December 28, 2005

Technical Specifications Task Force
11921 Rockville Pike
Suite 100
Rockville, MD 20852

Dear Members of the TSTF:

We have completed our review of your August 18, 2005, proposal to strengthen the standard technical specification (STS) requirements for ensuring control room envelope (CRE) habitability, traveler TSTF-448, Revision 2, "Control Room Habitability." We disagree with several aspects of your proposal. Therefore, the purpose of this letter is to communicate to the industry what we disagree with and why, and the rationale for alternatives we find acceptable. Following are discussions of the four major disagreements. We have included our complete set of comments on TSTF-448, Revision 2, in the enclosure.

1. Proposal to Equate CRE Boundary Operability with Acceptable CRE Occupant Design Basis Accident Consequence Analysis Results When CRE In-leakage Exceeds Licensing Basis Consequence Analysis Value

   Whenever the CRE boundary is determined to be degraded or non-conforming, the proposed technical specifications (TSs) define the CRE emergency ventilation system to still be operable as long as the licensee can establish that the potential consequences (from radiological, chemical, and fire byproduct hazards) to CRE occupants are within design basis limits, even if doing so requires crediting implementation of compensatory measures.

   When the CRE in-leakage is determined to exceed the value in the licensing basis analysis of design basis accident (DBA) consequences to CRE occupants, this definition would (a) enable meeting the proposed CRE in-leakage surveillance requirement (SR) despite significant degradation of the CRE boundary, (b) permanently incorporate use of compensatory measures into the facility licensing basis to support CRE boundary operability, and (c) serve as a disincentive to maintain the CRE boundary in its design condition, and consequently weaken the effectiveness of the proposed CRE habitability administrative controls program specification. In addition, while we accept[1] the use of compensatory measures "to restore inoperable structures, systems, or components (SSCs) to an operable but degraded or nonconforming status," we do not accept[2] for this purpose

[1] NRC Regulatory Issue Summary 2005-20: Revision to Guidance Formerly Contained in NRC Generic Letter 91-18, "Information to Licensees Regarding Two NRC Inspection Manual Sections On Resolution of Degraded and Nonconforming Conditions and On Operability," September 26, 2005, Section 7.3, "Compensatory Measures." (ADAMS Accession No. ML052020424.).

[2] NRC letter dated January 30, 2004, from E. J. Leeds, NRC, to J. W. Davis, NEI, page 4 (ADAMS Accession No. ML040300694.).

the use of measures that "do not support the capability of an SSC to perform its specified safety function consistent with the current licensing and design basis acceptance criteria."

For these reasons, we believe that the unfiltered in-leakage SR acceptance criterion should be the unfiltered in-leakage value in the CRE occupant DBA consequence analysis; i.e., the licensing basis value. As we discuss later, the criterion's numerical value may be located in a licensee-controlled document. Upon determining that unfiltered in-leakage exceeds this criterion, the facility's TS provision corresponding to STS SR 3.0.1 would require the facility to enter the CRE emergency ventilation system specification actions condition for one or more CRE emergency ventilation system trains inoperable due to an inoperable CRE boundary. Appropriate action requirements would then ensure adequate protection by requiring implementation of additional means for protecting CRE occupants; i.e. mitigating actions, verification of their effectiveness, and limiting the duration of facility operation in this condition.

2. Proposal to Specify an Operational Time Limit in a TS Administrative Controls Program

The proposed TSs contain an administrative controls program provision to limit the duration of plant operation with a degraded or non-conforming CRE boundary that requires crediting additional measures to satisfy design basis limits on DBA consequences to CRE occupants. The STSs, however, do not specify operational time limits in the administrative controls section. The STS convention is to specify such restrictions in limiting condition for operation (LCO) action requirements. As we discussed in our meeting with you on May 26, 2005, use of mitigating actions (which may include self-contained breathing apparatus and potassium iodine) may be used to justify continued facility operation, but should be limited by specifying an LCO required action completion time for restoring the CRE emergency ventilation system to operable status in the CRE emergency ventilation system specification.

3. Proposed Time Limit on Facility Operation When CRE Measured Unfiltered In-leakage Exceeds CRE Occupant Design Basis Accident Consequence Analysis Value

We find it acceptable to implement mitigating actions to justify temporarily continuing plant operation with CRE unfiltered in-leakage above the limit, provided design basis limits on consequences to CRE occupants (e.g., as stated in GDC-19) are satisfied. However, your proposal to generally allow operation in this condition for a period of 12 to 36 months is unjustifiably long because (a) it is not commensurate with the NRC's view of the safety significance of this condition; i.e. the potential adverse effect on operator performance during accident conditions; and (b) we believe that most facilities can usually resolve problems with the CRE boundary in much shorter time periods. Despite your assertion in the traveler that CRE boundary problems will likely take a long time to resolve, we conclude from our review of licensee responses to Generic Letter (GL) 2003-01, "Control Room Habitability," that facilities in this condition will not be unduly burdened by specifying a shorter time period.

The NRC issued GL 2003-01 partly because a significant number of facilities had previously determined that unfiltered in-leakage exceeded the licensing basis value. In response to the testing and assessments requested by GL 2003-01, additional facilities made the same determination. All of these facilities have either completed or initiated action to reconcile the

licensing basis CRE boundary functional capability with the as-built CRE boundary through a combination of corrective maintenance, system modification, and analysis. Therefore, at such facilities when CRE unfiltered in-leakage is determined to exceed the licensing basis value, we consider 60 days to be an adequate period in which to restore the CRE boundary to operable status, provided the limits on CRE occupant accident consequences can be met - using compensatory measures if necessary; otherwise, the 24-hour repair allowance in the STS CRE emergency ventilation system specification would govern. We have chosen the nonstandard completion time of 60 days in consideration of the operational concern of having insufficient time to resolve a failed in-leakage SR and the safety concern about the impact of compensatory measures on operator performance in the event of a design basis accident. We also believe 60 days is appropriate because we do not anticipate that a full-scale in-leakage test will be needed to establish operability in every situation following corrective maintenance.

A facility needing more than 60 days to restore CRE boundary operability because it must, for example, implement a system design modification, may seek a case-specific extension utilizing the normal license amendment process. We expect such extensions will be rarely needed, however, because of the reasons previously stated and the benefits of implementing an administrative control program to maintain CRE habitability.

4. Proposal That Each Facility Continue Its Current Practices for Measuring CRE Pressure

Your proposed CRE administrative control program specification would require measuring "CRE positive pressure relative to the adjacent [turbine building] during the pressurization mode of operation." Usually, bracketed words in an STS provision is an indication to applicants to use appropriate plant-specific words in place of the STS words. The quoted phrase implies that each applicant may insert the words contained in its current TS differential pressure SR. In most facility TSs, however, the existing words do not convey an expectation to measure CRE pressure at enough locations to determine the pressure difference at each distinct interface to external areas adjacent to the CRE boundary; they also do not explicitly require repeating the measurements for each of the other CRE emergency ventilation system modes of operation. To ensure each facility will meet these expectations, the phrase quoted above should be replaced with "CRE pressure relative to each external area adjacent to the CRE boundary for each mode of operation." In addition, the program should explicitly require that the CRE emergency ventilation system train alignment and flow rate be consistent with the flow rate specified by the SR for CRE emergency ventilation system filters, and that they not vary significantly from test to test. Consistent test conditions will enable meaningful trending of CRE pressure and facilitate evaluation of any pressure changes. We recognize that many pressure measurements are obtained during in-leakage testing; fewer measurements may be taken for CRE habitability assessments between in-leakage tests as long as the expectation on CRE boundary coverage is satisfied and measurements are taken at in-leakage test pressure-measurement locations.

We agree that the numerical value for the CRE in-leakage SR acceptance criterion may be stated outside of TSs, provided the CRE administrative control program specifies that the criterion or limit is the unfiltered in-leakage value used in the licensing basis analyses of DBA consequences to CRE occupants. This is acceptable because it may allow restoring CRE boundary operability by re-analyzing with a greater in-leakage value without first obtaining a

license amendment, while ensuring appropriate remedial actions are taken whenever the licensing basis analysis assumptions are determined to be invalid.

By the end of January 2006 we will send you draft markups of the affected sections of Revision 3.1 of NUREGs 1430-1434 based on the positions we find acceptable as described above and in the enclosure. We will also send you for comment a draft safety evaluation of the changes indicated in the markups. We would be pleased to meet with you as early as February to discuss this letter, our draft STS markups and safety evaluation, and your questions. Our contact for the review of TSTF-448, Revision 2, is Craig Harbuck, who can be reached at 301-415-3140 and cch@nrc.gov if you need further information regarding this letter.

Sincerely,

/RA/ by Patrick Hiland for/

Thomas H. Boyce, Chief
Technical Specifications Branch
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

Enclosure: As stated.

cc: P. Infanger, BWOG
M. Crowthers, BWROG
B. Woods, WOG/CE
W. Sparkman, WOG
D. Hoffman, EXCEL
B. Mann, EXCEL
J. Riley, NEI

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OFFICE	SRE/ITSB/DIRS/NRR	BC/ITSB/DIRS/NRR	(A)BC/AADB/DRA/NRR	C/ACVB/CRA/NRR
NAME	CCHarbuck	THBoyce by PHiland	MAKotzalas	RLDennig
DATE	12/28/05	12/28/05	12/28/05	12/28/05

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Comments on TSTF-448, Revision 2
by the Office of Nuclear Reactor Regulation (NRR),
Technical Specifications Branch (ITSB),
Division of Inspection & Regional Support (DIRS); and the
Accident Dose (AADB), and the Containment and Ventilation (ACVB) Branches,
Division of Risk Assessment (DRA)

Our comments are presented in the presentation order of the justifications, descriptions, and markups in the traveler. The general phrase "CRE emergency ventilation system specification" means for each STS NUREG:

1430	STS 3.7.10,	"Control Room Emergency Ventilation System (CREVS)"
1431	STS 3.7.10,	"Control Room Emergency Filtration System (CREFS)"
1432	STS 3.7.11,	"Control Room Emergency Air Cleanup System (CREACS)"
1433	STS 3.7.4,	"Main Control Room Environmental Control (MCREC) System"
1434	STS 3.7.3,	"Control Room Fresh Air (CRFA) System."

The general phrase "CRE administrative controls program specification" means:

STS 5.5.18, "Control Room Habitability Program" for NUREG-1430, 1431, and 1432; and
STS 5.5.15, "Control Room Habitability Program" for NUREG-1433 and 1434.

Unless a comment applies to all five NUREGS, the applicability of individual comments to each STS NUREG is denoted in square brackets by 0 for B&W, 1 for Westinghouse, 2 for CE, 3 for BWR/4, and 4 for BWR/6.

A. Justification Section 1.0 Description

NRC has no comments.

B. Justification Section 2.0 Proposed Change

Comment 1 [01234] (open) (global) Replace all occurrences of "control room" with "CRE" to bring the STS terminology in line with industry and NRC guidance documents.

Comment 2 (closed) NRC has no objection to the proposed changes to the following items in the control room envelope (CRE) emergency ventilation system specification:

- [01234] Condition A
- [01234] Condition B
- [01234] Required Action (RA) B.1 and its Completion Time (CT)
- [01234] RA B.2 and its CT
- [012] Condition E
- [34] Condition F
- [01234] New surveillance requirement (SR) for CRE unfiltered in-leakage determination
- [0] Addition of "[in MODES 5 and 6]" to STS 3.7.10 Conditions D & E
- [1] Removing the erroneous reference to RG 1.52 in the Bases for SR 3.7.10.3 and adding a standard basis for the 18-month Frequency
- [01234] Deletion of pressurization SR and associated Bases

Comment 3 [1] (open) (editorial) In STS 3.7.10, Condition E - replace “irradiate” with “irradiated.”

Comment 4 [01234] (open) (global) NRR objects to the phrases “uncontrolled release of radioactivity, hazardous chemicals, or smoke from *outside* the control room envelope,” and “a challenge from smoke *external to* the control room envelope,” because smoke may also originate inside the CRE. These phrases occur in Bases Background section, paragraph 1, Bases LCO section, paragraph 3, Bases Actions section for Required Actions B.1 and B.2, and the CRE administrative controls program specification, paragraph 1. Remove such phrases.

Comment 5 (closed) NRC has no objection to the following proposed changes to the Bases for the CRE emergency ventilation system specification:

- [01234] Bases Background section, paragraph 2
- [02] Bases Background section, paragraph 4
- [12] Bases Background section, paragraph 5
- [0] Bases Background section, paragraph 6
- [12] Bases Background section, paragraph 7, and 9 through 10
- [034] Bases Applicable Safety Analyses section, paragraph 1
- [1] Bases Applicable Safety Analyses section, paragraphs 1 and 2
- [2] Bases Applicable Safety Analyses section, paragraphs 2 and 3 (Note, for consistency with the other PWR STSs, join paragraphs 1 and 2.)
- [01234] Bases LCO section, paragraph 4
- [01234] Bases Applicability section, paragraph 1
- [012] Bases Actions section, Required Actions A.1, C.1 and C.2, D.1 and D.2, and E.1
- [34] Bases Actions section, Required Actions A.1, C.1 and C.2, D.1, D.2.1, and D,2,2, and F.1 and F.2
- [01234] Bases for SR section, Frequency of SR for automatic start function of CRE emergency ventilation system
- [01234] Deletion of pressurization SR Bases
- [0] Addition of Bases for SR 3.7.10.5 in NUREG-1430 B&W STS
- [12] Removal of Bases Reference 4, "NUREG-0800" from NUREG-1431 and NUREG-1432.
- [01234] Clarification of Bases for the LCO Note to explain that it only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels.

Comment 6 [12] (open) Revise the following sentence in paragraph 6 of the Bases Background section for the CRE emergency ventilation system specification, by replacing “to prevent” (or “preventing”) with “to minimize,” as follows:

> [1] The actions taken in the toxic gas isolation state are the same, except that the signal switches the CREFS to an isolation alignment to ~~prevent~~ **minimize** outside air from entering the control room envelope through the control room [envelope] boundary.
>
> [2] The actions taken in the toxic gas isolation state are the same, except that the signal switches the CREACS to an isolation mode ~~preventing~~ **to minimize** outside air from entering the control room envelope through the control room [envelope] boundary. The reason for this comment is to clarify the meaning of these phrases and to be consistent with other parts of the Bases discussion.

Comment 7 [34] (open) Revise the following sentence in Bases Background discussion paragraph 4 of the CRE emergency ventilation system specification, by replacing "prevent" with "minimize:"

[3] "The MCREC System automatically switched to the pressurization mode of operation to ~~prevent~~ **minimize** infiltration of contaminated air into the control room envelope."

[4] "The CRFA System automatically switched to the pressurization mode of operation to ~~prevent~~ **minimize** infiltration of contaminated air into the control room envelope." The reason for this comment is to clarify the meaning of these phrases and to be consistent with other parts of the Bases discussion.

Comment 8 [01234] (open) The proposed Bases Background section, paragraph 3 states that the CRE is "the area within the confines of the control room [envelope] boundary that contain the spaces that control room occupants inhabit to control the unit for normal and accident conditions." It appears that the CRE boundary also may enclose spaces that CRE occupants would not or physically could not inhabit during normal or accident conditions. For clarity, we suggest making this point explicitly, as done in the last sentence of the CRE definition in Regulatory Guide 1.196.

Comment 9 [12] (open) Clarify paragraph 6 of the proposed Bases Background section by changing the second sentence as follows: "Pressurization of the control room envelope minimizes infiltration of unfiltered air through the control room **envelope** boundary from **all** surrounding areas ~~of the building~~ **adjacent to the control room envelope boundary**.

Comment 10 (open) Regarding the proposed deletion of the pressurization SR and its associated Bases, to ensure that the existing system air flow rate criteria are maintained in conjunction with the proposed CRE administrative program specification paragraph e, revise the Bases Background section as follows:

[0] Paragraph 5, "A single CREVS train **operating at a flow rate of ≤ [3300] cfm** will pressurize the control room envelope to about 1/8 inch water gauge **relative to all external areas adjacent to the control room envelope boundary**."

[1] Paragraph 8, "A single CREFS train **operating at a flow rate of ≤ [3000] cfm** will pressurize the control room envelope to about [0.125] inches water gauge **relative to all external areas adjacent to the control room envelope boundary**."

[2] Paragraph 8, "A single CREACS train **operating at a flow rate of ≤ [3000] cfm** will pressurize the control room envelope to about [0.125] inches water gauge **relative to all external areas adjacent to the control room envelope boundary**, and provides an air exchange rate in excess of 25% per hour."

[3] Paragraph 5, "A single MCREC subsystem **operating at a flow rate of ≤ [400] cfm** will pressurize the control room envelope to about [0.1] inches water gauge **relative to all external areas adjacent to the control room envelope boundary** to minimize infiltration of air from **all** surrounding **areas** ~~buildings,~~ **adjacent to the control room envelope boundary**.

[4] In paragraph 5, add a similar sentence in brackets.

[01234] In addition, in paragraph e of the CRE administrative program specification, state that pressurization must be achieved at the flow rate required by the ventilation filter test program and that measurements of differential pressure must always be taken at that flow rate to enable meaningful comparison of differential pressures between tests.

Comment 11 [01234] (open) (global) The CRE emergency ventilation system specifications and associated Bases use the terms “toxic gas,” “toxic chemical,” and “hazardous chemical and smoke.” Clarify in the Bases Background section that these terms are synonymous, or how they differ. Then ensure the terms are used correctly every place they are used in the CRE emergency ventilation system specifications, associated Bases, and the CRE administrative controls program specification.

Comment 12 [01234] (open) The NRC prefers not to use the term “CRE boundary integrity” because “integrity” appears to mean operability, and is thus unnecessary. Accordingly, revise the second sentence of paragraph 1 of the proposed Bases LCO section as follows: “Total **CRE emergency ventilation** system failure or ~~loss of~~ **an inoperable** control room **envelope** boundary ~~integrity~~ could result in **CRE occupants** exceeding **the calculated dose of the licensing basis consequence analyses for design basis accidents** ~~a dose of [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE] to the control room occupants~~ in the event of a large radioactive release.” See comment 13.

Comment 13 [01234] (open) NRC’s position is to consider the CRE boundary inoperable whenever unfiltered in-leakage exceeds the value in the licensing basis consequence analyses for design basis accidents. Accordingly, revise paragraph 3 of the proposed Bases LCO section as follows: “In order for the CRE emergency ventilation system trains (subsystems) to be considered OPERABLE, the ~~integrity of the~~ control room **envelope** boundary must be maintained such that control room occupant dose from a large radioactive release does not exceed **the calculated dose of the licensing basis consequence analyses for design basis accidents,** and that control room envelope occupants are protected from hazardous chemicals and smoke ~~from outside the control room boundary~~.” See comment 4. See comment 21.

Comment 14 [01234] (open) The proposed Bases LCO section deletes the phrase, “in both trains” or “in both subsystems,” from the end of the first sentence of paragraph 2. It is clearer to phrase the paragraphs consistently, as follows:

[0] “**Each** ~~The~~ CREVS **train** is considered operable when the individual components necessary to ~~control~~ **limit** ~~operator~~ **CRE occupant radioactive** exposure are operable ~~in both trains~~. A CREVS train is considered operable when ~~the~~ **its** associated:”

[1] “**Each** ~~The~~ CREFS **train** is considered operable when the individual components necessary to limit ~~operator~~ **CRE occupant radioactive** exposure are operable ~~in both trains~~. A CREFS train is considered operable when ~~the~~ **its** associated:”

[2] “**Each** ~~The~~ CREACS **train** is considered operable when the individual components necessary to ~~control~~ **limit** ~~operator~~ **CRE occupant radioactive** exposure are operable ~~in both trains~~. A CREACS train is considered operable when ~~the~~ **its** associated:”

[3] "**Each** ~~The~~ MCREC **subsystem** is considered operable when the individual components necessary to ~~control~~ **limit** ~~operator~~ **CRE occupant radioactive** exposure are operable ~~in both subsystems~~. A **MCREC** subsystem is considered operable when its associated:"

[4] "**Each** ~~The~~ CRFA **subsystem** is considered operable when the individual components necessary to ~~control~~ **limit** ~~operator~~ **CRE occupant radioactive** exposure are operable ~~in both subsystems~~. A **CRFA** subsystem is considered operable when its associated:"

Comment 15 [01234] (open) Based on comment 13, revise the CRE emergency ventilation system (CREEVS) specification Action B, as follows:

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One or more CREEVS trains (subsystems) inoperable due to inoperable CRE boundary in Mode 1, 2, 3, or 4.	B.1	Initiate action to implement mitigating actions.	Immediately
	AND		
	B.2	Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits.	24 hours
	AND		
	B.3	Restore CRE boundary to OPERABLE status.	60 days

Also revise Bases Actions section for Action B, as follows:

B.1, B.2 and B.3

If the unfiltered inleakage of potentially contaminated air past the control room **envelope** boundary and into the control room envelope can result in occupants of the control room envelope receiving doses greater than **the calculated dose of the licensing basis consequence analyses for design basis accidents** ~~[5 rem whole body or its equivalent to any part of the body] [5 rem TEDE]~~ or the control room **envelope** occupants ~~are~~ not **being** protected from hazardous chemicals or smoke ~~from outside the control room boundary~~, the control room **envelope** boundary is inoperable. Actions must be taken to restore an OPERABLE control room boundary within 60 days.

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke

~~external to the control room envelope~~. **Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis consequence analyses for design basis accidents, which can be no greater than [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE], and that CRE occupants are protected from hazardous chemicals and smoke. The mitigating actions should also address maintaining temperature and relative humidity within limits, and physical security.** These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, **regardless of whether entry is intentional or unintentional.** The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. **The 60 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. The 60 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.**

Comment 16 [01234] (open) Based on comment 13, revise the CRE emergency ventilation system (CREEVS) specification Bases SR section for the SR to perform unfiltered air in-leakage testing, as follows:

This SR verifies the ~~integrity~~ **OPERABILITY** of the control room **envelope** boundary by testing for unfiltered air inleakage past the control room **envelope** boundary and into the control room envelope. The details of the testing are specified in the Control Room **Envelope** Habitability Program.

Unfiltered air inleakage through the control room **envelope** boundary and into the control room envelope greater than the amount assumed in the **licensing basis consequence analyses for design basis accidents** ~~licensing basis accident analyses~~ results in the control room **envelope** boundary being inoperable when control room habitability is not maintained (i.e., accident dose is greater than **licensing basis consequence analyses calculated dose, which can be no greater than** [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE] or the control room occupants are not protected from hazardous chemicals or smoke.) However, ~~the control room boundary may be considered OPERABLE, but degraded or nonconforming,~~ **when unfiltered air inleakage is greater than assumed in the licensing basis accident consequence analyses**, **Condition B must be entered**. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided ~~if compensatory measures~~ **mitigating actions** can ensure that the control room remains within the licensing basis habitability limits for the occupants following an accident. **Mitigating actions, or** compensatory measures, are discussed in Regulatory Guide 1.196, Section 2.7.3, (Ref. 3) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 4). Temporary analytical methods may also be used as compensatory measures (Ref. 5). **Options for restoring the CRE boundary to OPERABLE status include**

changing the licensing basis accident consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

Comment 17 [01234] (open) The proposed CRE administrative controls program should be consistent with the existing regulatory guidance. To that end, revise the introductory paragraph as indicated by bold typeface (the acronym CREFS is used in place of the CREEVS):

> A Control Room **Envelope** Habitability Program shall be established and implemented **in accordance with the guidelines contained in Regulatory Guide 1.196, "Control Room Habitability at Light-Water Nuclear Power Reactors," Revision 0, May 2003, Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and Regulatory Guide 1.78, "Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release," Revision 1, December 2001.**
>
> **[The following are exceptions to Regulatory Guide 1.196, Revision 0:**
>
> **1. ; and]**
>
> **[The following are exceptions to Regulatory Guide 1.197, Revision 0:**
>
> **1. ; and]**
>
> **[The following are exceptions to Regulatory Guide 1.78, Revision 1:**
>
> **1. ; and]**
>
> **This program shall** ensure that control room **envelope** habitability is maintained such that, with an OPERABLE Control Room Emergency Filtration System (CREFS), control room occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke ~~challenge from outside the control room envelope~~. The program shall **also** ensure that adequate radiation protection is provided to permit access and occupancy of the control room **envelope** under accident conditions without personnel receiving radiation exposures in excess of [5 rem whole body or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)] for the duration of the accident. The program shall include the following elements:

Explain how one determines the "duration of the accident" as used in the preceding paragraph.

In conjunction with the above changes, shorten the reference to RG 1.197 in paragraphs c and d to "Regulatory Guide 1.197, Revision 0." Also, remove the placeholder for the list of exceptions to RG 1.197 in paragraph d, because the placeholder will now be located in the introductory paragraph.

Comment 18 [01234] (open) Regarding CRE administrative controls program paragraph b, describe how “management of breaches” would be accomplished. In particular, NRC approval of this phrase would not imply acceptance of any guidance from NEI 99-03 that has not been endorsed by the staff, as stated in RG 1.196.

Comment 19 [01234] (open) Regarding CRE administrative controls program paragraph f, last sentence, how do inleakage limits “demonstrate” control room occupant exposures are within licensing basis “assumptions”? Suggest replacing the last sentence in paragraph e with “The program shall ensure that unfiltered air inleakage equal to the established limits will not result in radiation dose and hazardous chemical exposure to the control room occupants in excess of the licensing basis accident consequence analysis results.”

Comment 20 [01234] (open) Regarding CRE administrative controls program paragraph e, first sentence, replace “positive pressure relative to the adjacent [turbine building]” with “pressure relative to each area that is both external to the control room envelope and adjacent to the control room envelope boundary.” In the second sentence, remove the word “positive.” See comment 22.

Comment 21 [1] (open) Assuming there are advantages to “adding the toxic gas [hazardous chemical] monitors to the plant-specific equivalent of NUREG-1431 LCO 3.3.7, "CREFS Actuation Instrumentation,” (See last paragraph of Justification Section 2.0.), the traveler should state what they are. Consider proposing a traveler to make this change to the NUREG-1431.

C. Justification Section 3.0 <u>Background</u>

Comment 22 [01234] (global) (open)The second paragraph states: “Note that the ISTS CREFS requirements are based on a positive pressure control room design. Since this Traveler proposes changes to the ISTS, the information provided only addresses positive pressure control rooms. These changes may or may not be applicable to plants with differing designs.” Revise the traveler to also apply to non-positive pressure control room envelopes.

D. Justification Section 4.0 <u>Technical Analysis</u>

Comment 23 [01234] (open) Regarding *Key Principle #1,* how can there be assurance of protection against toxic gas and fire by-products if the proposed inleakage testing SR and the CREHP do not explicitly require in-leakage testing in the associated CREEVS operating alignments? One approach to resolve this concern is for the CREHP to include a statement that the program conforms to the guidance in RG 1.196, RG 1.197, and RG 1.78, because this guidance addresses how to assess protection against toxic gas and fire by-products through testing or analysis. See comment 17.

Comment 24 [01234] (open) Regarding *Key Principle #1*, revise the discussion of Operability Guidance to reference and quote RIS 2005-20.

Comment 25 [01234] (open) Regarding *Key Principle #2,* revise the restriction on operation while relying on compensatory measures / mitigating actions to 60 days and move it to Condition B of the CRE emergency ventilation system specification. See comment 15.

Comment 26 [01234] (open) The discussion of Key Principle #3, states, “The results will be trended and compared to positive pressure measurements taken, or to be taken, during control

room inleakage testing. These evaluations will be used as part of an assessment of control room boundary integrity between control room inleakage tests." Clarify the program language "measurements taken, or to be taken." What is meant by these words? A plant is expected to assess dP measurements without unnecessary delay in order to identify potential problems and initiate corrective actions. How can this occur if comparison of measurements can wait until the next inleakage test? Also, make clear that this is the assessment required by CREHP section "c", and that an assessment of changes in dP also includes a consequential evaluation of the effect on in-leakage.

Comment 27 [01234] (open) In the CREHP, did you intentionally mean that SR 3.0.2 applies only to frequencies of in-leakage tests, and not to dP measurements and programmatic periodic assessments of CRE habitability?

E. Section 5.0 Regulatory Analysis

NRC has no comments.

F. Section 6.0 Environmental

NRC has no comments.

G. Section 7.0 References

NRC has no comments.

H. Appendix A Description and Explanation of Differences Between TSTF-448, Revision 2, and the TSTF's and NRC's Proposed Technical Specifications

Comment 28 (closed) NRC has no comments on the following sections:

- Specification for CREEVS, Discussions 1 through 6
- Other Technical Specifications

Comment 29 [01234] (open) Regarding the CRE Habitability Program (CREHP) discussion, page A-4, paragraph 2, should reference GDC-19 or plant-specific design criteria. Regarding paragraph 3, the CREHP should include a reference to FSAR concerning how smoke and hazardous chemicals are handled. On page A-8, paragraph 17, we disagree with stating limits in the program. On page A-7, paragraph 16, the letter from Leeds to Davis explicitly states that potassium iodine and self contained breathing apparatuses cannot be used to support operability of a degraded CRE boundary. This is consistent with RIS 2005-20 guidance.

Comment 30 [01234] (open) Regarding the CREHP, The statement on page A-5, paragraph 6, is incorrect because b.1.(b) does not address frequency, b.2.(a) does.

Comment 31 [01234] (open) The discussion on page A-6 & 7, paragraph 14 is not acceptable; dP measurements must be obtained at all distinct boundaries to the CRE, or the licensee must justify not measuring at certain boundaries in its application for adopting the traveler. (A subset of the tracer-gas dP measurements at each interface may be acceptable for conducting the comparisons needed for the CRE habitability assessment.)

Comment 32 [01234] (open) Page A-7, paragraph 15 states that referencing ASTM E741 in the TS is unnecessary and overly restrictive because it is in RG 1.197; however RG 1.197 allows for alternative methods and provides criteria that must be met. Suggest referencing ASTM E741 in the program in brackets.