



**North
Atlantic**
Energy Service Corporation

SEABROOK STATION UNIT 1

Facility Operating License NPF-86
Docket No. 50-443

License Amendment Request No. 93-05
Containment Isolation Design for
Purge Supply and Exhaust Penetration

This License Amendment Request is submitted by North Atlantic Energy Service Corporation pursuant to 10CFR50.90. The following information is enclosed in support of this License Amendment Request:

- Section I - Introduction and Description of Proposed Changes
- Section II - Markup of Proposed Changes
- Section III - Retype of Proposed Changes
- Section IV - Safety Evaluation of Proposed Changes
- Section V - Determination of Significant Hazards for Proposed Changes
- Section VI - Proposed Schedule for License Amendment Issuance and Effectiveness
- Section VII - Environmental Impact Assessment
- Section VIII - Supporting Information

Sworn and Subscribed
to before me this
7th day of May, 1993

Beverly E. Silberman
Notary Public

9305110227 930507
PDR ADDCK 05000443
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Ted C. Feigenbaum
Ted C. Feigenbaum

Senior Vice President and Chief Nuclear Officer

I. Introduction and Description of Proposed Changes

A. Introduction

The purpose of License Amendment Request 93-05 is to propose changes to the Seabrook Station Technical Specifications to permit a modification of the Containment Structure Air Purge and Heating Subsystem (CAP) to provide a more reliable means of containment isolation for the two containment penetrations (containment purge supply and exhaust) associated with this system. The primary function of the CAP System is to reduce airborne activity levels in the containment atmosphere prior to and during personnel entry following a reactor shutdown. The system also serves to maintain minimum containment temperature during refueling operations. During all other modes of operation (Modes 1, 2, 3 and 4), the CAP System is precluded from operating pursuant to Technical Specification Limiting Condition for Operation 3.6.1.7a, which requires "*each containment purge supply and exhaust isolation valve shall be OPERABLE and each 36-inch containment shutdown purge supply and exhaust isolation valve shall be closed and locked closed*". The containment isolation design for the CAP System in Modes 1-4 currently employs two 36-inch butterfly valves in each penetration as the isolation valves to address 10CFR50 Appendix A, General Design Criteria 56 requirements. The purge supply penetration isolation valves are designated as CAP-V1 (outboard) and CAP-V2 (inboard). The purge exhaust penetration isolation valves are designated as CAP-V4 (outboard) and CAP-V3 (inboard).

The CAP System modification planned by North Atlantic will replace the two outboard containment isolation valves (CAP-V1 and CAP-V4) with testable blind flanges during Modes 1, 2, 3 and 4. The blind flanges will form the containment pressure boundary for the penetration and will provide primary containment isolation in Modes 1, 2, 3 and 4. The isolation valves in the CAP penetrations will no longer be required for containment isolation in Modes 1, 2, 3, and 4. The new configuration for the CAP penetrations will comply with 10CFR50, Appendix A, General Design Criterion 50 requirements. During Modes 5 and 6, to permit operation of the CAP system, the blind flanges will be removed and transition spool pieces will be installed. The outboard isolation valves, CAP-V1 and CAP-V4 will be permanently reinstalled outboard of the transition spool pieces to be available for containment closure in Modes 5 and 6. The use of testable blind flanges is a more reliable alternative for CAP penetration isolation than the use of the 36-inch butterfly valves. The blind flanges, existing weld neck flanges and bolting material will be classified as ASME Section III, Code Class MC (Metal Containment) which is the same ASME Code classification as for the equipment and personnel hatches and fuel transfer tube hatch. The penetrations will be tested as Type B penetrations in accordance with the requirements of UFSAR Section 6.2.6.2 and 10CFR50, Appendix J, Section III.B (Type B). In addition, any CAP penetration leakage will be into the Containment Enclosure Ventilation Area (CEVA) which is served by the Containment Enclosure Emergency Air Handling System which is designed to process any leakage from the containment structure and equipment/systems located within the CEVA.

Currently, containment isolation for the purge supply and exhaust penetrations is provided by a butterfly valve and blind flange for each penetration. Valves CAP-V2 (purge supply, inboard) and CAP-V4 (purge exhaust, outboard) were replaced by blind flanges prior to startup from the second refueling outage due to degradation of their leak tightness. The large butterfly valves with their resilient seals are susceptible to seal degradation when the valves are intermittently stroked during surveillance testing and

during normal system operation. Alternatively, by replacing the valves with testable blind flanges, their concentric O-ring seals will not have been exposed to the dynamic forces of valve operation which can induce seal wear and degrade the leak tightness of the containment penetration.

B. Description of Proposed Changes

The proposed Technical Specification changes affect Technical Specification LCO 3.6.1.7 (including Action Statements a., b., and c.), Surveillance Requirements 4.6.1.2f, 4.6.1.7.1 and 4.6.1.7.2 and Bases Section 3/4.6.1.7. A description of the proposed changes is provided below:

Technical Specification LCO 3.6.1.7:

Technical Specification LCO 3.6.1.7 and the associated Action Statements a., b., and c. currently provide operability requirements for both the 36-inch Containment shutdown purge supply and exhaust isolation valves and the 8-inch Containment purge supply and exhaust isolation valves. North Atlantic is planning to modify the containment isolation design of the CAP System by replacing the 36-inch butterfly valves located outside of Containment with testable blind flanges which will form the containment pressure boundary for the penetration and will provide primary containment isolation in Modes 1, 2, 3, and 4. The isolation valves in the CAP penetrations will no longer be required for containment isolation in Modes 1, 2, 3, and 4. The planned modification to the CAP System containment isolation design renders unnecessary the operability requirements for the 36-inch valves. The LCO and action statements were changed accordingly to delete the requirements.

Technical Specification Surveillance Requirements 4.6.1.7.1 and 4.6.1.7.2

Technical Specification Surveillance Requirements 4.6.1.7.1 and 4.6.1.7.2 require verification that the 36-inch containment purge supply and exhaust isolation valves are locked closed and that their measured leakage rates be less than or equal to $0.05 L_g$ when pressurized to P_g . Since the planned modification will replace the outboard containment isolation valves with blind flanges that will be leak tested pursuant to 10CFR50 Appendix J, Section III.B (Type B), verification of the position and leak tight status of the CAP System 36-inch butterfly valves is not necessary. Surveillance Requirements 4.6.1.7.1 and 4.6.1.7.2 are deleted and Surveillance Requirements 4.6.1.7.3 and 4.6.1.7.4 are renumbered and changed accordingly to reflect the above changes.

The CAP penetrations will be verified to be secured closed at least once per 31 days in accordance with Surveillance Requirement 4.6.1.1a in Modes 1, 2, 3, and 4. In addition, Surveillance Requirement 4.6.1.2d, which specifies requirements for Type B testing, will also be applicable to the CAP penetrations. During Modes 5 and 6 the blind flanges will be removed and a transition spool piece installed to allow the CAP system to perform its operational function.

Technical Specification Surveillance Requirement 4.6.1.2f

Technical Specification Surveillance Requirement 4.6.1.2f. presently states that "Purge supply and exhaust isolation valves with resilient material seals shall be tested and demonstrated OPERABLE by the requirements of Specification 4.6.1.7.2 or 4.6.1.7.3, as

applicable;". The replacement of the CAP system 36-inch butterfly valves with testable blind flanges, renders this surveillance requirement unnecessary. The proposed Technical Specification change will revise Technical Specification Surveillance Requirement 4.6.1.2f as follows: "The 8-inch purge supply and exhaust isolation valves with resilient seals shall be tested and demonstrated OPERABLE by the requirements of Specification 4.6.1.7.1."

BASES for Technical Specification 3/4.6.1.7

The Technical Specification Bases describe the design features of both the 8-inch and 36-inch containment purge supply and exhaust isolation valves. This BASES section was revised accordingly to reflect the planned modification to the CAP System containment isolation provisions.

Technical Requirements Manual

The following changes to the North Atlantic Technical Requirements Manual are also necessitated by the planned modification to the CAP System containment isolation provisions:

Technical Requirement 16, Table 16.3-11, Secondary Containment Bypass Leakage Paths, currently lists CAP System containment penetrations HVAC-1 and HVAC-2 as bypass leakage paths. Additionally, these penetrations are listed as bypass leakage paths in Updated Final Safety Analysis Report (UFSAR) Table 6.2-83. These penetrations (including their associated piping and ductwork) presently terminate in the Primary Auxiliary Building, therefore, containment leakage from the subject penetrations would not be processed and cleaned by the Containment Enclosure Emergency Air Handling System (EAH). The two primary functions of EAH system as specified in UFSAR Section 6.2.3.2c. are to produce a negative pressure post accident in the annular, cylindrical volume between the containment and containment enclosure and to collect any leakage into these areas from the containment structure or equipment/systems located within the enclosure so that they may be disposed of in a controlled manner. Both of these functions are performed by redundant filter trains, redundant fans, dampers and controls, and a common discharge ductwork system to the plant vent. The planned modification will replace the two CAP system 36-inch butterfly valves located outside of containment with testable blind flanges and will result in these penetrations terminating within the containment enclosure ventilation area (CEVA). Since the subject penetrations will terminate in the CEVA, any primary containment leakage from them will be processed through the EAH system. As a result, the subject penetrations are no longer required to be listed as bypass penetrations in Technical Requirement 16 Table 16.3-11.

Technical Requirement 6, Table 16.3-4, Containment Isolation Valves presently lists CAP-V1, CAP-V2, CAP-V3, and CAP-V4 as containment isolation valves. The replacement of the CAP System valves with testable blind flanges in Modes 1, 2, 3, and 4, which will form the containment pressure boundary for the penetrations, will provide an alternate means to ensure containment integrity for the CAP penetrations. Technical Requirement 6, Table 16.3-4, will be revised to delete CAP-V1, CAP-V2, CAP-V3, and CAP-V4 from the list of containment isolation valves. The ability of the CAP valves to close within the time assumed in fuel handling accident analysis will continue to be verified during the stroke testing of the CAP valves per Procedure "OX1423.24, Containment Air Purge Valve Testing, Cold Shutdown".

The revisions to the Technical Requirements Manual will also be reflected in a revision to Chapter 16 of the UFSAR.