

April 13, 1982
SM 3391



Mr. Robert L. Tedesco
Assistant Director for Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Seabrook Station
Probabilistic Risk Assessment

Dear Mr. Tedesco:

In accordance with our previously announced plans, PSNH has contracted with Pickard, Lowe and Garrick to perform a PRA for Seabrook Station. The program which started April 12, 1982 is planned to meet three milestone dates as follows:

- Phase I - Management Plan and Overview - August 1, 1982
- Phase II - Risk and Consequence Assessment Preliminary
Report - March 31, 1983
- Phase III - Evaluation of Risk and Final Report - October 31, 1983

The PRA will be full-scope and site-specific. We have a particular goal to present the results in a way that they will be useful to public understanding as well as in future risk management. The work is planned to be organized in seven tasks which are briefly described on the attached sheets.

I wish to emphasize that this PRA has as a specific goal enhancement of public understanding and acceptance of Seabrook Station. To that end we will be considering advice on content and presentation of results from various sources. We are committed to making the assessment Phase I and final report available to the NRC and the public.

Very truly yours,

Bruce B. Beckley
Bruce B. Beckley
Manager of Nuclear Projects

BBB:jsl

Attachment

Boo!
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Task 1 - Management Study

Perform a management study to (1) define how the Probabilistic Safety Assessment may be used during operating license board hearings, for decision management, to improve plant availability, to enhance plant staff training, to enhance emergency procedure development, (2) define utility expertise and manpower requirements to support the above, (3) implement the results of the management study into the overall program plan to ensure that the detailed specification of work is optimized, and (4) better define the support required within and external to the utility for this study.

Task 2 - Data, Systems, and Event Sequence Analyses

- . Develop a data base for the Seabrook plant-specific evaluation of initiating events, components, and so forth.
- . Identify events and develop the plant response to each event initiator. Define sequence-dependent success criteria. Develop event tree models.
- . Perform systems analyses and develop fault trees to quantify system unavailabilities corresponding to the event tree needs.
- . In both event tree and fault tree development, incorporate the influence of plant operations personnel on equipment availability and response to each postulated sequence.
- . Quantify the frequency of each potential plant damage state and determine the dominant sequences leading to each state.

Task 3 - Plant-Specific Containment Analysis

- . Analyze in-vessel and ex-vessel phenomena.
- . Define the plant-specific potential modes of containment failure and determine the containment capacities for prominent failure categories. Define release categories and source term for each. The impact of the main coolant system and containments (primary and secondary) on source term must be analyzed.
- . Develop and quantify plant-specific containment event trees which result in appropriate release categories.

Task 4 - Other Internal and External Events

Screen, evaluate, and if appropriate, quantify the frequencies of potential plant damage states and release categories for other events such as:

- . Earthquakes
- . Fire
- . Internal Flooding
- . External Flooding
- . Wind and Tornadoes
- . Aircraft Accident
- . Hazardous Chemical Release
- . Turbine Missiles

Task 5 - Consequence Analysis

- . Review ocean and terrain features, and determine the extent that these need to be modeled in the consequence analysis.
- . Review permanent and transient population distributions for the region surrounding the plant and model these data in the consequence quantification.
- . Review regional emergency evacuation plans and routes and develop a model for their incorporation into the consequence analysis.

The above site-specific information should be included in a comprehensive consequence analysis which determines the health and economic impacts for all release categories defined. The sensitivity of these impacts to evacuation and/or sheltering assumptions must be included.

Task 6 - Risk Analysis

- . Integrate the information developed in Tasks 1 through 5 and develop a statement of risk quantitatively for the Seabrook Station.
- . This integration should include a suitable display of the results. Frequencies of the dominant sequences, complementary cumulative distribution functions, and distributions reflecting the confidence levels are required.
- . Damage levels ranked according to event initiators and system performance should include those typically considered in Probabilistic Safety Assessments.
- . Prepare risk comparisons to manmade and natural hazards including local hazards.

Task 7 - Final Report

- . Document the methodology, assumptions, analyses, and results of the risk assessment. The report must be scrutable and prepared in a form suitable for technical peer review, regulatory review, and public review.
- . Compare the results of this assessment with other similar efforts accounting for the key differences in methodology, plant, site, and treatment of uncertainty.