North Atlantic

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The Northeast Utilities System

October 11, 2002

Docket No. 50-443

NYN-02089

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Seabrook Station
License Amendment Request 02-07
"Changes to TS 3.9.4 Containment Building Penetrations"

North Atlantic Energy Service Corporation (North Atlantic) is providing within the enclosed, License Amendment Request (LAR) 02-07. LAR 02-07 is submitted pursuant to the requirements of 10 CFR 50.90 and 10 CFR 50.4. This LAR proposes to revise Technical Specification (TS) 3.9.4, "Containment Building Penetrations," to permit the equipment hatch to be open during core alternations and/or during movement of irradiated fuel assemblies within containment. The appropriate TS Bases changes are included within the enclosed to reflect the proposed changes.

As discussed in Section IV of the enclosed, the proposed change does not involve a significant hazard consideration pursuant to 10 CFR 50.92. A copy of this letter and the enclosed LAR has been forwarded to the New Hampshire State Liaison Officer pursuant to 10 CFR 50.91(b). North Atlantic requests NRC Staff review of LAR 02-07 and issuance of a license amendment by October 11, 2003 in order to plan activities for Refueling Outage 09 (see Section V of Enclosure 1).

North Atlantic has determined that LAR 02-07 meets the criterion of 10 CFR 51.22(c)(9) for a categorical exclusion from the requirements for an Environmental Review (see Section VI of Enclosure 1).

The Station Operation Review Committee and the Nuclear Safety Audit Review Committee have reviewed LAR 02-07.

A001

Should you have any questions regarding this letter, please contact Mr. James M. Peschel, Manager - Regulatory Programs, at (603) 773-7194.

Very truly yours,
NORTH ATLANTIC ENERGY SERVICE CORP.

Ted C. Feigenbaum
Executive Vice President
and Chief Nuclear Officer

cc:

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Enclosure 1 to NYN-02089

North Atlantic

SEABROOK STATION UNIT 1

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

License Amendment Request 02-07,
"Changes to TS 3.9.4 Containment Building Penetrations"

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 Safety Assessment for Proposed Changes**
- **Section II - Markup of Proposed Changes**
- **Section III - Retype of Proposed Changes**
- **Section IV - Determination of Significant Hazards for Proposed Changes**
- **Section V - Proposed Schedule for License Amendment Issuance And Effectiveness**
- **Section VI - Environmental Impact Assessment**

I, Ted C. Feigenbaum, Executive Vice President and Chief Nuclear Officer of North Atlantic Energy Service Corporation hereby affirm that the information and statements contained within this License Amendment Request are based on facts and circumstances which are true and accurate to the best of my knowledge and belief.

Ted C. Feigenbaum
Executive Vice President
and Chief Nuclear Officer

Sworn and Subscribed
before me this
11 st day of October, 2002

MARILYN R. SULLIVAN
MY COMMISSION EXPIRES APR. 17, 2007
NOTARY PUBLIC
NEW HAMPSHIRE

Marilyn R. Sullivan
Notary Public

SECTION I

INTRODUCTION AND SAFETY ASSESSMENT FOR PROPOSED CHANGES

I. INTRODUCTION AND SAFETY ASSESSMENT OF PROPOSED CHANGES

A. Introduction

License Amendment Request (LAR) 02-07 proposes to revise Technical Specifications (TS) 3.9.4, "Containment Building Penetrations," to permit the equipment hatch to be open during core alterations and/or during the movement of irradiated fuel assemblies within containment. The applicable TS Bases changes are also included within this submittal to reflect the proposed changes to TS 3.9.4.

The equipment hatch provides a means for moving large equipment and components into and out of containment. Technical Specification 3.9.4, "Containment Penetrations," currently requires that the equipment hatch be closed and held in place by four bolts during fuel movement and core alterations. This requirement ensures that a release of fission products within the containment will be restricted from escaping to the environment.

The proposed changes to TS 3.9.4 will allow the equipment hatch to be open during core alterations and/or during movement of irradiated fuel assemblies within containment, provided that the containment outage door is capable of being closed. Specifically, the following words will be added to TS 3.9.4.a: "... or the containment outage door is capable of being closed." Additionally, TS 3.9.4.b will be revised to reference the following note after the words "each airlock": "This requirement does not apply to the equipment hatch airlock when the containment outage door is installed."

It is also proposed that the TS Bases section 3/4.9.4 be revised to reflect the changes to TS 3.9.4 and the revised fuel handling accident analysis.

The fourth paragraph of TS Bases section 3/4.9.4 be revised to read as follows:

> "The Fuel handling accident analysis inside containment assumes all of the available activity is released instantaneously from the containment to the atmosphere."

The following paragraphs have been added as Insert 1:

> "During CORE ALTERATIONS or movement of irradiated fuel assemblies within the containment, the requirements for containment building penetration closure and OPERABILITY ensure that a release of fission product radioactivity within containment will be restricted from leaking to the environment. As described in the fuel handling analysis, there will be no pressurization of containment. Therefore, the requirements to isolate the containment from the outside atmosphere can be less stringent. The LCO requirements during CORE ALTERATIONS or movement of irradiated fuel assemblies within the containment are referred to as "containment closure" rather than containment OPERABILITY. For the containment to be OPERABLE, CONTAINMENT INTEGRITY

must be maintained. Containment closure means that all potential release paths are closed or capable of being closed. Closure restrictions must be sufficient to provide a barrier to restrict radioactive material released from a fuel element rupture during refueling operations.

The containment outage door may be installed as an alternative to installing the containment equipment hatch with a minimum of four bolts provided:

1. the reactor vessel upper internals have been removed; and

2. the water level above the top of the reactor vessel flange is greater than or equal to 23 feet.

The containment outage door will be designed to ensure a release of fission product radioactivity within containment will be restricted from leaking to the environment due to a fuel handling accident during refueling operations. When the containment outage door is installed and being used for containment closure in lieu of the equipment hatch, the following administrative requirements must be met:

1. The containment outage door will be installed and capable of being closed within 1 hour.

2. Hoses and cables being run through the containment outage door will employ a means to allow safe, quick disconnection or severance.

3. A designated individual is available and in direct communication with the control room with the responsibility for the expeditious closure (within 1 hour) of the containment outage door in the event of a fuel handling accident."

The proposed changes will permit the optimization of outages while also maximizing operational flexibility.

B. Safety Assessment of Proposed Changes

The Seabrook Station Primary Containment Building is a reinforced concrete structure in the form of a right vertical cylinder with a hemispherical dome and a flat foundation mat founded on bedrock. Containment penetrations are provided in the lower portion of the structure, and consist of a personnel lock and an equipment hatch/personnel lock, a fuel transfer tube and piping, electrical, instrumentation, and ventilation penetrations.

The equipment hatch consists of the barrel, the spherical dished cover plate with flange, and the air lock mounting sleeve. The hatch opening has an inside diameter of 27'-5". The equipment hatch cover is fitted with two O-ring seals that enclose a space, which can be pressurized and tested. The flange of the cover plate is attached to the hatch barrel with 32 swing bolts. A leak chase system is provided over the barrel-liner joint of the equipment hatch for leak testing. The

barrel, which is also the sleeve for the equipment hatch, is embedded in the shell of the concrete containment.

A containment enclosure building surrounds the containment structure and is designed in a similar configuration as a vertical right cylindrical reinforced concrete structure with dome and ring base. The containment enclosure is designed to entrap, filter and then discharge any leakage from the containment structure. To accomplish this, the space between the containment enclosure and the containment structure, as well as the penetration and safety-related pump areas, are maintained at a negative pressure following a loss-of-coolant accident by fans which take suction from the containment enclosure and exhaust to atmosphere through charcoal filters. To ensure air tightness for the negative pressure, leakage through all joints and penetrations has been minimized. The containment enclosure building has an access opening located directly opposite to, and of the same size as the containment hatch barrel. This opening consists of a steel plate barrel anchored into the wall of the containment enclosure building. The containment building and the enclosure building are seismically isolated from each other. The gap between the two structures at the hatch opening area (3") is filled with an elastic filler material. A continuous flexible rubber membrane seal along the inner circumference of the mating ends of the two barrels ensures that there is no communication between the containment enclosure and the outside atmosphere.

A missile shield structure is located in front of, and outside the Containment Equipment Hatch/Containment Enclosure access opening. The missile shield walls are located off of the outside face of this structure. The missile shield is made up of removable, interlocking, pre-cast, reinforced concrete panels. At the bottom, the panels are keyed into a slot at the equipment hatch access ramp, their tops are tied to the roof of the missile shield structure by swing bolts. Four tensioned tie rods threaded through the panels tie the individual blocks into a monolithic wall. This wall serves to protect the hatch from tornado-generated missiles. The missile shield structure is seismically isolated from the containment enclosure building by a weather tight seal.

When access to the containment is required the inner equipment hatch is removed and placed in the storage stands in the containment. The missile shield panels are de-tensioned and the central five panels are withdrawn. Specially designed bridging sections are installed to allow access to the interior of the containment. In accordance with the requirements of TS 3.9.4.a, the containment hatch must be in place prior to core alterations or fuel movement. Removing or reinstalling the containment equipment hatch is a lengthy evolution that requires approximately one shift to complete.

The proposed containment outage door will be installed in front of the missile shield panels. The containment outage door will be a metal door approximately 20'X28' in size and will allow the passage of the largest regularly scheduled component (Reactor Coolant Pump Motor and transport cart). The door will be configured to provide a tight closure and will be light enough to be closed and secured by one person with no special training required.

As identified in the fuel handling analysis, there is no containment pressurization. Therefore, the door will have no pressure retaining requirements. The door and its supporting components will be designed per industry codes and standards and installed per applicable station procedures. Other openings between structural elements and door/door mounting hardware will be sealed with approved materials. The only other paths for an air exchange are the doors that allow personnel access to the area of the equipment hatch missile shield structure. These are heavy metal security doors with a tight fit, which can be quickly and easily closed and secured when necessary. The station will develop appropriate administrative procedures governing the use and operation of the containment outage door.

The containment outage door will allow free access into and out of the containment for large vehicles, components and personnel during a refueling. Some of the installation work for the containment outage door and its required hardware can be completed while the plant is on line. The missile shield blocks can not be removed until the plant has entered mode 5 (Cold Shutdown). The proposed changes would permit the use of a containment outage door in lieu of the equipment hatch during core alterations or movement of irradiated fuel within the containment building.

Analysis of Changes to TS 3.9.4.a

The proposed changes to TS 3.9.4.a will allow the equipment hatch to be open under administrative controls during core alterations and/or during movement of irradiated fuel assemblies within containment. Allowing the equipment hatch to be open during core alterations or movement of irradiated fuel raises the concern that radioactive materials could potentially be released through the open hatch and vented to the outside environment should accidents that involve fission product releases occur. Postulated accidents that could result in a release of radioactive material through the open hatch include a fuel handling accident that results in breaching of the fuel rod cladding, and a loss of residual heat removal (RHR) cooling event that leads to core boiling. To provide the basis for justifying the proposed change, the concern with the potential radiological consequences of the two accidents that could result in a release of radioactive material through the open equipment hatch are discussed below.

Fuel Handling Accident

An analysis of the Fuel Handling Accident for Seabrook Station is described in section 15.7.4 of the Updated Final Safety Analysis Report. During movement of irradiated fuel assemblies within containment, the most severe radiological consequences are anticipated to result from a fuel handling accident. The most limiting fuel handling accident is defined as the dropping of a spent fuel assembly within an open containment resulting in the rupture of the cladding of all of the fuel rods in the assembly, despite administrative controls and physical limitations.

The radiological consequences of a design basis fuel handling accident in containment have been evaluated assuming that the containment is open to the outside atmosphere. The current fuel handling accident is assumed to occur 100 hours after plant shutdown consistent with the 100

hour time delay required by TS 3/4.9.3 prior to the movement of fuel. However, North Atlantic has prepared an additional license amendment, that is currently in NRC review (LAR 02-06 dated 10/11/02), to decrease the number of hours of decay time prior to the movement of irradiated fuel from 100 to 80 hours. The dose levels identified in the table below for the fuel handling accident reflect the totals assuming an 80-hour and 100-hour decay time. The fuel handling accident within the containment does not result in containment pressurization. The conservative release model is based on releasing all of the radioactive gases from the primary containment instantaneously. The Exclusion Area Boundary (EAB) doses are calculated over a 0-2 hour time period, while the control room doses are evaluated over a 0-30 day release period. The EAB 0-2 hour resulting doses and the 0-30 day control room doses for the containment fuel handling accident are identified as follows:

Site	Fuel Handling Accident (REM)			Acceptance Criteria (REM)		
	Thyroid	Whole Body	Skin	Thyroid	Whole Body	Skin
Exclusion Area Boundary	69.6	2.2	0.55	75.0	6.25	N/A
	63.9[1]	1.98[1]	0.47[1]			
Control Room	7.38	0.31	1.5	30.0	5.0	30.0
	6.78[1]	0.29[1]	1.31[1]			

[1] This value is the total dose identified in the fuel handling accident analysis assuming a 100-hour decay period.

The calculated offsite and control room operator doses are within the acceptance criteria of USNRC NUREG-0800, "Standard Review Plan," section 15.7.4 "Radiological Consequence of Fuel Handling Accident," and 10 CFR 50, Appendix A, "General Design Criteria for Nuclear Power Plants," GDC-19, "Control Room." Therefore, allowing the equipment hatch to be open during core alterations or movement of irradiated fuel would not invalidate the conclusion that the potential dose consequences from a fuel handling accident will be within the 10 CFR 100 guideline limits.

Loss of RHR Cooling

A loss of residual heat removal (RHR) pressurization event is unlikely during core alterations or during the movement of irradiated fuel in the reactor containment building. This is largely based upon the requirements of TS 3.9.8.1, "Residual Heat Removal and Coolant Circulation High Water Level" and 3.9.8.2, "Residual Heat Removal and Coolant Circulation Low Water Level." TS 3.9.8.1 requires that at least one RHR loop be operable and in operation when the water level

above the top of the reactor vessel flange is greater than or equal to 23 feet. When the water level above the top of the reactor vessel flange is less than 23 feet, TS 3.9.8.2 requires that at least two independent RHR loops be operable and at least one RHR loop shall be in operation. The requirement that at least one RHR loop be in operation ensures that: (1) sufficient cooling capacity is available to remove decay heat and maintain the water in the reactor vessel below 140°F as required during the refueling mode, and (2) sufficient coolant circulation is maintained through the core to minimize the effect of a boron dilution incident and prevent boron stratification. The requirement to have two RHR loops operable when there is less that 23 feet of water above the reactor flange ensures that a single failure of the operating RHR loop will not result in a complete loss of residual heat removal capability. With the reactor vessel head removed and at least 23 feet of water above the reactor pressure vessel flange, a large heat sink is available for core cooling. Thus, in the event of a failure of the operating RHR loop, adequate time is provided to initiate emergency procedures to cool the core.

TS 3.9.8.1 and 3.9.8.2 require that corrective actions be taken immediately to restore the RHR cooling as soon as possible if RHR loop requirements are not met (by having one RHR loop operable and in operation). In addition, plant operators are required to close all containment penetrations providing direct access from the containment atmosphere to the outside environment within 4 hours. Since the time to boil in this condition (during core alterations or movement of irradiated fuel with at least 23 feet of water above the vessel flange, the reactor upper internals removed and after 80 hours of decay time) is approximately 8.3 hours, the risk associated with the potential for the coolant to boil and subsequently cause a release of radioactive gas to the containment atmosphere (if RHR cooling was not restored) is minimal.

Administrative Controls

North Atlantic has various station Technical Specification, Technical Requirements Manual and administrative controls in place to conduct core alterations or movement of irradiated fuel. Even though the closure of containment is not credited in the Fuel Handling Accident dose analysis previously described, North Atlantic will implement additional controls as a defense in depth measure. The administrative controls consisting of written procedures will be established prior to the implementation of the proposed change. The following closure controls are applicable whenever the containment outage door is open during operations within containment involving core alterations or the movement of irradiated fuel and are being added to TS Bases section 3/4.9.4:

1. The containment outage door will be installed and capable of being closed within 1 hour.

2. Hoses and cables being run through the containment outage door will employ a means to allow safe, quick disconnection or severance.

3. A designated individual is available and in direct communication with the control room with the responsibility for the expeditious closure (within 1 hour) of the containment outage door in the event of a fuel handling accident.

During core alterations, Seabrook Station Technical Requirement TR25-3.9.5, "Refueling Communications" requires that direct communications be maintained between the control room and personnel at the refueling station. When direct communications between the control room and personnel at the refueling station cannot be maintained, core alterations will be suspended. In the event of a fuel handling accident inside containment, the Control Room would be immediately informed and actions would be promptly initiated in accordance with station procedures to mitigate the consequences, including coordinating the closure of the subject containment outage door.

Analysis of Changes to TS 3.9.4.b

The proposed changes to TS 3.9.4.b will add a note pertaining to the personnel hatch airlock within the equipment hatch. The purpose of this note is to provide clarification that the requirements of TS 3.9.4.b do not apply to the subject personnel hatch airlock when the outage equipment hatch is installed. This note states that "This requirement does not apply to the equipment hatch airlock when the containment outage door is installed."

The equipment hatch at Seabrook Station is a circular opening, 27'-5" diameter with a bolted cover. A personnel access airlock is welded into the equipment hatch cover. The equipment hatch personnel access airlock has two essentially leak-tight doors to permit an alternative access and egress point to and from the primary containment. When access to the containment through the equipment hatch for large components is required, the inner equipment hatch cover and personnel hatch is removed and placed in a storage stand inside of the containment. While the hatch cover is located in its storage stand, the personnel hatch performs no containment closure function. During core alterations or movement of irradiated fuel within the containment building, a literal interpretation of TS 3.9.4.b would require that a minimum of one door of the equipment hatch be closed when the containment outage door is installed. If both equipment hatch personnel airlock doors were open, one personnel airlock door would be required to be capable of closure, and a designated individual would be required to be available outside the personnel airlock to close the door. In this circumstance, compliance with TS 3.9.4.b would provide no containment closure function. Therefore, when the containment outage door is installed during core alterations or during movement of irradiated fuel in the containment building, compliance with TS 3.9.4.b is unnecessary.

Analysis of Changes to TS Bases 3/4.9.4

The proposed changes to TS Bases 3/4.9.4 will revise the fourth paragraph to read as follows:

"The fuel handling accident analysis inside containment assumes all of the available activity is released instantaneously from the containment to the atmosphere."

The change to the above paragraph reflects the revised fuel handling accident analysis.

The proposed changes to TS Bases 3/4.9.4 will add the following paragraphs to the end of the section:

"During CORE ALTERATIONS or movement of irradiated fuel assemblies within the containment, the requirements for containment building penetration closure and OPERABILITY ensure that a release of fission product radioactivity within containment will be restricted from leaking to the environment. As described in the fuel handling analysis, there will be no pressurization of containment. Therefore, the requirements to isolate the containment from the outside atmosphere can be less stringent. The LCO requirements during CORE ALTERATIONS or movement of irradiated fuel assemblies within the containment are referred to as "containment closure" rather than containment OPERABILITY. For the containment to be OPERABLE, CONTAINMENT INTEGRITY must be maintained. Containment closure means that all potential release paths are closed or capable of being closed. Closure restrictions must be sufficient to provide a barrier to restrict radioactive material released from a fuel element rupture during refueling operations.

The containment outage door may be installed as an alternative to installing the containment equipment hatch with a minimum of four bolts provided:

1. the reactor vessel upper internals have been removed; and

2. the water level above the top of the reactor vessel flange is greater than or equal to 23 feet.

The containment outage door will be designed to ensure a release of fission product radioactivity within containment will be restricted from leaking to the environment due to a fuel handling accident during refueling operations. When the containment outage door is installed and being used for containment closure in lieu of the equipment hatch, the following additional administrative requirements must be met:

1 The containment outage door will be installed and capable of being closed within 1 hour.

2. Hoses and cables being run through the containment outage door will employ a means to allow safe, quick disconnection or severance.

3. A designated individual is available and in direct communication with the control room with the responsibility for the expeditious closure (within 1 hour) of the containment outage door in the event of a fuel handling accident."

The purpose of the subject paragraphs is to more clearly define the requirements for containment closure, to identify the basis for the changes to TS 3.9.4.a, and to identify the administrative requirements necessary to utilize the containment outage door in lieu of the equipment hatch during core alterations or movement of irradiated fuel within the containment. The above administrative controls provide reasonable assurance that containment closure, as a defense in

depth measure, can be reestablished promptly following a fuel handling accident to limit radiological releases below the limits assumed in the dose calculations.

Conclusion:

In conclusion, based on the considerations discussed above, 1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, 2) such activities will be conducted in compliance with the Commission's regulations, and 3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

SECTION II

MARKUP OF PROPOSED CHANGES

Refer to the attached markup of the proposed changes to the Technical Specifications. The attached markup reflects the currently issued revision of the Technical Specifications listed below. Pending Technical Specifications or Technical Specification changes issued subsequent to this submittal are not reflected in the enclosed markup.

The following Technical Specification change is included in the attached markup:

Technical Specification	Title	Page
3.9.4	Containment Building Penetrations	3/4 9-4
B 3/4 9.4	Containment Building Penetrations	B 3/4 9-2a

REFUELING OPERATIONS

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

LIMITING CONDITION FOR OPRATION

3.9.4 The containment building penetrations shall be in the following status:

a. The equipment door closed and held in place by a minimum of four bolts, or the containment outage door is capable of being closed, #

b. A minimum of one door in each airlock is closed, however both doors of one personnel airlock may be open if:

1) One personnel airlock door is capable of being closed, and

2) A designated individual is available outside the personnel airlock to close the door.

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:

1) Closed by a manual or automatic isolation valve, blind flange, or equivalent; or

2) Be capable of being closed by an OPERABLE automatic Containment Purge and Exhaust Isolation System; or

3) Be capable of being closed by a designated individual available at the penetration.*

APPLICABILITY: During CORE ALTERATIONS or movement of irradiated fuel within the containment.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or movement of irradiated fuel in the containment building.

This requirement does not apply to the equipment hatch airlock when the containment outage door is installed.

* A designated individual shall not be used for manual isolation of valves CAP-V1, CAP-V2, CAP-V3, and/or CAP-V4.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of the Source Range Neutron Flux Monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.

3/4.9.3 DECAY TIME

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short-lived fission products. This decay time is consistent with the assumptions used in the safety analyses.

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

The Limiting Condition for Operation (LCO) limits the consequences of a fuel handling accident in containment by limiting the potential escape paths for fission product radioactivity released within containment. The LCO requires any penetration providing direct access from the containment atmosphere to the outside atmosphere to be closed except for the OPERABLE containment purge and exhaust penetrations, the approved alternate closure methods and the containment personnel airlock.

For the approved alternate closure methods, the LCO requires that a designated individual must be available to close or direct the remote closure of the penetration in the event of a fuel handling accident. "Available" means stationed at the penetration or performing activities controlled by a procedure on equipment associated with the penetration. The inside containment fuel handling accident analysis provides assurance that manual isolation of penetration valves up to a 12-inch diameter size, within the assumed time, can be attained with the use of a designated individual. With respect to the 36-inch diameter CAP valves, a designated individual is not allowed since manual closure would most likely exceed the assumed closure time.

For the personnel airlocks (containment or equipment hatch), the LCO ensures that the airlock can be closed after containment evacuation in the event of a fuel handling accident. The requirement that the airlock door is capable of being closed requires that the door can be closed and is not blocked by objects that cannot be easily and quickly removed. As an example, the use of removable protective covers for the door seals and sealing surfaces is permitted. The requirement for a designated individual located outside of the airlock area available to close the door following evacuation of the containment will minimize the release of radioactive material.

The fuel handling accident analysis inside containment assumes ~~both of the personnel airlock doors are open and an additional 12" diameter penetration (or equivalent area) is open. The analysis is bounded by these assumptions since~~ all of the available activity is released ~~within a 2 hour period.~~ instantaneously from the containment to the atmosphere.

The OPERABILITY of the Containment Purge and Exhaust Isolation System ensures that the containment vent and purge penetrations will be automatically isolated upon detection of high radiation levels within the containment. The OPERABILITY of this system is required to restrict the release of radioactive material from the containment atmosphere to the environment.

Insert 1:

Insert 1:

During CORE ALTERATIONS or movement of irradiated fuel assemblies within the containment, the requirements for containment building penetration closure and OPERABILITY ensure that a release of fission product radioactivity within containment will be restricted from leaking to the environment. As described in the fuel handling analysis, there will be no pressurization of containment. Therefore, the requirements to isolate the containment from the outside atmosphere can be less stringent. The LCO requirements during CORE ALTERATIONS or movement of irradiated fuel assemblies within the containment are referred to as "containment closure" rather than containment OPERABILITY. For the containment to be OPERABLE, CONTAINMENT INTEGRITY must be maintained. Containment closure means that all potential release paths are closed or capable of being closed. Closure restrictions must be sufficient to provide a barrier to restrict radioactive material released from a fuel element rupture during refueling operations.

The containment outage door may be installed as an alternative to installing the containment equipment hatch with a minimum of four bolts provided:

1. the reactor vessel upper internals have been removed; and

2. the water level above the top of the reactor vessel flange is greater that or equal to 23 feet.

The containment outage door will be designed to ensure a release of fission product radioactivity within containment will be restricted from leaking to the environment due to a fuel handling accident during refueling operations. When the containment outage door is installed and being used for containment closure in lieu of the equipment hatch, the following additional administrative requirements must be met:

1. The containment outage door will be installed and capable of being closed within 1 hour.

2. Hoses and cables being run through the containment outage door will employ a means to allow safe, quick disconnection or severance.

3. A designated individual is available and in direct communication with the control room with the responsibility for the expeditious closure (within 1 hour) of the containment outage door in the event of a fuel handling accident.

SECTION III

RETYPE OF PROPOSED CHANGES

Refer to the attached retype of the proposed changes to the Technical Specifications. The attached retype reflects the currently issued version of the Technical Specifications. Pending Technical Specification changes or Technical Specification changes issued subsequent to this submittal are not reflected in the enclosed retype. The enclosed retype should be checked for continuity with Technical Specifications prior to issuance.

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

LIMITING CONDITION FOR OPERATION

3.9.4 The containment building penetrations shall be in the following status:

a. The equipment door closed and held in place by a minimum of four bolts, or the containment outage door is capable of being closed,

b. A minimum of one door in each airlock#, or the containment outage door is capable of being closed, is closed, however both doors of one personnel airlock may be open if:

1) One personnel airlock door is capable of being closed, and

2) A designated individual is available outside the personnel airlock to close the door.

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:

1) Closed by a manual or automatic isolation valve, blind flange, or equivalent; or

2) Be capable of being closed by an OPERABLE automatic Containment Purge and Exhaust Isolation System; or

3) Be capable of being closed by a designated individual available at the penetration.*

APPLICABILITY: During CORE ALTERATIONS or movement of irradiated fuel within the containment.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or movement of irradiated fuel in the containment building.

#This requirement does not apply to the equipment hatch air lock when the containment outage door is installed.

* A designated individual shall not be used for manual isolation of valves CAP-V1, CAP-V2, CAP-V3, and/or CAP-V4.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of the Source Range Neutron Flux Monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.

3/4.9.3 DECAY TIME

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short-lived fission products. This decay time is consistent with the assumptions used in the safety analyses.

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

The Limiting Condition for Operation (LCO) limits the consequences of a fuel handling accident in containment by limiting the potential escape paths for fission product radioactivity released within containment. The LCO requires any penetration providing direct access from the containment atmosphere to the outside atmosphere to be closed except for the OPERABLE containment purge and exhaust penetrations, the approved alternate closure methods and the containment personnel airlock.

For the approved alternate closure methods, the LCO requires that a designated individual must be available to close or direct the remote closure of the penetration in the event of a fuel handling accident. "Available" means stationed at the penetration or performing activities controlled by a procedure on equipment associated with the penetration. The inside containment fuel handling accident analysis provides assurance that manual isolation of penetration valves up to a 12-inch diameter size, within the assumed time, can be attained with the use of a designated individual. With respect to the 36-inch diameter CAP valves, a designated individual is not allowed since manual closure would most likely exceed the assumed closure time.

For the personnel airlocks (containment or equipment hatch), the LCO ensures that the airlock can be closed after containment evacuation in the event of a fuel handling accident. The requirement that the airlock door is capable of being closed requires that the door can be closed and is not blocked by objects that cannot be easily and quickly removed. As an example, the use of removable protective covers for the door seals and sealing surfaces is permitted. The requirement for a designated individual located outside of the airlock area available to close the door following evacuation of the containment will minimize the release of radioactive material.

The fuel handling accident analysis inside containment assumes all of the available activity is released instantaneously from the containment to the atmosphere.

The OPERABILITY of the Containment Purge and Exhaust Isolation System ensures that the containment vent and purge penetrations will be automatically isolated upon detection of high radiation levels within the containment. The OPERABILITY of this system is required to restrict the release of radioactive material from the containment atmosphere to the environment.

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

During CORE ALTERATIONS or movement of irradiated fuel assemblies within the containment, the requirements for containment building penetration closure and OPERABILITY ensure that a release of fission product radioactivity within containment will be restricted from leaking to the environment. As described in the fuel handling analysis, there will be no pressurization of containment. Therefore, the requirements to isolate the containment from the outside atmosphere can be less stringent. The LCO requirements during CORE ALTERATIONS or movement of irradiated fuel assemblies within the containment are referred to as "containment closure" rather than containment OPERABILITY. For the containment to be OPERABLE, CONTAINMENT INTEGRITY must be maintained. Containment closure means that all potential release paths are closed or capable of being closed. Closure restrictions must be sufficient to provide a barrier to restrict radioactive material released from a fuel element rupture during refueling operations.

The containment outage door may be installed as an alternative to installing the containment equipment hatch with a minimum of four bolts provided:

1. the reactor vessel upper internals have been removed; and

2. the water level above the top of the reactor vessel flange is greater that or equal to 23 feet.

The containment outage door will be designed to ensure a release of fission product radioactivity within containment will be restricted from leaking to the environment due to a fuel handling accident during refueling operations. When the containment outage door is installed and being used for containment closure in lieu of the equipment hatch, the following additional administrative requirements must be met:

1. The containment outage door will be installed and capable of being closed within 1 hour.

2. Hoses and cables being run through the containment outage door will employ a means to allow safe, quick disconnection or severance.

3. A designated individual is available and in direct communication with the control room with the responsibility for the expeditious closure (within 1 hour) of the containment outage door in the event of a fuel handling accident.

SECTION IV

DETERMINATION OF SIGNIFICANT HAZARDS FOR PROPOSED CHANGES

IV. DETERMINATION OF SIGNIFICANT HAZARDS FOR PROPOSED CHANGES

License Amendment Request (LAR) 02-07 proposes to revise Technical Specification (TS) 3.9.4, "Containment Building Penetrations," to permit the equipment hatch to be open during core alternations and/or during movement of irradiated fuel assemblies within containment. The appropriate TS Bases changes are included to reflect the proposed changes to TS 3.9.4.a.

In accordance with 10 CFR 50.92, North Atlantic has concluded that the proposed changes do not involve a significant hazards consideration (SHC). The basis for the conclusion that the proposed changes do not involve a SHC is as follows:

1. *The proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.*

   The proposed changes to the Seabrook Station Technical Specifications (TS) 3.9.4.a, and TS 3.9.4.b do not involve a significant increase in the probability or consequences of an accident previously analyzed. The proposed changes will modify the conditions of containment closure during core alterations or during the movement of irradiated fuel within the containment. Specifically, the proposed changes will permit the new containment outage door to stay open during core alterations or during the movement of irradiated fuel within the containment.

   Postulated accidents that could result in a release of radioactive material through the open hatch include a fuel handling accident that results in breaching of the fuel rod cladding, and a loss of residual heat removal (RHR) cooling event that leads to core boiling. The radiological consequences of a design basis fuel handling accident in containment have been evaluated assuming that the containment is open to the outside atmosphere. The calculated offsite and control room doses resulting from a fuel handling accident are less than the criteria specified in USNRC NUREG-0800, "Standard Review Plan," section 15.7.4 "Radiological Consequence of Fuel Handling Accident," and 10 CFR 50, Appendix A, "General Design Criteria for Nuclear Power Plants," GDC-19, "Control Room."

   The consequence of a loss of Residual Heat Removal (RHR) is the potential for release of radioactivity outside of containment. Closing containment penetrations is the mitigating action for that consequence. TS 3.9.8.1 and 3.9.8.2 require that corrective actions be taken immediately to restore the RHR cooling as soon as possible if RHR loop requirements are not met (by having one RHR loop operable and in operation). In addition, plant operators are required by the TS to close all containment penetrations providing direct access from the containment atmosphere to the outside environment within 4 hours. Since the most limiting time to boil in this condition (during core alterations or movement of irradiated fuel with at least 23 feet of water above the vessel flange) is approximately 8.3 hours, the risk associated with the potential for the coolant to boil and subsequently cause a release of radioactive gas to the containment atmosphere (if

RHR cooling was not restored) is minimal.

The proposed changes to TS 3.9.4.b will add a note pertaining to the personnel hatch airlock within the equipment hatch. The purpose of this note is to provide clarification that the requirements of TS 3.9.4.b do not apply to the subject personnel hatch airlock when the outage equipment hatch is installed.

Therefore, it is concluded that these proposed to TS 3.9.4.a and TS 3.9.4.b do not involve a significant increase in the probability or consequence of an accident previously evaluated.

2. *The proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.*

The proposed changes to the Seabrook Station Technical Specifications (TS) 3.9.4.a and 3.9.4.b do not create the possibility of a new or different kind of accident from any previously evaluated. The proposed changes will permit the equipment hatch to be open during core alterations and movement of irradiated fuel within the containment building when the containment outage door is installed. The installation of the door does involve a minor change in the present method used to isolate containment penetrations for containment closure. However, the present fuel handling analysis, which is the most limiting event, assumes that the containment is open to the outside atmosphere and the entire airborne radioactivity is instantaneously released to the outside environment. This analysis results in off site doses that are within the guideline values specified in USNRC NUREG-0800, "Standard Review Plan," section 15.7.4 "Radiological Consequence of Fuel Handling Accident," and 10 CFR 50, Appendix A, "General Design Criteria for Nuclear Power Plants," GDC-19, "Control Room." Therefore, the proposed changes to the TS do not create the possibility of a new or different kind of accident from any previously evaluated.

3. *The proposed changes do not involve a significant reduction in the margin of safety.*

The proposed changes do not involve a significant reduction in the margin of safety. The proposed change to TS 3.9.4.a will permit the equipment hatch to be open during core alterations and/or during the movement of irradiated fuel assemblies within containment when the containment outage door is installed and closed or capable of being closed. During movement of irradiated fuel assemblies within containment, the most severe radiological consequences result from a fuel handling accident. The calculated offsite and control room operator calculated doses are within the acceptance criteria of USNRC NUREG-0800, "Standard Review Plan," section 15.7.4 "Radiological Consequence of Fuel Handling Accident," and 10 CFR 50, Appendix A, "General Design Criteria for

Nuclear Power Plants," GDC-19, "Control Room." Therefore, the proposed changes to TS 3.9.4 do not result in a reduction in the margin of safety.

Based on the above evaluation, North Atlantic concludes that the proposed change to T.S. 3.9.4 does not constitute a significant hazard.

SECTIONS V AND VI

PROPOSED SCHEDULE FOR LICENSE AMENDMENT ISSUANCE AND EFFECTIVENESS

AND

ENVIRONMENTAL IMPACT ASSESSMENT

V. PROPOSED SCHEDULE FOR LICENSE AMENDMENT ISSUANCE AND EFFECTIVENESS

North Atlantic requests NRC review of License Amendment Request 02-07, and issuance of a license amendment by October 11, 2003, having immediate effectiveness and implementation within 60 days.

VI. ENVIRONMENTAL IMPACT ASSESSMENT

North Atlantic has reviewed the proposed license amendment against the criteria of 10 CFR 51.22 for environmental considerations. The proposed changes do not involve a significant hazards consideration, nor increase the types and amounts of effluent that may be released offsite, nor significantly increase individual or cumulative occupational radiation exposures. Based on the foregoing, North Atlantic concludes that the proposed changes meet the criterion delineated in 10 CFR 51.22(c)(9) for a categorical exclusion from the requirements for an Environmental Impact Statement.