

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401  
400 Chestnut Street Tower II

March 27, 1984

Director of Nuclear Reactor Regulation  
Attention: Ms. E. Adensam, Chief  
Licensing Branch No. 4  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Ms. Adensam:

In the Matter of the Application of ) Docket Nos. 50-390  
Tennessee Valley Authority ) 50-391

By letter dated July 27, 1983, TVA transmitted various proposed modifications to the Watts Bar Nuclear Plant (WBN) unit 1 draft Technical Specifications. Included in this package was a request to delete the Reactor Building Purge Ventilation System (RBPVS) from the Technical Specifications. The RBPVS's design bases included provisions to clean up containment exhaust during a fuel handling accident; however, reevaluations showed that the isolation capabilities of the Containment Ventilation Isolation System would mitigate the consequences of a fuel handling accident occurring inside containment and maintain acceptable releases well below 10 CFR 100 limits, without any credit being taken for the RBPVS filters. Thus, the RBPVS filters were reclassified to a non-Engineered Safety Feature status. As a result of subsequent discussions between TVA and NRC representatives on this matter, TVA was requested to submit the corresponding Final Safety Analysis Report (FSAR) revisions. All applicable FSAR sections were revised by FSAR Amendment 49 except for Section 15.5.6, "Environmental Consequences of a Postulated Fuel Handling Accident," which includes a discussion of the RBPVS's function in mitigating the consequences of a fuel handling accident occurring inside the primary containment and provides the projected offsite releases for such an accident.

In order to ensure that this issue is resolved in a timeframe consistent with the "proof and review" phase of the unit 1 Technical Specifications issuance, we are forwarding the approved Chapter 15 FSAR revisions at this time. These revisions will be reflected in the next amendment to the FSAR (Amendment 50).

In addition to the FSAR revisions, NRC further requested that additional information be provided to support TVA's request and to assist in the Staff's review of this matter. A description of the information requested and the corresponding TVA responses is provided in enclosure 2 to this letter.

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Director of Nuclear Reactor Regulation

March 27, 1984

If you have any questions concerning this matter, please get in touch with D. B. Ellis at FTS 858-2681.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

*L.M. Mills*  
L. M. Mills, Manager  
Nuclear Licensing

Sworn to and subscribed before me  
this 27<sup>th</sup> day of March 1984

*Paulette H. White*  
Notary Public  
My Commission Expires 9-5-84

Enclosures

cc: U.S. Nuclear Regulatory Commission (Enclosures)  
Region II  
Attn: Mr. James P. O'Reilly Administrator  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30303

ENCLOSURE 1

WATTS BAR NUCLEAR PLANT  
REVISED FSAR PAGE 15.5-31

The thyroid, gamma and beta doses from a postulated fuel handling accident at the site boundary and low population zone are given in Table 15.5-23 for the realistic, conservative, and Regulatory Guide 1.25 analyses. These doses are much less than the 10CFR100 reference values of 300 rem to the thyroid and 25 rem to the whole body.

It is also necessary to consider a fuel handling accident occurring inside the primary containment. The Reactor Building Purge Ventilation System is an engineered safety feature however, the air cleanup units with pre-filters, HEPA filters and 2 inch-thick charcoal absorbers are not safety grade. This system is similar to the Auxiliary Building Gas Treatment System except that the latter is equipped with 4 inch-thick charcoal absorbers. Anytime fuel handling operations are being performed inside the primary containment, either the containment will be isolated or the Reactor Building Purge Ventilation System will be operating. The assumptions listed above therefore, would be applicable to a fuel handling accident inside primary containment except that the filter efficiency for elemental and particulate iodine is reduced from 99 percent to 95 percent. However, since the filter system is not considered to be ESF equipment, no credit was taken for the filter. For a conservative calculation it was assumed that the airborne activity mixes fully and instantaneously in upper containment, from which it is released directly as a ground-level release for 34 seconds (30 seconds for detection of the release by the containment purge monitors, 4 seconds valve closure time). These assumptions lead to calculated 2-hour site boundary doses of 4.9 rem thyroid and  $1.3 \times 10^{-2}$  rem total body, and 30-day LPZ boundary doses of 1.1 rem thyroid and  $2.9 \times 10^{-4}$  rem total body. For a Regulatory Guide 1.25 analysis it was assumed that all of the airborne activity is released unfiltered to the environs. In this case, calculated 2-hour site boundary doses are 200 rem thyroid and 0.53 rem total body, and the 30-day LPZ boundary doses will be 45 rem thyroid and  $1.2 \times 10^{-2}$  total body. These values are well below the limits of 10CFR100.

#### 15.5.7 Environmental Consequences of a Postulated Rod Ejection Accident

Three analyses of a postulated rod ejection accident are performed:

1) a realistic analysis, 2) a conservative analysis, and 3) an analysis based on Regulatory Guide 1.77 (Reference 12). The parameters used for each of these analyses are listed in Table 15.5-24.

WATTS BAR NUCLEAR PLANT  
NRC REQUEST FOR ADDITIONAL INFORMATION  
RELATING TO THE RECLASSIFICATION OF THE  
REACTOR BUILDING PURGE VENTILATION SYSTEM

Item 1

Provide drawings depicting the location of the radiation monitors which would initiate containment isolation.

Response

Requested drawings are attached (47W600-105).

Item 2

Provide drawings depicting the location of the containment isolation valves.

Response

Requested drawings are attached (47W915-3, -4 and -6). Also, attached is a listing of the primary containment isolation valves.

Item 3

Provide the estimated time for containment isolation upon initiation of an isolation signal.

Response

See enclosure 1, revised FSAR page 15.5-31.

Item 4

Provide the estimated time of particle transit from the isolation valves to the monitors.

Response

See enclosure 1, revised FSAR page 15.5-31.

Item 5

Identify the bed size of the charcoal filters used in the RBPVS.

Response

The bed depth of the filters is two inches.

WBN HVAC CONTAINMENT ISOLATION VALVES

<u>Valve No.</u>	<u>Penetration No.</u>	<u>Max. Isolation Time (SEC)</u>	<u>Drawing No.</u>
30-56	X-4	4	47W915-6
30-57	X-4	4	47W915-6
30-58	X-5	4	47W915-3
30-59	X-5	4	47W915-3
30-50	X-6	4	47W915-6
30-51	X-6	4	47W915-6
30-52	X-7	4	47W915-6
30-53	X-7	4	47W915-6
30-07	X-9A	4	47W915-4
30-08	X-9A	4	47W915-4
30-10	X-9B	4	47W915-4
30-09	X-9B	4	47W915-4
30-15	X-10A	4	47W915-3
30-14	X-10A	4	47W915-3
30-17	X-10B	4	47W915-3
30-16	X-10B	4	47W915-3
30-20	X-11	4	47W915-3
30-19	X-11	4	47W915-3
30-40	X-80	4	47W915-3
30-37	X-80	4	47W915-3