

February 20, 2002

Mr. C. Lance Terry
Senior Vice President
& Principal Nuclear Officer
TXU Generation Company LP
Attn: Regulatory Affairs Department
P. O. Box 1002
Glen Rose, TX 76043

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES), UNITS 1 AND 2 -
ISSUANCE OF AMENDMENTS RE: EQUIPMENT HATCH OPEN DURING
REFUEL OPERATIONS (TAC NOS. MB3371 AND MB3372)

Dear Mr. Terry:

The Commission has issued the enclosed Amendment No. 93 to Facility Operating License No. NPF-87 and Amendment No. 93 to Facility Operating License No. NPF-89 for CPSES, Units 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated November 8, 2001 (CPSES-200102356), as supplemented on December 14, 2001 (CPSES-200103029).

The amendments add the following to the TSs: (1) the phrase, "or if open, capable of being closed," to Limiting Condition for Operation 3.9.4 for the equipment hatch, during core alterations or movement of irradiated fuel assemblies inside containment, and (2) the requirement to verify the capability to install the equipment hatch in a new Surveillance Requirement (SR) 3.9.4.2. The previous SR 3.9.4.2 was renumbered SR 3.9.4.3, but not changed. Item (1) allows the equipment hatch to be open during the conditions stated above.

A copy of our related Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

Jack N. Donohew, Senior Project Manager, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-445 and 50-446

Enclosures: 1. Amendment No. 93 to NPF-87
2. Amendment No. 93 to NPF-89
3. Safety Evaluation

cc w/encls: See next page

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DISTRIBUTION:

Docket Nos. 50-445 and 50-446

- Enclosures: 1. Amendment No. 93 to NPF-87
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- 3. Safety Evaluation

cc w/encls: See next page

PUBLIC
PDIV-1 Reading
RidsNrrDlpmPdiv(SRichards)
RidsNrrDlpmPdivLpdiv1(RGramm)
RidsNrrPMDJaffe
RidsNrrLADJohnson
RidsRgn4MailCenter (KBrockman)
RidsNrrDripRtsb (WBeckner)
RidsOgcRp
RidsAcrsAcnwMailCenter
JDonohew
RBarrett

G.Hill(4)
L.Hurley, RIV
D. Bujol,RIV

JHannon

Accession No.: **ML013520577**

OFFICE	PDIV-1/PM	PDIV-1/LA	SPSB/BC	SPLB/BC	OGC	PDIV-1/SC
NAME	JDonohew:as	DJohnson	RBarrett	JHannon	RHoefling	RGramm
DATE	01/28/02	01/29/02	01/31/02	02/05/02	02/12/02	02/20/02

Comanche Peak Steam Electric Station

cc:

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Bureau of Radiation Control
Texas Department of Health
1100 West 49th Street
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April 2001

TXU GENERATION COMPANY LP
COMANCHE PEAK STEAM ELECTRIC STATION, UNIT NO. 1
DOCKET NO. 50-445
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 93
License No. NPF-87

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by TXU Generation Company LP¹ dated November 8, 2001, as supplemented by letter dated December 14, 2001, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. NPF-87 is hereby amended to read as follows:

1 The application and supplemental letter were submitted by TXU Electric which transferred ownership and operating authority to TXU Generation Company LP on January 1, 2002, pursuant to an Order dated December 21, 2002, issued by the Commission. By letter dated January 2, 2002, TXU Generation Company LP adopted all applications previously submitted to the Commission by TXU Electric.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 93 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. TXU Generation Company LP shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of its date of issuance and shall be implemented within 60 days from the date of issuance, including the incorporation of the changes to the Technical Specification Bases as described in the licensee's application dated November 8, 2001.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Robert A. Gramm, Chief, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: February 20, 2002

TXU GENERATION COMPANY LP
COMANCHE PEAK STEAM ELECTRIC STATION, UNIT NO. 2
DOCKET NO. 50-446
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 93
License No. NPF-89

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by TXU Generation Company LP¹ dated November 8, 2001, as supplemented by letter dated December 14, 2001, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. NPF-89 is hereby amended to read as follows:

1 The application and supplemental letter were submitted by TXU Electric which transferred ownership and operating authority to TXU Generation Company LP on January 1, 2002, pursuant to an Order dated December 21, 2002, issued by the Commission. By letter dated January 2, 2002, TXU Generation Company LP adopted all applications previously submitted to the Commission by TXU Electric.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 93 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. TXU Generation Company LP shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days from the date of issuance, including the incorporation of the changes to the Technical Specification Bases as described in the licensee's application dated November 8, 2001.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Robert A. Gramm, Chief, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: February 20, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 93

TO FACILITY OPERATING LICENSE NO. NPF-87

AND AMENDMENT NO. 93

FACILITY OPERATING LICENSE NO. NPF-89

DOCKET NOS. 50-445 AND 50-446

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

Insert

3.9-7

3.9-7

3.9-8

3.9-8

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 93 TO
FACILITY OPERATING LICENSE NO. NPF-87
AND AMENDMENT NO. 93 TO
FACILITY OPERATING LICENSE NO. NPF-89
TXU GENERATION COMPANY LP
COMANCHE PEAK STEAM ELECTRIC STATION, UNITS 1 AND 2
DOCKET NOS. 50-445 AND 50-446

1.0 INTRODUCTION

By application dated November 8, 2001, as supplemented by letter dated December 14, 2001, TXU Generation Company LP (the licensee) requested changes to the Technical Specifications (TSs) for the Comanche Peak Steam Electric Station (CPSES), Units 1 and 2. The proposed changes would add the following to the TSs: (1) the phrase, "or if open, capable of being closed" to Limiting Condition for Operation (LCO) 3.9.4, "Containment Penetrations," for the equipment hatch during core alterations or movement of irradiated fuel assemblies inside containment, and (2) the requirement to verify the capability to install the equipment hatch in a new Surveillance Requirement (SR) 3.9.4.2. The existing SR 3.9.4.2 would be renumbered SR 3.9.4.3, but would not otherwise be changed, to be consistent with the new SR. The proposed changes would revise item a. of LCO 3.9.4 to allow the equipment hatch with direct access to the outside atmosphere to be open during refueling operations with core alterations or irradiated fuel movement inside containment. The licensee clarified its application in the e-mail dated January 23, 2002.

The application dated November 8, 2001, as supplemented by letter dated December 14, 2001, was submitted by TXU Electric which transferred ownership and operating authority to TXU Generation Company LP on January 1, 2002, pursuant to an Order dated December 21, 2001, issued by the Nuclear Regulatory Commission (NRC). By letter dated January 2, 2002, TXU Generation Company LP adopted all applications previously submitted to the NRC by TXU Electric.

The supplemental letter dated December 14, 2001, and the e-mail dated January 23, 2002 (available at ADAMS Accession No. ML020290155), provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on December 12, 2001 (66 FR 64307).

2.0 EVALUATION

The licensee has proposed to add the following: (1) the phrase, "or if open, capable of being closed," to LCO 3.9.4, and (2) SR 3.9.4.2 requiring the verification of the capability to install the equipment hatch. The proposed changes to TS 3.9.4 are to allow the equipment hatch to be open during core alterations or movement of irradiated fuel assemblies inside containment and to verify that the capability to close the hatch, if this is needed, is in place. This allowance would be used during refueling operations when the reactor is shut down, and there is 23 feet of water above the reactor flange in accordance with TS 3.9.7, "Refueling Pool Water Level."

The licensee stated that the equipment hatch provides a means for moving large equipment components into and out of containment during plant outages, such as a refueling outage. It is a large, welded steel assembly with a double-gasketed, flanged, and bolted cover, which is raised and lowered with a single dedicated hoist. Because it is part of the containment pressure boundary, the current TSs require that the equipment hatch is closed and held in place by bolts when (1) the containment must be closed and operable (this is in reactor Modes 1 through 4 in accordance with TS 3.6.1, "Containment"), and (2) there are core alterations or irradiated fuel movement in Mode 6 (this is in accordance with TS 3.9.4). The TS 3.9.4 requirement is to ensure that a release of radioactive material within the containment, because of fuel movements or core alterations, would be collected and filtered before being released from the containment to the environment.

The licensee explained that the proposed changes to TS 3.9.4 will allow it to optimize refueling outages by permitting planned outage work to proceed in conjunction with critical path activities, thereby shortening the outage. The proposed amendments will permit operations currently scheduled for early in the refueling outage, when there is no core alterations or movement of irradiated fuel assemblies inside containment and the containment may be open, to later in the outage when the reactor vessel is open and covered by 23 feet of water where the risk of severe core damage is lower. This the licensee stated could reduce the overall risk, duration, and cost of the outages.

In the e-mail dated January 23, 2002, the licensee clarified its application and explained that the equipment hatch is moved by a single dedicated hoist which is powered from a non-class 1E power supply. In the case of station blackout, the licensee stated that the hoist can be manually operated if power is lost by a handwheel on the hoist or with a battery-operated device on the hoist.

The postulated accidents that could result in a release of radioactive material through the equipment hatch would be as follows: (1) a fuel handling accident (FHA) inside containment, and (2) a loss of cooling to the core that leads to core boiling and uncover. These are discussed in Section 2.3 below.

2.1 Administrative Controls

If the licensee would open the equipment hatch in outages when there are core alterations or fuel movement inside containment, the licensee has proposed to have the equipment hatch under administrative controls. The equipment hatch would be maintained in an isolable

condition (i.e., capable of being closed and bolted) and there would be procedures in place that would require the following:

- Appropriate personnel are aware of the open status of the containment (i.e., an open equipment hatch) during movement of irradiated fuel or core alterations.
- Specified individuals are designated and readily available to close the equipment hatch following an evacuation that would occur in the event of an FHA.
- Any obstructions (e.g., cables and hoses) that would prevent rapid closure of an open equipment hatch can be quickly removed.

A description of the administrative controls is given in the licensee's application and will be added to the Bases of the TSs.

In its supplemental letter of December 14, 2001, the licensee stated that it estimated the time to close the open equipment hatch is eight minutes, based on a demonstration of such a closure of the hatch during a refueling outage of CPSES, Unit 1.

2.2 Tornado Missiles

In its supplemental letter of December 14, 2001, the licensee stated that the equipment hatch does not provide missile protection for the containment. This protection is provided by the equipment hatch missile shield which is located outside the containment. During Modes 1 through 4, when containment integrity is required, the missile shield covers the equipment hatch. For Modes 5 and 6, the licensee stated that the missile shield is not required because there are no essential targets between the equipment hatch and the inner missile barrier inside containment. The equipment hatch and its missile shield would not have to be put in place for a tornado in Modes 5 and 6. For a tornado missile to come through the equipment hatch opening in Modes 5 and 6, the licensee stated that there would be no damage to systems or components required to maintain the reactor in a safe shutdown condition, and the fuel and fuel handling equipment are protected.

In addressing what will happen at the site during refueling with severe weather, the licensee stated that procedures are in place to suspend all fuel handling activities if tornado or severe weather warnings are in effect. The licensee explained a warning means a severe thunderstorm or tornado has been sighted or detected by radar, and may be approaching.

2.3 Postulated Accidents

The limiting event during refueling when there are core alterations or fuel handling inside containment is the FHA inside containment. The licensee has described this event in Sections 15.7.3 and 15.7.4 of the Final Safety Analysis Report (FSAR) for CPSES and the NRC staff's acceptance criteria is given in Standard Review Plan (SRP) 15.7.4 of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants." The FHA outside containment in FSAR Section 15.7.3 is considered by the licensee to represent the limiting case; therefore, no specific analysis of the accident inside containment is provided in FSAR Section 15.7.4.

The licensee's and the NRC staff's calculated potential dose consequences for the FHA inside containment at the exclusion area boundary and the assumptions used for the calculated dose consequences are in the attached Tables 1 and 2, respectively. The NRC staff's calculated values of the potential dose consequences to the control room operators are also given in Table 1, and the assumptions are provided in Table 2. The acceptance criteria for the exposure of the control room operators is General Design Criterion (GDC) 19 in Appendix A to 10 CFR Part 50.

The licensee's dose consequences in Table 1 came from FSAR Section 15.7.4.3.1 (exclusion area boundary dose consequences for the FHA outside containment) and Table 15.6-8 (control room operator dose consequences for the large-break loss-of-coolant accident (LOCA), which bounds the FHA). The assumptions for the dose consequences are in Sections 15.7.4.3.1 (FHA outside containment) and 15.6.5.4 (item 4, dose to control room occupants) of the FSAR. The NRC staff's dose consequences were reported in License Amendment Nos. 48 and 34, issued by NRC letter dated March 18, 1996, for Units 1 and 2, respectively. The potential dose consequences in License Amendment Nos. 48 and 34 were part of the basis of the NRC staff's approval to have both containment personnel airlock doors open during refueling with core alterations or irradiated fuel movement inside containment. The NRC staff's potential dose consequences for the control room operators in License Amendment Nos. 48 and 34 are based on the FHA inside containment. Therefore, for the control room operators, because the licensee's values for the potential dose consequences are based on the design basis LOCA and the NRC staff's values are based on the FHA inside containment, the NRC staff's values should be significantly smaller, compared to the licensee's values, because the accident on which the values are based is a significantly smaller accident in terms of radiological materials released from the fuel.

The requirement for a minimum of 100 hours decay of the irradiated fuel in the core before any fuel movement is not changed by the proposed amendments.

Although the licensee demonstrated that the equipment hatch could be closed within minutes of an event inside containment, it has not used a time on the order of minutes to calculate the potential consequences of the FHA inside containment. Because both the licensee and the NRC staff (in its independent calculations) have assumed the two-hour release period in Regulatory Guide (RG) 1.25, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors," for the puff of radioactivity associated with radioiodines and noble gases from the damaged fuel to leave containment, the NRC staff concludes that the time to close the equipment hatch has been conservatively included in the calculation of potential dose consequences for the FHA inside containment.

Because the potential dose consequences, calculated independently by the licensee and the NRC staff in Table 1 for the FHA inside containment (for the case that the equipment hatch is not closed), are within the acceptance criteria given in SRP Section 15.7.4 and GDC 19, the NRC staff concludes that the potential dose consequences for the proposed amendments are acceptable.

For the case of a loss of cooling to the core, the licensee has stated that the eight minutes required to close the open equipment hatch is shorter than the time for the core to start boiling. The licensee stated that the minimum time to core boiling is 6.3 hours (at the beginning of fuel

offload). The time to core boiling for reduced water inventory in mid-loop operation in a refueling outage is not applicable to this review because TS 3.9.7 requires 23 feet of water above the top of the reactor vessel flange during movement of irradiated fuel assemblies within containment. Therefore, the proposed amendment does not apply to mid-loop operations.

2.4 Conclusion

Based on the administrative controls described in the licensee's application, which will be added to the TS Bases; the demonstrated short time to close the equipment hatch in the case of an accident inside containment; the acceptable potential consequences of the design basis FHA inside containment (including the doses to control room operators); and the protection of equipment needed to keep the plant safely shut down from tornado missiles during refueling with the equipment hatch open; the NRC staff concludes that the proposed addition to LCO 3.9.4 is acceptable.

The licensee also proposed to add SR 3.9.4.2 to the TSs to assure that the administrative controls to close the equipment hatch are in place when the hatch is open during core alterations or movement of irradiated fuel inside containment. The licensee proposed the following: (1) a frequency of seven days for the periodic surveillance, and (2) a note that states SR 3.9.4.2 is only required when the equipment hatch is open. The licensee states in the proposed changes to the Bases for SR 3.9.4.2 that the surveillance interval of seven days was selected to be commensurate with the normal duration of time to the fuel handling operations and the note only requires that the surveillance be met when the equipment hatch is open. The proposed frequency is consistent with similar SRs in the CPSES TSs, and the surveillance needs only to be conducted when the equipment hatch is open. Also, the proposed SR is the same as that approved for Vogtle Electric Generating Plant, Units 1 and 2, on September 11, 2000, for the same amendments. Based on this and the fact that SR 3.9.4.2 is only necessary when the equipment hatch is open, the NRC staff concludes that the proposed SR 3.9.4.2 is acceptable.

With the new SR 3.9.4.2 being added to the TSs, the existing SR 3.9.4.2 will be renumbered SR 3.9.4.3, with no other changes being made to the SR. Because a new SR 3.9.4.2 is being added to the TSs and only the number of the existing SR 3.9.4.2 changed, the NRC staff concludes that the change to the existing SR 3.9.4.2 is acceptable.

Therefore, based on the above, the NRC staff further concludes that the proposed amendments to the CPSES TSs are acceptable.

The NRC staff has reviewed the description of the administrative controls in the licensee's application and has no disagreement with the description. In its supplemental letter, the licensee agreed to add this description to the TS Bases during the implementation of the amendments and that this will be a condition of the amendment to the operating licenses. Therefore, when the amendments are incorporated into the TSs, the description of the administrative controls will become a part of the Bases of the TSs. Any changes to the description of the administrative controls will be controlled by Section 5.5.14 of the Administrative Section of the TSs.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Texas State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes SRs. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (66 FR 64307, December 12, 2001). The amendments also relate to changes in recordkeeping, reporting, or administrative procedures or requirements. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and 10 CFR 51.22(c)(10). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that (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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Attachments: 1. Table 1, Calculated Radiological Dose Consequences (Rem)
2. Table 2, Assumptions Used in Calculating Radiological Dose Consequences
Fuel Handling Accident Inside Containment

Principal Contributor: Jack Donohew

Date: February 20, 2002

TABLE 1

CALCULATED RADIOLOGICAL DOSE CONSEQUENCES (REM)

<u>Exclusion Area Boundary</u>	<u>Licensee Doses¹</u>	<u>Staff Doses²</u>	<u>NRC Acceptance Criteria SRP 15.7.4 Guidelines</u>
Whole Body	0.44	0.15	6
Thyroid	53.9	51.	75
<u>Control Room (operator)</u>	<u>Licensee Doses¹</u>	<u>Staff Doses²</u>	<u>NRC Acceptance Criteria GDC-19 Guidelines</u>
Whole Body	0.06	0.07	5
Thyroid	27.4	1.1	Equivalent to 5 rem whole body**

¹ Doses from CPSES FSAR Section 15.7.4.3.1 for the radiological consequences at the exclusion area boundary for an FHA outside containment, and Section 15.6.5.4 for the control room operator doses for a large-break LOCA (which bounds the FHA inside or outside the containment).

² Doses from License Amendment Nos. 48 and 34, issued March 18, 1996.

** Guideline doses provided in SRP Section 6.4 define the dose equivalent as 30 rem to the thyroid.

TABLE 2

ASSUMPTIONS USED IN CALCULATING RADIOLOGICAL DOSE CONSEQUENCES
FUEL HANDLING ACCIDENT INSIDE CONTAINMENT

<u>Parameters</u>	<u>Licensee Value¹</u>	<u>Staff Value²</u>
Power level (MWt)	3565	3565
Number of fuel rods damaged		264
Total number of fuel rods		50,913
Number of assemblies affected	1.0	1.0
Shutdown time (hours)	100	100
Power radial peaking factor*	1.65	1.65
Fission product release duration (hours)	2.0	2.0
Release fractions:*		
Radioiodine	10.0%	12.0% ³
Noble gases	10.0%	10.0%
Krypton gases	30.0%	30.0%
Radioiodine forms:*		
Elemental	75.0%	75.0%
Organic	25.0%	25.0%
<u>Receptor Point Variables (per TID-14844)</u>		
Exclusion area boundary		
Atmospheric relative concentration, X/Q (sec/m ³)		
0-2 hours	1.6 x 10 ⁻⁴	1.5 x 10 ⁻⁴
Control room		
Atmospheric Dispersion, X/Q (sec/m ³)	3.04 x 10 ⁻³	1.6 x 10 ⁻³
Control room volume (feet ³)	4.23 x 10 ⁺⁵	4.2 x 10 ⁺⁵
Maximum filtration rate (feet ³ /minute)	7200	7200

¹ CPSES FSAR Section 15.6.5.4, and Tables 15.6-12 and 15.7-7 on parameters (including control room and atmospheric dispersion factors) used in evaluating the accident analysis of an FHA inside containment.

² Staff parameters from Amendment Nos. 48 and 34, issued March 18, 1996.

³ Higher extended burnup release fraction for Iodine 131 from NUREG/CR-5009

* NRC RG 1.25