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Waterford 3

W3F1-99-0122
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PR

January 12, 2000

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
Technical Specification Change Request NPF-38-226
Containment Building Penetrations During Core Alterations and Irradiated Fuel Movement in Containment

Gentlemen:

In accordance with 10CFR50.90, Entergy is hereby proposing to amend Operating License NPF-38 for Waterford 3 by requesting the NRC Staff review and approval of the attached changes to the Technical Specifications (TS). The attached description and safety analysis support the proposed changes to the Waterford 3 TS. The proposed changes modify TS 3.9.4, "Containment Building Penetrations," to allow the containment equipment door, airlocks and other penetrations to remain open, but capable of being closed, during core alterations or movement of irradiated fuel in containment. Additionally, a note, Bases changes, and Surveillance Requirements changes provide further enhancements to clarify equipment door, airlock and penetration closure capability. Entergy anticipates that the proposed change will realize not only safety benefits, but also significant cost savings over the life of the plant. These TS and Bases changes are similar to the license amendments issued to other EOI plants, Arkansas Nuclear One, Units 1 and 2 on April 16, 1999 that allowed the containment equipment door open during core alterations or movement of irradiated fuel in containment. In addition, these TS and Bases changes also incorporate elements of the guidelines from TS 3.9.3, "Containment Penetrations," (Refueling Operations), in NUREG 1432, "Standard Technical Specifications - Combustion Engineering Plants," as modified by Technical Specification Task Force Travelers (TSTF) 68, Revision 2 and 312, Revision 1.

These TSTFs allow airlocks and penetrations to be open with the capability of them

A001

being closed during core alterations or movement of irradiated fuel assemblies. These TSTFs were approved by the NRC Staff on August 16, 1999.

In further support of this TS Change Request, Entergy commits to take action to have the containment equipment door closed within 30 minutes of the determination of the need to evacuate containment.

This proposed change has been evaluated in accordance with 10CFR50.91(a)(1), using the criteria in 10CFR50.92(c), and it has been determined that this request involves no significant hazards consideration.

The circumstances surrounding this change do not meet the NRC Staff criteria for exigent or emergency review, however, to benefit from this change during the next refueling outage, presently scheduled for the fall of 2000, approval is being requested by June 2000. This change would provide for considerable cost savings during the refueling outage by allowing movement of personnel and equipment freely between the containment building and the outside.

Entergy requests the effective date for this TS change to be within 60 days of approval.

All of the commitments contained in this submittal are identified on the attached Commitment Identification/Voluntary Enhancement Form. Should you have any questions or comments concerning this request, please contact Ron Williams at (504) 739-6255.

Very truly yours,

C.M. Dugger
Vice President, Operations
Waterford 3

CMD/RLW/rtk
Attachments: Affidavit
NPF-38-226

cc: E.W. Merschoff, NRC Region IV
N. Kalyanam, NRC-NRR
J. Smith
N.S. Reynolds
NRC Resident Inspectors Office
Administrator Radiation Protection Division
(State of Louisiana)
American Nuclear Insurers

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of	)	
	)	
Entergy Operations, Incorporated	)	Docket No. 50-382
Waterford 3 Steam Electric Station	)	

AFFIDAVIT

Charles Marshall Dugger, being duly sworn, hereby deposes and says that he is Vice President Operations - Waterford 3 of Entergy Operations, Incorporated; that he is duly authorized to sign and file with the Nuclear Regulatory Commission the attached Technical Specification Change Request NPF-38-226; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information and belief.

Charles Marshall Dugger
Vice President Operations - Waterford 3

STATE OF LOUISIANA)
) ss
PARISH OF ST. CHARLES)

Subscribed and sworn to before me, a Notary Public in and for the Parish and State above named this 12th day of January, 2000.

Notary Public

My Commission expires at death.

DESCRIPTION AND NO SIGNIFICANT HAZARDS CONSIDERATION
DETERMINATION OF PROPOSED CHANGE NPF-38-226

Summary of Proposed Changes

The proposed change modifies the Limiting Condition for Operation for Technical Specification (TS) 3.9.4, "Containment Building Penetrations," to allow the containment equipment door, airlocks and other penetrations to remain open, but capable of being closed, during core alterations or movement of irradiated fuel in containment. Additionally, a note, Bases changes and Surveillance Requirements changes are being added to clarify equipment door and airlock closure capability.

Existing Specification

See Attachment A

Proposed Marked-up Specification

See Attachment B

Proposed Specification

See Attachment C

Commitment Identification/Voluntary Enhancement Form

See Attachment D

Background

The reactor containment building (containment) serves to contain fission product activity that may be released from the reactor core following an accident, such that offsite radiation exposures are maintained well within the requirements of 10CFR100. Requirements for the status of openings or penetrations in containment during core alterations or movement of irradiated fuel in containment are provided in TS 3.9.4.

The containment equipment hatch door is a welded steel assembly, with a double gasketed flanged and bolted cover. This hatch is 14 feet in diameter and provides a means for moving large equipment and components into and out of containment during refueling outages. The Waterford 3 equipment hatch door uses swing bolts for closure

and is of the pressure sealing design. Closure is accomplished manually with four of sixteen bolts required during MODE 5 and 6 operations.

Waterford 3 TS 3.9.4 requires the containment equipment hatch door be closed and secured with a minimum of four bolts during core alterations or movement of irradiated fuel within the containment. The purpose of this requirement is to mitigate the consequences of a fuel handling accident (FHA).

The Waterford 3 containment personnel airlock (PAL) connects the containment interior with the Auxiliary Building. The PAL is provided for the purpose of permitting personnel to enter and exit the containment building. The PAL contains two airlock doors with a personnel chamber between the two doors. The containment is also provided with an Emergency Airlock (EAL). The EAL is a smaller airlock that connects the containment with the outside environs. Both of these airlocks are of the pressure seating design.

TS 3.9.4 require that a minimum of one PAL and EAL door be closed during core alterations or movement of irradiated fuel within the containment to mitigate the consequences of a FHA.

Other penetrations are provided for system connections between the containment and those portions of the systems outside containment. A typical penetration is equipped with isolation valves inside and outside containment and drain or vent valves to the atmosphere. These penetrations, when subject to Local Leak Rate Testing (LLRT) during an outage, are required to be opened in order to drain the penetration piping, providing direct access from the containment atmosphere to the outside atmosphere. The administrative controls driving the evaluate of the impact of containment impairments (activity resulting in a flowpath between inside and outside containment that is not provided with an automatic closure on high containment radioactivity) for expeditious containment closure were implemented to address Generic Letter 88-17, "Loss Of Decay Heat Removal."

TS 3.9.4 requires these penetrations be closed during core alterations or movement of irradiated fuel within the containment to mitigate the consequences of a FHA. Each penetration providing direct access from the containment atmosphere to the outside atmosphere is required to be either: (1) closed by an isolation valve, blind flange, or manual valve, or (2) capable of being closed by an operable containment purge valve.

During plant shutdown when the shutdown cooling systems are in use with fuel in the core, site procedures require containment closure be accomplished within one hour, should a loss of shutdown cooling occur. These procedures establish containment closure controls for all containment penetrations, including the containment equipment hatch, PAL doors, EAL doors, and other penetrations. The containment closure controls provide guidance to the personnel responsible for establishing containment closure, provide a list of equipment and materials that is required to be maintained available for use in establishing containment closure, and provide a list of containment

closure impairment activities that are capable of being isolated expeditiously. All containment closure impairments include a description of the activity, the penetration number affected, the estimated time to isolate, and the name and phone number of the responsible person or organization.

The Waterford 3 design is such that its containment equipment hatch door can be closed easily and efficiently. On September 29, 1989, as part of the initiatives to address Generic Letter 88-17, Entergy performed an equipment hatch closure test at Waterford 3 to verify the time required to close the equipment hatch. The test simulated conditions normally found during an outage. The total time required to close the equipment hatch was less than 15 minutes. These measures for the expeditious closure of the equipment hatch were established to address Generic Letter 88-17, and were documented in plant procedures.

Maintaining the equipment hatch door open, but capable of being closed, makes it easier to maintain a clean, safe working environment inside the containment. With the equipment hatch closed during fuel handling and core alterations, trash accumulates in the containment. This requires a fire watch to be posted and thus, increases radiation exposure, manpower requirements, and cost. If the containment equipment hatch door were allowed to be open during fuel handling and core alterations, equipment, trash, laundry, etc. that cannot safely be removed through the personnel airlock can be easily and efficiently moved in and out of the containment.

During a typical refueling outage, work scope and related critical path sequencing is logically related to the availability of the equipment hatch door being open. Maintaining the equipment hatch closed can cause equipment movement to delay the final closure of the containment equipment hatch door prior to plant heatup. If the containment equipment hatch door could remain open during movement of irradiated fuel or core alterations, the extra time would allow equipment to be moved into and out of the containment other than during critical path time and in a more schedule efficient manner.

Leaving the PAL doors open will significantly reduce the wear on the doors. Experience has shown that very frequent use of the PAL doors has resulted in accelerated wear of the PAL door components, such as door hinge pins, door seals, and the packing of equalizing valves. Thus, leaving the PAL doors open should increase the reliability of the PAL doors. Allowing the equipment hatch and PAL doors to be open will provide for greater efficiency in the movement of personnel and equipment without impact on the refuel critical path.

There is a large number of people in containment during refueling outages including during fuel movement and core alterations. Should a fuel handling accident occur, the containment could be evacuated more expeditiously with the equipment hatch door open than with it closed, thus enhancing personnel safety. This would reduce dose to the workers in the event of an accident while maintaining acceptable 10CFR100 doses

to the public. In the event of a FHA inside containment, an open equipment hatch will be the most limiting containment opening with respect to establishment of containment closure. The equipment hatch door will be closed as part of an evacuation of containment, allowing personnel to evacuate through the equipment hatch in addition to the PAL. However, in order to protect the health and safety of the public, the equipment hatch closure would be completed within 30 minutes of the determination of the need to evacuate containment.

An individual will be designated to monitor the condition of the open equipment hatch door during core alterations and fuel movement inside containment to assure closure of the equipment hatch door following containment evacuation. The assurance that the open equipment hatch door will remain capable of prompt closure will be administratively controlled in site procedures. Any items passing through the door that could obstruct closure of the door will have either quick disconnect capability or will be readily removable.

The combination of the savings gained from leaving the equipment hatch door open during the entire refueling outage would be due to decreased entries through the PAL, resulting in increased PAL door reliability and greater efficiency in the movement of personnel, and from decreased critical path time. This results in significant cost savings over the life of the plant.

During the performance of LLRT, certain containment isolation valves (i.e., those subject to Type C testing) are required to be opened in order to drain the penetration piping, providing direct access from the containment atmosphere to the outside atmosphere. Therefore, LLRT tests cannot be performed during core alterations or fuel movement inside containment. This includes approximately 38% of the containment penetrations that cannot have a LLRT performed during core alterations. This restriction significantly complicates the logistics for performing LLRT and reduces overall refueling outage efficiency. The proposed change to TS 3.9.4 would allow containment penetrations to be open, on an intermittent basis provided that the penetration is capable of being closed by an isolation valve, blind flange, or manual valve. The administrative controls are those that were implemented for containment impairments as initiatives to address Generic Letter 88-17.

During core alterations or movement of irradiated fuel assemblies within containment, the most severe radiological consequences result from a FHA. The FHA is a postulated event that involves damage to irradiated fuel. The FHA analysis in the Final Safety Analysis Report (FSAR) includes dropping a single irradiated fuel assembly or dropping a heavy object onto other irradiated fuel assemblies. The acceptance limits for a FHA are contained in Standard Review Plan (SRP) Section 15.7.4 and are defined as "well within" 10CFR100 limits for offsite radiation exposure. The "well within" 10CFR100 limits are 25% of the 10CFR100 values or 75 rem thyroid and 6 rem whole body.

The current TS 3.9.4 LCO limits the consequences of a FHA inside containment by limiting the potential escape paths for fission product radioactivity released within containment. However, EOI has performed a new FHA analysis inside containment that assumes the containment equipment hatch, PAL and EAL doors, and penetrations are open at the time of the accident. The proposed change will continue to meet the intent of LCO 3.9.4 by ensuring that escape paths are capable of being closed in a rapid manner such that the acceptance limits for offsite radiation exposure are met.

The Entergy request for modification to the Waterford 3 Containment Building Penetration TS is similar to the license amendments issued to another EOI plant, Arkansas Nuclear One, Units 1 and 2 on April 16, 1999. License Amendments Nos. 195 and 203 for Unit 1 and 2, respectively, provided approval to have the containment equipment door open during core alterations or movement of irradiated fuel within the containment provided the door was capable of being closed following a required evacuation of containment. Previous amendments were issued in 1995 to permit the airlocks to remain open during core alterations.

Description and Safety Considerations

The proposed change modifies the Limiting Condition for Operation for Technical Specification (TS) 3.9.4, "Containment Building Penetrations," by changing the requirement for Limiting Condition for Operation (LCO) "a" for the equipment door from "closed and held in place by a minimum of four bolts" to "capable of being closed." LCO "b" for the personnel airlock and escape airlock doors is being changed from the requirement of "a minimum of one door in each airlock is closed" to "a minimum of one door in each airlock capable of being closed." LCO "c.1" is being changed from the requirement of each penetration to be "closed" to "capable of being closed."

A footnote is also being added to state that administrative controls shall ensure the following:

- that appropriate personnel are aware that the equipment door, both personnel airlock doors, and/or penetrations are open;
- a specific individual(s) is designated and available to close the equipment door, an airlock door, and penetrations as part of a required evacuation of containment; and
- any obstruction(s) (e.g., cables and hoses) that could prevent closure of an airlock door and the equipment door are capable of being quickly removed

Bases changes are being added to clarify equipment door, airlock and penetration closure capability requirements.

Additionally, the Surveillance Requirement is being reworded for compatibility with the revised TS and guidelines from TS 3.9.3, "Containment Penetrations," (Refueling Operations), in NUREG 1432.

These TS and Bases changes incorporate elements of the guidelines in TS 3.9.3, "Containment Penetrations," (Refueling Operations), in NUREG 1432, "Standard Technical Specifications - Combustion Engineering Plants," as modified by Technical Specification Task Force Traveler (TSTF) 68, Revision 2 and 312, Revision 1. TSTFs 68 and 312, respectively, provide that during core alterations or movement of irradiated fuel assemblies within containment, one door in each airlock be capable of being closed and that penetration flow path(s) providing direct access from the containment atmosphere to the outside atmosphere may be unisolated under administrative controls. The TSTFs, however, do not currently address changes to the requirement for the equipment door. These TSTFs were approved by the NRC Staff on August 16, 1999.

This proposed change to the TS would allow the containment equipment hatch door, PAL and EAL doors, and penetrations to be open during fuel movement and core alterations. The purpose of the current requirement to have the containment equipment hatch door closed during core alterations and fuel movement is to prevent the escape of radioactive material in the event of a FHA. In order to ensure that the doses to the public remain within acceptable limits, EOI performed a new FHA inside containment analysis. The analysis assumes the containment equipment hatch, PAL and EAL doors, and penetrations are open at the time of the accident. The results of the FHA analysis shows that it is not necessary to have containment closure in order to show acceptable site boundary and control room doses well within the acceptance limits following a FHA. In fact, this analysis assumes no credit for the reactor containment building.

The evaluation for the offsite and control room radiological consequences of a FHA in the containment with open penetrations used the TRANSACT computer code, which is an enhancement of the NRC Staff approved TACT V code. This code is the same as used for other licensing basis offsite dose calculations in the FSAR. The modeling for calculating the radiological consequences of a FHA incorporated the appropriate conservative assumptions in RG 1.25 and used the same atmospheric dispersion factors as specified in the FSAR.

The total number of failed fuel rods used in the analysis is based on the Waterford 3 design basis fuel handling accident in the Fuel Handling Building described in the Waterford 3 FSAR Section 15.7.3.4. This design basis analysis establishes that the worst case FHA is the failure of fuel rods in four rows parallel to one assembly face i.e., 60 fuel rods. This analysis employs the conservative assumption that the dropped fuel assembly at impact has reached its terminal velocity in water. The analysis assumes that all of the kinetic energy of the fuel assembly at impact is absorbed only by the fuel rods at a single line of contact. With this assumption, no more than four rows, 60 fuel rods, will undergo failure. Since the fuel assembly is travelling at its terminal velocity in water at the time of impact, the number of failed fuel rods is independent of the distance through which the fuel assembly is assumed to drop.

RG 1.25, section C.1.d., states that all of the gap activity in the damaged rods is released and consists of 10% of the total noble gases other than Kr-85, 30% of the Kr-85, and 10% of the total radioactive iodine in the rods at the time of the accident. The assumptions used in generating the fuel rod gap inventories are consistent with RG 1.25 with the exception that the release fraction for Iodine-131 is increased to 20% in accordance with NUREG/CR-5009. The gap inventory used in this FHA analysis is the same as used for the Waterford 3 Spent Fuel Pool storage capacity increase analyses approved by the NRC Staff on July 10, 1998, with issuance of Amendment 144. This inventory is conservatively based on an anticipated power uprate condition of 108% plus an additional 5% power (1.08*3390*1.05 = 3844.3 MWt or 3844.3/3390 = 113.4 % of rated core power).

RG 1.25, section C.1.i., states that the radioactive material that escapes from the pool to the building is released from the building over a two-hour time period. The Waterford 3 calculation assumes that the noble gases and radioiodine from the gap of the broken fuel rods are instantaneously released to the containment atmosphere. Furthermore, all the airborne radioactivity reaching the containment is assumed to be released instantaneously to the outside atmosphere. This assumption is overly conservative, since for all practical purposes, it ignores the existence of the containment building. In an actual event, the equipment hatch will be closed within 30 minutes of determination of the need to evacuate the containment and the personnel airlock doors will be closed as soon as all personnel inside containment are evacuated.

The following offsite and control room dose consequences (rem) have been calculated for the FHA inside containment:

Dose (rem)	Thyroid		Whole Body		Skin	
	Analysis	Limit	Analysis	Limit	Analysis	Limit
2 hr Exclusion Area Boundary	53.70	75	0.176	6	N/A	N/A
2 hr Low Population Zone Boundary	6.05	75	0.02	6	N/A	N/A
30 day Control Room	0.932	30	0.015	5	0.623	30

Per SRP, Section 15.7.4, Rev. 1, the radiological consequences of a FHA must be within the acceptance limits of 75 rem for the thyroid and 6 rem for the whole body.

Additionally, 10CFR50 Appendix A, General Design Criterion (GDC) 19, specifies that adequate radiation protection is to be provided to permit access and occupancy of the control room under accident conditions without personnel exposures in excess of 5 rem whole body or its equivalent to any part of the body for the duration of the accident.

The above analysis results demonstrate that the offsite and control room doses due to an FHA in the Containment Building with penetrations open are well within the acceptance criteria given in SRP Section 15.7.4 and GDC 19.

A review of actual operating conditions during a refueling outage reveals additional safety margin when compared to the assumptions contained in the above analysis. The FHA does not result in containment pressurization, therefore, there is no significant driving force to expel radioactivity released from failed fuel rods to outside containment. This is conservatively neglected in the calculation of the dose consequences.

To further place into perspective the effect of having the equipment hatch open during the onset of any fuel handling accident, consider the fact that its square footage is only 0.146% of the entire containment vessel. This is in stark contrast to the assumption used in this analysis that all airborne activity reaching the containment is released instantaneously to the outside atmosphere.

Conclusion

The proposed change to TS 3.9.4 contains provisions that allow the specified penetrations to be open during core alterations or movement of irradiated fuel within the containment. The proposed revisions to TS 3.9.4 are justified by the FHA analysis with the containment penetrations open. In addition, these provisions also include restrictions that ensure timely containment closure as an additional measure to minimize the dose released from containment. Administrative controls will ensure that the containment is capable of rapid closure. Additionally, trained individuals will be designated to close the containment if required. The closure of the equipment hatch will be completed within 30 minutes of determination of the need to evacuate containment, thus minimizing the release of radioactive material to the outside environment.

No Significant Hazards Consideration Determination

The proposed changes described above have been evaluated in accordance with 10 CFR 50.92(c). The change shall be deemed to involve a significant hazards consideration if there is a positive finding in any of the following areas:

1. Will the operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response:

The proposed change would allow the containment equipment hatch door, personnel air lock (PAL) doors, emergency air lock (EAL) doors and penetrations to remain open during fuel movement and core alterations. These penetrations are normally closed during this time period in order to prevent the escape of radioactive material in the event of a fuel handling accident inside containment (FHA). These penetrations are not initiators of any accident. The probability of a FHA is unaffected by the position of these penetrations.

The new FHA analysis with an open containment demonstrates the maximum offsite doses are well within the acceptance limits specified in SRP 15.7.4. This FHA analysis results in maximum offsite doses of 53.70 rem to the thyroid and 0.176 rem to the whole body. The calculated control room dose is also well within the acceptance criteria specified in GDC 19. The analysis results in thyroid and whole body dose to the control room operator of 0.932 rem and 0.015 rem, respectively.

Therefore, the proposed change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Will the operation of the facility in accordance with this proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response:

The proposed change does not involve the addition or modification of any plant equipment. Also, the proposed change would not alter the design, configuration, or method of operation of the plant beyond the standard functional capabilities of the equipment. The proposed change involves a change to the Technical Specifications (TS) that would allow the equipment hatch door, the PAL door, the EAL door and penetrations to be open during core alterations and fuel movement within the containment. Having these doors and penetrations open does not create the possibility of a new accident. Provisions to ensure the capability to close the containment will have been made in the event of a FHA.

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

3. Will the operation of the facility in accordance with this proposed change involve a significant reduction in a margin of safety?

Response:

This proposed change has the potential for an increased dose at the site boundary due to a FHA; however, the analysis demonstrates that the resultant doses are well within the appropriate acceptance limits. The margin of safety, as defined by SRP 15.7.4 Rev 1, has not been significantly reduced. The offsite and control room doses due to a FHA with an open containment have been evaluated with conservative assumptions, such as all airborne activity reaching the containment is released instantaneously to the outside atmosphere, will ensure the calculation bounds the expected dose. Closing the equipment hatch door and at least one door in each personnel airlock following an evacuation of the containment reduces the offsite doses in the event of a FHA and provides additional margin to the calculated offsite doses.

Therefore, the proposed change will not involve a significant reduction in a margin of safety.

Safety and No Significant Hazards Consideration Determination

Based on the above No Significant Hazards Evaluation, it is concluded that: (1) the proposed change does not constitute a significant hazards consideration as defined by 10CFR50.92; (2) there is a reasonable assurance that the health and safety of the public will not be endangered by the proposed change; and (3) this action will not result in a condition which significantly alters the impact of the station on the environment as described in the NRC final environmental statement.

NPF-38-226

ATTACHMENT A

EXISTING SPECIFICATIONS

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,

b. A minimum of one door in each airlock is closed, and

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

1. Closed by an isolation valve, blind flange, or manual valve, or

2. Be capable of being closed by an OPERABLE automatic containment purge valve.

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.

SURVEILLANCE REQUIREMENTS

4.9.4 Each of the above required containment building penetrations shall be verified to be either in its closed/isolated condition or capable of being closed by an OPERABLE automatic containment purge valve within 72 hours prior to the start of and at least once per 7 days during CORE ALTERATIONS or movement of irradiated fuel in the containment building.

3/4.9 REFUELING OPERATIONS

BASES

3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: (1) the reactor will remain subcritical during CORE ALTERATIONS, and (2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the safety analyses. The K_{eff} value specified in the COLR includes a 1% delta k/k conservative allowance for uncertainties. Similarly, the boron concentration value specified in the COLR also includes a conservative uncertainty allowance of 50 ppm boron.

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 pressure 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 requirements on containment penetration closure and OPERABILITY ensure that a release of radioactive material within containment will be restricted from leakage to the environment. The OPERABILITY and closure restrictions are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE.

3/4.9.5 COMMUNICATIONS

The requirement for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity condition during CORE ALTERATIONS.

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ATTACHMENT B

PROPOSED MARKED-UP SPECIFICATIONS

REFUELING OPERATIONS

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;~~ is capable* of being closed,

b. A minimum of one door in each airlock ~~is closed;~~ capable* of being closed and

c. Each penetration providing direct access from the containment atmosphere to the ~~outside atmosphere shall be either:~~ Capable* of being closed

1. ~~Closed~~ by an isolation valve, blind flange, or manual valve, or

2. Be capable of being closed by an OPERABLE automatic containment purge valve.

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.

SURVEILLANCE REQUIREMENTS

4.9.4 Each of the above required containment building penetrations shall be verified to be either in its closed/isolated condition or capable of being closed ~~by an OPERABLE automatic containment purge valve within 72 hours~~ prior to the start of and at least once per 7 days during CORE ALTERATIONS or movement of irradiated fuel in the containment building.

INSERT 1

INSERT 1

* Administrative controls shall ensure that appropriate personnel are aware that equipment door, both personnel airlock doors and/or penetrations are open, a specific individual(s) is designated and available to close the equipment door, an airlock door and the penetrations as part of a required evacuation of containment, and any obstruction(s) (e.g., cables and hoses) that could prevent closure of an airlock door and the equipment door be capable of being quickly removed.

3/4.9 REFUELING OPERATIONS

BASES

3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: (1) the reactor will remain subcritical during CORE ALTERATIONS, and (2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the safety analyses. The K_{eff} value specified in the COLR includes a 1% delta k/k conservative allowance for uncertainties. Similarly, the boron concentration value specified in the COLR also includes a conservative uncertainty allowance of 50 ppm boron.

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 pressure 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 requirements on containment penetration closure and OPERABILITY ensure that a release of radioactive material within containment will be restricted from leakage to the environment. The OPERABILITY and closure restrictions are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE.

INSERT 2

3/4.9.5 COMMUNICATIONS

The requirement for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity condition during CORE ALTERATIONS.

INSERT 2

The equipment door, personnel airlock doors, or penetrations may be open during movement of irradiated fuel in the containment and during CORE ALTERATIONS provided the equipment door, a minimum of one door in the airlock, and penetrations are capable of being closed in the event of a fuel handling accident. Should a fuel handling accident occur inside containment, the equipment door, a minimum of one personnel airlock door and the open penetrations will be closed as part of an evacuation of containment. For closure, the equipment door will be held in place by a minimum of four symmetrically-placed bolts.

NPF-38-226

ATTACHMENT C

PROPOSED SPECIFICATIONS

REFUELING OPERATIONS

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 is capable* of being closed,

b. A minimum of one door in each airlock capable * of being closed, and

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

1. Capable * of being closed by an isolation valve, blind flange, or manual valve, or

2. Be capable of being closed by an OPERABLE automatic containment purge valve.

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.

SURVEILLANCE REQUIREMENTS

4.9.4 Each of the above required containment building penetrations shall be verified to be either in its closed/isolated condition or capable of being closed prior to the start of and at least once per 7 days during CORE ALTERATIONS or movement of irradiated fuel in the containment building.

*Administrative controls shall ensure that appropriate personnel are aware that equipment door, both personnel airlock doors and/or penetrations are open, a specific individual(s) is designated and available to close the equipment door, an airlock door and the penetrations as part of a required evacuation of containment, and any obstruction(s) (e.g., cables and hoses) that could prevent closure of an airlock door and the equipment door be capable of being quickly removed.

3/4.9 REFUELING OPERATIONS

BASES

3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: (1) the reactor will remain subcritical during CORE ALTERATIONS, and (2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the safety analyses. The K_{eff} value specified in the COLR includes a 1% delta k/k conservative allowance for uncertainties. Similarly, the boron concentration value specified in the COLR also includes a conservative uncertainty allowance of 50 ppm boron.

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 pressure 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 requirements on containment penetration closure and OPERABILITY ensure that a release of radioactive material within containment will be restricted from leakage to the environment. The OPERABILITY and closure restrictions are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE.

The equipment door, personnel airlock doors, or penetrations may be open during movement of irradiated fuel in the containment and during CORE ALTERATIONS provided the equipment door, a minimum of one door in the airlock, and penetrations are capable of being closed in the event of a fuel handling accident. Should a fuel handling accident occur inside containment, the equipment door, a minimum of one personnel airlock and the open penetrations will be closed as part of an evacuation of containment. For closure, the equipment door will be held in place by a minimum of four symmetrically-placed bolts.

3/4.9.5 COMMUNICATIONS

The requirement for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity condition during CORE ALTERATIONS.

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ATTACHMENT D

COMMITMENT IDENTIFICATION/VOLUNTARY ENHANCEMENT FORM

COMMITMENT IDENTIFICATION/VOLUNTARY ENHANCEMENT FORM

Attachment D to W3F1-99-0122
Technical Specification Change Request NPF-38-226 Containment Building Penetrations During Core Alterations and Irradiated Fuel Movement in Containment

COMMITMENT(S)	ONE-TIME ACTION*	CONTINUING COMPLIANCE*	SCHEDULED COMPLETION DATE (IF REQUIRED)	ASSOCIATED CR OR ER
Entergy commits to take action to have the containment equipment hatch closed within 30 minutes of the determination of the need to evacuate containment.		X	Upon Implementation of Approved Amendment	
Implement administrative procedures that ensure in the event of a Fuel Handling Accident that the containment equipment hatch and at least one door in each personnel airlock will be closed following containment evacuation, and that the open penetrations can and will be promptly closed.		X	Upon Implementation of Approved Amendment	