Entergy

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October 10, 2003
BVY 03-92

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

Subject: **Vermont Yankee Nuclear Power Station**
License No. DPR-28 (Docket No. 50-271)
Technical Specification Proposed Change No. 262 - Supplement No. 1
Alternative Source Term

By letter[1] dated July 31, 2003, Vermont Yankee[2] (VY) proposed to amend Facility Operating License DPR-28 for the Vermont Yankee Nuclear Power Station (VYNPS) by incorporating an Alternative Source Term (AST) methodology into the facility's licensing basis. The license amendment request (LAR) was prepared in accordance with applicable regulatory guidance, and the analyses performed using the AST demonstrate that postulated accident consequences meet regulatory acceptance limits.

As a result of initial reviews, VY is superceding portions of the July 31, 2003 LAR. The LAR is hereby revised to incorporate the attached documents, which provide a one-for-one replacement of certain originally submitted documents. Specifically, Attachment 1 provides a revised No Significant Hazards Consideration; Attachment 2 provides a revised affidavit from Polestar Applied Technology, Inc. (Polestar) regarding proprietary calculations; and, Attachment 3 provides replacement calculations (i.e., calculations numbered PSAT 3019CF.QA.04, 06, 08, and 09). These replacement calculations are being submitted to correct administrative errors and not technical content. Note that three of the four calculations (i.e., calculations PSAT 3019CF.QA.04, 08, and 09) are considered proprietary information to Polestar and are marked accordingly to ensure proper handling. The non-proprietary versions of these three calculations are unchanged and remain as originally submitted. Each of the attached documents supercedes its corresponding counterpart in its entirety; however, the remainder of the LAR is unaffected.

This supplement to the LAR does not change the scope or conclusions in the original application. If you have any questions in this regard, please contact Mr. Jim Devincentis at (802) 258-4236.

[1] Vermont Yankee letter to U.S. Nuclear Regulatory Commission, "Alternative Source Term," Proposed Change No. 262, BVY 03-70, July 31, 2003.

[2] Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. are the licensees of the Vermont Yankee Nuclear Power Station.

A P01

Sincerely,

Jay K. Thayer
Site Vice President

STATE OF VERMONT)
)ss
WINDHAM COUNTY)

Then personally appeared before me, Jay K. Thayer, who, being duly sworn, did state that he is Site Vice President of the Vermont Yankee Nuclear Power Station, that he is duly authorized to execute and file the foregoing document, and that the statements therein are true to the best of his knowledge and belief.

Sally A. Sandstrum, Notary Public
My Commission Expires February 10, 2007

SALLY A. SANDSTRUM NOTARY PUBLIC WINDHAM COUNTY, VERMONT

Attachments

cc:

USNRC Region 1 Administrator (cover letter only)
USNRC Resident Inspector – VYNPS (cover letter only)
USNRC Project Manager – VYNPS (with attachments)
Vermont Department of Public Service (excluding proprietary information)

Docket No. 50-271
BVY 03-92

Attachment 1

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 262

Supplement No. 1

Alternative Source Term

No Significant Hazards Consideration

Description of amendment request:

Vermont Yankee (VY) is proposing to amend the operating license for the Vermont Yankee Nuclear Power Station by revising the Technical Specifications and incorporating an alternative source term (AST) methodology into the facility's licensing basis. The proposed license amendment involves a full implementation of an AST methodology by revising the current accident source term and replacing it with an AST, as prescribed in 10CFR50.67.

AST analyses were performed using the guidance provided by Regulatory Guide 1.183, "Alternative Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," dated July 2000, and Standard Review Plan Section 15.0.1, "Radiological Consequences Analyses Using Alternative Source Terms." The four limiting design basis accidents (DBAs) considered were the Control Rod Drop Accident, the Refueling Accident, the Loss of Coolant Accident, and the Main Steam Line Break Accident. As a result of the application of a revised accident source term, changes to the TS which revise the definition of dose equivalent I-131, revise the requirements of the primary containment leakage rate test program, and revise the standby gas treatment system required flow rate are proposed. Conforming changes would also be made to TS Bases. In addition, VY is concurrently requesting an exemption to certain requirements of Sections III.A and III.B of 10CFR50, Appendix J, Option B regarding the primary containment leakage rate testing program.

Basis for No Significant Hazards Determination:

Pursuant to 10CFR50.92, VY has reviewed the proposed change and concludes that the change does not involve a significant hazards consideration since the proposed change satisfies the criteria in 10CFR50.92(c). These criteria require that the operation of the facility in accordance with the proposed amendment will not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the possibility of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety. The discussion below addresses each of these criteria and demonstrates that the proposed amendment does not constitute a significant hazard.

1. Will the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?

   Adoption of the AST and those plant systems affected by implementation of the AST do not initiate DBAs. The proposed change does not affect the design or manner in which the facility is operated; rather, once the occurrence of an accident has been postulated, the new accident source term is an input to analyses that evaluate the radiological consequences. Therefore, the proposed change does not involve an increase in the probability of an accident previously evaluated.

   The structures, systems and components (SSCs) affected by the proposed change act as mitigators to the consequences of accidents. Based on the revised analyses, the proposed changes do revise certain performance requirements; however, the proposed changes do not involve a revision to the parameters or conditions that could contribute to the initiation of a design basis accident discussed in Chapter 14 of the Updated Final Safety Analysis Report.

   Because of the changed methodology, it is difficult to draw a quantitative comparison of before and after accident consequences due to the use of different dose calculations,

conversion factors, source term, and other assumptions. However qualitatively, it can be shown that there is no significant increase in offsite doses, although there may be small variations in potential doses for postulated accidents. Plant-specific radiological analyses have been performed using the AST methodology. Based on the results of these analyses, it has been demonstrated that the dose consequences of the limiting events considered in the analyses meet the regulatory guidance provided for use with the AST, and the offsite doses are well within acceptable limits. This guidance is presented in 10CFR50.67, Regulatory Guide 1.183, and Standard Review Plan (SRP) Section 15.0.1.

Therefore, the proposed amendment does not result in a significant increase in the consequences or increase the probability of any previously evaluated accident.

2. Will the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?

Implementation of AST and the proposed changes does not alter or involve any design basis accident initiators. These changes do not affect the design function or mode of operations of SSCs in the facility prior to a postulated accident. Since SSCs are operated essentially no differently after the AST implementation, no new failure modes are created by this proposed change.

Therefore, the proposed license amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Will the proposed changes involve a significant reduction in a margin of safety?

The changes proposed are associated with a revision to the licensing basis for the VYNPS. Approval of the licensing basis change from the original source term to the alternative source term is requested by this application for a license amendment. The results of the accident analyses revised in support of the proposed change are subject to the acceptance criteria in 10CFR50.67. The analyzed events have been carefully selected, and the analyses supporting these changes have been performed using approved methodologies to ensure that analyzed events are bounding and safety margin has not been reduced. The dose consequences of these limiting events are within the acceptance criteria presented in 10CFR50.67, Regulatory Guide 1.183, and SRP 15.0.1. Thus, by meeting the applicable regulatory limits for AST, there is no significant reduction in a margin of safety.

Therefore, because the proposed changes continue to result in dose consequences within the applicable regulatory limits, the changes are considered to not result in a significant reduction in a margin of safety.

Conclusion

On the basis of the above, VY has determined that operation of the facility in accordance with the proposed change does not involve a significant hazards consideration as defined in 10CFR50.92(c), in that it: (1) does not involve a significant increase in the probability or consequences of an accident previously evaluated; (2) does not create the possibility of a new or different kind of accident from any accident previously evaluated; and (3) does not involve a significant reduction in a margin of safety.

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Attachment 2

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 262

Supplement No. 1

Alternative Source Term

Affidavit – Polestar Applied Technology, Inc.

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 reports PSAT 3019CF.QA.04, PSAT 3019CF.QA.08, PSAT 3019CF.QA.09 (see paragraph (8)). These reports are being prepared for Entergy Nuclear Operations, Inc. in support of an Entergy submittal to NRC on alternate source term (AST). The Polestar reports address post-accident sump pH, DBA-LOCA dose, and vital area access at the Vermont Yankee Nuclear Power 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 is being submitted to Entergy (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:

- PSAT 3019CF.QA.04, page 1 - Cover page designation of this calculation as proprietary;
- PSAT 3019CF.QA.04, page 4 - Polestar has developed unique insights on why and under what circumstances organic acid from paints can be negelcted;

- PSAT 3019CF.QA.04, page 5 and 6 - Polestar has developed unique insights on why and under what circumstances the BWR suppression pool temperature effect on pH can be neglected;
- PSAT 3019CF.QA.04, page 7 - Polestar has developed unique insights on the effect of cesium on unbuffered pH early in the accident;
- PSAT 3019CF.QA.04, page 8 - Several references (8,12,14,,17,18,21) have been bracketed since the fact that the data or models in these references are used in the post-accident pH calculation, and where and how they are used, represents a significant insight as to the methodology itself;
- PSAT 3019CF.QA.04, page 11 - 14 - Polestar has developed unique insights as to calculation of the conversion factors for HCl generation from chloride bearing cable insulation in a radiation environment
- PSAT 3019CF.QA.04, page 15 - Polestar has developed unique insights regarding boron buffer dissociation constant and starting pH, and regarding the cesium impact and timing of buffering early in the accident;
- PSAT 3019CF.QA.04, pages 16 - 19 - These pages contain the detailed input and output of the Polestar proprietary software STARpH which is used to apply the Polestar pH methodology for QA calculations
- PSAT 3019CF.QA.08, page 1 - Cover page designation of this calculation as proprietary;
- PSAT 3019CF.QA.08, pages 7 - 8 - Polestar has developed unique insights on iodine revolution in steam lines
- PSAT 3019CF.QA.08, pages 23 - 24 - Polestar has developed unique insights with respect to spray application to BWR drywell sprays
- PSAT 3019CF.QA.08, Appendix A, pages A1 to A18 - - Polestar has developed unique insights with respect to methods for modifying the AEB-98-03 sedimentation velocity considering upstream sprayed control volume
- PSAT 3019CF.QA.09, page 1 - Cover page designation of this calculation as proprietary;
- PSAT 3019CF.QA.09, page 8 - 22 - Polestar has developed unique insights with respect to the impact of AST on vital area access analysis;

The trade secrets used in this Vermont Yankee 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 24th day of September 2003.

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

Subscribed and sworn before me this 24th day of September 2003.

RUTH TUBBS
Commission # 1234269
Notary Public - California
Santa Clara County
My Comm. Expires Oct 8, 2003

Notary Public, State of California