TSTF-308 MOD.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 15, 1999

MEMORANDUM TO: William D. Beckner, Chief
Technical Specifications Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

FROM: Falk Kantor, Acting Chief Falk J Kantor
Emergency Preparedness and
Health Physics Section
Operator Licensing, Human Performance,
and Plant Support Branch
Division of Inspection Program Management
Office of Nuclear Reactor Regulation

SUBJECT: REQUEST FOR TECHNICAL REVIEW OF TSTF-308
(TAC NO. MA 7113)

The staff has completed its review of a proposed change to Standard Technical Specification 5.5.4.e for the radiological effluent control program submitted by industry owners groups. Based on our review, we find the proposed change to be unacceptable because it does not specify a time period for the determination of performing a cumulative dose calculation. A version, which is acceptable to the staff, is given below:

> Determination of cumulative dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days. Determination of projected dose contribution from radioactive effluents in accordance with the methodology in the ODCM at least every 31 days.

insert new para. e

This completes our review under TAC No. MA7113.

CONTACT: Stephen Klementowicz, NRR/DIPM/IOLB/EP&HP
(301) 415-1084

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

c. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.1302 and with the methodology and parameters in the ODCM,

d. Limitations on the annual and quarterly doses or dose commitment to a member of the public from radioactive materials in liquid effluents released from each unit to unrestricted areas, conforming to 10 CFR 50, Appendix I,

e. ~~Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days,~~

Replace with insert on following page

f. Limitations on the functional capability and use of the liquid and gaseous effluent treatment systems to ensure that appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a period of 31 days would exceed 2% of the guidelines for the annual dose or dose commitment, conforming to 10 CFR 50, Appendix I,

g. Limitations on the dose rate resulting from radioactive material released in gaseous effluents from the site to areas at or beyond the site boundary shall be in accordance with the following:

   1. For noble gases: a dose rate ≤ 500 mrem/yr to the whole body and a dose rate ≤ 3000 mrem/yr to the skin and

   2. For iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days: a dose rate ≤ 1500 mrem/yr to any organ,

h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I,

i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I, and

j. Limitations on the annual dose or dose commitment to any member of the public, beyond the site boundary, due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

5.6.2 & 5.6.3 ED MS

5.6 Reporting Requirements

5.6.2 Annual Radiological Environmental Operating Report (continued)

The Annual Radiological Environmental Operating Report shall include the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the ODCM, as well as summarized and tabulated results of these analyses and measurements [in the format of the table in the Radiological Assessment Branch Technical Position, Revision 1, November 1979]. ~~[The report shall identify the TLD results that represent collocated dosimeters in relation to the NRC TLD program and the exposure period associated with each result.]~~ Delete In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

5.6.3 Radiological Effluent Release Report

- NOTE -

[A single submittal may be made for a multiple unit station. The submittal shall combine sections common to all units at the station; however, for units with separate radwaste systems, the submittal shall specify the releases of radioactive material from each unit.]

The Radioactive Effluent Release Report covering the operation of the unit in the previous year shall be submitted prior to ~~May 1~~ MAY 15 of each year in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and Process Control Program and in conformance with 10 CFR 50.36a and 10 CFR Part 50, Appendix I, Section IV.B.1.

5.6.4 Monthly Operating Reports

Routine reports of operating statistics and shutdown experience shall be submitted on a monthly basis no later than the 15th of each month following the calendar month covered by the report.

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

TSTF-242 R.1
ED ITS

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Frequency of [92] days is justified in Reference 7.

for source range instrumentation

SR 3.3.1.8

for power and intermediate range instrumentation

SR 3.3.1.8 is the performance of a COT as described in SR 3.3.1.7, except it is modified by a Note that this test shall include verification that the P-6 and P-10 interlocks are in their required state for the existing unit condition. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The Frequency is modified by a Note that allows this surveillance to be satisfied if it has been performed within [92] days of the Frequencies prior to reactor startup and four hours after reducing power below P-10 and P-6. The Frequency of "prior to startup" ensures this surveillance is performed prior to critical operations and applies to the source, intermediate and power range low instrument channels. The Frequency of "[12] hours after reducing power below P-10" (applicable to intermediate and power range low channels) and "4 hours after reducing power below P-6" (applicable to source range channels) allows a normal shutdown to be completed and the unit removed from the MODE of Applicability for this surveillance without a delay to perform the testing required by this surveillance. The Frequency of every 92 days thereafter applies if the plant remains in the MODE of Applicability after the initial performances of prior to reactor startup and [12] and four hours after reducing power below P-10 or P-6, respectively. The MODE of Applicability for this surveillance is < P-10 for the power range low and intermediate range channels and < P-6 for the source range channels. Once the unit is in MODE 3, this surveillance is no longer required. If power is to be maintained < P-10 for more than [12] hours or < P-6 for more than 4 hours, then the testing required by this surveillance must be performed prior to the expiration of the time limit. [Twelve] hours and four hours are reasonable times to complete the required testing or place the unit in a MODE where this surveillance is no longer required. This test ensures that the NIS source, intermediate, and power range low channels are OPERABLE prior to taking the reactor critical and after reducing power into the applicable MODE (< P-10 or < P-6) for periods > [12] and 4 hours, respectively.

EDIT
ADD
COMPLETE
QUOTE

TSTF-242, Rev 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.8	----------NOTE---------- This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. ---------- Perform COT.	-----NOTE----- Only required when not performed within previous [92] days ---------- Prior to reactor startup AND ~~Four~~ [Twelve] hours after reducing power below P-10 for power and intermediate range instrumentation AND Four hours after reducing power below P-6 for source range instrumentation AND Every 92 days thereafter

(continued)

TSTF-273
Rev 2

5.5 Programs and Manuals (continued)

5.5.15 Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate limitations and remedial or compensatory actions may be identified to be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

a. Provisions for cross train checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities; and

d. Other appropriate limitations and remedial or compensatory actions.

EDIT TLD 8-9-99

~~, and assuming~~ no concurrent loss of offsite power or loss of onsite diesel generator(s),

A loss of safety function exists when, assuming no concurrent single failure, a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

a. A required system redundant to the system(s) supported by the inoperable support system is also inoperable; or

no concurrent

b. A required system redundant to the system(s) in turn supported by the inoperable supported system is also inoperable; or

c. A required system redundant to the support system(s) for the supported systems (a) and (b) above is also inoperable.

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

INSERT 2

TSTF-273
Rev. 2

5.5 Programs and Manuals (continued)

5.5.15 Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate actions may be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

a. Provisions for cross train checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities; and

d. Other appropriate limitations and remedial or compensatory actions.

A loss of safety function exists when, assuming no concurrent single failure, a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

a. A required system redundant to the system(s) supported by the inoperable support system is also inoperable; or

b. A required system redundant to the system(s) in turn supported by the inoperable supported system is also inoperable; or

c. A required system redundant to the support system(s) for the supported systems (a) and (b) above is also inoperable.

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

INSERT 1

, ~~and assuming~~ no concurrent loss of offsite power, or loss of onsite diesel generator(s),

no concurrent

5.5 Programs and Manuals

TSTF-273, Rev 2

5.5.14 Technical Specifications (TS) Bases Control Program (continued)

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR.

d. Proposed changes that meet the criteria of Specification 5.5.14b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.15 Safety Functions Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate limitations and remedial or compensatory actions may be identified to be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

a. Provisions for cross train checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities; and

d. Other appropriate limitations and remedial or compensatory actions.

EDIT

~~, and assuming~~ no concurrent loss of offsite power, or loss of onsite diesel generator(s),

A loss of safety function exists when, assuming no concurrent single failure, a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

no concurrent

a. A required system redundant to system(s) supported by the inoperable support system is also inoperable; or

(continued)

TSTF-273, Rev 2

5.5 Programs and Manuals

5.5.11 Technical Specifications (TS) Bases Control Program (continued)

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR.

d. Proposed changes that meet the criteria of Specification 5.5.11b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.12 Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate limitations and remedial or compensatory actions may be identified to be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

a. Provisions for cross division checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities; and

d. Other appropriate limitations and remedial or compensatory actions.

EDIT

~~, and assuming~~ no concurrent loss of offsite power, or loss of onsite diesel generator(s),

A loss of safety function exists when, assuming no concurrent single failure, a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

no concurrent

a. A required system redundant to system(s) supported by the inoperable support system is also inoperable; or

(continued)

5.5 Programs and Manuals

TSTF-273, Rev 2

5.5.11 Technical Specifications (TS) Bases Control Program (continued)

prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.12 Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate limitations and remedial or compensatory actions may be identified to be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

a. Provisions for cross division checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities; and

d. Other appropriate limitations and remedial or compensatory actions.

EDIT

~~, and assuming~~ no concurrent loss of offsite power, or loss of onsite diesel generator(s),

A loss of safety function exists when, assuming no concurrent single failure, a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

no concurrent

a. A required system redundant to system(s) supported by the inoperable support system is also inoperable; or

b. A required system redundant to system(s) in turn supported by the inoperable supported system is also inoperable; or

(continued)

ED ITS

Bases Insert 1

Required Action C.1 is modified by a Note which states that the Required Action is only applicable if the inoperable channel is the result of an inoperable feedwater pump [valve] or main turbine stop valve. The Note clarifies the situations under which the associated Required Action would be the appropriate Required Action.

Bases Insert 2

inoperable

Required Action C.1 is modified by a Note which states that the Required Action is only applicable if the inoperable channel is the result of an RPT breaker. The Note clarifies the situations under which the associated Required Action would be the appropriate Required Action.

Bases Insert 3

inoperable

Required Action D.1 is modified by a Note which states that the Required Action is only applicable if the inoperable channel is the result of an RPT breaker. The Note clarifies the situations under which the associated Required Action would be the appropriate Required Action.

ED ITS

BASES

ACTIONS (continued)

capability must be restored. The trip capability is considered maintained when sufficient channels are OPERABLE or in trip such that the feedwater and main turbine high water level trip logic will generate a trip signal on a valid signal. This requires two channels to each be OPERABLE or in trip. If the required channels cannot be restored to OPERABLE status or placed in trip, Condition C must be entered and its Required Action taken.

TSTF 297 R.1 EDIT

The 2 hour Completion Time is sufficient for the operator to take corrective action, and takes into account the likelihood of an event requiring actuation of feedwater and main turbine high water level trip instrumentation occurring during this period. It is also consistent with the 2 hour Completion Time provided in LCO 3.2.2 for Required Action A.1, since this instrumentation's purpose is to preclude a MCPR violation.

C.1 and C.2

With the required channels not restored to OPERABLE status or placed in trip, THERMAL POWER must be reduced to < 25% RTP within 4 hours. Alternatively, the affected feedwater pump and affected main turbine valve(s) may be removed from service since this performs the intended function of the instrumentation. As discussed in the Applicability section of the Bases, operation below 25% RTP results in sufficient margin to the required limits, and the feedwater and main turbine high water level trip instrumentation is not required to protect fuel integrity during the feedwater controller failure, maximum demand event. The allowed Completion Time of 4 hours is based on operating experience to reduce THERMAL POWER to < 25% RTP from full power conditions in an orderly manner and without challenging plant systems.

Required Action C.1 is modified by a Note which states that the Required Action is only applicable if the inoperable channel is the result of an inoperable feedwater pump [valve] or main turbine stop valve. The Note clarifies the situations under which the associated Required Action would be the appropriate Required Action.

SURVEILLANCE REQUIREMENTS

- REVIEWER'S NOTE -

Certain Frequencies are based on approved topical reports. In order for a licensee to use these Frequencies the licensee must justify the

TSTF-322 R.2 EDITS

BASES

SURVEILLANCE REQUIREMENTS (continued)

Furthermore, the 24 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal [secondary] containment vacuum condition.]

SR 3.6.4.1.2 and SR 3.6.4.1.3

Verifying that [secondary] containment equipment hatches and one access door in each access opening are closed ensures that the infiltration of outside air of such a magnitude as to prevent maintaining the desired negative pressure does not occur. Verifying that all such openings are closed provides adequate assurance that exfiltration from the [secondary] containment will not occur. In this application, the term "sealed" has no connotation of leak tightness. Maintaining [secondary] containment OPERABILITY requires verifying one door in the access opening is closed. [An access opening contains one inner and one outer door. In some cases, [secondary] containment access openings are shared such that a [secondary containment barrier may have multiple inner or multiple outer doors. The intent is to not breach the [secondary] containment at any time when [secondary] containment is required. This is achieved by maintaining the inner or outer portion of the barrier closed at all times.] However, all [secondary] containment access doors are normally kept closed, except when the access opening is being used for entry and exit or when maintenance is being performed on an access opening. The 31 day Frequency for these SRs has been shown to be adequate, based on operating experience, and is considered adequate in view of the other indications of door and hatch status that are available to the operator.

[SR 3.6.4.1.4] and SR 3.6.4.1.5

The SGT System exhausts the [secondary] containment atmosphere to the environment through appropriate treatment equipment. Each SGT subsystem is designed to draw down pressure in the [secondary] containment to ≥ [0.25] inches of vacuum water gauge in ≤ [120] seconds and maintain pressure in the [secondary] containment at ≥ [0.266] inches of vacuum water gauge for 1 hour at a flow rate ≤ [4000] CFM. To ensure that all fission products released to the [secondary] containment are treated, [SR 3.6.4.1.4 and] SR 3.6.4.1.5 verify that a pressure in the [secondary] containment that is less than the lowest postulated pressure external to the [secondary] containment boundary can [rapidly] be [established and] maintained. When the SGT System is operating as designed, the establishment and maintenance of [secondary] containment pressure cannot be accomplished if the [secondary] containment

[SR 3.6.4.1.4]

TSTF-322 R.2 EDITS

BASES

SURVEILLANCE REQUIREMENTS (continued)

5

boundary is not intact. [Establishment of this pressure is confirmed by SR 3.6.4.1.4, which demonstrates that the [secondary] containment can be drawn down to ≥ [0.25] inches of vacuum water gauge in ≤ [120] seconds using one SGT subsystem.] SR 3.6.4.1.5 demonstrates that the pressure in the [secondary] containment can be maintained ≥ [0.266] inches of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate ≤ [4000] cfm. The 1 hour test period allows [secondary] containment to be in thermal equilibrium at steady state conditions. The primary purpose of these SR[s] is to ensure [secondary] containment boundary integrity. The secondary purpose of these SR[s] is to ensure that the SGT subsystem being tested functions as designed. There is a separate LCO with Surveillance Requirements which serves the primary purpose of ensuring OPERABILITY of the SGT System. These SR[s] need not be performed with each SGT subsystem. The SGT subsystem used for these Surveillance[s] is staggered to ensure that in addition to the requirements of LCO 3.6.4.3, either SGT subsystem will perform this test. The inoperability of the SGT System does not necessarily constitute a failure of these Surveillance[s] relative to the [secondary] containment OPERABILITY. Operating experience has shown the [secondary] containment boundary usually passes these Surveillance[s] when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

H Sp -

REFERENCES

1. FSAR, Section [15.1.39].

2. FSAR, Section [15.1.41].

TSTF-338

BASES

for a full core flux map using the moveable incore detector flux mapping system

SURVEILLANCE REQUIREMENTS

EDIT FMO

The surveillance also

SR 3.2.1.1 (continued)

map measurement uncertainty. This procedure is equivalent to increasing the directly measured values of $F_Q(Z)$ by 1.0815% before comparing with LCO limits (Ref. 4).

Performing the Surveillance in MODE 1 prior to THERMAL POWER exceeding 75% RTP after each refueling ensures that $F_Q(Z)$ is within limit when RTP is achieved.

~~and~~ provides confirmation of the nuclear design and the fuel loading pattern

The Frequency of 31 EFPD is adequate for monitoring the change of power distribution with core burnup because the power distribution changes relatively slowly for this amount of fuel burnup. The Surveillance may be done more frequently if required by the results of SR 3.2.1.2.

SR 3.2.1.2

The nuclear design includes calculations that predict that the core can be operated within the $F_Q(Z)$ limits. Because flux maps are taken at steady state conditions, the axial variations in power distribution for normal operation maneuvers such as load following are not present in the flux map data. These axial variations are, however, conservatively calculated by considering, in the nuclear design process, a wide range of unit maneuvers in normal operation. $F_{xy}(Z)$ is the radial peaking factor, which is one component of $F_Q(Z)$ and should be consistent between the nuclear design values and the measured values. ($F_{xy}(Z)$ multiplied by the normalized average axial power at elevation Z gives $F_Q(Z)$.)

The core plane regions applicable to an F_{xy} evaluation exclude the following, measured in percent of core height:

a. Lower core region, from 0% to 15% inclusive;

b. Upper core region, from 85% to 100% inclusive;

c. Grid plane regions, ± 2% inclusive; and

d. Core plane regions, within ± 2% of the bank demand position of the control banks.

(continued)