Memorandum To:
ALLEGATION FILE **RIV-2005-A-0115**

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

SUBJECT: RESULTS OF FOLLOWUP INSPECTION ACTIVITIES OF ALLEGATION RIV-2005-A-0115, CONCERNS 1 THROUGH 6

This memorandum provides supplemental closure information for specific concerns associated with Columbia Generating Station Allegation RIV-2005-A-0115. On April 27, 2006, NRC Region IV completed a focused inspection at the Columbia Generating Station which included inspection of specific allegation concerns. The purpose of this inspection effort was to independently assess the licensee's response to these concerns that was originally used as the basis for closure of the allegation.

The results of this inspection effort is documented in a separate inspection report (05000397/2006011). In addition to the allegation concerns specified in the inspection plan, the inspection focused on the station's testing and preventive maintenance programs, the decision making process used by the licensee associated with the service water pump issues, the operability determination process, the corrective action program, and the status of other station components.

Allegation RIV-2005-A-0115, concerns 1 through 6 were inspected as part the focused inspection effort described above. Of these, all the concerns except concern 2 remained as dispositioned in the original closure memo for this allegation. The inspection confirmed that these concerns were adequately characterized using the licensee's response as a basis.

Allegation RIV-2005-A-0115, concern 2 was originally partially substantiated. The inspection team determined that this concern was substantiated.

The description below identifies the differences between the original assessment and the inspection team assessment and provides final closure for this specific concern.

With regard to the response provided to the Governor of the State of Washington concerning some of the concerns associated with allegation RIV-2005-A-0115, the results of the focused inspection does not change our overall assessment as specified in this response. No additional communication with the Governors office is required as a result of this effort.

C/15

Inspector Followup to Allegation RIV-2005-A-0115 Concern 2

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 concern was based upon an investigation conducted by the Nuclear Safety Issues Program (NSIP) Manager who is independent of the Plant Operations organization. In addition, the licensee performed four independent analysis of the issues of concern in the NRC allegations. These included:

1. An evaluation of a concern in the Nuclear Safety Issues Program,

2. An assessment by the Columbia Corporate Nuclear Safety Review Board (CNSRB),

3. A detailed evaluation of the root cause of the SW-P-1A failure, including proposed corrective actions, and

4. An operability procedure compliance review concerning the determination fo SW-P-1B operability.

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

On April 27, 2006, the NRC completed an independent inspection of selected concerns associated with this allegation. This was done to supplement the original direction from the Allegation Review Board to refer these concerns to the licensee. The results of this inspection effort were generally consistent with the original assessment of the concerns as described in the memorandum used to close this allegation. However, there was one concern that was characterized differently from the original assessment based upon the inspection results. This concern was reassessed as follows:

Concern 2 -

It was confirmed in conversations with the pump vendor, and an independent vibration consultant that vibration data could not be used to predict failures like those observed in the pump shaft on SW-P-1A. Technical staff could not provide a basis for confidence that SW-P-1B could fulfill its safety function, even though it was currently meeting its Tech Spec surveillance requirements.

Initial Conclusion Based on Licensee Investigation and Response -

The inspector substantiated the first part of this concern. Vibration data alone could not have been used to predict this type of failure. The inspector did not substantiate the second part of this concern because no convincing evidence that the pump was inoperable was provided.

The licensee concluded that vibration data alone could not be used to predict margin to failure but continued vibration monitoring to ensure the ability to continuously assess any pump performance degradation. The licensee's response to this concern stated that the basis for confidence in the ability of

SW-P-1B to continue to perform its safety function had multiple aspects. Technical Specification and In-Service Testing requirements was one element. Further, the pump was operable prior to the Service Water Pump A failure and continued to operate normally. Also, additional measures were put in place to closely monitor the pump each time it was required to start and run. The final operbility determination is made by the Shift Manager. Five different Shift Mangers over time made consistent determinations that the B pump remained operable. The licensee stated that applicable operability procedures had been followed.

The inspector concurred with this position since no information to the contrary is known.

Revised Conclusion Based on Subsequent Inspection -

The inspection team substantiated this concern.

The inspection team provided the following statement regarding this concern:

> Current Energy Northwest vibration analysis techniques can not detect or predict the failure which occurred. However, other sophisticated vibration analysis methodology and monitoring (phase angle or transducer on bowl) may have detected the shaft degradation or impeller rubbing on the pump bowl. Technical staff could not provide a basis for confidence that SW-P-1B could fulfill its safety function in lieu of direct inspection. However, although technical staff could not provide a basis for operability, the same staff could not provide a technical basis for inoperability of the pump. Technical staff did provide comments to management regarding the need to inspect SW-P-1B as soon as possible.

The inspector that performed the original assessment of this concern reviewed the inspection team results to determine the specific differences between the two assessments. The inspector determined that the team characterized the issue in much the same way and confirmed that station technical staff could not provide a technical basis for inoperability of the B service water pump. The difference was due primarily in the way the inspection team interpreted the data. No significant additional data was provided during the inspection effort.

The licensee's response to this referred concern was considered adequate.

Based on the focused inspection effort, this concern is substantiated.