FEB 16 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:

This letter confirms conversations with Mr. Mike Williford establishing the dates of February 23 and 24, 1977 for a visit of the NRC's environmental review staff to the site of the Watts Bar Nuclear Plant, Unit Nos. 1 and 2.

The visiting team will consist of the NRC's Environmental Project Manager (EPM) and other members of the NRC staff as well as representatives of the Environmental Protection Agency's Region IV office in Atlanta, Georgia. For planning purposes you can expect eight NRC and three EPA personnel for the visit. A list of these personnel is provided as Enclosure 1.

The site visit team will inspect the site and environs on February 23, 1977, and will meet with your technical representatives in the site area for technical discussions on February 23 and 24, 1977. A list of the topics we intend to use as the agenda for discussions during the technical meetings following the site visit is enclosed with this letter.

If additional information is required relating to the site visit, please do not hesitate to contact Mr. Oliver Lynch, at (301) 443-6990.

Sincerely,

Original signed by
W. H. Regan

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

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Enclosures:
1. Site Visit Team
2. Site Visit Agenda

OFFICE ➔						
SURNAME ➔						
DATE ➔						

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cc: Mr. Sheppard Moore
Environmental Protection Agency
345 Courtland Street
Atlanta, Georgia 30308

Herbert S. Sanger, Jr., Esq.
General Counsel
Tennessee Valley Authority
400 Commerce Avenue, E11B33
Knoxville, Tennessee 37902

Keneth Black, Regional Director
U. S. Fish and Wildlife Service
17 Executive Park Drive, N. E.
Atlanta, Georgia 30329

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WATTS BAR NUCLEAR PLANT

UNIT NOS. 1 AND 2

ENVIRONMENTAL SITE VISIT

SITE VISIT TEAM

USNRC

Name	Functional Responsibility/ Expertise
O. D. T. Lynch, Jr.	Environmental Project Manager
Edward G. Ketchen, Jr.	Staff Counsel
Auburn L. Mitchell	Staff Counsel
Keith F. Eckerman	Radiological Assessment
Charles Billups	Aquatic Ecology
Robert B. Samworth	Water Quality
Gerald E. Gears	Terrestrial Ecology
Ellen G. Aronson	Cost-Benefit Analysis

USEPA, REGION IV

Sheppard Moore

Charles Wakamo

Howard Zeller

WATTS BAR NUCLEAR PLANT

UNIT NOS. 1 AND 2

AGENDA FOR TECHNICAL DISCUSSIONS

DURING SITE VISIT

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 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).

2.10 Provide an updated list of threatened or endangered fauna and flora species (Federal Register Vo. 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.

3. Aquatic Ecology

3.1 Provide (in tabular format) the present and projected commercial fish and shellfish catch from Chickamauga Reservoir. Report the catch by total landings and by principal species, indicating the quantities used as human food.

3.2 Provide (in tabular format) the present and projected recreational fish and shellfish harvest from Chickamauga Reservoir.

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

3.4 Provide information which led to the conlusion that mussels are concentrated on the opposite side of the river. Results presented in TVA's Environmental Information show only one 5-minute SCUBA sampling effort on the right side -- has other sampling been conducted on that side of the river?

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

3.6 Provide detailed information on concentrations of fish and shellfish early life stages in the site vicinity. Are data available to confirm the assumption of homogeneous distribution of larvae? Are data available on the production of larvae by fishes spawning in the tailrace area? Discuss 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).

3.7 Based on studies conducted at the Watts Bar Dam or at other dams on the main stem of the Tennessee River, discuss the survival of organisms passed through the Dam (from Watts Bar Reservoir) and the importance of this survival to the maintenance of the Chickamauga Reservoir fishery.

3.8 Provide data and/or reports on the cove rotenone sampling in Chickamauga Reservoir. Describe present and planned programs for the monitoring of fishes in the vicinity of the plant site. (See also Section 6.3.5 questions).

3.9 Discuss the history of any infestations, epidemics or catastrophies that have had a significant impact on the aquatic biota since the operation of Watts Bar and Chickamauga Dams.

3.10 Identify any aquatic ecological or biological studies of the site which are now or have been conducted by investigators other than TVA personnel or contractors.

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

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

3.13 Describe monitoring programs and results which have been (or will be) used to detect dredging effects during intake and discharge systems construction. What supervision of dredging is provided by TVA (see page A-14 of Environmental Information)?

3.14 Provide a map showing the predicted plume average and "worst case" conditions of river flow for normal plant operating modes.

3.15 Discuss status of diffuser construction.

3.16 Identify the nearest suitable location (with respect to depth requirement) for alternate placement of the diffuser downstream of TRM 527.6.

3.17 At what "sufficient river flow" (Environmental Information, page A-39) would discharges of blowdown stored in the yard holding pond commence? What should "be considered as the minimum stream flow required for assimilation of waste discharges"?

3.18 Discuss measures taken in response to comments (FES) concerning violation of standard on DO concentration in Watts Bar Hydroplant releases. Provide results of TVA's investigation into ". . . methods of increasing the DO levels in the releases from its headwater reservoirs" (FES, page 1.1-24 and Environmental Information, page B-12).

3.19 Indicate which releases are batch and which are continuous for the list of chemicals given on pages A-26 and A-27 of Environmental Information.

3.20 What treatment is anticipated for chemical cleaning wastes (page A-28)?

3.21 What is schedule for completion and availability of the preop monitoring report?

3.22 Compare the pre-op aquatic monitoring programs with (a) the initial survey (pre-construction) programs, and (b) the planned operational monitoring programs.

4. Hydrology

4.1 The FES 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, only three are listed. 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 structures with all pertinent elevations. Describe the system for handling the debris and the fish return system.

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 Regulatory 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.

5. Meteorology

5.1 Provide current diurnal and monthly averages and extremes of temperature, dew point and relative humidity. This information should be fully documented and substantiated as to its validity of its representation of expected long-term conditions at and near the site.

5.2 Provide at least two annual cycles (preferably three or more whole years), including the most recent one-year period, of monthly and annual wind speed and direction data in joint frequency form at all heights of measurement representative of wind characteristics for points of effluent release to, and transport within, the atmosphere. These data should be taken from onsite meteorological measurements and may be supplemented by nearby representative stations.

5.3 Provide monthly and annual joint frequencies of wind direction and speed by atmospheric stability class at heights and intervals relevent to atmospheric transport of effluents.

5.4 Provide information concerning the number of hours with precipitation, rainfall rate distributions and monthly precipitation wind roses.

5.5 Provide the frequency of occurrence of winds greater than 50 knots by storm type (e.g., orographic or synpotic flow regimes, tornadoes, and hurricanes).

5.6 Discuss the impact of existing levels of air pollution on station operation.

5.7 Discuss the relationship of the meteorological data gathered on a regional basis to onsite data.

5.8 Provide a discussion of the effect of local topography on meteorological conditions in the Watts Bar area.

5.9 Provide monthly mixing height data.

5.10 For assessment of the impact of station operation on the environment, provide data summaries (e.g., moisture deficit, visibility, solar radiation) to support your conclusions of the frequency and extent of fogging and icing conditions as a result of the use of natural draft cooling towers and other impacts on the atmospheric environment.

6. Radiological

6.1 Provide a tabulation of the following data for each of the sixteen cardinal compass sections within 5 miles:

a. site boundary distance

b. nearest resident

c. nearest milch animal

d. nearest farm

If no b-d item exists within five miles, indicate so.

6.2 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.

7. Effluent Treatment Systems

7.1 Provide the following information for the development of the source terms:

a. Mass of primary coolant (thousands of pounds)

b. Primary system letdown rate (gpm)

c. Total steam flow (millions of pounds per hour)

d. Mass of steam in each steam generator (thousands of pounds)

e. Mass of liquid in each steam generator (thousands of pounds)

f. Total mass, secondary coolant (thousands of pounds)

g. Blowdown (thousands of pounds per hour)

h. Condensate demineralizer regeneration time (days)

i. Condensate demineralizer flow fraction

j. Radwaste dilution flow (thousands of pounds)

k. Shim bleed rate (gpd)

l. Containment volume (millions of cubic feet)

m. Containment atmosphere cleanup rate (thousands of cubic feet per minute)

8. Socioeconomic Effects

8.1 Indicate any changes in the FES sections indicated below and provide a discussion of these changes. If there are no changes, so state.

FES section: 1.1 (8), 1.1 (11), 2.2.5 (3), 2.6.2, 2.9, 2.10, 8.1, 8.2.3, 8.2.4 (3), and 8.2.4 (7), (8), (9), (10).

8.2 Update, with current information, Table 2.9-1 and Table 2.9-2 of the FES. Also, provide current information on the residential location of construction labor, both inmovers and those who lived in the area originally.

8.3 For the operating labor force, provide current estimates for:

(a) projected employment in Table 2.9-3

(b) number of inmovers

(c) family characteristics of inmovers (married, number of school age children),

(d) location choise of inmovers.

8.4 Provide a discussion of past efforts in providing technical and financial assistance to local jurisdictions impacted by Watts Bar Nuclear Power Station. Identify any continuing efforts to work with local communities in mitigating impacts during the operating phase of Watts Bar.