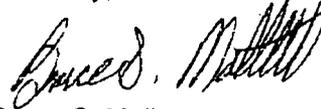
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The Honorable Christine O. Gregoire

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817-860-8267. Please note that this information comes from our allegation management system and is considered sensitive by our policy. We request your help in preserving the sensitivity of this information by restricting its public availability.

Sincerely,



Bruce S. Mallett  
Regional Administrator

Enclosure:  
Assessment of Concerns

cc w/Enclosure:  
Matt Steuerwalt, State Liaison to NRC  
Executive Policy Division  
Office of the Governor  
P.O. Box 43113  
Olympia, WA 98504-3113

Rob McKenna, Attorney General  
P.O. Box 40100  
Olympia, WA 98504-0100

**Background:** On June 14, 2005, the Columbia Generating Station Service Water Pump A (SW-P-1A) failed due to Intergranular Stress Corrosion Cracking (IGSCC) of the vertical pump shafts at the couplings. The pump was repaired and declared operable. Concerns were raised about the condition of Service Water Pump B (SW-P-1B), because of its similar design and operating conditions, and the ability of this pump to perform its safety function for its mission time. The SW-P-1B was not disassembled and inspected. The licensee justified start up of the plant based upon surveillance test data which indicated acceptable pump performance.

### **General Concern 1**

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Both letters assert that there is a safety culture problem within management at Columbia Generating Station which placed the generation of electricity at a higher priority than the safe operation of the facility.

The September 17 letter alleges that there is an apparent nuclear safety culture problem at Energy Northwest because numerous technical staff members had expressed concern over the continuing risks taken by management in operating the plant in the face of uncertainty regarding the ability of critical safety-related equipment [SW-P-1B] to meet its safety function. The letter concludes that management is gambling with station safety to meet goals associated with personal gain.

The September 27 letter requested an investigation of the practice of involving payment of large (5 and 6 figure) incentives to management staff of Energy Northwest because significant evidence exists that such incentives can be detrimental to the conservative decision making that is required to operate a nuclear power plant safely. The letter states that through efforts to achieve short term goals, which happen to coincide with realization of large personal gain in incentives, management has maneuvered the station into a position of risk and poor reliability.

### **NRC Assessment**

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The NRC did not substantiate this concern. Based on our inspections we determined that there was not sufficient evidence that the generation of electricity was placed at a higher priority than the safe operation of the facility. However, the problems found in the preventive maintenance program for safety-related equipment has negatively affected equipment reliability and has contributed to a perception that management is not doing enough to ensure station safety.

The NRC determined that the issues surrounding Service Water Pumps A and B were not handled and communicated effectively as they have been by the licensee, which further exacerbated the perception of management deficiencies in the nuclear safety culture area.

### **General Concern 2**

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The September 17 letter describes what appears to be a pervasive philosophy of inappropriate nuclear safety perspective among senior management in Energy Northwest. The letter stated that the inspection of SW-P-1A had been deferred since Refueling Outage 10, and was planned for the latest outage (Refueling Outage 17), but was deferred again. This was the pump that failed 3 days after the completion of Refueling Outage 17.

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**NRC Assessment**

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The NRC did not substantiate this concern. The NRC confirmed that the inspection of SW-P-1A had been deferred since Refueling Outage 10; however, based on recent inspections of activities at Columbia Generating Station, including inspections related to the Service Water Pump issue, it does not appear that there is a pervasive philosophy of inappropriate nuclear safety perspective among senior managers in Energy Northwest. Regarding the failure of Pump SW-P-1A, the dominant root cause for this event was a failure of the preventive maintenance program. The maintenance program at the station was premised on a condition-based monitoring process. The shift from a scheduled preventive maintenance program to a condition-based program occurred in 1996. Thereafter, the focus was on the use of condition monitoring to determine component replacement and refurbishment. As a result, scheduled pump and motor replacements were cancelled. Accordingly, the root cause and contributing causes for this event are actually premised on weaknesses in the condition monitoring program that resulted in not performing maintenance on the pumps. One of the principal corrective actions that the licensee is taking, is to develop and implement preventive maintenance bases for critical components. The NRC is conducting routine inspections in this area to confirm that the licensee is taking appropriate corrective actions to address this recognized deficiency and met with licensee representatives to discuss this in a public meeting on February 3, 2006.

**General Concern 3**

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Both letters assert that engineers could not assure that SW-P-1B could perform its safety function and that they believed that the pump should be disassembled and inspected prior to startup. However, management proceeded to restart the facility in spite of their objections.

The September 17 letter asserts that while the staff was confident about the capability of SW-P-1A after the repair, the extent of condition evaluation led to concern about the redundant pump SW-P-1B. The letter states that the working level engineers and some supervisors felt SW-P-1B should be inspected before restart, but management proceeded to restart the station in spite of the uncertain status of SW-P-1B.

The September 27 letter asserts that the condition of SW-P-1B came into question while the station was still shut down working on SW-P-1A and that the engineers could not assure the continued operability of SW-P-1B. Management decided to proceed and start the plant up in spite of unanimous objection by engineers who had serious doubts about the condition of the pump and its ability to perform its safety function. The letter also states that Energy Northwest appears to be operating Columbia Generating Station in violation of Federal law because it was being operated without assurance that SW-P-1B could meet its safety function as the redundant backup to SW-P-1A contrary to Appendix A, the General Design Criteria, of 10 CFR 50.

**NRC Assessment**

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The NRC followup confirmed that some of the engineers did not believe that they could assure that SW-P-1B could perform its safety function. Additionally, the NRC substantiated that management proceeded to restart the facility in spite of their objections in that various levels of management were aware of the concerns but due to internal communications issues and the

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failure of staff or management to enter the concerns into the site corrective action program, the issues were not thoroughly evaluated prior to plant restart.

The NRC determined that while the operability of Service Water Pump SW-P-1B was questionable based on the failure of Service Water Pump SW-P-1A, surveillance testing and inservice testing data showed that the pump met all Technical Specification requirements and indicated that the pump could perform its safety function. While it was true that the testing conducted on this pump could most likely not anticipate the approach to failure, all available test data indicated that the pump was capable of performing its required safety function.

The NRC found that communications between the engineering staff and plant management were ineffective during this period. The plant manager had asked for a decision on when to inspect SW-P-1B while the engineering staff believed they had been asked for a re-start decision. Apparently, there was no management effort to clarify this misunderstanding and the staff did not effectively convey their concerns until later. Prior to plant restart, the engineering staff did not state unequivocally that SW-P-1B was inoperable and the staff did not write a condition report which would have prompted a formal operability evaluation for the pump. The NRC found that the staff did informally communicate to management their uncertainty about the pump's condition and when it should be inspected.

The licensee recognized that should exactly similar conditions as was found in Service Water Pump SW-P-1A exist and the critical failure point reached, the SW-P-1B pump would most likely fail quickly and not slowly degrade over time. However, not having the ability to inspect the pump without destroying it in the process, combined with the fact that the pump remained operable based on testing data, licensee management made a decision to operate the plant while procuring replacement parts that would allow a complete refurbishment or replacement of this pump in the near term. The pump was secured for maintenance on December 12, 2005. Immediately prior to securing the pump, operations ran the pump continuously for 24 hours which demonstrated that at that time the pump could perform its safety function. As a result, the NRC determined that a violation of Appendix A, the General Design Criteria, of 10 CFR 50 did not occur.

#### **General Concern 4**

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The September 17 letter states that a Decision Team convened and submitted their Decision Resolution that recommended delaying startup until SW-P-1B could be inspected and repaired if required. The letter asserts that the original Decision Resolution was revised without concurrence of the team so that it supported startup and operation.

#### **NRC Assessment**

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The NRC did substantiate this concern. An error had been made when the Decision Resolution form was revised to support the decision not to inspect the pump prior to plant startup, but the names of the team members that did not support this decision were not removed, making it appear that these individuals supported the decision. Poor communication between the engineering and operations staff and management, as well as the failure to enter this issue into the corrective action process, resulted in the differing views of the engineering staff not being addressed in a timely manner.

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The licensee's operational decision making process is described in Columbia Generating Station Administrative Procedure 1.3.67, "Effective Operational Decision Making," Revision 1. This procedure specifies that the ultimate responsibility concerning disposition does not rest with the Decision Team. The Decision Maker is to review the options presented, determine which option to adopt, and present the options and recommendations to the Decision Approver. The licensee did identify and correct an error involving revision to the Decision Resolution form that was revised to reflect the ultimate decision to restart the plant. The names of the Decision Team members which had not recommended plant restart did remain on the form when they should have been removed. This error was entered into the licensee's corrective action program as Condition Report 2-05-05971.

#### **General Concern 5**

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The writer of the September 27 letter appears to believe that the NRC had not been actively reviewing and assessing the licensee's decisions, regarding the service water pump failure and repair and their decision to restart prior to inspecting the other pump, in that it alleges that the NRC has not expressed much interest in the SW-P-1B issues.

#### **NRC Assessment**

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The Nuclear Regulatory Commission actively monitors licensee activities at the Columbia Generating Station to ensure that the facility is operated in a safe manner. Our monitoring includes two resident inspectors, permanently assigned to the site, who inspect the day-to-day operation of the facility. The resident inspectors are augmented by technical specialists from the Region IV Office in Arlington, Texas. Our review of the inspection response to the service water pump degradation at Columbia Generating Station concluded that the response was consistent with the inspection program guidance.

NRC resident inspectors, technical specialists, and regional management have been significantly involved in assessing the licensee's decisions related to the initial failure of Service Water Pump SW-P-1A, their operability evaluations of SW-P-1B, and their decision to start up the plant prior to disassembly and inspection of SW-P-1B. The Nuclear Regulatory Commission continues to be involved in assessing the day-to-day operation of the Columbia Generating Station to verify safe operation and to ensure compliance with Federal Regulations. Regarding the circumstances related to the failure of the Service Water Pump and subsequent licensee actions, the NRC has conducted independent inspections of the circumstances related to the failure, including reviewing the licensee's decision making processes. In addition, the NRC, including headquarters specialists, conducted conference calls with the licensee and held a public meeting with the licensee on December 15, 2005, and February 3, 2006, to discuss corrective actions related to the pump failure, including actions being taken to address organizational weaknesses which may have contributed to the failure.

#### **General Concern 6**

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The September 27 letter states that another example of the influence of the large incentives is the "soak" time of the main turbine. When restarting the main turbine after an outage, it is customary to warm it up for 8 hours before synchronizing to the grid. Management reduced the soak time significantly, in spite of advice to the contrary from the manufacturer. It was clear that the 35-day schedule based incentive would be lost if the soak time were left at 8 hours. This action could result in future blade cracking and potentially major turbine failure.

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**NRC Assessment**

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The NRC did not substantiate this concern. Columbia Generating Station Procedure OSP-MT-B401 was used to perform the main turbine overspeed test during startup. The procedure required that the turbine be heated (soaked) with steam for an 8-hour period to bring it up to the temperature at which the overspeed test could be conducted. Prior to plant restart this procedure was changed.

The change in the procedure involved adding an alternative to the 8-hour period that permits Columbia Generating Station to verify differential expansion for any one hour period at certain points on the turbine as it is heated. The change was initiated in response to questions whether the 8-hour soak was consistent with current industry practice, and whether there was a better way to determine that the main turbine was heated sufficiently to conduct the overspeed test. The turbine manufacturer was contacted on June 10, 2005, for their perspective. The proposal to verify differential expansion on the main turbine was explained, and the manufacturer concurred that the risk associated with main turbine failure by virtue of this approach was extremely low. The new approach took 56 minutes less than the original 8-hour soak time.

The NRC did not substantiate that Energy Northwest management reduced the 8-hour soak time of the main turbine significantly at the end of the last outage in spite of advice to the contrary from the turbine manufacturer. The NRC also did not substantiate that the 35-day schedule based incentive would be lost if the soak time were left at 8 hours. There was also no conclusive information to determine that the shortened soak time (56 minutes less than the original 8 hours) could result in future blade cracking and potentially major turbine failure.

**General Concern 7**

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Both letters state that they remain unsigned because "my position would be in jeopardy if I were identified."

**NRC Assessment**

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While taking adverse actions against an individual for having raised safety concerns is prohibited by Section 211 of the Energy Reorganization Act of 1974, as Amended, some individuals are unwilling to be identified. To improve the work environment climate at NRC-licensed facilities, the NRC issued Policy Statement, "Freedom of Employees in the Nuclear Industry to Raise Safety Concerns Without Fear of Retaliation," in 1996. This document provided the agency's broad expectations with respect to establishing and maintaining a Safety Conscious Work Environment (SCWE), which is an environment in which employees are encouraged to raise safety concerns both to their own management and to the NRC without fear of retaliation. The NRC monitors SCWE on a periodic basis and determines whether additional NRC action is warranted. Based upon inspections and other indicators, the NRC has determined that the licensee at the Columbia Generating Station has established and maintained an acceptable SCWE.

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The Honorable Christine O. Gregoire

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bcc w/Enclosure:  
L. Reyes, OEDO  
W. Kane, DEDR  
Allegation File

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The Honorable Christine O. Gregoire:

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bcc w/Enclosure:  
L. Reyes, OEDO  
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