VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

December 21, 2000

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

Serial No. 00-648
SPS-LIC/CGL R0
Docket Nos. 50-280
50-281
License Nos. DPR-32
DPR-37

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
TECHNICAL SPECIFICATION BASIS CHANGE
CLARIFICATION OF AUXILIARY VENTILATION REQUIREMENTS

Virginia Electric and Power Company (Dominion) has approved a revision to the Basis for Technical Specification (TS) 3.22, "Auxiliary Ventilation Exhaust Filter Trains". This change was made to clarify the auxiliary filtration requirements. The specific changes made in the Basis 1) reflect that auxiliary filtration is required during refueling operations, or while handling fuel assemblies or heavy loads with recently irradiated fuel in the spent fuel pool and 2) define recently irradiated fuel as fuel that has decayed less than 30 days since reactor shutdown. The consequences of a fuel handling accident without filtration after a 30 day decay period are bounded by the Surry design basis fuel handling accident, which assumes filtration and a 100 hour decay period. The results are also within GDC-19 and 10CFR100 limits.

A UFSAR change request has also been prepared to clarify the auxiliary filtration requirements, consistent with this TS Basis revision, and will be included in the next scheduled UFSAR update in accordance with 10CFR50.71(e).

The TS Basis change has been reviewed and approved by the Station Nuclear Safety and Operating Committee and the Management Safety Review Committee. It has been determined that this change does not involve an unreviewed safety question as defined in 10 CFR 50.59. A discussion of the TS Basis change and the proposed TS Basis change page are provided in Attachments 1 and 2, respectively.

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Implementation of this TS Basis change is planned for January 5, 2001 to support station activities scheduled to begin following that date. We are providing the TS Basis change for your information.

Should you have any questions regarding the TS Basis change, please contact us.

Very truly yours,

W. R. Matthews
Vice President – Nuclear Operations

Attachments:
1. Discussion of Changes
2. Proposed Technical Specification Basis Change

Commitments made in this letter:
1. A UFSAR change request has also been prepared to clarify the auxiliary filtration requirements, consistent with this TS Basis revision, and will be included in the next scheduled UFSAR update in accordance with 10CFR50.71(e).

cc: U.S. Nuclear Regulatory Commission
Region II
Sam Nunn Atlanta Federal Center
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Mr. R. A. Musser
NRC Senior Resident Inspector
Surry Power Station

Commissioner
Department of Radiological Health
Room 240
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COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by William R. Matthews, who is Vice President - Nuclear Operations, of Virginia Electric and Power Company. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 21st day of December, 2000.

My Commission Expires: 3/31/04.

Maggie McClure
Notary Public

(SEAL)

ATTACHMENT 1

Discussion of Changes

DISCUSSION OF CHANGES

Introduction

Surry Technical Specification (TS) 3.22 identifies requirements for the Auxiliary Ventilation Exhaust Filter Trains. The current TS 3.22 Basis states ". . . The fuel building exhaust and purge exhaust are aligned to continuously pass through the filters during spent fuel handling." The Basis also goes on to state "When irradiated fuel is being handled, the system is manually placed in alignment to ensure the exhaust from the fuel handling areas passes through the filters. The automatic alignment feature of the ventilation system, which initiates on a safety injection signal, is defeated unless the fuel has decayed for a sufficient period of time such that the radiological consequences of a fuel handling accident would be acceptable without iodine filtration. . . ."

The TS 3.22 Basis statements are being revised to clarify the filtration requirements associated with irradiated fuel handling. Specifically, the TS 3.22 Basis is being revised to reflect conditions that require auxiliary filtration and to indicate that auxiliary filtration is not required to mitigate the consequences of a fuel handling accident after the fuel has decayed for 30 days from reactor shutdown. This Basis revision will permit ISFSI cask handling and other fuel building activities to be performed without auxiliary ventilation filtration after the fuel has decayed for 30 days from reactor shutdown.

Licensing Basis

TS Amendment 92/91, issued on January 17, 1984, added new requirements for the Auxiliary Ventilation Exhaust Filter Trains, as well as the associated TS Basis. The original TS 3.22 Basis included a discussion of the automatic damper alignment initiated by a safety injection signal. A September 4, 1992 letter (Serial No. 92-208) transmitted a TS Basis revision to expand upon the description of the auxiliary ventilation damper alignment when a safety injection signal is received and fuel handling is in progress. Specifically, the Basis revision added a discussion regarding the handling of irradiated fuel that required defeating the automatic realignment feature of the auxiliary ventilation system unless the fuel has decayed for a sufficient period of time such that the radiological consequences of a fuel handling accident would be acceptable without iodine filtration. This revision to the TS 3.22 Basis was found acceptable to the NRC, as documented in a November 20, 1992 letter.

Discussion

Need for Revision to the TS 3.22 Basis

The TS 3.22 Basis revision, approved by the NRC on November 20, 1992, did not indicate either the duration of the sufficient decay period or that movement of sufficiently decayed fuel could be performed without iodine filtration. Therefore, the TS 3.22 Basis is being revised to reflect that the Auxiliary Ventilation Exhaust Filter Trains are not required to mitigate the consequences of a fuel handling accident after

the fuel has decayed for 30 days from reactor shutdown. This Basis revision will permit ISFSI cask handling and other fuel building activities to be performed without auxiliary ventilation filtration after the fuel has decayed for 30 days from reactor shutdown.

It should be noted that the TS 3.22 Basis revision is consistent with concepts reflected in the Improved Technical Specifications addressing recently irradiated fuel and reduced use of equipment needed to mitigate the consequences of an accident involving fuel that was not recently irradiated.

Fuel Handling Accident Analysis without Iodine Filtration

Our August 30, 1994 letter (Serial No. 94-509) transmitted the Surry Core Power Uprating submittal and included the assumptions utilized in the Fuel Handling Accident (FHA) design basis case. Assumptions in the FHA design basis case that are pertinent to this discussion are:

1) Auxiliary Ventilation Exhaust Filter efficiency was assumed to be 90% for inorganic species and 70% for organic species.
2) The accident occurs 100 hours after reactor shutdown.

The NRC approved the Surry Core Power Uprating submittal in TS Amendment 203/203, dated August 3, 1995. A discussion of the Surry Core Power Uprating FHA design basis case can also be found in Section 14.4 of the Surry UFSAR.

The November 20, 1992 Basis revision was supported by an FHA analysis that evaluated the dose consequences of an FHA 30 days after reactor shutdown without the benefit of iodine filtration. In order to perform the FHA analysis for the November 20, 1992 Basis revision, the LOCADOSE input decks for the Surry Core Power Uprating reanalyses (not submitted until 1994) were modified as follows:

1) Auxiliary Ventilation Exhaust Filter efficiency was set to 0%.
2) The gap activity of all the rods from one fuel assembly was released after a decay period of 30 days (instead of 100 hours) after reactor shutdown.

The FHA analysis supporting the November 20, 1992 Basis revision concluded that filtration was not required after a 30 day decay period. However, at that time, Surry Power Station opted to only use the results of that analysis to defeat the automatic alignment feature of the auxiliary ventilation system within a 60 day decay period. Furthermore, filtration continued to be required even after a 60 day decay period as a conservative defense-in-depth measure.

The relaxation of equipment required to mitigate the FHA by this analysis is limited to the Auxiliary Ventilation Exhaust Filters. The analysis continues to require function of the Main Control Room Bottled Air System, Main Control Room and Emergency Switchgear Room Ventilation and Air Conditioning Systems, identification and communication of the occurrence of the FHA, a minimum of 23 feet of water above damaged fuel rods, and fuel building exhaust flow from at least one train of either the normal or safety related systems to enable the release to be completed in 2 hours.

The results of the design basis case, which were originally reported in Table 3.7.2.5-3 of our August 30, 1994 letter (Serial No. 94-509), are presented in Table 1 below and compared to the results without iodine filtration after a 30 day decay period. As can be seen in Table 1, the dose consequences without iodine filtration after a 30 day decay period are less than those reported in the design basis case, as well as the GDC-19 and 10CFR100 regulatory limits. These results support further revision of the TS 3.22 Basis to reflect conditions that require auxiliary filtration and to indicate that auxiliary filtration is not required to mitigate the consequences of a fuel handling accident after the fuel has decayed for 30 days from reactor shutdown.

Table 1: Comparison of the Dose Consequences of the Design Basis Fuel Handling Accident and the Fuel Handling Accident without Iodine Filtration and a 30 Day Decay Period from Reactor Shutdown

	Design Basis Case (Ref.: Letter Serial No. 94-509)			Without Iodine Filtration and 30 Day Decay		
	Thyroid Dose (Rem)	Whole Body Dose (Rem)	Skin Dose (Rem)	Thyroid Dose (Rem)	Whole Body Dose (Rem)	Skin Dose (Rem)
Control Room	2.4	0.1	0.1	1.4	0.01	0.03
Exclusion Area Boundary	55.0	1.6	1.8	31.8	0.2	0.5
Low Population Zone	2.4	0.1	0.1	1.4	0.01	0.02
GDC-19 Limits[1]	30	5	30	30	5	30
10CFR100 Limits[2]	300	25	-	300	25	-

[1] GDC-19 only specifies a 5 Rem Whole Body dose limit. The GDC-19 limits for control room Thyroid and Skin doses are taken from Standard Review Plan Section 6.4 "Control Room Habitability System".

[2] Standard Review Plan Section 15.7.4 "Radiological Consequences of Fuel Handling Accidents" contains Exclusion Area Boundary and Low Population Zone acceptance guidelines of "well within" or 25% of the 10 CFR 100 limits.

Specific Changes

Currently the TS 3.22 Basis requires alignment of the fuel building exhaust and purge exhaust to pass through Auxiliary Ventilation Exhaust Filter Trains during spent fuel handling. The Basis also requires that automatic realignment of the Auxiliary Ventilation Exhaust Filter Trains on a safety injection signal be defeated unless the fuel has decayed for a sufficient period of time such that the radiological consequences of a fuel handling accident would be acceptable without iodine filtration. The Basis fails to indicate that the sufficient decay period was determined to be 30 days and that

movement of fuel that has decayed for at least 30 days would not require alignment of the Auxiliary Ventilation Exhaust Filter Trains. Therefore, the Basis of Technical Specification 3.22 is being revised to specify that alignment of the fuel building exhaust and purge exhaust continuously pass through Auxiliary Ventilation Exhaust Filter Trains for the following two conditions:

- during refueling operations, or
- while handling fuel assemblies or heavy loads with recently irradiated fuel in the spent fuel pool.

The Basis is also be revised to reflect that the Auxiliary Ventilation Exhaust Filter Trains are not required to mitigate the consequences of a fuel handling accident after the fuel has decayed for 30 days from reactor shutdown.

Revise the Basis of Technical Specification 3.22 from:

The purpose of the filter trains located in the auxiliary building is to provide standby capability for removal of particulate and iodine contaminants from the exhaust air of the charging pump cubicles of the auxiliary building, fuel building, decontamination building, containment (during shutdown) and safeguards building adjacent to the containment which discharge through the ventilation vent and could require filtering prior to release. During normal plant operation, the exhaust from any one of these areas can be diverted, if required, through the auxiliary building filter trains remotely from the control room. The safeguards building exhaust and the charging pump cubicle exhaust are automatically diverted through the filter trains in the event of a LOCA (diverted on a safety injection system signal). The fuel building exhaust and purge exhaust are aligned to continuously pass through the filters during spent fuel handling.

When irradiated fuel is being handled, the system is manually placed in alignment to ensure the exhaust from the fuel handling areas passes through the filters. The automatic alignment feature of the ventilation system, which initiates on a safety injection signal, is defeated unless the fuel has decayed for a sufficient period of time such that the radiological consequences of a fuel handling accident would be acceptable without iodine filtration. Defeating the automatic alignment feature requires that, in the event of a LOCA, manual actions be taken to realign the ventilation system to the charging pump cubicles and safeguards areas following actions to secure fuel handling activities.

To:

The purpose of the filter trains located in the auxiliary building is to provide standby capability for removal of particulate and iodine contaminants from the exhaust air of the charging pump cubicles of the auxiliary building, fuel building, decontamination building, containment (during shutdown) and safeguards building adjacent to the containment which discharge through the ventilation vent and could require filtering prior to release. During normal plant operation, the exhaust from any one of these areas can be diverted, if required, through the auxiliary building filter trains remotely from the control room. The safeguards building exhaust and the charging pump

cubicle exhaust are automatically diverted through the filter trains in the event of a LOCA (diverted on a safety injection system signal).

The fuel building exhaust and purge exhaust are aligned to continuously pass through the filters during ~~spent fuel handling~~ **REFUELING OPERATIONS, or while handling fuel assemblies or heavy loads with recently irradiated fuel in the spent fuel pool.** ~~When irradiated fuel is being handled~~ **Under these conditions**, the system is manually placed in alignment to ensure the exhaust from the fuel handling areas passes through the filters. The automatic alignment feature of the ventilation system, which initiates on a safety injection signal, is defeated unless the fuel has decayed for a sufficient period of time such that the radiological consequences of a fuel handling accident would be acceptable without iodine filtration. **A decay period of 30 days from reactor shutdown has been determined to be sufficient to mitigate the consequences of a fuel handling accident without iodine filtration. Therefore, recently irradiated fuel is defined as fuel that has decayed less than 30 days since reactor shutdown.** Defeating the automatic alignment feature requires that, in the event of a LOCA, manual actions be taken to realign the ventilation system to the charging pump cubicles and safeguards areas following actions to secure fuel handling activities.

Safety Significance

The dose consequences of the FHA without iodine filtration and a 30 day decay period were determined to meet the 10 CFR 100 limits and the limits specified in GDC-19. Additionally, the dose consequences of the FHA without iodine filtration and a 30 day decay period are less than the consequences previously submitted for the Surry Core Power Uprating and reported in the UFSAR. Based on these facts, it was determined that an unreviewed safety question does not exist as defined in 10 CFR 50.59.

Conclusions

The November 20, 1992 Basis revision was supported by an FHA analysis that evaluated the dose consequences of an FHA 30 days after reactor shutdown without the benefit of iodine filtration. However, Surry Power Station opted to maintain conservative defense-in-depth measures at that time. The dose consequences of the FHA without iodine filtration after a 30 decay period are less than those reported in the design basis case and are less than the GDC-19 and 10CFR100 regulatory limits. These results support the further revision of the Basis of Technical Specification 3.22 to reflect conditions that require auxiliary filtration and to indicate that auxiliary filtration is not required to mitigate the consequences of a fuel handling accident after the fuel has decayed for 30 days from reactor shutdown. This Basis revision will permit ISFSI cask handling and other fuel building activities to be performed without auxiliary ventilation filtration after the fuel has decayed for 30 days from reactor shutdown.

ATTACHMENT 2

Proposed Technical Specification Basis Change

Basis

The purpose of the filter trains located in the auxiliary building is to provide standby capability for removal of particulate and iodine contaminants from the exhaust air of the charging pump cubicles of the auxiliary building, fuel building, decontamination building, containment (during shutdown) and safeguards building adjacent to the containment which discharge through the ventilation vent and could require filtering prior to release. During normal plant operation, the exhaust from any one of these areas can be diverted, if required, through the auxiliary building filter trains remotely from the control room. The safeguards building exhaust and the charging pump cubicle exhaust are automatically diverted through the filter trains in the event of a LOCA (diverted on a safety injection system signal).

The fuel building exhaust and purge exhaust are aligned to continuously pass through the filters during REFUELING OPERATIONS, or while handling fuel assemblies or heavy loads with recently irradiated fuel in the spent fuel pool. Under these conditions, the system is manually placed in alignment to ensure the exhaust from the fuel handling areas passes through the filters. The automatic alignment feature of the ventilation system, which initiates on a safety injection signal, is defeated unless the fuel has decayed for a sufficient period of time such that the radiological consequences of a fuel handling accident would be acceptable without iodine filtration. A decay period of 30 days from reactor shutdown has been determined to be sufficient to mitigate the consequences of a fuel handling accident without iodine filtration. Therefore, recently irradiated fuel is defined as fuel that has decayed for less than 30 days since reactor shutdown. Defeating the automatic alignment feature requires that, in the event of a LOCA, manual actions be taken to realign the ventilation system to the charging pump cubicles and safeguards areas following actions to secure fuel handling activities.

High efficiency particulate air (HEPA) filters are installed before the charcoal adsorbers to prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to reduce the potential release of radioiodine to the environment.