



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 17, 2015

Mr. Charles K. Johnson
Oregon and Washington Physicians
for Social Responsibility
812 SW Washington St., Suite 1050
Portland, Oregon 97205

Dear Mr. Johnson:

I am responding to your letter dated May 13, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15140A388), to the Executive Director for Operations of the U.S. Nuclear Regulatory Commission (NRC) regarding a crack indication in the riser weld for jet pumps 17 and 18 in the reactor vessel at Columbia Generating Station (CGS). In your letter, you requested that the NRC:

1. "Modify the operating license and/or suspend the restart of the CGS until the crack observed on the RS-9 riser weld for jet pumps 17 and 18 has been repaired,"
2. "Apply knowledge from the Fukushima Seismic Hazard Re-Analysis in examining cracks and other signs of deterioration within the reactor vessel," and
3. Consider that "this known crack on the RS-9 riser and other cracks that may be forming or may occur in a seismic event, may cause water to drain more rapidly from the reactor vessel in a loss of coolant accident and reduce the ability to cool the reactor adequately to prevent melting."

You referenced a report dated April 14, 2015 (ADAMS Package Accession No. ML15113A300), sent to the NRC by Energy Northwest, the licensee for CGS, concerning a deviation from Boiling Water Reactor Vessel and Internals Project (BWRVIP) requirements for a crack indication (or flaw) in the RS-9 jet pump riser weld. The report discusses an intergranular stress corrosion crack of approximately 1.25 inches in length on the jet pump riser weld. As a basis for your request, you challenged the licensee's decision to use water chemistry and continued visual observation to justify continued operation of CGS without repairing the flaw. In addition, you discussed your concern with how the jet pump riser weld flaw and other signs of deterioration may be affected by earthquake motions, as well as the lack of analysis on the effects of seismic activity on the jet pump riser flaw in the Energy Northwest's Seismic Hazard and Screening Report dated March 12, 2015 (ADAMS Accession No. ML15078A243).

In response to your letter, the NRC staff evaluated your requests pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 2.206, "Request for action under this subpart." This letter summarizes the NRC's findings associated with our evaluation of your request.

On May 27, 2015, a petition review board (PRB) from the Office of Nuclear Reactor Regulation discussed your request for immediate action. The NRC staff decided to deny the request for immediate action because your petition did not provide new information demonstrating an

immediate safety concern to the plant or to the health and safety of the public. There has been no apparent growth or propagation of the flaw since its original discovery in 2011. Although the jet pump is not an American Society of Mechanical Engineers (ASME) Code component, the licensee utilized evaluation methods contained in the ASME Boiler and Pressure Vessel Code, Section XI, to justify that the RS-9 weld with the flaw, including projected crack growth, is adequate to continue operation for another operating cycle. The licensee is monitoring the crack growth and plans to re-inspect the flaw each operating cycle and reevaluate acceptability for continued operation. The PRB's initial determination to reject the request for immediate action was provided to you in an e-mail on June 1, 2015 (ADAMS Accession No. ML15152A308).

You requested to address the PRB in a teleconference, subsequently held on June 12, 2015, during which you, representing Oregon and Washington Physicians for Social Responsibility (OWPSR), and Ms. Peggy Johnson, representing Heart of America Northwest, addressed the PRB and provided additional information for consideration. A copy of the transcript from the teleconference is located at ADAMS Accession No. ML15181A225. Ms. Nancy Newell, representing Oregon Green Energy Coalition, and Mr. Steven Gilbert, representing OWPSR, also joined the teleconference. During the meeting, you additionally requested the NRC to:

4. "Allow us the information [proprietary version of the April 14, 2015 report from Energy Northwest] so that the Union of Concerned Scientists and Fairwind Associates can indeed say yes, this is safe," and
5. "Consider the location of this plant and the fact that it sits in the middle of the Hanford Reservation. The amount of waste that is there not only from the reactor but from the Hanford Reservation itself."

During the teleconference, you alleged misconduct by the NRC staff. Per Management Directive (MD) 8.11, "Review Process for 10 CFR 2.206 Petitions," your concerns were referred to the NRC Office of the Inspector General (OIG), which is charged with investigating misconduct by NRC employees. You may forward your concerns directly to the OIG through the NRC public Web site (<http://www.nrc.gov/insp-gen/oighotline.html>) or the OIG Hotline (1-800-233-3497).

The PRB considered your petition requests during an internal meeting on August 27, 2015. The PRB's initial recommendation was to reject your petition request for review pursuant to 10 CFR 2.206. The NRC staff informed you of this determination via telephone on September 8, 2015. You declined the opportunity to address the PRB for a second time.

Per the guidance in MD 8.11, the NRC staff has determined that your petition does not meet the criteria for review under 10 CFR 2.206 as detailed below.

Your first request called on NRC to "modify the operating license and/or suspend the restart of the CGS until the crack observed on the RS-9 riser weld for jet pumps 17 and 18 has been repaired." The NRC staff determined your first request does not meet the criteria for review per MD 8.11 Handbook, Part III, paragraph C.2, "Criteria for Rejecting Petitions Under 10 CFR 2.206," because you raised "issues that have already been the subject of NRC staff review and evaluation either on that facility, other similar facilities, or on a generic basis, for which a

resolution has been achieved, the issues have been resolved, and the resolution is applicable to the facility in question.”

The licensee conducts inspections for cracking under its BWRVIP program. Inspections for cracking of reactor vessel internals (RVI) use either enhanced visual examination or ultrasonic test (UT) techniques. These inspections are conducted for all the major assemblies that make up the RVI including the core shroud, core plate, top guide, jet pumps, and internal piping such as the core spray piping and low pressure coolant injection piping. For the jet pump assemblies, various locations are inspected periodically using enhanced visual examination or UT, including the riser pipe weld RS-9. These periodic inspections led to the discovery of the flaw in the RS-9 weld at CGS in 2011. Weld RS-9 was also inspected during the subsequent two refueling outages in 2013 and 2015, which both showed that the flaw did not grow since its original detection. Continued implementation of the BWRVIP program is required by a condition on the renewed license for CGS, and changes to the program, as described in the plant's Final Safety Analysis Report (FSAR), must be evaluated under 10 CFR 50.59. The results of BWRVIP program inspections are subject to review by NRC inspectors.

Upon discovery of the flaw, the licensee entered the flaw into its Corrective Action Program (CAP). The purpose of the licensee's CAP is to promptly identify and correct conditions adverse to quality, as described in 10 CFR Part 50, Appendix B, XVI, "Corrective Action." The resident inspectors reviewed the licensee's CAP, including any compensatory measures specified by the reactor vendor, GE-Hitachi Nuclear Energy, as part of a daily condition report preview required by Inspection Procedure (IP) 71152, "Problem Identification and Resolution," under Inspection Manual Chapter 2515, Appendix D, "Plant Status" (ADAMS Accession Nos. ML14316A042 and ML11279A083, respectively).

In addition, the NRC Region IV office reviewed the licensee's April 14, 2015, report and reviewed the flaw inspection records during the 2015 refueling outage. Per IP 71111.08, "Inservice Inspection Activities," dated November 13, 2014 (ADAMS Accession No. ML14266A049), the NRC staff reviews inservice inspection (ISI) reports to detect precursors to pressure boundary failures in reactor coolant systems, emergency core cooling systems, risk-significant piping and components, and containment systems. The inspection is intended to assess the effectiveness of the licensee's program for monitoring degradation of vital system boundaries. As part of the ISI activities, the NRC staff reviews non-destructive examination and welding activities. The results of these reviews are documented in NRC Integrated Inspection Report 05000397/2015002, dated August 7, 2015 (ADAMS Accession No. ML15219A143), which states, in part,

The inspectors reviewed the licensee's G02-15-056 letter "Columbia Generating Station, Docket No. 50-397 Deviation From BWRVIP Flaw Evaluation Requirements For Jet Pump Riser Indication" dated April 14, 2015, and the supporting evaluation. The crack on Riser 9 was originally identified in April 2011, during refueling outage 20. The licensee has inspected and evaluated the indication during each subsequent refueling outage and the size has remained consistent...

No findings were identified.

The licensee evaluated the RS-9 weld flaw using ASME Code, Section XI methodology and is not required to seek regulatory relief for this issue from the NRC. The licensee submitted the report dated April 14, 2015, to the NRC for information only. The licensee has determined the jet pump to be operable, meaning it is capable of performing its specified safety function, and plans to re-inspect the flaw each operating cycle to determine if there are any changes in flaw length and any associated actions. Based on the reasons above, your first request was not accepted for review because it has already been the subject of NRC staff review and resolved.

Your second request was for the NRC to “apply knowledge from the Fukushima Seismic Hazard Re-Analysis in examining cracks and other signs of deterioration within the reactor vessel.” The NRC staff determined your second request does not meet the criteria for review per MD 8.11 Handbook, Part III, paragraph C.2, because you raised “issues that have already been the subject of NRC staff review and evaluation either on that facility, other similar facilities, or on a generic basis, for which a resolution has been achieved, the issues have been resolved, and the resolution is applicable to the facility in question.”

The jet pumps are designed and built to withstand a seismic event. As stated in the licensee’s FSAR Chapter 3.9.2.2.2, “Seismic and Hydrodynamic Load Qualification of Specific Nuclear Steam Supply System Mechanical Components,” “a dynamic analysis of the jet pumps was performed and the resulting stresses were below the design allowable” (ADAMS Accession No. ML14010A297).

If flaws are found during BWRVIP program inspections, a flaw evaluation must be performed. For jet pump assemblies, methods for flaw evaluations are contained in topical report BWRVIP-41, Revision 3, “BWR Vessel and Internals Project, BWR Jet Pump Assembly Inspection and Flaw Evaluation Guidelines,” dated September 10, 2010. These evaluations predict future growth of a flaw during the time interval to the next inspection. The predicted flaw size at that time is evaluated for structural stability. The crack stability evaluation must consider all the plant-specific design basis loads for the component, as defined in the plant’s FSAR. Current licensing basis (CLB) loads for the jet pump assemblies at CGS include both the operating basis earthquake (OBE) for normal/upset conditions and the safe shutdown earthquake (SSE) for emergency/faulted (accident) conditions. The flaw evaluation performed in accordance with the BWRVIP methods for the flaw in the RS-9 weld is contained in GE-Hitachi Nuclear Energy 001N6043.4-NP, Revision 1, “Energy Northwest Columbia Generating Station Jet Pump 17/18 Riser Evaluation at 106% Rated Core Flow (115 Mlbs/hr [million pounds per hour]),” dated February 2015 (ADAMS Accession No. ML15113A302). The NRC staff reviewed the GE-Hitachi calculation and verified that the flaw evaluation of the flaw in jet pump weld RS-9 considered the appropriate CLB seismic loads, in addition to all other applicable loads for normal, upset, and accident conditions.

The licensee submitted its Seismic Hazard and Screening Report in a letter dated March 12, 2015, which included a seismic hazard and screen evaluation. In a letter dated May 13, 2015 (ADAMS Accession No. ML15113B344), the NRC staff documented its screening and prioritization review of the Seismic Hazard and Screening Reports for the Western United States sites, including CGS, and found, in part, that:

... Licensees have demonstrated seismic margins supportive of continued plant operation while additional risk evaluations are conducted.

The NRC staff further emphasized in a June 4, 2015, public meeting that “the staff notes that Columbia continues to operate safely including consideration of the new seismic hazard information” (ADAMS Accession No. ML15173A273). The staff has already provided its expectations to the licensees on how the seismic hazard reevaluations relate to the licensee’s design basis and the expectations to the licensees if errors in the current licensing basis are identified by licensees during the seismic hazard evaluations. NRC issued a supplemental letter to the operating plants, dated February 20, 2014 (ADAMS Accession No. ML14030A046), which emphasized the staff’s expectations and stated, in part, that:

The staff considers the seismic hazard reevaluations being performed pursuant to the 50.54(f) letter to be distinct from the current design or licensing basis of operating plants...

However, as with any new information that may arise at a plant, licensees are responsible for evaluating and making determinations related to operability, and any associated reportability, on a case-by-case basis. Licensees should consider and disposition the information through their corrective action program or equivalent process. If an error is identified in the current design or licensing basis during the performance of the requested seismic hazard evaluation, the staff expects that licensees would assess the operability of the affected SSC [plant structures, systems, and components].

Therefore, your second request was not accepted for review because it has been the subject of NRC staff review. To find out more information on NRC’s ongoing activities in response to the Fukushima Dai-ichi accident, please visit the following page on the NRC public Web site: <http://www.nrc.gov/reactors/operating/ops-experience/japan-dashboard.html>

Your third request was for the NRC to consider that the “known crack on the RS-9 riser and other cracks that may be forming or may occur in a seismic event, may cause water to drain more rapidly from the reactor vessel in a loss of coolant accident and reduce the ability to cool the reactor adequately to prevent melting.” The NRC staff determined your third request does not meet the criteria for review per MD 8.11 Handbook, Part III, paragraph C.2, because you raised “issues that have already been the subject of NRC staff review and evaluation either on that facility, other similar facilities, or on a generic basis, for which a resolution has been achieved, the issues have been resolved, and the resolution is applicable to the facility in question.”

The postulated worst case loss-of-coolant accident (LOCA), with respect to core cooling, is a recirculation line break with the reactor at full power. During this LOCA, the reactor vessel water level is assumed to decrease rapidly, which leads to the core becoming uncovered. However, during this scenario, there are several systems that automatically provide makeup water to the reactor core within the core shroud. The water level inside the core shroud will increase until it reaches the level of the top of the jet pump mixing sections. The water then spills out of the jet pumps into the annulus area between the core shroud and the reactor vessel wall and out through the broken recirculation line. The jet pump mixing elevation is approximately two-thirds of the height of the core. Therefore, the jet pumps, core shroud, and

the shroud support plate ensure that two-thirds core height coverage can be maintained during a recirculation suction line break. Maintaining the water level at two-thirds of the core height allows the upper one-third of the core height to be cooled by a mixture of steam and water flowing upward because of the boiling in the lower two-thirds of the core. Based on its evaluation of the licensee's April 14, 2015, report, the NRC staff concluded there is no immediate safety concern regarding uncovering the core due to a flaw on a jet pump riser weld because the RS-9 weld flaw on the jet pump riser does not impact the two-thirds core coverage if leakage from the flaw were to occur. This is supported by the licensee's report dated April 14, 2015, which stated, in part, that, "because the crack indication is located on the riser pipe[,] there is no effect on the safety function of the JPs [jet pumps] to maintain 2/3 core coverage." Also, the jet pump assemblies are not part of the reactor coolant pressure boundary and as a result, jet pump failure has no impact on the structural integrity of the reactor coolant pressure boundary. Therefore, jet pump failure will not cause the reactor to depressurize and result in loss of coolant.

Furthermore, jet pump failures are detectable by the plant operators. The CGS technical specifications (TS) include surveillance requirement (SR) 3.4.2.1, that requires the licensee to monitor jet pump flow every 24 hours (ADAMS Accession No. ML053130319). This SR establishes operability requirements for jet pumps based on flow indications matching established patterns. The purpose of SR 3.4.2.1 is to ensure the jet pumps can perform their specified safety function of maintaining two-thirds core coverage. The failure to meet the SR would result in the jet pump being declared inoperable. If the jet pump is declared inoperable, the licensee must shut down the reactor in 12 hours from the period of discovery to ensure that adequate margins of safety are maintained.

If a seismic event were to occur at an operating power reactor, licensees would follow plant-specific procedures to protect the public health and safety. After the seismic event, the NRC staff would follow IP 71153, "Follow-up of Events and Notices of Enforcement Discretion," dated December 5, 2011 (ADAMS Accession No. ML102810102), to evaluate the plant status, degraded conditions, and mitigating actions in order to determine the need for additional NRC inspections at the site. Also, pursuant to 10 CFR Part 100, Appendix A, Section V(a)(2), "Determination of Operating Basis Earthquake":

If vibratory ground motion exceeding that of the Operating Basis Earthquake occurs, shutdown of the nuclear power plant will be required. Prior to resuming operations, the licensee will be required to demonstrate to the Commission that no functional damage has occurred to those features necessary for continued operation without undue risk to the health and safety of the public.

For example, on August 23, 2011, North Anna Power Station, Units 1 and 2 (NAPS), experienced ground motion from a seismic event that exceeded the OBE and design basis earthquakes for NAPS at certain frequencies for a short period of time. The NRC staff performed several inspections onsite and performed an independent technical review of the information submitted by the licensee by utilizing Regulatory Guide 1.167, "Restart of a Nuclear Power Plant Shut Down by a Seismic Event," dated March 1997 (ADAMS Accession No. ML003740093). In a letter dated November 11, 2011, the NRC staff determined that the licensee for NAPS "had acceptably demonstrated that no functional damage has occurred to those features necessary for continued operation, and that NAPS can be operated, without

undue risk to the health and safety of the public” per 10 CFR Part 100, Appendix A, Section V(a)(2) (ADAMS Package Accession No. ML11308B404).

Therefore, your third request was not accepted for review because it has been the subject of NRC staff review.

In your fourth request, you asked the NRC to “allow us the information [proprietary version of the April 14, 2015 report from Energy Northwest] so that the Union of Concerned Scientists and Fairwind Associates can indeed say yes, this is safe.” The NRC staff determined your fourth request does not meet the criteria for review per MD 8.11 Handbook, Part III, paragraph C.2, because “the incoming correspondence does not ask for enforcement-related action or fails to provide sufficient facts to support the petition...” You did not request enforcement action; therefore, your fourth request was not accepted for review.

The proprietary information that you seek has been withheld under 10 CFR 2.390(b)(4) by GE-Hitachi Nuclear Energy. CGS resubmitted the letter on August 13, 2015, with updated proprietary markings (ADAMS Accession No. ML15238A773). In a letter dated September 1, 2015 (ADAMS Accession No. ML15191A360), the NRC reviewed the licensee’s August 13, 2015, submittal, under the requirements of 10 CFR 2.390, “Public inspections, exemptions, requests for withholding,” and, on the basis of the statements in the affidavits, has determined that the submitted information sought to be withheld contains proprietary commercial information. Therefore, the information in the letter marked as proprietary will be withheld from public disclosure pursuant to 10 CFR 2.390(b)(5) and Section 103(b) of the Atomic Energy Act of 1954, as amended. As a result, your fourth request was not accepted for review. The NRC is not the owner of the proprietary information; therefore, to access this information, you must submit a formal, written request to GE-Hitachi Nuclear Energy.

In your fifth request, you asked the NRC to consider “the location of this plant and the fact that it sits in the middle of the Hanford Reservation. The amount of waste that is there not only from the reactor but from the Hanford Reservation itself.” The NRC staff determined your fifth request does not meet the criteria for review per MD 8.11 Handbook, Part III, paragraph C.2, because “the incoming correspondence does not ask for enforcement-related action or fails to provide sufficient facts to support the petition...” You did not request enforcement action nor provide sufficient facts to support your statement about waste produced at CGS; therefore, your fifth request was not accepted for review.

The NRC regulates and monitors the waste generated at CGS. Columbia Generating Station, and all other operating nuclear power plants regulated by the NRC, are required to submit two annual reports which detail (1) the quantity and types of radioactive effluents discharged from the site for the calendar year and (2) the radiological impact that operation of CGS may have on the environment. These reports can be found on the NRC public Web site at <http://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-specific-reports/wash2.html>. These reports are periodically inspected as part of the baseline inspection at each station by NRC staff implementing IP 71124.06, “Radioactive Gaseous and Liquid Effluent Treatment,” IP 71124.07, “Radiological Environmental Monitoring Program”, and IP 71124.08, “Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation” (ADAMS Accession Nos. ML12321A387, ML092190669, and ML092190672, respectively). The results of these inspections are included in inspection reports which are available on the NRC

public Web site. Additionally, per 10 CFR 50.36a(a)(2), the Commission may require the licensee to take action if quantities of radioactive materials released at CGS are significantly above design objectives. The U.S. Department of Energy (DOE) is responsible for regulating the Hanford Reservation; therefore, you must send your requests related to the Hanford Reservation to DOE.

Based on the above, your petition under 10 CFR 2.206 is rejected. This letter closes out your request for a 2.206 petition.

If you have any questions, please contact Margaret Watford at (301) 415-1233 or via e-mail at Margaret.Watford@nrc.gov.

Sincerely,



George A. Wilson, Deputy Director
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. STN 50-397

cc: Ms. Nancy Newell
Oregon Green Energy Coalition
3917 NE Skidmore
Portland, OR 97211

Mr. Steven Gilbert
Oregon and Washington Physicians
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812 SW Washington St., Suite 1050
Portland, Oregon 97205

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December 17, 2015

Ms. Peggy M. Johnson
Heart of America Northwest
444 NE Ravenna Blvd., Suite 406
Seattle, Washington 98115

Dear Ms. Johnson:

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1. "Modify the operating license and/or suspend the restart of the CGS until the crack observed on the RS-9 riser weld for jet pumps 17 and 18 has been repaired,"
2. "Apply knowledge from the Fukushima Seismic Hazard Re-Analysis in examining cracks and other signs of deterioration within the reactor vessel," and
3. Consider that "this known crack on the RS-9 riser and other cracks that may be forming or may occur in a seismic event, may cause water to drain more rapidly from the reactor vessel in a loss of coolant accident and reduce the ability to cool the reactor adequately to prevent melting."

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In response to your letter, the NRC staff evaluated your requests pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 2.206, "Request for action under this subpart." This letter summarizes the NRC's findings associated with our evaluation of your request.

On May 27, 2015, a petition review board (PRB) from the Office of Nuclear Reactor Regulation discussed your request for immediate action. The NRC staff decided to deny the request for immediate action because your petition did not provide new information demonstrating an

immediate safety concern to the plant or to the health and safety of the public. There has been no apparent growth or propagation of the flaw since its original discovery in 2011. Although the jet pump is not an American Society of Mechanical Engineers (ASME) Code component, the licensee utilized evaluation methods contained in the ASME Boiler and Pressure Vessel Code, Section XI, to justify that the RS-9 weld with the flaw, including projected crack growth, is adequate to continue operation for another operating cycle. The licensee is monitoring the crack growth and plans to re-inspect the flaw each operating cycle and reevaluate acceptability for continued operation. The PRB's initial determination to reject the request for immediate action was provided to you in an e-mail on June 1, 2015 (ADAMS Accession No. ML15152A308).

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Per the guidance in MD 8.11, the NRC staff has determined that your petition does not meet the criteria for review under 10 CFR 2.206 as detailed below.

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Your second request was for the NRC to “apply knowledge from the Fukushima Seismic Hazard Re-Analysis in examining cracks and other signs of deterioration within the reactor vessel.” The NRC staff determined your second request does not meet the criteria for review per MD 8.11 Handbook, Part III, paragraph C.2, because you raised “issues that have already been the subject of NRC staff review and evaluation either on that facility, other similar facilities, or on a generic basis, for which a resolution has been achieved, the issues have been resolved, and the resolution is applicable to the facility in question.”

The jet pumps are designed and built to withstand a seismic event. As stated in the licensee’s FSAR Chapter 3.9.2.2.2, “Seismic and Hydrodynamic Load Qualification of Specific Nuclear Steam Supply System Mechanical Components,” “a dynamic analysis of the jet pumps was performed and the resulting stresses were below the design allowable” (ADAMS Accession No. ML14010A297).

If flaws are found during BWRVIP program inspections, a flaw evaluation must be performed. For jet pump assemblies, methods for flaw evaluations are contained in topical report BWRVIP-41, Revision 3, “BWR Vessel and Internals Project, BWR Jet Pump Assembly Inspection and Flaw Evaluation Guidelines,” dated September 10, 2010. These evaluations predict future growth of a flaw during the time interval to the next inspection. The predicted flaw size at that time is evaluated for structural stability. The crack stability evaluation must consider all the plant-specific design basis loads for the component, as defined in the plant’s FSAR. Current licensing basis (CLB) loads for the jet pump assemblies at CGS include both the operating basis earthquake (OBE) for normal/upset conditions and the safe shutdown earthquake (SSE) for emergency/faulted (accident) conditions. The flaw evaluation performed in accordance with the BWRVIP methods for the flaw in the RS-9 weld is contained in GE-Hitachi Nuclear Energy 001N6043.4-NP, Revision 1, “Energy Northwest Columbia Generating Station Jet Pump 17/18 Riser Evaluation at 106% Rated Core Flow (115 Mlbs/hr [million pounds per hour]),” dated February 2015 (ADAMS Accession No. ML15113A302). The NRC staff reviewed the GE-Hitachi calculation and verified that the flaw evaluation of the flaw in jet pump weld RS-9 considered the appropriate CLB seismic loads, in addition to all other applicable loads for normal, upset, and accident conditions.

The licensee submitted its Seismic Hazard and Screening Report in a letter dated March 12, 2015, which included a seismic hazard and screen evaluation. In a letter dated May 13, 2015 (ADAMS Accession No. ML15113B344), the NRC staff documented its screening and prioritization review of the Seismic Hazard and Screening Reports for the Western United States sites, including CGS, and found, in part, that:

...Licensees have demonstrated seismic margins supportive of continued plant operation while additional risk evaluations are conducted.

The NRC staff further emphasized in a June 4, 2015, public meeting that “the staff notes that Columbia continues to operate safely including consideration of the new seismic hazard information” (ADAMS Accession No. ML15173A273). The staff has already provided its expectations to the licensees on how the seismic hazard reevaluations relate to the licensee’s design basis and the expectations to the licensees if errors in the current licensing basis are identified by licensees during the seismic hazard evaluations. NRC issued a supplemental letter to the operating plants, dated February 20, 2014 (ADAMS Accession No. ML14030A046), which emphasized the staff’s expectations and stated, in part, that:

The staff considers the seismic hazard reevaluations being performed pursuant to the 50.54(f) letter to be distinct from the current design or licensing basis of operating plants...

However, as with any new information that may arise at a plant, licensees are responsible for evaluating and making determinations related to operability, and any associated reportability, on a case-by-case basis. Licensees should consider and disposition the information through their corrective action program or equivalent process. If an error is identified in the current design or licensing basis during the performance of the requested seismic hazard evaluation, the staff expects that licensees would assess the operability of the affected SSC [plant structures, systems, and components].

Therefore, your second request was not accepted for review because it has been the subject of NRC staff review. To find out more information on NRC’s ongoing activities in response to the Fukushima Dai-ichi accident, please visit the following page on the NRC public Web site: <http://www.nrc.gov/reactors/operating/ops-experience/japan-dashboard.html>

Your third request was for the NRC to consider that the “known crack on the RS-9 riser and other cracks that may be forming or may occur in a seismic event, may cause water to drain more rapidly from the reactor vessel in a loss of coolant accident and reduce the ability to cool the reactor adequately to prevent melting.” The NRC staff determined your third request does not meet the criteria for review per MD 8.11 Handbook, Part III, paragraph C.2, because you raised “issues that have already been the subject of NRC staff review and evaluation either on that facility, other similar facilities, or on a generic basis, for which a resolution has been achieved, the issues have been resolved, and the resolution is applicable to the facility in question.”

The postulated worst case loss-of-coolant accident (LOCA), with respect to core cooling, is a recirculation line break with the reactor at full power. During this LOCA, the reactor vessel water level is assumed to decrease rapidly, which leads to the core becoming uncovered. However, during this scenario, there are several systems that automatically provide makeup water to the reactor core within the core shroud. The water level inside the core shroud will increase until it reaches the level of the top of the jet pump mixing sections. The water then spills out of the jet pumps into the annulus area between the core shroud and the reactor vessel wall and out through the broken recirculation line. The jet pump mixing elevation is approximately two-thirds of the height of the core. Therefore, the jet pumps, core shroud, and

the shroud support plate ensure that two-thirds core height coverage can be maintained during a recirculation suction line break. Maintaining the water level at two-thirds of the core height allows the upper one-third of the core height to be cooled by a mixture of steam and water flowing upward because of the boiling in the lower two-thirds of the core. Based on its evaluation of the licensee's April 14, 2015, report, the NRC staff concluded there is no immediate safety concern regarding uncovering the core due to a flaw on a jet pump riser weld because the RS-9 weld flaw on the jet pump riser does not impact the two-thirds core coverage if leakage from the flaw were to occur. This is supported by the licensee's report dated April 14, 2015, which stated, in part, that, "because the crack indication is located on the riser pipe[,] there is no effect on the safety function of the JPs [jet pumps] to maintain 2/3 core coverage." Also, the jet pump assemblies are not part of the reactor coolant pressure boundary and as a result, jet pump failure has no impact on the structural integrity of the reactor coolant pressure boundary. Therefore, jet pump failure will not cause the reactor to depressurize and result in loss of coolant.

Furthermore, jet pump failures are detectable by the plant operators. The CGS technical specifications (TS) include surveillance requirement (SR) 3.4.2.1, that requires the licensee to monitor jet pump flow every 24 hours (ADAMS Accession No. ML053130319). This SR establishes operability requirements for jet pumps based on flow indications matching established patterns. The purpose of SR 3.4.2.1 is to ensure the jet pumps can perform their specified safety function of maintaining two-thirds core coverage. The failure to meet the SR would result in the jet pump being declared inoperable. If the jet pump is declared inoperable, the licensee must shut down the reactor in 12 hours from the period of discovery to ensure that adequate margins of safety are maintained.

If a seismic event were to occur at an operating power reactor, licensees would follow plant-specific procedures to protect the public health and safety. After the seismic event, the NRC staff would follow IP 71153, "Follow-up of Events and Notices of Enforcement Discretion," dated December 5, 2011 (ADAMS Accession No. ML102810102), to evaluate the plant status, degraded conditions, and mitigating actions in order to determine the need for additional NRC inspections at the site. Also, pursuant to 10 CFR Part 100, Appendix A, Section V(a)(2), "Determination of Operating Basis Earthquake":

If vibratory ground motion exceeding that of the Operating Basis Earthquake occurs, shutdown of the nuclear power plant will be required. Prior to resuming operations, the licensee will be required to demonstrate to the Commission that no functional damage has occurred to those features necessary for continued operation without undue risk to the health and safety of the public.

For example, on August 23, 2011, North Anna Power Station, Units 1 and 2 (NAPS), experienced ground motion from a seismic event that exceeded the OBE and design basis earthquakes for NAPS at certain frequencies for a short period of time. The NRC staff performed several inspections onsite and performed an independent technical review of the information submitted by the licensee by utilizing Regulatory Guide 1.167, "Restart of a Nuclear Power Plant Shut Down by a Seismic Event," dated March 1997 (ADAMS Accession No. ML003740093). In a letter dated November 11, 2011, the NRC staff determined that the licensee for NAPS "had acceptably demonstrated that no functional damage has occurred to those features necessary for continued operation, and that NAPS can be operated, without

undue risk to the health and safety of the public” per 10 CFR Part 100, Appendix A, Section V(a)(2) (ADAMS Package Accession No. ML11308B404).

Therefore, your third request was not accepted for review because it has been the subject of NRC staff review.

In your fourth request, you asked the NRC to “allow us the information [proprietary version of the April 14, 2015 report from Energy Northwest] so that the Union of Concerned Scientists and Fairwind Associates can indeed say yes, this is safe.” The NRC staff determined your fourth request does not meet the criteria for review per MD 8.11 Handbook, Part III, paragraph C.2, because “the incoming correspondence does not ask for enforcement-related action or fails to provide sufficient facts to support the petition...” You did not request enforcement action; therefore, your fourth request was not accepted for review.

The proprietary information that you seek has been withheld under 10 CFR 2.390(b)(4) by GE-Hitachi Nuclear Energy. CGS resubmitted the letter on August 13, 2015, with updated proprietary markings (ADAMS Accession No. ML15238A773). In a letter dated September 1, 2015 (ADAMS Accession No. ML15191A360), the NRC reviewed the licensee’s August 13, 2015, submittal, under the requirements of 10 CFR 2.390, “Public inspections, exemptions, requests for withholding,” and, on the basis of the statements in the affidavits, has determined that the submitted information sought to be withheld contains proprietary commercial information. Therefore, the information in the letter marked as proprietary will be withheld from public disclosure pursuant to 10 CFR 2.390(b)(5) and Section 103(b) of the Atomic Energy Action of 1954, as amended. As a result, your fourth request was not accepted for review. The NRC is not the owner of the proprietary information; therefore, to access this information, you must submit a formal, written request to GE-Hitachi Nuclear Energy.

In your fifth request, you asked the NRC to consider “the location of this plant and the fact that it sits in the middle of the Hanford Reservation. The amount of waste that is there not only from the reactor but from the Hanford Reservation itself.” The NRC staff determined your fifth request does not meet the criteria for review per MD 8.11 Handbook, Part III, paragraph C.2, because “the incoming correspondence does not ask for enforcement-related action or fails to provide sufficient facts to support the petition...” You did not request enforcement action nor provide sufficient facts to support your statement about waste produced at CGS; therefore, your fifth request was not accepted for review.


The NRC regulates and monitors the waste generated at CGS. Columbia Generating Station, and all other operating nuclear power plants regulated by the NRC, are required to submit two annual reports which detail (1) the quantity and types of radioactive effluents discharged from the site for the calendar year and (2) the radiological impact that operation of CGS may have on the environment. These reports can be found on the NRC public Web site at <http://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-specific-reports/wash2.html>. These reports are periodically inspected as part of the baseline inspection at each station by NRC staff implementing IP 71124.06, “Radioactive Gaseous and Liquid Effluent Treatment,” IP 71124.07, “Radiological Environmental Monitoring Program”, and IP 71124.08, “Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation” (ADAMS Accession Nos. ML12321A387, ML092190669, and ML092190672, respectively). The results of these inspections are included in inspection reports which are available on the NRC

public Web site. Additionally, per 10 CFR 50.36a(a)(2), the Commission may require the licensee to take action if quantities of radioactive materials released at CGS are significantly above design objectives. The U.S. Department of Energy (DOE) is responsible for regulating the Hanford Reservation; therefore, you must send your requests related to the Hanford Reservation to DOE.

Based on the above, your petition under 10 CFR 2.206 is rejected. This letter closes out your request for a 2.206 petition.

If you have any questions, please contact Margaret Watford at (301) 415-1233 or via e-mail at Margaret.Watford@nrc.gov.

Sincerely,



George A. Wilson, Deputy Director
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. STN 50-397

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Portland, OR 97211

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Oregon and Washington Physicians
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812 SW Washington St., Suite 1050
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public Web site. Additionally, per 10 CFR 50.36a(a)(2), the Commission may require the licensee to take action if quantities of radioactive materials released at CGS are significantly above design objectives. The U.S. Department of Energy (DOE) is responsible for regulating the Hanford Reservation; therefore, you must send your requests related to the Hanford Reservation to DOE.

Based on the above, your petition under 10 CFR 2.206 is rejected. This letter closes out your request for a 2.206 petition.

If you have any questions, please contact Margaret Watford at (301) 415-1233 or via e-mail at Margaret.Watford@nrc.gov.

Sincerely,
/RA/
George A. Wilson, Deputy Director
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. STN 50-397

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OFFICE	NRR/DORL/LPLIV-1/PM	NRR/DORL/LPLIV-1/LA	NRR/DORL/LPLIV-1/BC	NRR/DORL/DD
NAME	MWatford	JBurkhardt	RPascarelli	GWilson
DATE	12/14/2015	12/14/2015	12/15/2015	12/17/2015

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Sent identical letters on December 17, 2015

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