

TENNESSEE VALLEY AUTHORITY

5N 157B Lookout Place

March 27, 1986

Director of Nuclear Reactor Regulation
Attention: Mr. B. J. Youngblood, Project Director
PWR Project Directorate No. 4
Division of Pressurized Water Reactor (PWR)
Licensing A
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Youngblood:

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

Please refer to T. M. Novak's letter to H. G. Parris dated September 11, 1985 which transmitted a revision of the Watts Bar technical specifications (tech spec(s)) which included the waste gas disposal system (WGDS) in the program/procedure requirements (i.e., section 6.8.5, pages 6-16) associated with systems expected to contain highly radioactive effluent during an accident. The purpose of this correspondence is to provide a request and justification for the exclusion of the WGDS from the referenced tech spec program requirements.

In L. M. Mills's letter to E. Adensam dated October 4, 1985, we identified the leakage level determined for the WGDS (i.e., 15.5 standard cubic feet per hour) via pressure testing to be as-low-as practical. We also documented TVA's intent to not use the WGDS to process highly radioactive gases during an accident. Although TVA considers the above reasoning sufficient justification for excluding the WGDS from the referenced program requirements, we have performed an indepth evaluation (enclosed) which further supports its exclusion.

Based on the above and enclosed information, we request that the WGDS be excluded from the referenced program requirements in the next tech spec revision.

8604070093 860327
PDR ADDCK 05000390
A PDR

Bool
11

Director of Nuclear Reactor Regulation

March 27, 1986

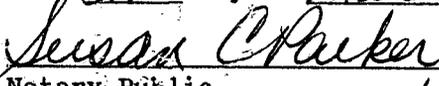
If there are any questions, please get in touch with K. P. Parr at
FTS 858-2681.

Very truly yours,

TENNESSEE VALLEY AUTHORITY


R. Gridley
Manager of Licensing

Sworn to and subscribed before me
this 27th day of March 1986


Notary Public
My Commission Expires 2/7/90

Enclosure

cc: U.S. Nuclear Regulatory Commission (Enclosure)
Region II
Attention: Dr. J. Nelson Grace, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

ENCLOSURE

Watts Bar
Waste Gas Disposal System
Integrity Evaluation

System Description

The waste gas disposal system (WGDS) is a subsystem of the waste disposal system. It is designed to remove fission product gases from the nuclear steam supply system and process them for internal recirculation or release to the atmosphere. The WGDS consists of two waste disposal compressor packages, nine gas decay tanks, a waste gas filter, and the associated piping, valves, and instrumentation. The equipment serves both units.

The waste gas, received by the waste gas compressors via the vent header, is compressed and flows into one of the nine gas decay tanks. The gas can then be returned to the chemical and volume control system holdup tanks for reuse as a cover gas or remain in the decay tank to then be discharged to the atmosphere. Before being released to the atmosphere, the decayed gases travel through a charcoal/HEPA filter and a radiation monitor. If the radioactivity level is above the discharge limits, the radiation monitor automatically closes a valve on the discharge to prevent further release.

All WGDS piping joints are welded except where flanged connections are necessary for maintenance (e.g., there are 16 flanged connections per compressor package).

Safety Function

During abnormal operation, such as emergency operation during and after a design basis event (DBE), the WGDS does not have any specific or unique functions beyond containment isolation, which is a primary safety function, and maintaining its integrity to prevent radiation releases.

System Interties

The WGDS has fluid interfaces with the following systems:

Chemical and volume control system (CVCS) - system 62

All interfaces between the CVCS and the WGDS are either via normally closed solenoid valves or CVCS-to-WGDS check valve connections except the WGDS connections to the CVCS holdup tanks. The connection to holdup tank A and holdup tank B is normally open (see the description of the WGDS for an explanation of this

connection). During normal plant conditions the holdup tanks contain reactor coolant system (RCS) inventory which contains a minimum level of radioactivity. The filtering and radiation monitoring/automatic isolation capability of the WGDS discharge prevents a release of an unacceptable radiation level. The holdup tanks receive RCS fluid via RCS-CVCS letdown. Since the RCS letdown is automatically isolated via an accident signal, the hold-up tanks should not contain highly radioactive contaminate due to accident conditions.

Waste disposal system (WDS) - system 77

As explained previously, the WGDS is a subsystem of the WDS. The other subsystems of the WDS are the liquid radwaste disposal subsystem, the solid radwaste disposal subsystem, and the nitrogen subsystem. WGDS interfaces with these subsystems are normally closed except for the connection with the WDS reactor coolant drain tank (RCDT). The fluid in the RCDT is normally clean RCS inventory of the same type as that which communicates with the CVCS holdup tanks. (See discussion of CVCS interfaces) This interface is automatically isolated for an accident inside containment.

Primary make-up water system (PMWS) - system 81

The interface between the WGDS and this system is via a normally closed manual valve. Administrative controls preclude WDS fluid above a safe radioactive level from entering the PMWS.

Component cooling water system (CCS) - system 70

The CCS interfaces with the WGDS via the WGDS compressor package heat exchanger. The CCS has no normal direct communication with the WGDS. Any radiation leakage path via this interface would require contamination of the CCS (i.e., the CCS is normally free of radioactive contaminants) and a breach of the CCS/WGDS pressure boundary. The probability of two such leaks simultaneously is remote.

Reactor coolant system (RCS) - system 68

The only portion of the WGDS which communicates directly with the RCS is the nitrogen subsystem of the WDS. The nitrogen subsystem contains no radioactive contaminants and, as explained in the discussion of other WDS interfaces, this interface is normally closed.

System Testing/Maintenance

The WGDS has undergone a leak test which resulted in a leakage rate of 15.5 standard cubic feet per hour at a system pressure of 100 psig. This leakage level is considered to be as-low-as practical for the WGDS.

The WGDS compressors are subjected to periodic preventive maintenance per vendor requirements which helps minimize the potential for compressor seal leakage.

Conclusion

As shown above, there is no direct communication between the WGDS and potentially high radioactive systems following an accident. Therefore, the potential for the presence of highly radioactive fluids in the WGDS is minute. However, even if highly radioactive gases were present in the WGDS, the conservative design of the WGDS coupled with consideration of its system interfaces and the planned operation/maintenance of the system will essentially preclude the possibility of significant leakage.