Dockets

APR 5 1977

Docket Nos. 50-390
and 50-391

Tennessee Valley Authority
ATTN: Mr. Godwin Williams, Jr.
Manager of Power
830 Power Building
Chattanooga, Tennessee 37201

Gentlemen:

A site visit to the Watts Bar Nuclear Plant, Unit Nos. 1 and 2, was made during the week of February 22, 1977, by representatives of the Nuclear Regulatory Commission staff, the Environmental Protection Agency and the National Fish and Wildlife Service, Department of Interior, to review environmental factors related to the operation of the plant.

As a result of the site visit and subsequent discussions, we required additional information in order that our review of your application can continue. The information requested is described in the enclosure to this letter. To avoid delay in our review, a completely adequate response should be submitted by April 29, 1977. Please inform us within 7 days after receipt of this letter of your confirmation of the schedule or furnish an alternate date for submittal so that we may plan our review accordingly.

Your reply should consist of three signed originals and 147 additional copies as a sequentially numbered supplement to your report, Environmental Information, Watts Bar Nuclear Plant, Unit Nos. 1 and 2, issued November 18, 1976. Please forward 41 copies and retain the remaining 109 for future use.

If you have any questions concerning the requested information, please contact Mr. Oliver D. T. Lynch, Jr., Environmental Project Manager, at (301) 443-6990.

Sincerely,

Original signed by
O D. T. Lynch, Jr.

for Wm. H. Regan, Jr., Chief
Environmental Projects Branch 2
Division of Site Safety and
Environmental Analysis

ENV. 2

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Enclosure:
Request for Additional
Information for Watts Bar

OFFICE ➤					
SURNAME ➤					
DATE ➤					

NRC FORM 318 (9-76) NRCM 0240 ☆ U. S. GOVERNMENT PRINTING OFFICE: 1976 — 626-624

cc: Herbert S. Sanger, Jr., Esq.
General Counsel
Tennessee Valley Authority
400 Commerce Avenue, E11B33
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Howard Zeller
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Atlanta, Georgia 30308

Keneth Black, Regional Director
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17 Executive Park Drive, N. E.
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DATE➤	4/5/77	4/5/77	4/5/77			

REQUEST FOR ADDITIONAL INFORMATION
FOR
WATTS BAR NUCLEAR PLANT, UNIT NOS. 1 & 2
DOCKET NOS. 50-390 AND 50-391

1. Demography

1.1 Provide an update of Section 1.1 (8)(d), Population Distribution, as well as Figures 1.1-7, 1.1-8 and 1.1-9, indicating current estimates.

1.2 Provide an update of Table D-3 of Appendix D, indicating current estimates.

2. Terrestrial Ecology

2.1 Provide an update of the Table in Section 2.2 of the Final Environmental Statement (FES-November 9, 1972, p. 2.2-1).

2.2 Provide an update on the number of acres and corresponding land use types required for transmission line rights-of-way.

2.3 Where proposed transmission lines cross important waterfowl areas, provide a description of these areas and estimates of local flight patterns, and duration of seasonal migrations.

2.4 Provide an analysis of potential impacts to birds including migratory waterfowl from onsite vertical barriers such as cooling towers.

2.5 Provide a description of transmission line corridor maintenance practices that are anticipated to affect terrestrial biota, such as use of chemical herbicides, access road maintenance and mechanical clearing.

2.6 Summarize specific transmission line maintenance practices used in critical areas (e.g., marshes, bogs, natural areas).

2.7 Provide the maximum predicted and average electric field strength at one meter above ground level for lines energized at 500 kv.

2.8 Describe design features such as minimum ground clearances and protective actions such as grounding and bonding, which will mitigate both transient current spark discharges and

induced steady state-short circuit shock potential on stationary objects (fences, etc.) and non-stationary objects (tractor trailers, buses, farm equipment, etc.), which may be found beneath the lines on roadways, in fields, etc.

2.9 Provide an outline of any plans to be taken to monitor release of acid mist and acid fly ash from plume mergence and possible resulting environmental impact (FES-CP, p. 2.6-19). Provide an analysis of deposition of salt drift (NaCl) if predicted rates are greater than 20 kg/ha/yr and if no more than 10 kg/ha are deposited in any single month during the most sensitive part of the growing season.

2.10 Provide an updated list of threatened or endangered fauna and flora species (Federal Register Vol. 40:127, Part V, July 1, 1975 and Vol. 41:208, Part IV, October 27, 1976) known to occur along the proposed transmission corridors and adjacent areas, their seasons of occurrence and critical habitats. This may be done by consulting with the Regional Office of the Fish and Wildlife Service (Threatened and Endangered Species Specialist), together with state liaison representatives or specialists.

2.11 Provide the staff with a copy of the Volunteer, Tennessee, 500-kV Substation and Transmission Connections, Final Environmental Statement (July 6, 1976). Provide documentation of consultations with the Tennessee Historical Commission and other appropriate historical and archaeological agencies for coordination and identification of historical and archaeological sites ("Environmental Information", TVA, November 18, 1976, p. A-2).

2.12 Indicate TVA's policy on substitution of more desirable wildlife plantings in place of Kentucky 31 fescue. Provide estimations of comparative cost and specific problems associated with substitutions.

3. Aquatic Ecology

3.1 Provide (in tabular format) data for the 1971-1973 catch of commercial and recreational fish and shellfish from Chickamauga Reservoir. Report the catch by principal species, indicating the quantities used as human food. In qualitative terms, describe any anticipated change from the 1971-1973 catch levels.

3.2 Provide a qualitative estimate of the fishing success that could occur at the closest, publicly accessible, location to the diffuser discharge.

3.3 Provide a list of aquatic species (or lowest practical taxa) which are "important" as defined by NRC Reg. Guide 4.2.

3.4 Provide detailed information on concentrations and distribution (spatially) of fish early life stages in the site vicinity. Describe any ongoing or planned studies to determine the relative significance of the tailrace spawning habitat to the Chickamauga Reservoir (e.g., compare with spawning of the same species in tributaries to the Reservoir).

3.5 Provide data and/or reports on the cove rotenone sampling in Chickamauga Reservoir.

3.6 Provide a copy of detailed drawings of the intake systems showing the relationship to source water interception, with bottom contour map.

3.7 Provide a legible copy of bottom contour map presented in TVA's Environmental Information (page A-12).

3.8 Discuss status of diffuser construction. Describe control and monitoring programs used to minimize and detect dredging effects during intake and discharge systems construction. Describe the role of TVA in supervision of the dredging operations.

3.9 Are any reports available on results of TVA's investigation into "...methods of increasing the DO levels in the releases from its headwater (storage) reservoirs" (FES, page 1.1-24 and Environmental Information, page B-12)? If so, provide a copy. If not, indicate when such reports will be available.

4. Hydrology

4.1 The ES states that there are four public water supplies taken from the Watts Bar and Chickamauga Reservoirs within the reach from Lenoir City, 73 miles upstream of the site, to the Daisy-Soddy-Falling Water Utility District 45 miles downstream of the site; yet, you list only three. Provide a list of the four public water supplies.

4.2 Discuss the potential scouring associated with the discharge section of the heat-dissipation system.

4.3 Provide the cross-sectional area of the intake channel and how it varies along the channel length.

4.4 Provide a detailed diagram of the intake structure. Show the location of the trash racks, wave barriers, and traveling screens and provide plans and cross sections of the intake structure with all pertinent elevations. Describe the systems for handling the debris and the fish return.

4.5 Provide a detailed description of the diffuser to supplement the information provided in the Environmental Information Report. Include such information as the type, angle of discharge, etc.

4.6 Describe the extent and behavior of the thermal plume under both normal and extreme conditions. Discuss the effects of changes in source and receiving waters attributable to season, winds, unusual weather, currents, etc. Compare the effects of the plume to Tennessee state thermal standards for the water body and to existing thermal conditions of the water body. Include the effects of the plume on the circulation pattern in the receiving water. Define and describe the thermal mixing zone. Discuss the possibility of a thermal barrier or block to fish passage.

4.7 Discuss the thermal models used to evaluate the thermal plume.

4.8 It is stated that a ground water system was developed to serve the nuclear plant. Estimate the impact of water consumption by the plant and provide the bases for the estimate. Discuss the effects on nearby groundwater wells.

4.9 Provide a detailed description of the operational monitoring water quality program as outlined in Reg. Guide 4.8.

4.10 Provide detailed information (e.g. location, type, formation groundwater taken from) on the series of monitoring wells that you stated would be installed to provide baseline data. Also, provide all groundwater level data collected to date.

4.11 Provide a more detailed discussion on the operational groundwater monitoring program. Show the location of the 5 wells that will be sampled and state the aquifer that the samples will be taken from.

4.12 Provide the following estimates of the discharge temperatures expected for Units 1 and 2 operating at 100% load:

a. Monthly average discharge temperature,

b. Maximum daily average discharge temperature (for each month),

c. Maximum instantaneous discharge temperature (for each month),

d. Monthly average ambient surface temperature,

e. Maximum daily average ambient surface temperature (for each month).

4.13 Provide the bases for statements, on page 2.10-2 of the Watts Bar Nuclear Plant Environmental Statement, that the plant water use will not affect recreational use of the Chickamauga reservoir, nor will it affect known or projected industrial water use downstream.

Also, assess the impact of water consumption on downstream consumers and on competing demands (i. e., agriculture, drinking, sewage, etc.) for available water.

5. Radiological

5.1 Provide a discussion of the agricultural productivity of the region within fifty miles of the Watts Bar site. Indicate to what extent these activities are typical of the State of Tennessee.

6. Socioeconomic Effects

6.1 The TVA-FES for the Watts Bar Nuclear Plant was published in November 1972. No updated socioeconomic data was provided to the staff in the November 1976 Environmental Information, Watts Bar Nuclear Plant, Unit Nos. 1 and 2, ER Supplement. We therefore require an update of any change in the data and/or the analysis of the information presented in the following sections of the TVA-FES: 1.1.3(8), 2.2.5(3), 2.10, 8.2.4(7), (8), (10).

6.2 For both the construction and operating forces directly associated with the facility, provide current estimates for the following:

(a) Total employment (update Tables 2.9-2 and 2.9-3),
(b) Breakdown of workers' residential characteristics as follows:

1. Average annual population of relocating workers. Differentiate between plant employees who change place of residence for the project ("relocatees") and those residing in the area during the week and returning to permanent place of residence on weekends ("transients");

2. Family characteristics of "relocatees" (marital status, average number of school age children and the average age of same);

3. Housing preferences of "transients" and "relocates"; and

4. Probable residential location of "transients" and "relocatees".

6.3 Describe past, present and proposed efforts in the provision of technical and financial assistance to the local and regional jurisdictions impacted by Watts Bar Nuclear Plant.

6.4 Provide current population distribution data and updated population projections within a 10-mile radius.

6.5 Supply staff with maps illustrating current land use within a 10-mile radius of the site.

7. Need for Power

The staff intends to request additional information on the current need for power for the Watts Bar Nuclear Plant, Unit Nos. 1 and 2. Due to the urgent press of business, these questions are not yet available and will be provided in the near future.