

UNITED STATES NUCLEAR REGULATORY COMMISSION REGION II 101 MARIETTA STREET, N.W. ATLANTA, GEORGIA 30303

Report No.:	50-390/83-04
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Licensee: Tennessee Valley Authority 500A Chestnut Street Chattanooga, TN 37401

Docket No.: 50-390

License No.: CPPR-91

Facility Name: Watts Bar 1 and 2

Inspection at Watts Barisite near Spring City, Tennessee

Inspector: C. M. Hose Approved by: K. Pl Barr, Section Chief **Operational Programs Branch** Division of Engineering and Operational Programs

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SUMMARY

Inspection on June 21 - 24, 1933

Areas Inspected

This routine, unannounced inspection involved 41 inspector-hours on site in the areas of plant tours to review the construction status and the as-built configuration of the liquid radioactive waste system, pre-operational testing of the liquid radioactive waste system, review of procedures for implementation of radiological aspects of the draft Technical Specifications, and review of the installation of process and effluent radiation monitors.

Results

In the areas inspected, no violations or deviations were identified.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

*W. T. Cottle, Plant Superintendent

*M. K. Jones, Engineerin erintendent

*L. B. Kuehn, Pre-op Te: supervisor

M. Piloian, Test Engine.

R. E. Grimes, Sr., Test Engineer

*W. L. Byrd, III, Compliance Staff Supervisor

R. L. Huskin, Assistant Health Physics Supervisor

F. K. Heacker, Chemistry Unit Supervisor

S. R. Drane, Test Engineer

Other licensee employees contacted included 10 construction craftsmen, 2 technicians, 3 operators, and 4 office personnel.

NRC Resident Inspector

*T. Heatherly, Senior Resident Inspector (Operations) W. Swan, Senior Resident Inspector (Construction)

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on June 24, 1983, with those persons indicated in paragraph 1 above.

3. Licensee Action on Previous Enforcement Matters

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Liquid Radioactive Waste System Installation

FSAR Section 11.2 describes the liquid waste processing system installation and operation. FSAR Table 11.2-3 lists the major components (pumps, tanks, filters, demineralizers, evaporators) in the system and significant design parameters. During tours of the plant, the inspector observed the installation of the components specified in the FSAR and verified that the descriptive information on the equipment labels for selected components were consistent with the values specified in the FSAR. Although the 2 gpm waste evaporator has been installed and will be tested, the licensee does not plan on using the evaporator for processing liquid waste. A licensee representative stated that the licensee will utilize a demineralizer system for processing liquid waste. At the time of the inspection, the system to be used had not been selected.

No violations or deviations were identified.

6. FSAR Section 11.4 describes the process and effluent radiological monitoring system (liquid and gaseous). During tours of the plant the inspector observed that the monitors listed below were installed:

Waste Disposal System Liquid Effluent Monitor	0-RE-90-122
Essential Raw Cooling Water Liquid Monitor	0-RE-90-133 0-RE-90-134 0-RE-90-140 0-RE-90-141
Component Cooling System Liquid Effluent Monitor	0-RE-90-123 1-RE-90-123 2-RE-90-123
Steam Generator Blowdown Liquid Discharge Monitor	1-RE-90-124 2-RE-90-124
Boric Acid Evaporator Condensate Monitor	1-RE-90-170 2-RE-90-170
Condensate Demineralizer Regenerator Solution Discharge Monitor	0-RE-90-225
Reactor Coolant Letdown Monitor	1-RE-90-104
Containment Building Lower and Upper Monitor (gas)	1-RE-90-106 1-RE-90-112 1-RE-90-106 1-RE-90-112
Auxiliary Building Ventilation Monitor	0-RE-90-101
Main Control Room Intake Monitors	0-RE-90-125 0-RE-90-126 0-RE-90-205 0-RE-90-205

Containment Purge Air Exhaust

1-RE	-90-130
1-RE	-90-131
2-RE	-90-130
2-RE	-90-131

Where possible the inspector verified that the monitors were connected with the proper process or effluent release lines to fulfill their function. The inspector also verified that the monitor had the range specified in the FSAR.

The inspector noted that all liquid process and effluent radiation monitors listed above, with the exception of the steam generator blowdown monitor, indicate on a ratemeter and record in the main control room. The steam generator blowdown monitor reads out locally. The inspector verified that the monitors are recorded on a 1, 2 or 3 pen recorder, and that each monitor initiates in the control room a visual (annunciator window) and audible alarm on high radiation and instrument malfunction. Each high radiation and instrument annunciator is independent of the other monitors so there is no blockage of alarms if one monitor alarms.

The inspector observed that all gaseous process and effluent monitors listed above, with the exception of the containment purge air exhaust monitors, indicate on a ratemeter, record on a 1, 2 or 3 pen recorder and annunciate in the main control room. The containment purge air exhaust indicates on a ratemeter locally and annunciates on a panel in the control room. The monitors initiate in the control room a visual (annunciator window) and audible alarm on high radiation and instrument malfunction.

No violations or deviations were identified.

7. Preoperational Testing

The inspector reviewed the results of Preoperational Test W-10.3A, Liquid Waste Receipt and Storage, and discussed the test and results with licensee representatives. The test data were meanfull and understandable, the acceptance criteria were specified and deficiencies were identified. As of the close of the inspection, four deficiencies or exceptions to the test procedure were still outstanding. Two were related to the use of four temporary instruments due to the unavailability or inoperability of permanent instruments, and the fact that the gas analyzer system was not tested since it had not been turned over to pre-op group by construction. The other two deficiencies relate to the clogging of waste system filters during the test. A licensee representative stated that during the test the waste condensate filter differential pressure would rapidly increase if test water was passed through the filter and several valves would not function properly due to foreign matter in the sealing area of the valve. The system was found to contain sand, gravel, metal shavings, paper products, decaying organic material. A review of the system by the pre-op group to determine the sources of water into the waste system revealed that the drain

collection header for several non-radioactive floor drains and sinks in the machine shop, electric shop and instrument shop were connected to the laundry and hot shower tank. A licensee representative also stated that during the test water from the test backed up through the floor drains and flooded the machine shop.

The inspector stated that the introduction of non-radioactive water, containing particulate matter and chemicals would significantly increase the problems in processing the liquid waste and would result in the unnecessary increase in the volume of waste to be processed. In addition, the potential backup of radioactive water in uncontrolled areas would place unnecessary demands on the plant's health physics staff. The inspector stated that the non-radioactive sinks and drains should be isolated from the liquid radioactive waste system. The plant superintendent stated that modifications would be performed prior to fuel load to prevent the sinks and drains in question from draining to the radwaste system. (83-04-01)

The inspector reviewed the following pre-op test procedure for tests which have not been started or completed:

- TVA-31A Process Radiation Monitoring System-Offline gamma scintillation monitors
- W-10.4 Liquid Waste Processing System

No violations or deviations were identified.

8. Procedure Review

The inspector reviewed the approved procedures listed below for the operation of the liquid radwaste system, sampling methods and frequencies and for releasing liquid waste and discussed the procedures with licensee representatives. The inspector also compared the procedures with the proposed Technical Specification requirements.

SOI-77.1c	Liquid Waste Release
SI-11.1	Batch Radioactive Liquid Effluents
SI-11.20	Monthly Radioactive Liquid Effluents
SI-11.30	Quarterly Radioactive Liquid Effluents
SI-4.11.1.1.3-B.W	Weekly steam generator blowdown radioactive liquid releases
ENSL-C14	Chemical Laboratory Work Schedule

General comments and questions concerning the procedures were discussed with licensee representatives.

A licensee representative stated that sample frequency for the radioactivity analysis of effluents from the sewage treatment plant, 35 acre holding pond, and the cooling tower blowdown had been established. However, specific procedures implementing the sampling program for these effluent release points were in preparation. The inspector stated that these procedures would be reviewed during a subsequent inspection. (83-04-02)

No violations or deviations were identified.