TENNESSEE VALLEY AUTHORITY
KNOXVILLE, TENNESSEE 37902

AUG 5 1987

Ms. Ann Z. Farmer
Chattanooga Field Office
Division of Water Pollution Control
2501 Milne Street
Chattanooga, Tennessee 37406-3399

Dear Ms. Farmer:

WATTS BAR NUCLEAR PLANT (WBN) - NPDES PERMIT NO. TN0020168 - COMPLIANCE EVALUATION INSPECTION REPORT AND NOTICE OF VIOLATION

This is in response to Philip Stewart's June 30 letter to me providing the results of your May 19 and 20 Compliance Evaluation Inspection (CEI) conducted at WBN. Enclosed is a written response and commitment for resolving the violations and deficiencies noted in your CEI report. The recent high resolution photograph of the WBN site that you requested was delivered to you on August 5 by R. Douglas Neeley of my staff.

If there are any questions regarding this response, please call Madonna Martin of my staff at (615) 632-6695 in Knoxville.

Sincerely,

Martin E. Rivers, Director
Environmental Quality

Enclosure
cc (Enclosure):
Mr. Kenneth W. Bunting, Director
Division of Water Pollution Control
Tennessee Department of Health and Environment
TERRA Building
150 Ninth Avenue, North
Nashville, Tennessee 37219-5404

Continued on page 2

IE25
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AUG 5 1987

Ms. Ann Z. Farmer

cc (Enclosure):
Mr. Douglas K. Lankford, Chief
South Carolina/Tennessee Unit
Facilities Performance Branch
Water Management Division
U.S. Environmental Protection
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U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
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Mr. G. G. Zech, Assistant Director
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TVA Responses to State Compliance Evaluation
Inspection (CEI) Report of
Watts Bar Nuclear Plant (WBN)

Violation 1--Major modifications have been made to the sodium hypochlorite injection system over the past year. These modifications include: replacing the pumps with an eductor system, replacing flow rotometers, and replacing injection lines (the original injection lines became plugged with calcium and magnesium deposits). This combination of modifications has resulted in better operational control of the sodium hypochlorite injection system.

The current chlorination methodology used by WBN beginning July 3 (after isolating the diffuser) has entailed starting with an extremely low sodium hypochlorite injection feed rate, closely monitoring the TRC at various locations throughout the plant over the course of several days, and gradually increasing the feed rate until the desired residual was achieved. This precaution is being taken in an attempt to alleviate TRC noncompliances.

During normal operation, the chlorinated essential raw cooling water (ERCW) is routed to the 35-acre holding pond and the chlorinated raw cooling water (RCW) discharges releases directly to the diffuser system. Dissipation of chlorine in the RCW is provided by mixing with the ERCW after the ERCW has gone through the 35-acre holding pond (the ERCW flowrate is approximately twice that of the RCW).

Apparently there is a perception that TVA's noncompliance with the total residual chlorine limit is partly because all chlorinated waters are not routed to the yard holding pond (35-acre holding pond) as the September 21, 1982 CEI report states. In 1982, the ERCW was taken out of service so the pipes could be lined with concrete. During this time WBN modified its chlorination procedures to chlorinate intermittently rather than continuously. Because the ERCW system was out of service, WBN committed to temporarily route the RCW through the 35-acre holding pond to provide chlorine dissipation. TVA only intended to route chlorinated waters to the 35-acre holding pond when the ERCW system was out of service during lining.

Routing all chlorinated waters to the 35-acre pond, except as noted above for a temporary period of time, is not practical. With the ERCW system in operation, routing of the RCW system to the pond would cause the pond to overflow in two to three days. The permit application submitted June 6, 1984 and the letter from M. E. Rivers to R. R. Barrett dated September 30, 1985 transmitting a report entitled "Evaluation of Chlorination Practices for Watts Bar Nuclear Plant" (copies provided to your office at earlier dates) describe the normal routing of chlorinated water at WBN.

Violation 2--As stated in Explanatory Note 1 of your CEI report, the waste discharge without formal notification was the result of TVA's misinterpretation of the permit application and supporting documents. TVA is identifying all the potential sources of boron to the liquid radwaste system and will be providing this information to you by October 15 for guidance concerning its future discharge.

Violation 3--Heavy rainfall created a large flow of water under the loading area of the batch plant and washed the cement and fly ash residue down to the catch basin (drain) area. As an interim action, the area around the catch basin has been cleaned and a new rock cover and straw bales have been installed to filter the solids. Our plan for the permanent corrective action to redirect this flow of water will be provided to the State by August 28. Additionally, the practice of parking the concrete trucks near the catch basin has been discontinued. TVA is continuing to use concrete truck rinse water and the concrete aggregate screen wash water to water roads for dust control.

Violation 4--WBN's understanding of Method 150.1 of the EPA Analytical Methods Manual (copy attached to the CEI report) is that "samples should be analyzed as soon as possible preferably in the field at the time of sampling." Because the word "preferably" is used, WBN has not considered this a requirement. WBN interprets the phrase "preferably in the field" to imply that the alternative of analyzing the sample in the laboratory exists. The preamble of EPA's revision to 40 CFR Part 136 (49 Fed. Reg. 43243, October 26, 1984) states the requirement to analyze immediately was intended to "avoid sample degradation. This would be as soon as the sample is collected and labeled, generally within fifteen minutes."

Therefore, WBN believes that samples can be collected, taken back to the onsite laboratory, and analyzed within 10 to 25 minutes after collection in order to satisfy the requirements of 40 CFR Part 136. WBN requests that you reconsider your determination that pH measurements must be taken in the field to demonstrate compliance with the NPDES permit.

Violation 5--Part II.D.5 of the WBN NPDES permit states that "if the permittee monitors any pollutant more frequently than required by this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report (DMR). Such increased frequency shall also be indicated." According to Part I, Section A, pages I-6 and I-11 of the NPDES permit (Effluent Limitations and Monitoring Requirements), samples of regeneration waste from the condensate demineralizers and water treatment plant are not required to be analyzed for pH. TVA's interpretation of Part II.D.5 of the NPDES permit is that if TVA samples a waste stream for a parameter which is required by Part I of the NPDES permit, then the results for that parameter are required to be submitted in the DMR; other samples for operational control are not reported. TVA does not believe that the wording of Part II.D.5 was intended to require the incorporation of all sample data into DMRs. The value of such a permit condition is to prevent permittees from choosing which samples of

a required parameter will be reported. In no other State is TVA aware of a requirement to report operational sampling results, especially for in-house pretreatment systems. TVA requests that you reconsider your determination that such reporting is required.

Violation 6--TVA has completed Unit 2 chemical cleaning and use of the perc pond has been discontinued. The schedule and plans for reclaiming the perc pond to its original contour will be fowarded to your office by November 16.

Violation 7--The event referenced in the Notice of Violation occurred on June 14. The high pH level of the metal cleaning waste pond discharge was reported by TVA to be due to the pre-release sample not being representative of the pond's contents. The site's procedure used to monitor the batch release of the unlined pond has been revised to require that a larger number of samples be collected at different locations throughout the pond before allowing a release. The revised procedure also places more restrictive administrative limits on the measured parameters for in-plant control.

TVA has taken the steps to ensure that the pond contents are within limits during discharge. Two large submersible pumps have been installed in the unlined pond which will mix the pond and to aid in providing representative samples.

Deficiency 1--The required silt fence has been installed at WBN near the topsoil stock pile. This area was previously stripped as a potential borrow area. It has been decided not to use this area, and so this area will be reclaimed by September 1 with the respreading of the topsoil and reseeding of the area.

Deficiency 2--The NPDES program at WBN is being handled by a professional staff and can respond adequately and efficiently to unanticipated environmental problems. Competent site personnel who work with the site environmental coordinator escorted the State inspectors on the CEI. WBN provided specialists in the areas of water treatment, sewage treatment, analytical chemistry and plant construction so that the inspectors could be fully briefed on each element of the NPDES permit.

Deficiency 3--To satisfy your special request, TVA is providing a photograph for your use as indicated in the transmittal letter.

Deficiency 4--The primary considerations in operating the wastewater treatment plants are (1) safety, (2) compliance with the NPDES permit, and (3) economics. During the period from July 1986 to July 1987, the wastewater treatment plants have been operated without an accident or a noncompliance and in a cost-effective manner. Using this criteria as a yardstick for performance, TVA believes that the CEI report is not indicative of our efforts because:

1. Deficiency 4(a) states that "visible solids were being lost over the weir at the time of the inspection." At the time of the inspection, there was a relatively small mat of solids floating on the surface of the water in the weir box. The floating mat was approximately six inches in diameter and was not being discharged over the weir. The settleable solids test performed by TVA personnel gave a result of <0.1 mL/L while the result obtained by the State inspector was 0.2 mL/L. The total suspended solids values obtained by TVA and State laboratories were 2.0 mg/L and 9.0 mg/L, respectively. Even using the higher values (settleable solids of 0.2 mL/L and suspended solids of 9.0 mg/L), the solids concentrations were well below permit requirements (settleable solids 1.0 mL/L and suspended solids 45 mg/L).

2. Deficiency 4(a) states that "optimum blanket thickness for the clarifiers should not exceed one-quarter the depth of the tank liquid, and there should be little or no blanket in the chlorine contact chambers." While these may be optimum conditions, individual plants may operate well with higher levels of solids. It has been demonstrated through WBN's compliance record that this particular plant can be operated with higher than normal solids levels.

3. Deficiency 4(b) states that "proper wasting had not been done for some time. The reported frequency was once or twice a year." Wasting of sludge from the clarifier to the sludge holding tank is a part of normal plant operations and is conducted daily. Although the amount of solids in the plant at the time of the inspection was unusually high, the plant was operating well within compliance limits. As discussed with the inspector during the CEI, solids also accumulate in the chlorine contact chamber and these solids were scheduled to be removed shortly after the inspection. The frequency for removing solids from the chlorine contact chamber is typically once or twice a year.

4. Deficiency 4(b) states "that a dollar or cost factor should not be used as the main criteria for deciding frequency for wasting sludge. In addition, sludge age and settleability should be considered, since an aging sludge provides decreasing biological treatment." TVA's main criteria other than safety has been compliance with the NPDES permit. Compliance was being achieved at the time of the CEI.

5. Deficiency 4(b) requests written operational procedures be submitted. General Operating Instructions will be prepared and furnished to the State by September 15.

6. Deficiency 4(c) requests that the difference in settleability between Unit A and Units B, C, and D be explained. Since the installation of the flow splitter, the splitter box has settled unevenly and this has resulted in uneven flow distribution to Units A, B, C, and D. At this time, Unit A receives less flow than Units B, C, and D; and it is suspected that this is the reason for the difference in settleability.

7. The statement in Deficiency 4(d) that the TVA operator used a bucket to collect samples is inaccurate. The operator collected the samples for analysis by TVA directly into sample containers. TVA's quality assurance procedure specifies that the preferred method is to fill sample bottle(s) directly from the wastewater source. This is the method which is used by the operator when collecting samples at DSN 111.

8. In response to the clarification requested in Deficiency 4(e), the flows reported on the Monthly Operating Reports are read and reported from a continuous recorder. The strip charts are on file for review if desired.

9. TVA realizes that during the inspection it appeared that there would be noncompliance with effluent limits at the sewage treatment plant, and hence the initial rating on the inspection form (page 2 of EPA Form 3560-3). However, the effluent from the sewage treatment plant has been in compliance with NPDES permit parameter limits since March 1986 and the sample results obtained during the inspection were well within limits.