Entergy

Entergy Operations, Inc.
7003 Bald Hill Road
P.O. Box 756
Port Gibson, MS 39150
Tel 601 437 6299

Christina L. Perino
Manager
Licensing

GNRO-2009/00017

March 4, 2009

U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Document Control Desk

Subject: Technical Specification Bases Update to the NRC for Period Dated March 4, 2009

Grand Gulf Nuclear Station
Docket No. 50-416
License No. NPF-29

Dear Sir or Madam:

Pursuant to Grand Gulf Nuclear Station (GGNS) Technical Specification 5.5.11, Entergy Operations, Inc. hereby submits an update of all changes made to GGNS Technical Specification Bases since the last submittal (GNRO-2009/00008 dated January 23, 2009 to the NRC from GGNS). This update is consistent with update frequency listed in 10CFR50.71(e).

This letter does not contain any commitments.

Should you have any questions, please contact Michael Larson at (601) 437-6685.

Sincerely,

CLP\MJL
attachment: GGNS Technical Specification Bases
cc: (See Next Page)

cc:

NRC Senior Resident Inspector Grand Gulf Nuclear Station Port Gibson, MS 39150
U.S. Nuclear Regulatory Commission ATTN: Mr. Elmo E. Collins, Jr. (w/2) 612 East Lamar Blvd, Suite 400 Arlington, TX 76011-4005
U.S. Nuclear Regulatory Commission ATTN: Mr. Carl F. Lyon, NRR/DORL (w/2) **ATTN: ADDRESSEE ONLY** ATTN: Courier Delivery Only Mail Stop OWFN/8 B1 11555 Rockville Pike Rockville, MD 20852-2378

ATTACHMENT to GNRO-2009/00017

Grand Gulf Technical Specification Bases Revised Pages

LDC#	BASES PAGES AFFECTED	TOPIC of CHANGE
2009-001	B 3.7-11, B 3.7-12, B 3.7-13, B 3.7-14, B 3.7-15, B 3.7-16, B 3.7-16a, B 3.7-16b, B 3.7-16c	IMPLEMENTS TECHNICAL SPECIFICATION AMENDMENT 178 – TSTF-448 – CONTROL ROOM HABITABILITY

B 3.7 PLANT SYSTEMS

B 3.7.3 Control Room Fresh Air (CRFA) System

BASES

BACKGROUND

The CRFA System provides a protected environment from which occupants can control the unit following an uncontrolled release of radioactivity, hazardous chemicals, or smoke.

The safety related function of the CRFA System used to control radiation exposure consists of redundant isolation valves in each inlet and exhaust flow path. The system also includes two independent and redundant high efficiency air filtration subsystems for treatment of recirculated air or outside supply air and a CRE boundary that limits the inleakage of unfiltered air. Each CFRA subsystem consists of a demister, an electric heater, a prefilter, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section (optional), a second HEPA filter, a fan, and the associated ductwork, valves or dampers, doors, barriers, and instrumentation. Demisters remove water droplets from the airstream. Prefilters and HEPA filters remove particulate matter, which may be radioactive. The charcoal adsorbers, if utilized, provide a holdup period for gaseous iodine, allowing time for decay.

The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit during normal and accident conditions. This area encompasses the control room, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident. The CRE is protected for normal operation, natural events, and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CRE. The OPERABILITY of the CRE boundary must be maintained to ensure that the inleakage of unfiltered air into the CRE will not exceed the inleakage assumed in the licensing basis analysis of design basis accident (DBA) consequences to CRE occupants. The CRE and its boundary are defined in the Control Room Envelope Habitability Program.

(continued)

BASES

BACKGROUND (continued)

With the implementation of the alternative source term (Reference 7), the filtration of elemental and organic iodine is no longer credited in the accident analyses and is not a safety-related function. Parts of the CRFA System are operated to maintain the CRE environment during normal operation. Upon receipt of the initiation signal(s) (indicative of conditions that could result in radiation exposure to CRE occupants), the CRFA System automatically switches to the isolation mode of operation to minimize infiltration of contaminated air into the CRE. A system of valves isolates the CRE. CRE air flow may be recirculated and processed through either of the two filter subsystems.

The CRFA System is designed to maintain the control room environment for a 30 day continuous occupancy after a DBA, per the requirements of GDC 19. CRFA System operation in maintaining the control room habitability is discussed in the UFSAR, Sections 6.5.1 and 9.4.1 (Refs. 1 and 2, respectively).

APPLICABLE SAFETY ANALYSES

The ability of the CRFA System to maintain the habitability of the CRE is an explicit assumption for the safety analyses presented in the UFSAR, Chapters 6 and 15 (Refs. 3 and 4, respectively).

The CRFA System is assumed to isolate the CRE in response to manual initiation following a loss of coolant accident. Analyses of these events have assumed the CRE would be isolated for at least three days. At that time, isolation was terminated and the CRE was again ventilated with filtered (i.e., HEPA) outside air. Safety analysis of the fuel handling accident has demonstrated that CRE isolation is not required for this accident. The radiological doses to CRE occupants as a result of the various DBAs are summarized in Reference 4. No single active or passive failure will cause the loss of outside or recirculated air from the CRE.

The CRFA System provides protection from smoke and hazardous chemicals to the CRE occupants. The analysis of hazardous chemical releases demonstrates that the toxicity limits are not exceeded in the CRE following a hazardous chemical release (Ref. 5). The evaluation of a smoke challenge

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

demonstrates that it will not result in the inability of the CRE occupants to control the reactor either from the control room or from the remote shutdown panels (Ref. 8).

The CRFA System satisfies Criterion 3 of the NRC Policy Statement.

LCO

Two redundant subsystems of the CRFA System are required to be OPERABLE to ensure that at least one is available, if a single active failure disables the other subsystem. Total CRFA system failure, such as from a loss of both ventilation subsystems or from an inoperable CRE boundary, could result in a failure to meet the dose requirements of GDC 19 in the event of a DBA.

Each CRFA subsystem is considered OPERABLE when the individual components necessary to limit CRE occupant exposure are OPERABLE. A subsystem is considered OPERABLE when its associated:

a. Fan is OPERABLE;

b. HEPA filter is not excessively restricting flow and is capable of performing its filtration functions; and

c. Demister, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

In order for the CRFA subsystems to be considered OPERABLE, the CRE boundary must be maintained such that the CRE occupant dose from a large radioactive release does not exceed the calculated dose in the licensing basis consequence analyses for DBAs, and that CRE occupants are protected from hazardous chemicals and smoke.

The LCO is modified by a Note allowing the CRE boundary to be opened intermittently under administrative controls. This Note 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. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls should be proceduralized and consist of stationing a dedicated

(continued)

BASES

LCO (continued)

individual at the opening who is in continuous communication with the operators in the CRE. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for CRE isolation is indicated.

APPLICABILITY

In MODES 1, 2, and 3, the CRFA System must be OPERABLE to ensure that the CRE will remain habitable during and following a DBA, since the DBA could lead to a fission product release.

In MODES 4 and 5, the probability and consequences of a DBA are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining the CRFA System OPERABLE is not required in MODE 4 or 5, except during operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

A.1

With one CRFA subsystem inoperable for reasons other than an inoperable CRE boundary, the inoperable CRFA subsystem must be restored to OPERABLE status within 7 days. With the unit in this condition, the remaining OPERABLE CRFA subsystem is adequate to perform the CRE occupant protection function. However, the overall reliability is reduced because a failure in the OPERABLE subsystem could result in loss of CRFA System function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and that the remaining subsystem can provide the required capabilities.

B.1, B.2, and B.3

If the unfiltered inleakage of potentially contaminated air past the CRE boundary and into the CRE can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to 5 rem TEDE), or inadequate protection of CRE occupants from hazardous chemicals or smoke, the CRE boundary is inoperable. Actions must be taken to restore an OPERABLE CRE boundary within 90 days.

(continued)

BASES

ACTIONS

B.1, B.2, and B.3 (continued)

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. 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 analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. 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 90 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. In addition, the 90 day Completion Time is a reasonable time to diagnose, plan and possible repair, and test most problems with the CRE boundary.

C.1 and C.2

In MODE 1, 2, or 3, if the inoperable CRFA subsystem or the CRE boundary cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a MODE that minimizes accident risk. To achieve this status, the unit must be placed in at least MODE 3 within 12 hours and in MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

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BASES

ACTIONS (continued)

D.1 and D.2

During OPDRVs, if the inoperable CRFA subsystem cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE CRFA subsystem may be placed in the isolation mode. This action ensures that the remaining subsystem is OPERABLE, that no failures that would prevent actuation will occur, and that any active failure will be readily detected.

An alternative to Required Action D.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the CRE. This places the unit in a condition that minimizes accident risk.

If applicable, actions must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

E.1

If both CRFA subsystems are inoperable in MODE 1, 2, or 3, for reasons other than an inoperable CRE, the CRFA System may not be capable of performing the intended function and the unit is in a condition outside of the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

F.1

During OPDRVs, with two CRFA subsystems inoperable, or with one or more CRFA subsystems inoperable, action must be taken immediately to suspend activities that present a potential for releasing radioactivity that might require isolation of the CRE. This places the unit in a condition that minimizes the accident risk.

If applicable, actions must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

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BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

This SR verifies that a subsystem in a standby mode starts from the control room on demand and continues to operate. Standby systems should be checked periodically to ensure that they start and function properly. As the environmental and normal operating conditions of this system are not severe, testing each subsystem once every month provides an adequate check on this system. Furthermore, the 31 day Frequency is based on the known reliability of the equipment and the two subsystem redundancy available.

SR 3.7.3.2

This SR verifies that the required CRFA testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The VFTP includes testing HEPA filter performance, and minimum system flow rate. Specific test frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.3.3

This SR verifies that each CRFA subsystem starts and operates and that the isolation valves close in ≤ 4 seconds on an actual or simulated initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.7.1.1 overlaps this SR to provide complete testing of the safety function. While this Surveillance can be performed with the reactor at power, operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.7.3.4

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the Control Room Envelope Habitability Program.

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.3.4 (continued)

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than 5 rem TEDE and the CRE occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3, which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 9). These compensatory measures may also be used as mitigating actions as required by Required Action B.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. 10). Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA 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.

REFERENCES

1. UFSAR, Section 6.5.1.

2. UFSAR, Section 9.4.1.

3. UFSAR, Chapter 6.

4. UFSAR, Chapter 15.

5. Deleted

6. Engineering Evaluation Request 95/6213, Engineering Evaluation Request Response Partial Response dated 12/18/95.

7. Amendment 145 to GGNS Operating License.

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BASES

REFERENCES (continued)

8. UFSAR, Section 9.5

9. NEI 99-03, Control Room Habitability Assessment, June 2001.

10. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability." (ADAMS Accession No. ML04300694).