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

Memorandum To: ALLEGATION FILE RIV-2006-A-0002

From: Claude E. Johnson, Chief
Project Branch A
Division Reactor Projects

SUBJECT: CLOSURE OF ASSIGNED CONCERNS FOR ALLEGATION RIV-2006-A-0002

This memorandum provides the background closure information for Allegation RIV-2006-A-0002. On February 16, 2006, Energy Northwest responded to five concerns identified in the allegation. In reviewing Energy Northwest's response, the NRC considered whether: (1) the licensee's response adequately addressed the individual concerns; and (2) the allegers concerns were substantiated.

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Inspector Followup to Allegation RIV-2006-A-0002

Background: On June 14, 2005, the Columbia Generating Station Service Water Pump A 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 the B service water pump because of its similar design and operating conditions. The B pump was not disassembled to be inspected or repaired due to parts issues and the plant was started up and operated with questions surrounding the ability of this pump to perform its safety function for its mission time. The plant startup following the failure of the A service water pump and the delay in establishing the actual condition of the B service water pump resulted in the concerns listed below.

The licensee's response to the following allegation concerns are based upon investigation conducted by the Lead Inspector, Nuclear Safety Issues Program (NSIP), who is independent from the Nuclear Generation and Technical Services organizations. The investigator conducted interviews with key members of management along with engineering and operations staffs. Also, reviews of relevant internal records and documents were conducted including a third party report on the determination of the SW-P-1B operability and the results of a recent company wide survey on the status of the Safety Conscious Work Environment (SCWE) at Columbia Generating Station.

The inspector considered these activities to be sufficiently independent of the organizations in question.

With regards to enforcement actions to be taken by the NRC, an Unresolved Item (URI) was issued in inspection report 05000397/2005003 to capture the issue of the failure to adequately address industry operating experience regarding service water pumps. This issue was unresolved pending the inspection of the B pump which was completed in December 2005. A detailed inspection plan has been developed to conduct additional inspection of the issues surrounding the service water pumps. We expect to conclude our inspection activities and significance determination and document the results by the end of the second quarter, 2006.

Concern 1 -

There was a setback for the "little safety significance" effort when it was realized that the B service water pump would also have to survive a seismic event, and then run for 30 days. With the pump in such a severely degraded condition, the seismic event could have a serious effect on performance.

Conclusion -

The inspector did not substantiate the concern based on the as-found condition of the B service water pump. This pump was found to have considerable damage to the shaft end flange but did not exhibit as much internal wear as the A service water pump. It was concluded that potential stresses associated with a seismic event would not have a significant impact on the pump start or continued operation.

The licensee cited a Risk Significance Evaluation of the B service water pump coupling flange failure completed on January 25, 2006. The evaluation of the 24-hour run, performance data,

failure analysis, and seismic capability of the damaged shaft leads to the conclusion that the shaft would have remained structurally intact for a PRA mission critical time of twenty-four continuous hours without suffering catastrophic failure. The impact on the station core damage frequency (CDF) and large early release frequency (LERF) were determined to be not significant. The report concluded that the B service water pump would have successfully performed its mission for all initiating events including internal events, internal fires, and seismic events. However, the seismic event could exert additional forces on the pump, and potentially reduce its operational capability. These potential stresses would not have a significant impact on the pump start or continued operation. The pump vendor (Flowserve) performed an evaluation of pump operability. The overall conclusion of that evaluation was that the B service water pump had not undergone as much internal wear as the A pump. Flowserve estimated that the B service water pump would not have begun the exhibit the same rapid performance decline as the A pump for another 13 months from the time the B pump was removed from service. Based on this information, the licensee concluded that this concern had no merit.

The inspector considered the licensee's actions and conclusions to be adequate to support their position. However, the inspector noted that the licensee's response did not specifically address the 30-day mission time mentioned in the concern. This omission does not fundamentally change the conclusions. The inspector noted that the licensee did start and operate the B service water pump for 24 continuous hours just prior to removing the pump from service for inspection and replacement. This action proved that the pump was capable of performing its safety function for the PRA mission critical time. Also, a detailed inspection plan has been developed to conduct additional inspection in this area. This inspection activity is expected to be completed in the second quarter of 2006.

Concern 2 -

The General Engineering Manager (GEM) reportedly said that this is not a nuclear safety issue. It appears he does not fathom the magnitude of the issue.

Conclusion -

The inspector substantiated the first part of this concern. In interviews with the Engineering General Manager (EGM), although he understood and accepted his staff's position, he personally did not find this particular issue to be a nuclear safety concern and acknowledged that it is the responsibility of licensed operators to make operability determinations with support from engineering. The inspector did not substantiate the second part of this concern due to a lack of evidence that the EGM did not fully understand the issue.

The licensee indicated that these concerns were previously addressed in internal allegation NSI 2005-007 (9/15/2005) by the Nuclear Safety Issues Program. In this allegation, some interviewees expressed concerns that the Engineering General Manager (EGM) supported the plant restart decision even after several members of his engineering evaluation team reported to him that they could not support SW-P-1B operability and plant restart. The report also points out that there was no immediate communication or feedback between the EGM and these engineers to discuss and/or explain his position and his decision to support restart. However, some engineers immediately believed that their personal credibility as seasoned, experienced engineers had been completely discounted. In interviews with the EGM, although he understood and accepted his staff's position, he personally did not find this particular issue to

be a nuclear safety concern and acknowledged that it is the responsibility of licensed operators to make operability determinations with support from engineering.

The inspector considered the licensees description of the atmosphere in the Engineering Department at the time to adequately explain the apparent animosity between the EGM and the staff engineers. The lack of effective and timely communication concerning the basis for the actions taken exacerbated the situation. The inspector was concerned that the EGM stated in interviews that this issue was not a nuclear safety concern. It clearly was a nuclear safety issue and needed to be approached from that perspective.

Concern 3 -

The GEM let the Plant Manager go down what many believe to be a nuclear safety risk path. The GEM ignored the well founded input of his staff engineers.

Conclusion -

The inspector did not substantiate the concern. The Engineering General Manager (EGM) did support the restart after the failure of the A service water pump and before the B pump could be inspected or repaired. This support was contrary to the position of some staff in the Engineering Department. However, there was no evidence that the EGM allowed the Plant Manager to make a decision that placed the plant on a nuclear safety risk path. Also, there was no evidence that the EGM ignored the input of his staff engineers although the lack of effective and timely communications to explain his position certainly could have given this impression.

The licensee's response to this concern was grouped with the response for Concern 2 above. The same information applies to both concerns.

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The inspector considered the licensees characterization of the restart decision and the actions of the Engineering General Manager to support this decision to adequately address this concern. No evidence was presented that the Plant Manager took an inappropriate action based on the EGMs recommendations. The lack of an explanation for the actions taken did give the impression that the recommendations of the staff engineers was ignored. However, no specific information was provided to indicate that the EGM purposely ignored the staffs recommendations.

Concern 4 -

Management has provided a chilled environment response to the nuclear safety concerns of the staff.

Conclusion -

The inspector did not substantiate this concern. The results of personnel interviews and an all-employee survey sent out to measure the health of the nuclear safety culture and the safety conscious work environment at the station did not indicate a site wide chilled environment.

The licensee previously addressed this concern in internal allegation NSI 2005-007 (9/15/2005). During the investigation, the lead investigator asked nine concerned individuals independently if they had any apprehension about formally raising this issue under the Nuclear Safety Issues Program (NSIP) for fear of retribution. Of the nine engineers interviewed, two indicated concerns of potential retaliation. The others stated that they were comfortable raising issues and had done just that during a challenge meeting to discuss plant restart. The investigator reviewed the NSIP program and their legal rights as employees with the two individuals who were concerned about retaliation. After this discussion, they acknowledged that they understood their rights and were less concerned. As of February 16, 2006, none of the concerned individuals involved in the B service water pump evaluation have reported any harassment, intimidation, retaliation, or discrimination related concerns to the NSIP program.

A periodic all-employee survey was sent out to measure the health of the nuclear safety culture and the safety conscious work environment at the Columbia Generating Station. Over 500 responses were received and the results were extremely positive as they relate to maintaining a strong nuclear safety culture and safety conscious work environment. As a result, the licensee concluded that there was no indication that management has created a chilled environment at Columbia.

The inspector concluded that the information in the licensee's response provided reasonable assurance that a chilled environment had not been created by station management. The internal investigation and the all-employee survey addressed this question adequately.

Concern 5 -

On July 21, 2005, the service water system engineer drafted a Condition Report which included the following statement: "I am not confident the SW-P-1B is capable of reliably performing its required function for its required operating time (ROT). Raised this concern through the chain of command. This issue has been entered in the NSIP program. A meeting was held to discuss the issue." After review by his management chain, the statement above was removed, and CR 2-05-05983 was issued.

Conclusion -

The inspector did not substantiate this concern. The licensee conducted an interview with the service water system engineer. The engineer reviewed the wording of this concern and indicated that he had no recollection that anyone from the management chain asked him to remove any statement he made during the original development of

CR 2-05-05983. Based on this direct denial, the inspector considered this concern to be not substantiated.

The licensee addressed this concern by interviewing the service water system engineer who drafted a condition report to document the fact that a formal operability determination had not been documented in the corrective action program for service water pump B (CR 2-05-05983). The interviewee was asked to review the wording of this concern and respond to the correctness of the statement (i.e. validate the content to be true or not). After reviewing the concern, the system engineer informed the investigator that he did not recollect anyone from the management chain asking him to remove any statement he made during the original development of CR 2-05-05983. Based on this interview, the licensee found this concern to be without merit.

The inspector considered the licensees actions on this concern to be adequate. A direct question was asked and a direct answer was obtained. Based on this answer, the concern is not substantiated.