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September 30, 2004
GO2-04-170

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: **COLUMBIA GENERATING STATION**
DOCKET NO. 50-397
LICENSE AMENDMENT REQUEST -- ALTERNATIVE SOURCE TERM

References:

1. Letter GO2-01-156, dated December 3, 2001, RL Webring (Energy Northwest) to NRC, "License Amendment Request – Alternative Source Term"
2. Letter GO2-02-188, dated November 20, 2002, DK Atkinson (Energy Northwest) to NRC, "Withdrawal of Alternative Source Term License Amendment Request"
3. Letter GO2-89-176, dated September 29, 1989, GC Sorensen (Washington Public Power Supply System) to NRC, "Unreviewed Safety Question Regarding Standby Gas Treatment"
4. Letter GI-90-009, dated January 3, 1990, RB Samworth (NRC) to GC Sorensen (Washington Public Power Supply System), "Evaluation of JCO Regarding Standby Gas Treatment System Attainment of Secondary Containment Pressure"
5. Letter GO2-96-199, dated October 15, 1996, PR Bemis (Washington Public Power Supply System) to NRC, "Request for Amendment to Secondary Containment and Standby Gas Treatment System Technical Specifications"
6. Letter GO2-99-133, dated July 16, 1999, RL Webring (Energy Northwest) to NRC, "Withdrawal of Request for Amendment to Secondary Containment and Standby Gas Treatment System Technical Specifications"
7. Letter GO2-01-116, dated August 16, 2001, RL Webring (Energy Northwest) to NRC, "Resubmittal Plan - Request for Amendment to Secondary Containment and Standby Gas Treatment System Technical Specifications"
8. Letter GO2-02-135, dated August 27, 2002, RL Webring (Energy Northwest) to NRC, "Revised Request for Amendment on the Alternative Source Term"
9. Letter dated November 1, 1999, WD Beckner (NRC) to J Davis (NEI), "Changes to the Standard Technical Specification NUREGs"
10. Letter dated February 12, 2003, AS Bhatnagar (Tennessee Valley Authority), to NRC, "Browns Ferry Nuclear Power Plant (BFN) – Units 1, 2, and 3 – Technical Specifications (TS) Change 405 Supplement 1 – Decay Time (TAC Nos. MB5733, MB5734, MB5735)"

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References: (continued)
11. Letter GO2-00-202, dated December 6, 2000, RL Webring (Energy Northwest) to NRC, "Licensee Event Report No. 2000-006-01"
12. NRC Generic Letter 2003-01, "Control Room Habitability," dated June 12, 2003
13. Letter GO2-03-127, dated August 11, 2003, DK Atkinson (Energy Northwest) to NRC, "60-day Response to Generic Letter 2003-01 Control Room Habitability"

Dear Sir or Madam:

Pursuant to 10 CFR 50.67 and 10 CFR 50.90, Energy Northwest hereby requests an amendment to the Columbia Generating Station (Columbia) Operating License, NPF-21. This request is similar to a previous request (Reference 1) that was subsequently withdrawn (Reference 2). Specifically, Energy Northwest requests a revision to the licensing and design bases to reflect the application of the alternative source term (AST) methodology with an exception. That exception is TID-14844, "Calculation of Distance Factors for Power and Test Reactor Sites," will continue to be used as the radiation dose basis for equipment qualification, and radiation zone maps/shielding calculations.

On December 23, 1999, the NRC published 10 CFR 50.67, "Accident Source Term," in the Federal Register. This regulation provides a mechanism for licensed power reactors to replace the traditional source term used in design basis accident (DBA) analyses with the AST. The direction provided in 10 CFR 50.67 is that licensees who seek to revise their current accident source term in design basis radiological consequences analyses should apply for a license amendment under 10 CFR 50.90.

Regulatory guidance for the implementation of the AST is provided in Regulatory Guide (RG) 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," dated July 2000. This RG provides guidance to licensees of operating nuclear plants on acceptable applications of AST. The use of the AST changes only the regulatory assumptions regarding the analytical treatment of design basis radiological consequence analyses.

The AST analyses for Columbia were performed following the guidance in RG 1.183 and Standard Review Plan Section 15.0.1, "Radiological Consequence Analyses Using Alternative Source Terms." The analyses cover the Control Rod Drop Accident (CRDA), the Fuel Handling Accident (FHA), the Loss of Coolant Accident (LOCA), and the Main Steam Line Break (MSLB).

The proposed changes to the current licensing and design basis for Columbia include:

- Revisions to several Technical Specifications (TS) and associated Bases to reflect implementation of AST methodology.
- The deletion of the main steam leakage control (MSLC) system TS and associated Bases.
- Revision to increase the allowable TS leakage for the main steam isolation valves (MSIVs).

- Revisions to standby gas treatment (SGT) system TS and associated Bases to resolve a Justification for Continued Operation (JCO) regarding secondary containment drawdown time (References 3, 4, 5, 6 and 7).

- Revisions to Primary Containment Isolation Valves TS and associated Bases to increase allowable secondary containment bypass leakage.

- Revisions to several TS and associated Bases to reflect that secondary containment, the SGT system, control room emergency filtration (CREF) system and specific AC and DC power sources are no longer required during movement of irradiated fuel assemblies or during core alterations (Reference 8, 9, and 10). This change includes the creation of a new Decay Time TS.

- Revision to the licensing basis to increase the allowable amount of unfiltered inleakage into the control room (CR) based upon the performance of tracer gas tests (References 11, 12 and 13).

- New offsite and CR atmospheric dispersion factors (χ/Qs) based on site-specific meteorological data collected between 1996 and 1999.

- Crediting the standby liquid control (SLC) system for buffering the suppression pool pH to prevent iodine re-evolution during a postulated LOCA.

- Crediting the residual heat removal drywell spray system post-LOCA for scrubbing inorganic iodine and particulates from the drywell atmosphere to the suppression pool.

- Crediting the residual heat removal drywell spray post-LOCA for analytical assumptions regarding drywell leakage.

- Revision to the TS and Bases relative to the depth of water maintained above a fuel assembly during the movement of fuel above the reactor vessel.

Additional information is attached to this letter to support the NRC review and approval of the proposed TS changes. Changes to the TS Bases are provided for information. The changes to the TS Bases and Columbia Final Safety Analysis Report (FSAR) will be performed by Energy Northwest upon NRC approval of the proposed TS changes. Attachment 1 provides a description and an assessment of the proposed changes. Attachment 2 provides a comparison of the Columbia analysis methods and assumptions with RG 1.183. Attachment 3 provides marked-up pages of the TS showing the proposed changes. Attachment 4 provides marked-up pages of the TS Bases associated with this proposed change. Attachment 5 provides non-proprietary versions of select supporting calculations, and Attachment 6 provides the proprietary versions of these calculations. Energy Northwest requests that Attachment 6 be withheld from public disclosure in accordance with 10 CFR 2.390(b). Attachment 7 provides a list of regulatory commitments made in this submittal.

Energy Northwest has concluded that changes proposed in this letter do not result in a significant hazards consideration. The changes proposed in this letter have also been evaluated using the identification criteria for licensing and regulatory actions requiring an environmental assessment as specified in 10 CFR 51.21. The proposed amendment meets the eligibility criteria for a categorical exclusion as set forth in 10 CFR 51.22. Therefore, an environmental assessment of the proposed change is not required.

This amendment request has been reviewed and approved by the Columbia Plant Operations Committee and the Energy Northwest Corporate Nuclear Safety Review Board. In accordance with 10 CFR 50.91, the State of Washington has been provided a copy of this letter.

Energy Northwest requests the review and approval of this license amendment by October 2005. An implementation period of 120 days is also requested. Should you have any questions or desire additional information pertaining to this matter, please call Doug Coleman at (509) 377-4342.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on September 30, 2004.

Respectfully,

DK Atkinson
Vice President, Technical Services
Mail Drop PE08

Attachments:
1. Description and Assessment
2. Regulatory Guide 1.183 Comparison Matrix
3. Proposed Technical Specification Changes (marked up)
4. Proposed Technical Specification Bases Changes (marked up)
5. Non-proprietary versions of Supporting Calculations
6. Proprietary versions of Supporting Calculations Including Affidavit for Withholding Proprietary Information
7. List of Regulatory Commitments

cc: BS Mallett - NRC – RIV (w/o Attch. 6)
WA Macon - NRC – NRR (w/o Attch. 6)
NRC Sr. Resident Inspector - 988C (w/o Attch. 5 & 6)
RN Sherman - BPA/1399 (w/o Attch. 5 & 6)
TC Poindexter - Winston & Strawn (w/o Attch. 5 & 6)
JO Luce – EFSEC (w/o Attch. 5 & 6)
RR Cowley – WDOH (w/o Attch. 5 & 6)

Polestar Applied Technology, Inc.

AFFIDAVIT

I, David E.W. Leaver, being duly sworn, depose and state as follows:

(1) I am a Principal and an Officer of Polestar Applied Technology, Inc. ("Polestar") and am responsible for the function of reviewing the information described in paragraphs (2) and (8) which is sought to be withheld, and have been authorized to apply for its withholding.

(2) The information sought to be withheld is contained in portions of Polestar-prepared reports NE-02-04-05 and NE-02-03-15 (see paragraph (8)). These reports have been prepared for Energy Northwest, Inc. in support of an Energy Northwest submittal to NRC on alternate source term (AST). The Polestar reports address DBA-LOCA dose and post-accident sump pH, at the Columbia Generating Station.

(3) In making this application for withholding of proprietary information of which it is the owner, Polestar relies upon the exemption from disclosure set forth in the NRC regulations 10 CFR 9.17(a)(4), 2.790(a)(4), and 2.790(d)(1) for "trade secrets and commercial or financial information obtained from a person and privileged or confidential" (Exemption 2.790(a)(4)). The material for which exemption from disclosure is here sought is all "confidential commercial information".

(4) Some examples of categories of information which fit into the definition of proprietary information are:

a. Information that discloses a process or method, including supporting data and analyses, where prevention of its use by Polestar's competitors without license from Polestar constitutes a competitive economic advantage over other companies.

b. Information which, if used by a competitor, would significantly reduce his expenditure of resources or improve his competitive position in the analysis, design, assurance of quality, or licensing of a similar product;

c. Information which reveals cost or price information, production capacities, budget levels, or commercial strategies of Polestar, its customers, or its suppliers;

d. Information which reveals aspects of past, present, or future Polestar customer-funded development plans and programs, of potential commercial value to Polestar;

e. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information sought to be withheld is considered to be proprietary for the reasons set forth in both paragraphs (4)a and (4)b, above.

(5) The information sought to be withheld was submitted to Energy Northwest (and, we trust, to NRC) in confidence. The information is of a sort customarily held in confidence by Polestar, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by Polestar, no public disclosure has been made, and it is not available in public sources. All disclosures to third parties including any required transmittals to NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements which provide for maintenance of the information in confidence. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.

(6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge. Distribution of such documents within Polestar is limited to those with a need to know.

(7) The approval of external release of such a document typically requires review by the project manager, and the Polestar Principal closest to the work, for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside Polestar are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.

(8) The information identified in paragraph (2), above, is classified as proprietary because it contains detailed information on and results from trade secret methodologies developed by Polestar and applied under the Polestar 10 CFR 50, Appendix B Quality Assurance Program. The trade secret information is identified in [[double bold brackets]] in the calculations. Specifically:

APPLICATION TO LOCA CALCULATION, NE-02-04-05:

page 5.11 and Attachment 1, page ATT1-1 through ATT1-5, ATT1-7 through ATT1-10 - dealing with Polestar understanding of coverage, fall height, and impingement issues related to credit for drywell sprays.

pages 5.14 and 5.15 – dealing with knowledge of how aerosol deposition velocities in downstream control volumes would be affected by drywell sprays.

page ATT3-14 though ATT3-16 – dealing with a means for providing independent confirmation of MicroShield results for geometry related to control room filters

APPLICATION TO pH CALCULATION, NE-02-03-15:

page 5.0 – dealing with Assumptions 1 and 2 related to Polestar modeling of activity being retained in the drywell as opposed to being transferred to the pool and overall conservatism in nitric acid production.

page 5.1 through 5.6 and one place on page F-1 – dealing with Assumptions 4, 5, 6, 7, 8, and 9 related to (1) Polestar's knowledge of cesium chemistry and alternative chemical forms (i.e., other than CsOH), (2) Polestar's modeling of gamma radiation incident on cables inside containment, and (3) the effect of sodium pentaborate plateout on hot surfaces, (4) a defense of the G value for nitric acid production for inerted containments, (5) the manner in which Polestar considers beta radiation from deposited activity, (6) the manner in which Polestar considers gamma radiation generated in the core debris.

pages 5.9 through 5.11 – dealing with the STARpH code beta and gamma radiation absorption modeling, including Hypalon equivalents for Neoprene.

pages 5.11 through 5.12 and one place on 5.13 - explaining Polestar's approach to combining H+ from initial pH, HI, nitric acid, and hydrochloric acid as well as consideration of cesium compounds.

page 5.12 – a description of Polestar's approach for treating temperature variations in K_a.

page G-1 – explaining the operation of Polestar's STARpH model

The trade secrets used in this Columbia Generating Station work are several of a number of Polestar developed methods, models, and codes. Development of these methods, models, and codes was achieved at a significant cost to Polestar, well over $100,000, which is a significant fraction of internal research and development resources available to a company the size of Polestar.

The development of the methods, models and codes, along with the interpretation and application of the results, is derived from the extensive experience database that constitutes a major Polestar asset.

(9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to Polestar's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of Polestar's comprehensive technology base on application of the AST to operating plants and advanced light water reactors, and its commercial value extends beyond the original development cost. The value of the technology base goes beyond the extensive physical database and analytical methodology and includes development of the expertise to determine and apply the appropriate evaluation process. In addition, the technology base includes the value derived from providing analyses done with methods which have been developed and are being maintained in accordance with 10 CFR 50, Appendix B requirements.

The research, development, engineering, analytical and review costs comprise a substantial investment of time and money by Polestar.

The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

Polestar's competitive advantage will be lost if its competitors are able to use the results of the Polestar experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions.

The value of this information to Polestar would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive Polestar of the opportunity to exercise its competitive advantage to seek an adequate return on its relatively large investment in developing these very valuable analytical tools.

STATE OF CALIFORNIA)
) ss:
COUNTY OF SANTA CLARA)

David E.W. Leaver, is being duly sworn, deposes and says:

That he has read the foregoing affidavit and the matters stated therein are true and correct to the best of his knowledge, information, and belief.

Executed at Los Altos, California, this 21st day of September 2004.

David E.W. Leaver
Polestar Applied Technology, Inc.

Subscribed and sworn before me this 21st day of September 2004.

RUTH TUBBS
Commission # 1439944
Notary Public - California
Santa Clara County
My Comm. Expires Oct 8, 2007

Notary Public, State of California