ENCLOSURE 1

SUPPLEMENTAL SAFETY EVALUATION REPORT
SEABROOK NUCLEAR STATION
FSAR AMENDMENT 62
DOCKET NO. 50-443

1. "Amendment 62 incorporates the current revision of FSAR figures as of December 31, 1988. Those figures that were based on United Engineers and Constructors (UE&C) Piping and Instrumentation Diagrams (P&ID) have been replaced by an equivalent NHY figure (based on NHY P&IDs). The transition from UE&C P&ID's to NHY P&ID's was accomplished in 1986. NRC Region I staff's review of the P&ID replacement effort and the incorporation of the applicable replacement figure in the FSAR is documented in NRC Inspection Report 50-443/87-20 item 4b dated April 10, 1987."

   The Mechanical Engineering Branch (EMEB) has reviewed this revision item and finds that for those items which EMEB has responsibility, the proposed changes are editorial in nature and are acceptable.

   The Instrumentation and Control Systems Branch (SICB) was not able to perform a detailed review of the amendment package covering the P&ID replacement due to insufficient information. Since this aspect has been previously reviewed by Region I and is only a transition process rather than a technical design change, we believe, with reasonable assurance, that this transitional drawing change maintains the original design and is in compliance with previous staff SERs on this subject. Therefore, the transitional drawing change is acceptable.

2. "FSAR Section 1.9.1 regarding TMI Task III.D.1.1, Primary Coolant Outside Containment", was revised to reflect leak rate measurement data, satisfying License Condition 2.C.9 of the fuel load license, previously submitted via NHY letter NYN-87033 dated March 16, 1987. FSAR Section 1.9.1 regarding TMI Task II.B.3, "Postaccident Sampling," was revised to reflect criterion 10 analysis methods previously submitted in NHY letter NYN-88037 dated March 30, 1988."

   The Plant Systems Branch (SPLB) has completed its review of FSAR Section 1.9.1 regarding TMI Task III.D.1.1 and the reference NHY letter NYN-87033 dated March 16, 1987. The SPLB notes that in SSER#8 we have concluded this to be acceptable.

   The Materials and Chemical Engineering Branch's (EMTB) review of FSAR Section 1.9.1 regarding TMI Task II.B.3, "Post Accidents Sampling System" found that the licensee letter dated March 30, 1988 provided additional information on a new method for boron analysis by Mannitol titration to meet Criterion 10 of Item II.B.3 in NUREG-0737. The staff concluded in SSER #8 that the new method for performing post-accident boron analysis meets the accuracy, range and sensitivity provisions of Criterion 10 and is, therefore, acceptable. FSAR Amendment 62 is now consistent with SSER #8.

3. "FSAR Section 2.3.1.2 was revised and Tables added to reflect the updated meteorological database and parameters assumed in the analysis of Ultimate Heat Sink (cooling tower) performance. FSAR Section 2.3.3.3 concerning the onsite meteorological measurement operational program was revised to reflect the transfer of the meteorological data archiving to the main plant computer. FSAR Section 2.4.1.3 regarding groundwater monitoring was revised to reflect information contained in the Seabrook Station Technical Specifications and the Offsite Dose Calculation Manual (ODCM) previously submitted by letters SBN-954 dated March 3, 1986, and SBN-1122 dated June 17, 1986."

   The Radiation Protection Branch (PRPB) has reviewed this item and found that the changes in Sections 2.3.1 relate to the meteorological parameters affecting the operation of the Seabrook plant's ultimate heat sink. The use of long term meteorology records from the nearby Pease Air Force Base for determining the effectiveness of the ultimate heat sink is acceptable. Similarly, the tornado and waterspout considerations discussed in Amendment 62 were reviewed and found acceptable.

4. "FSAR Section 6.8.3, Tables 3.9(B)-22, 23, 25 and Table 6.2-83 were revised to reflect main steam isolation valve and equivalent valve failure mode designations and their testing requirements as specified in the Inservice Testing (IST) program. The FSAR changes satisfy comments from a 1987 meeting with the NRC Resident Inspector documented in PSNH letter CE-88-001 dated January 6, 1988, and provide consistency with the Inservice Testing Program previously submitted via letters SBN-1086 dated June 4, 1986."

   The Plant Systems Branch (SPLB) has reviewed this revision and concluded that the revisions made by the licensee in FSAR Amendment 62 are minor in nature and do not alter the staff's previous descriptions, evaluations, and conclusions provided in the original Seabrook SER or its supplements.

5. "FSAR Section 4.2.4.2f regarding quality process control was revised to reflect Westinghouse process controls exercised during fuel manufacturing reflecting recommendations per Westinghouse letter NAH-3256 dated June 2, 1987."

   The Reactor Systems Branch (SRXB) has reviewed this item and found that FSAR section 4.2.4.2f, pages 4.2-34 and 4.2-35 were changed as recommended by Westinghouse to reflect actual Westinghouse processes (Westinghouse NAH-3256 dated June 2, 1987). However, in the next FSAR update, the process description should be made consistent with other recent Westinghouse documentation and any differences should be resolved. Thus, the revisions are acceptable.

6. "FSAR Section 4.4.6.4 regarding the Loose Parts Monitoring System compliance with RG 1.133 Position C.4.(a) was revised to reflect commitments previously submitted in PSNH letter SBN-845 dated July 26, 1985, and noted in SSER No. 5, Section 4.4.5.3."

   The Reactor Systems Branch (SRXB) reviewed this revision. They found that the FSAR Section 4.4.6.4, pages 4.4-37d, and 4.4-37e provide acceptable descriptive information regarding installation.

7. "FSAR Table 6.2-B3 regarding containment isolation valve stroke times was revised to reflect the Inservice Testing Program exemptions approved in SSER No. 6, Appendix S, Section 3.2.3, based on previously submitted information via letters SBN-1086 dated June 4, 1986, SBN-1123 dated June 16, 1986, SBN-1136 dated June 23, 1986, and SBN-1145 dated June 25, 1986."

The Mechanical Engineering Branch (EMEB) and the Plant Systems Branch (SPLB) have completed the review of this revision. The SPLB finds that the revisions are minor and do not alter the staff's previous conclusions provided in the original Seabrook SER or its supplements. The EMEB's review finds that the proposed changes are editorial in nature and are acceptable.

8. "FSAR Section 6.3.2, Tables 6.3-7, 10 and 16.3-2 were revised to reflect changes regarding consistency of ESF response times with refueling water storage tank (RWST) and volume control tank (VCT) valve sequencing and interlock logic for the steam line break accident analysis. The changes reflect recommendations per Westinghouse letter NAH-3245 dated April 15, 1987, to ensure consistency between safety analysis assumptions, technical specification requirements and expected delivery times for the contents of the RWST."

The Reactor Systems Branch has reviewed this item and found that FSAR Section 6.3.2, pages 6.3-18a and Tables 6.3-, 6.3-10, and 16.3-2, were changed to be consistent with opening of a refueling water storage tank (RWST) valve followed by closing of a volume control tank (VCT) valve and other minor timing changes. The overall change is less than 20 seconds. The major potential impact is upon the steam line break design basis analyses. These analyses are based upon a boron injection tank (BIT) containing no boron. Since the licensee removed the BIT, and the boron injection delay associated with the BIT is significantly greater than the influence of the valve timing changes, the design basis analyses remain conservative with respect to boration timing. Of less potential significance are delays associated with diesel start and loading time, and minor changes potentially influencing switchover of emergency safeguards equipment. Again, these remain within the scope of the design bases and cause an inconsequential change in RWST depletion. The SRXB finds the changes to be acceptable. Other changes in Section 6.3.2 involve drawing identification or are consistent with the valve interlock information. These have no impact upon the evaluation and are acceptable.

9. "FSAR Table 7.5-2 regarding control room indicator and recorder accuracies was revised to reflect plant specific values determined by calculation that support values in Technical Specification 3.2.5, 3.6.1.4 and associated setpoints in the Emergency Operating Procedures."

The Instrumentation and Control Systems Branch (SICB) reviewed this item. SICB found that Table 7-5.2 of the Seabrook FSAR was revised to reflect changes in the accuracies of the control room indicators and recorders. The updated information resulted from the as-built configuration accuracies of the plant instrumentation and of plant-specific calculations performed on equipment and instruments to support the emergency operating procedure setpoints. In this regard, Amendment 62 which incorporates these changes will improve the overall plant operation because the information provided to the operator will now reflect plant-specific conditions rather than the previously used Westinghouse generic values. SICB concludes that there is reasonable assurance that the FSAR Amendment 62 does not introduce any

safety concerns and, on this basis, Amendment 62 as described is in compliance with the previously issued SER and, therefore, we find the revision acceptable.

10. "FSAR Section 7.6.4 was revised to reflect changes regarding the description of the operation of the accumulator isolation valves (AIVs) to reflect Technical Specification 3.5.1.2 clarification changes provided in an NRC letter dated August 22, 1988, and the Technical Specifications issued with NPF-67."

The Instrumentation and Control Systems Branch (SICB) has reviewed this item. They found that FSAR Section 7.6.4 was revised to reflect Technical Specification clarification changes to the operation of the AIVs. Amendment 62 involves testing procedure changes to the AIVs such that the valves are now part of the equipment that will not be tested at full power in order to prevent damaging equipment and upsetting plant operation. The position of the AIVs are controlled by plant Technical Specifications such that at full power, the AIVs will be maintained open with power removed. In the open position, the AIVs will be able to provide rapid reflood of the core when RCS pressure decreases below the accumulator pressure. In addition, the licensee stated that: 1) there is no practical system design that would permit testing of the AIVs without adversely affecting the Technical Specification requirements; 2) the probability that the protection system will fail to initiate the subject equipment is acceptably low due to the valve being maintained in the open position; and 3) these AIVs can be routinely tested anytime the plant is in a shutdown condition. Additionally, Amendment 62 meets the requirements of General Design Criteria 21, IEEE 279, and the guidelines specified in Regulatory Guide 1.22. Based on the information provided above, SICB concludes that on-line testing of the AIVs is not necessary.

11. "FSAR Section 2.3.3.3, Tables 8.3-1 and 8.3-2 and Figure 8.3-56 were revised to reflect changes regarding backup power supply to Regulatory Guide 1.97 Category 3 meteorological instrumentation at the meteorological tower for loss of offsite power events. The revision reflects changes resulting from resolution of NRC Inspection Report 50-443/85-32, open item 20, dated February 18, 1986."

The Radiation Protection Branch (PRPB) has reviewed this revision and found the availability of backup power to the onsite meteorological tower had been addressed in NRC inspection report 86-30 and the 8/1/86 addendum to it. This revision is acceptable, thus closing the issue of R.G. 1.97 meteorology data availability.

12. "FSAR Section 8.3 was revised to reflect changes concerning NRC Information Notice 86-70 "Potential Failure of All Emergency Diesel Generators" regarding inadvertent loading of the startup feedwater pump onto an emergency diesel generator."

13. "FSAR Section 8.3 schematic diagrams were revised to reflect changes addressing NRC Bulletin 85-03, "Motor-Operated Valve Common Mode Failures During Plant Transients Due to Improper Switch Settings" dated November 15, 1985. The response to NRC Bulletin 85-03 was previously submitted by NHY letters NYN-87137 dated November 30, 1987, and NYN-88097 dated July 18, 1988."

The Electrical Systems Branch (SELB) has reviewed items 12 and 13 of the Attachment to letter NYN-89 FSAR Amendment 62 Summary of Revisions related to inadvertent overloading of the emergency diesel generator and revised schematic diagrams for motor operated valves which reflect changes addressing NRC Bulletin 85-03, "Motor-Operated Valve Common Mode Failures During Plant Transients Due to Improper Switch Setting." Additionally in response to an SELB concern, the licensee has provided further clarification relative to the Startup Feedwater Pump (SUFP) loading sequence onto the emergency diesel generator in a October 31, 1989, letter. As a result, the staff concluded that the FSAR changes related to these items are acceptable.

The Reactor Systems Branch (SRXB) has reviewed FSAR Section 8.3 and finds that it contains a valve timing change from 10 seconds to 12 seconds. This is addressed in the Item 8 review above.

4. "FSAR Sections 9.2.1 and 10.4.10 were revised to reflect the addition of auxiliary Secondary Component Cooling Water System heat exchangers provided as a system enhancement for use during outages and low load testing. FSAR Section 9.2.1 was also revised to reflect system changes resulting from the addition of restricting orifices to Service Water System piping to balance flow. FSAR Table 9.2-10 was revised to reflect acceptable valve materials for a check valve added to the Demineralized Water System."

15. "FSAR Table 9.4 was revised to reflect changes regarding required airflow rates based on as-built data."

The Plant Systems Branch (SPBL) has reviewed the revision described in items 14 and 15. As a result of the SPBL review, it was concluded that the revisions made by the licensee in FSAR Amendment 62 are minor in nature and do not alter the staff's previous descriptions, evaluations and conclusions provided in the original Seabrook SER or its supplements, and thus are acceptable.

The Materials and Chemical Engineering Branch (EMTB) has reviewed the Demineralized Water Makeup System, FSAR Table 9.2-10, which now indicates 316 or 304 Stainless Steel piping and valves added to the Demineralized Water Makeup System. This minor change has no effect in the conclusions of the initial staff SER and is, therefore, acceptable.

16. "FSAR Sections 10.3.5, and 10.4.8 and Tables 10.3-2, 10.3-3 and 10.4-2 were revised to reflect the latest steam generator secondary water chemistry control program sampling schedule due to changes reflecting the latest chemistry guidelines recommended by Westinghouse."

EMTB has reviewed this item and found that this revision meets the requirement of the Seabrook Unit 1 Technical Specifications, Section 6.7.4c to implement a NSSS vendor secondary water chemistry monitoring and control program, and is, therefore, acceptable.

17. "FSAR Sections 11.2.2 and 11.2.3 regarding waste liquid drain discharges were revised to reflect changes made to allow segregation of chemical and oil wastes from the process stream."

The Plant Systems Branch (SPLB) has reviewed this revision and concluded that the changes are minor in nature and do not alter the previous conclusions provided in the original Seabrook SER or its supplements.

18. "FSAR Sections 13.1 through 13.4 were revised to reflect changes in the NHY organizational structure and qualifications, training, operational review organization and to include a reference to the Radiological Emergency Plan which is maintained as a separate controlled document. These changes were previously submitted by NHY letter NYN-88048 dated April 11, 1988, as reflected in SSER No. 8. FSAR Chapter 13 Appendices regarding personnel qualifications were revised to reflect current NHY staffing."

The Performance and Quality Evaluation Branch (PQEB) has completed the review of FSAR Section 13.1 and 13.4 and found that the changes made in Amendment 62 incorporated changes previously submitted by NHY letter NYN-88048 dated April 11, 1988. The results of PQEB's evaluation of the changes made in NYN-88048 were reported in SSER No.8. Amendment 62 contains no additional changes, therefore, we conclude that the changes made in item 18 are acceptable.

The Emergency Preparedness Branch (PEPB) has reviewed Amendment 62 of the Seabrook Station Final Safety Analysis Report (SSFSAR). As noted in Amendment 62, emergency planning information has been extracted from SSFSAR Section 13.3 and placed in a separately controlled document, the Seabrook Station Radiological Emergency Plan (SSREP). The PEPB has reviewed the SSREP through Revision 3 and the conclusions are reported in Supplemental Safety Evaluation Report input dated July 27, 1989. The PEPB finds that the information regarding emergency planning in Amendment 62 is administrative in nature and acceptable.

The Human Factors Assessment Branch (HFAB) has completed its review of Section 13.2, of the Final Safety Analysis Report (FSAR), through Amendment 62. In particular, the review addresses the training program through Amendment 62, as well as those changes the applicant, in discussions with the staff, has indicated will be in a future FSAR amendment. The staff concludes that the applicant's training program for licensed and non-licensed persons is acceptable as it was updated through Amendment 62 and with a Seabrook Station commitment to the guidelines of Regulatory Guide 1.8, "Qualification and Training of Personnel for Nuclear Power Plants," Revision 2 (4/87) and the FSAR modifications the licensee committed to make in its letter dated November 13, 1989.

The Human Factors Assessment Branch (HFAB) has completed its review of Section 13.5, of the Final Safety Analysis Report (FSAR), through Amendment 62. In particular the review addresses the operating procedure methodology through Amendment 62. The staff concludes that the licensee's operating procedure methodology is acceptable as it was updated through Amendment 62.

19. "FSAR Table 14.2-5 regarding the startup test entitled "Control Rod Worth Measurement" was revised to reflect the alternate technique for measuring rod worth in accordance with WCAP-9863-P-A and ANSI 19.6.1 previously submitted by NHY letter NYN-87094 dated August 11, 1987."

    The Reactor Systems Branch (SRXB) has reviewd this item and finds that FSAR Table 14.2-5 contains a sentence adding rod worth measurements via the rod swap technique. This is acceptable.

20. "FSAR Section 15.4.6 was revised to reflect changes to the boron dilution safety analysis resulting from reanalysis recommended in Westinghouse letter NAH-3332 dated December 8, 1987. The Westinghouse letter addresses NRC questions regarding boron dilution accident analysis assumptions for operational Modes 4 and 5 with the reactor coolant loops filled."

    The Reactor Systems Branch (SRXB) has completed the review of this item and finds that FSAR Section 15.4.6, pages 15.4-24 through 15.4-25b and Table 15.4-1 are revised to reflect changes to the boron dilution safety analysis resulting from reanalysis recommended in Westinghouse letter NAH-3332 dated December 8, 1987. The changes represent a more accurate description of events and are acceptable.

21. "FSAR Section 16.1 was revised to reference the Seabrook Station Technical Specifications as a separate controlled document and includes technical requirements revisions to reflect changes which were previously made to the NHY Technical Requirements Manual."

    The Technical Specifications Branch (OTSB) has reviewed this item and found that in SSER 5, the staff reported the results of its review of the licensee's Technical Specification Improvement Program. The staff concluded that the information identified for incorporation in the FSAR was consistent with its approvals for removal of items from the Technical Specifications and that the licensee had provided the requisite controls for that information.

    The staff's conclusions in SSER 5 were based on its review of the licensee's September 10, 1986 proposed FSAR Section 16.3, which the licensee stated would be incorporated into the Seabrook FSAR in a future amendment. The licensee on June 30, 1989 submitted a request for FSAR Amendment 62 that included revisions to FSAR Section 16.3, Technical Specification Improvement Program.

    Our review to compare the request for FSAR Amendment 62 with the FSAR Section 16.3 proposed on September 10, 1986 has confirmed that the information identified in SSER 5 and the requisite controls have been incorporated in Section 16.3 of the FSAR, and that the controls have been implemented. On the basis of this finding, we conclude that issuance of FSAR Section 16.3, as included in proposed FSAR Amendment 62, is acceptable.

22. "FSAR Section 17.2 and Table 17B were revised to reflect changes in the NHY Operational Quality Assurance Program previously submitted by NHY letters NYN-87121 dated October 19, 1987, NYN-88047 dated April 11, 1988, and NYN-88141 dated October 19, 1988."

NRC Region I staff has received the changes to the description of the Operational Quality Assurance Program for Seabrook Station. The Region 1 staff has reviewed this submittal. The changes have been found acceptable as they do not reduce licensee's previous commitments to quality assurance.

The effectiveness of the licensee's Quality Assurance Program and procedure implementation will continue to be the subject of routine regional inspections.