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

DEC 0 7 2001

10 CFR 50.4

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)

SUBJECT: WATTS BAR NUCLEAR PLANT - RESPONSES TO RAI REGARDING TRITIUM PRODUCTION - INTERFACE ISSUES 14 AND 15 (TAC NO. MB1884)

The purpose of this letter to provide TVA's response to NRC's November 8, 2001, request for additional information regarding the Tritium Production Program Interface Item Numbers 14 and 15. This submittal also provide a response to an additional question provided via email from L. Mark Padovan on November 20, 2001. Initial information related to these interface issues was supplied by TVA on May 1, 2001, and with the license amendment request dated August 20, 2001. The enclosure provides both the questions asked and the responses to those questions.

D030

Rec'd 01/17/02

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There are no regulatory commitments made by this letter. If you have any questions about this letter, please contact me at (423) 365-1824.

Sincerely,

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

Enclosure
cc: See page 3

Subscribed and sworn to before me
on this 7th day of December 2001

E. Jeannette Long
Notary Public

My Commission Expires May 21, 2005

DEC 0 7 2001

cc (Enclosure):
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ENCLOSURE
TENNESSEE VALLEY AUTHORITY
WATTS NUCLEAR PLANT (WBN)
UNIT 1
DOCKET NO. 390
RESPONSES TO NRC REQUEST FOR ADDITIONAL INFORMATION

Interface Issue 14 – Liquid Waste Management Systems

1. **Section 1.5.14 of NDP-00-0344, Rev. 1 "Implementation and Utilization of Tritium Producing Burnable Absorber Rods (TPBARS) In Watts Bar Unit 1" states that if increased feed and bleed is necessary to reduce the tritium concentration in the reactor coolant system (RCS), Tennessee Valley Authority will temporarily store tritiated liquids onsite.**

   - **Please explain what is meant by "temporary onsite storage."**
   - **Are there other potential existing storage tanks onsite other than the liquid waste storage tank (i.e., monitoring or discharge tanks)?**
   - **If so, what is their capacity and how are they factored into the liquid waste storage capacity?**

RESPONSE

In the unlikely event that increased RCS feed and bleed is required, it may be necessary to temporarily store the increased volume of tritiated liquid onsite in order to allow discharge of other plant liquid waste or to dilute with other liquids to ensure that the 10CFR20 discharge limits are met.

To accommodate the storage of this potential additional liquid, Watts Bar Nuclear Plant has two Hold Up Tanks (HUTs) each with a capacity of 126,000 gallons with one tank being used for other normal plant waste and the other tank used to process tritiated liquids. The time to process and release the liquid in batches from the two liquid radwaste tanks (See Answer to Question No. 2.) would dictate the length of "temporary onsite storage." The length of this type of storage is dependent on plant conditions and can vary from several days to several weeks.

2. **Section 2.11.3 states that current monitoring programs are adequate, but did not address the adequacy of existing waste holdup tank capacity.**

   - **What is the existing capacity of the liquid waste holdup tank and is it adequate to obtain the necessary dilution for liquid tritium discharges to the environment?**

   - **Additionally, are the floor drains that could potentially be tritiated (i.e., auxiliary building floor drains) from RCS fluid carrying auxiliary systems (chemical and volume control system) or fuel pool cooling system, connected directly to the liquid waste holdup tank?**

   - **If so, was this additional volume from normal leakages factored into the liquid waste storage tankage capacity determination?**

RESPONSE

WBN has two tanks that are used to process water for releases to the environment. The Monitor Tank (MT) which has a capacity of 20,462 gallons and the Cask Decon Collector Tank (CDCT) which has a capacity of 15,000 gallons. These tanks can process water from the two Hold Up Tanks (HUTs), each with a capacity of 126,000 gallons, that is then diluted with Cooling Tower Blowdown before being released to the environment. Adequate capacity exists between the two HUTs and the Monitor Tank and CDCT to allow for discharge to the environment.

Drainage from the reactor building floor and equipment drains are routed to the Tritiated Drain Collector Tank (TDCT) which has a capacity of 24,700 gallons. Drainage from the auxiliary building floor and equipment drains are routed to the Floor Drain Collector Tank (FDCT) which has a capacity of 23,000 gallons. These tanks, along with the two HUTs, provide adequate storage for normal leakage. The TDCT and FDCT are then processed and released to the environment via the MT and CDCT. Spent Fuel Pool Cooling does not normally have a direct pathway to the Liquid Radwaste System. Normal leakage, which is a very small amount, is already factored into the capacity of the TDCT.

Interface Issue 15 Process and Effluent Radiological Monitoring and Sampling System

1. **Section 2.9.6, Table 2.9.6-1 states that for a tritium production core (TPC), TVA will sample the RCS three times a week. Section 1.5.15 states that the only modifications for a TPC from the non-TPC monitoring program will be enhanced tritium sampling of the auxiliary and shield building heating, ventilation and air conditioning exhaust. Additionally, in the accident analysis, failure of two TPBARS was assumed, which increases the RCS tritium activity. Given these statements:**

   a. **Has TVA examined the need to perform tritium monitoring at the air ejector, given the possibility of 2.5 days of "allowable (TS) [technical specifications] primary/secondary leakage?" Could this constitute an unmonitored release point since most air ejector monitoring at commercial plants involves a gamma guard, so any tritium beta activity would not be identified?**

RESPONSE

The condenser vacuum exhaust is a continuously monitored release point with a gaseous radiation monitor. This monitor uses increased gamma activity as the indicator of a primary to secondary leak. The monitor has a setpoint that causes an alarm in the Control Room. The monitor output is also fed to the plant computer. The monitor is read twice per day to identify any potential small increases below the alarm setpoint. If the monitor shows an increase in countrate, a noble gas sample is obtained to validate the monitor response. In addition to this continual monitoring, a noble gas grab sample is collected and analyzed weekly. If either the weekly sample or the sample taken to validate the monitor response contains radioactivity, tritium, particulate and iodine samples are obtained and factored into the release to the environment. The potential environmental impact of 2 TPBAR failures has been evaluated in Section 2.11.3 of Westinghouse Report NDP 00-0344 provided as Enclosure 4 of the Watts Bar license amendment request dated August 20, 2001, and was found to be acceptable.

b. Does the assumption of all tritium remaining in the form of tritiated water apply to potential accidents external to the containment and involving RCS temperatures above 212^0 F (i.e., SGTR or ECCS line break in the auxiliary building)?

RESPONSE

The assumption of tritium remaining in the oxidized form (HTO, T_2O, DTO) as either a liquid or water vapor does apply to the SGTR and ECCS line break outside containment.

2. Section 1.5.15 states that the only modifications for a TPC from the non-TPC monitoring program will be enhanced tritium sampling of the auxiliary and shield building exhaust.

a. Are there any interconnections on the air supply from these two HVAC systems to the supply of the control room normal HVAC system?

RESPONSE

The Auxiliary Building and Shield Building Exhaust are independent of the control room HVAC system.

b. How will TVA perform enhanced tritium monitoring of these two systems?

- **Does the monitoring only involve liquid sampling? If so, why is there a discussion on air sampling for tritium in this section?**

RESPONSE

The monitoring is in the water vapor form. There is no "liquid" sampling.

- **Are there any potential gaseous tritium release points to be monitored in the plant? If so, what are the monitoring locations?**

RESPONSE

The Condenser Vacuum Exhaust is a potential tritium water vapor release point and is discussed in Item 1(a) above.

An additional RAI regarding 15 b. was received from the NRC via Email on November 20, 2001. Questions with responses are provided below:

- **Are the sampling points on these two HVAC systems (Auxiliary and Shield Buildings) on the intake or exhaust?**

RESPONSE

The sampling points are on the exhaust.

- **Also, since the term "continuous" is used in the submittal, is the sampling system on these systems going to be fixed systems with individual sampling trains as opposed to increased frequency of grab samples,**

RESPONSE

These systems will be fixed systems as opposed to increased grab samples.

- **and if so, are these systems going to be used to initiate any automatic actions in existing systems, such as closing intake dampers?**

RESPONSE

These samplers will not initiate any automatic actions.

c. **The auxiliary building HVAC also services the fuel building and only the system exhaust is monitored. Therefore, will TVA have airborne monitoring (and associated operating procedures) for TPBAR consolidation activities in the fuel building?**

RESPONSE

The current project plan includes the purchase of SCINTREX portable tritium air monitors model 309A, or equivalent. These monitors will be used in the fuel handling area when moving fuel containing irradiated TPBARs or while consolidating irradiated TPBARs. There will be procedures on the use and calibration of these instruments.