

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

December 6, 1983 9 All: 04

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

Dear Mr. O'Reilly:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - NRC-OIE REGION II INSPECTION REPORT
50-390/83-41, 50-391/83-30 - RESPONSE TO VIOLATION

The subject inspection report cited TVA with a Severity Level IV Violation
(390/83-41-01, 391/83-30-01) in accordance with 10 CFR 2.201. Enclosed is
our response to the subject violation.

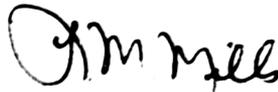
NRC-OIE Inspector Paul Fredrickson was notified on November 21, 1983
concerning a new submittal date on the subject inspection report.

If you have any questions, please get in touch with R. H. Shell at FTS
958-2688.

To the best of my knowledge, I declare the statements contained herein are
complete and true.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



L. M. Mills, Manager
Nuclear Licensing

Enclosure

cc (Enclosure):

Mr. Richard C. DeYoung, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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1983-TVA 50TH ANNIVERSARY

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
NRC-OIE REGION VI INSPECTION REPORT
50-390/83-41 AND 50-391/83-30
RESPONSE TO VIOLATION

Severity Level IV Violation 390/83-41-01, 391/83-30-01

10 CFR 50, Appendix B, Criterion V, as implemented by Watts Bar FSAR Section 17.1A.5 requires in part that activities affecting quality shall be accomplished in accordance with these instructions, procedures, and drawings. Drawing ION 213-2, procedure WBNP-QCP-2.01, and specification G-9, require one density test for each 2,000 cubic yards of earthfill placed and that the correct proctor curve be used to verify that the correct density and moisture content are used during earthfill operations for the Underground Barriers for Potential Soil Liquefaction.

Contrary to these requirements, the following incorrect sampling frequencies, proctor curve selections, and testing were made during earthfill operations for the underground barrier for Potential Soil Liquefaction:

1. Records indicate that insufficient density tests were made on July 21 and 30 and August 3, 20, 22 and 24, 1983.
2. Density test No. 1226, which was made on July 25, 1983, in a non-Category I earthfill area with material from borrow area 2C was used as a test representing earthfill from borrow area 9 placed in the Category I Trench A Barrier.
3. Density test No. 1233, made on July 28, 1983, indicates that proctor curve IIb from the Trench A borrow area was used to verify the correct density and moisture content of the earthfill. Test data from the included one point proctor test indicates that proctor curve III from the Trench A borrow area should have been used to verify the correct density and moisture content of the fill. Discussions with QC inspectors indicate that proctor curve IIb from the miscellaneous borrow area was the actual curve used to verify the correct density and moisture content of the earthfill.
4. Density test No. 1247, made on August 4, 1983, in earthfill placed in the water treatment sump, was used to represent earthfill placed in the Trench A barrier on August 5, 1983.
5. Density test No. 1258, made on August 11, 1983, indicates that proctor curve V from borrow area 2C was used to verify the correct density and moisture content of the Trench A fill. Included one point proctor test data indicates proctor curve IV from borrow area 2C should have been used to verify the correct density and moisture content of the Trench A fill.

Admission or Denial of the Alleged Violation

TVA admits to items 2 through 5 of the violation as stated.

Regarding item 1 of the violation, we wish to provide the following clarification of present procedural requirements and additional information apparently not furnished the NRC inspector at the time of inspection. Site procedure WBNP-QCP-2.01, "Earthfill Placement, Inspection, and Documentation" (section 6.5.1.1), requires that "one sample is taken for each 2,000 cubic yards of fill placed throughout the course of work." General Construction Specification G-9, "Rolled Earthfill for Dams and Power Plants" (section 11.2), requires that "samples shall be taken from just below the top layer of compacted fill as soon as practicable after that layer is compacted." There is no requirement in either of these documents that density samples be taken the same day that earthfill is placed. Due to the large area of earthfill placed, interferences such as weather, and the Construction Specification G-9 requirement that the test be taken from the lift beneath the surface lift, the test to represent a particular 2,000 cubic yard fill may be taken many days after that fill is placed.

Based on the above clarification, Division of Construction (CONST) site Civil Quality Control Unit (CQC) personnel felt that sufficient tests had been taken for earthfill placed on dates noted by the NRC inspector, with the exception of July 21, 1983. CQC inspectors felt that tests on the 4,290 cubic yards (loose volume) of earthfill placed July 21, 1983, would not be meaningful due to the shallow depth of earthfill placed over the large subbase area. Nonconformance report (NCR) 5131 was initiated by CQC on October 7, 1983, to document the apparent failure to comply with sample frequency in accordance with WBNP-QCP-2.01 on July 21, 1983. NCR 5131 was forwarded to TVA's Division of Engineering Design (EN DES) for disposition.

The site-recommended disposition was to "use as is," and it was requested that EN DES determine whether the requirement that a sample be taken for each 2,000 cubic yards of earthfill placed is based on compacted or loose volume.

The EN DES final disposition was "use as is" and stated that the test frequency used for the fill material placed is adequate and that test frequency should be based on the in-place volume of material rather than loose volume. Based on a compacted volume of approximately 1,000 to 1,200 cubic yards, the disposition also stated that the one test taken on earthfill placed on July 21, 1983, was appropriate to meet intended specification requirements. Based on this information, which was unavailable at the time of the NRC inspection, TVA denies example 1 of the violation. In order to prevent further confusion in this area, and in accordance with the EN DES disposition of NCR 5131, WBNP-QCP-2.01 will be revised to clarify that a compaction sample be taken for each 2,000 cubic yards of earthfill placed, based on compacted volume.

Reasons for the Violation

Incorrect proctor curves were used on density tests 1233 and 1258 because the inspector misread the family of curves on the moisture content/dry density graph after test data was compiled.

Density tests 1226 and 1247 from non-QA borrow areas were inadvertently used to represent earthfill placed in the trench A barrier because the inspector failed to verify the source of these samples, assuming that they had come from trench A, as had the bulk of samples being processed at the time.

Corrective Steps Taken and Results Achieved

Documentation has been corrected to show correct proctor curves and usage of density tests from appropriate areas of the trench A soil liquefaction barrier in accordance with WBNP-QCP-2.01.

Corrective Steps Taken to Avoid Further Violations

To prevent further documentation discrepancies, all CQC inspectors in the soils program were given additional training in the provisions of WBNP-QCP-2.01 and General Construction Specification G-9 on November 4, 1983.

Date When Full Compliance Will be Achieved

Procedure WBNP-QCP-2.01 will be revised by February 1, 1984.