



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

**MAR 3 1 2000**

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

Gentlemen:

In the Matter of ) Docket No. 50-390  
Tennessee Valley Authority )

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - REQUEST FOR APPROVAL OF  
UNREVIEWED SAFETY QUESTION - TEMPORARY STORAGE OF LOW LEVEL  
RADIOACTIVE WASTE - ADDITIONAL INFORMATION (TAC NO. MA7723)

The purpose of this letter is to provide additional information as discussed in a teleconference call with NRC's S. LaVie and R. Martin on March 15, 2000. In that teleconference call, TVA committed to revise the Final Safety Analysis Report (FSAR) to add the administrative curie limits that will be imposed upon the outside concrete storage pad and to document the dose calculation bases and resultant doses.

The Enclosure 1 provides replacement pages for FSAR pages 11.5-4 and 11.5-5 which were submitted in TVA's letter dated December 17, 1999. Enclosure 2 provides the dose calculation bases and results.

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TVA understands this additional information provides NRC everything that is needed to complete the safety evaluation. If you have any questions concerning this matter please contact me at (423) 365-1824.

Sincerely,



P. L. Pace  
Manager, Site Licensing  
and Industry Affairs

Enclosures

cc: (Enclosures):

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ENCLOSURE 1

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1  
PROPOSED FINAL SAFETY ANALYSIS REPORT (FSAR) MARKED PAGES

If radiation levels of containers are high enough to require shielding, they are loaded into and transported in shielded truck trailers or a cask similar to those used to transport liners containing bulk quantities of dewatered resins.

11.5.4 Equipment Operation

11.5.4.1 Mobile Solidification System (MSS)

The MSS is a portable solidification unit provided by a vendor service contract. The MSS combines and mixes radioactive wastes (resins, concentrates and liquid wastes) with solidification agents and needed additives to solidify the waste. The solidification is done in accordance with a Process Control Program to ensure that each batch of waste is properly solidified. Only solidification agents (such as cement) which have been approved by licensed disposal facilities are used. The waste is solidified in a disposable liner and prepared for shipment or temporary onsite storage. The disposable liners are equipped with internal mixers to provide uniform mixing. The mobile solidification system is located in the Auxiliary Building railroad bay. Necessary connections have been provided in the railroad bay to support the mobile solidification system as shown by Figure 11.5-1.

11.5.5 Storage Facilities

11.5.5.1 Inplant Storage Area

Packaged wastes and unpackaged dry active wastes are stored in designated storage areas until shipment. Designated inplant storage areas include the waste packaging area and the Auxiliary Building railroad bay. The indoor storage for processed wastes and unprocessed DAW provides greater than 30-day storage at expected generation rates. The annual DAW volume for compactible and non-compactible trash as shown in Table 11.5-1 is expected to have an 11.4 curie content. For unprocessed wet wastes the following storage containers are provided:

Spent Resin Storage Tank	300 ft <sup>3</sup>
Mobile Demineralizer Spent Resin Disposal Container	180 ft <sup>3</sup>
CPDS Storage Tank	441 ft <sup>3</sup>
Filter HIC/shielding	96 ft <sup>3</sup>

The above unprocessed storage capacities provide greater than 30 days storage at expected generation rates.

11.5.5.2 Outside Radwaste Storage

Operational considerations make it necessary to temporarily store containers of radioactive materials and radioactive wastes in designated areas such as the concrete pad in the east yard outside of the CDWE. **The total inventory on the concrete pad is administratively limited to 10 curies for dry active waste and 1000 curies for resin and filter wastes.** Liners of dewatered resin (that have been processed for shipment offsite) are stored in shielded containers.

Drums, boxes, and liners of radioactive materials or wastes including DAW may be stored in outside storage areas after being packaged for shipment or storage. The outside storage area provide sufficient storage to accommodate one full shipment of DAW or radioactive materials. The concrete pad east of the CDWE will also be used to temporarily store (less than 5 years) **packaged DAW, filters, and dewatered resins.**

#### 11.5.6 Shipment

Waste is shipped to a commercial disposal site according to federal regulations and disposal site criteria. Waste may also be shipped to a broker/processor **or to storage at Sequoyah Nuclear Plant, once licensed to accept waste from Watts Bar Nuclear Plant.** Drums and boxes containing radwaste are transported to the disposal facility in a sole-use van-type or flatbed truck trailer. Dewatered resins and solidified resins are packaged in liners or HICs and transported in a transportation cask when required. Radioactive waste is packaged and transported in accordance with federal, state and TVA regulations.

#### REFERENCES

None

ENCLOSURE 2

WATTS BAR NUCLEAR PLANT UNIT 1  
DOSE CALCULATION BASES AND RESULTANT DOSES

## DOSE CALCULATION BASES

- Maximum inventory on pad is 7143 Ci. This value is based on limiting the offsite dose (in TEDE) due to an accident to 100 mrem.
- Isotopic mix is for the most limiting (i.e., dose effective) waste type (CVCS resin), based on WBN 1999 10 CFR 61 analyses
- 1% of total pad activity is released to the atmosphere due to fire (per WASH-1238)
- EAB Atmospheric dilution factor =  $6.07E-04 \text{ s/m}^3$  (same as FSAR WGDT value)
- MCR Atmospheric dilution factor =  $3.11E-03 \text{ s/m}^3$
- MCR particulate filter efficiency = none assumed (CREVS not activated)
- EAB Gamma Dose (mrem) =  $0.25 \times Q \text{ (ci)} \times \text{Gamma Energy (MeV/dis)} \times X/Q \text{ (s/m}^3\text{)}$  -- Reg. Guide 1.4
- EAB Beta Dose (mrem) =  $0.23 \times Q \text{ (ci)} \times \text{Beta Energy (MeV/dis)} \times X/Q \text{ (s/m}^3\text{)}$  -- Reg. Guide 1.4
- MCR doses use same equations as above
- Thyroid Dose = 0.0 mrem as there is no iodine identified in 10 CFR 61 analyses.

## RESULTANT DOSES

Exclusion Area Boundary	beta = 0.7 mrem gamma = 7.91 mrem Thyroid Dose = 0.0 mrem *
Main Control Room	beta = 3.58 mrem gamma = 40.5 mrem Thyroid Dose = 0.0 mrem *

\* There is no iodine identified in 10 CFR 61 analyses.