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Docket Nos. 50-390  
50-391

Mr. James E. Watson  
Manager of Power  
Tennessee Valley Authority  
818 Power Building  
Chattanooga, Tennessee 37401

Dear Mr. Watson:

Thank you for your letter of May 14, 1971, forwarding for our review and comment a copy of your Draft Environmental Statement for the Watts Bar Nuclear Plant, Units 1 and 2. The report has been reviewed by representatives of this office, and specific comments are provided in the enclosed summary.

As I indicated to Mr. Hughes during our telephone conversation of September 2, we are examining the implications of the decision of the District of Columbia Circuit Court of Appeals in the Calvert Cliffs case with respect to the procedures set forth in Mr. Harold Price's letter of June 30, 1971, that will be followed by TVA and AEC in implementing certain of the requirements of NEPA for TVA applications for facility license. We will communicate further with you concerning this matter.

Sincerely,

LESTER ROGERS

Lester Rogers, Director  
Division of Radiological and  
Environmental Protection

Enclosure:  
Comments

OFFICE ▶	REP:PB	REP:ADEP	REP:DIR	DRL	OGC	
SURNAME ▶	RBallard:sf	GBlanc	LRogers	9/3/71	9/3/71	LB
DATE ▶	SEE ATTACHED CONCURRENCES			9-3-71		

## Comments on Watts Bar Nuclear Plant

### Units 1 and 2

#### 1. Water Budget -

It is difficult to evaluate the impact of plant operation on river flow based on the information given. For example, the discussion on p. 33 of process water utilization indicates that  $8.6 \times 10^7$  gal/day (max) of water is required. Evaporative loss is estimated to be as high as  $3.7 \times 10^7$  gal/day (p.36), apparently resulting in a flow into the holding pool of at least 50 million gallons per day. Although average summer flow of water is given on p.22 as about  $1.4 \times 10^{10}$  gal/day, no data on minimum river flow are provided. It appears that maximum evaporative loss could occur during periods of minimum river flow, and that coolant water of maximum temperature (about  $10^{\circ}\text{F}$ ) will be returned to the reservoir during this period. The final Environmental Statement could benefit by considering the following:

- a. Expanded discussion of stream flow at Watts Bar Dam, particularly the water temperature and volume during conditions of minimum flow.
- b. Volume and temperature of condenser cooling water as it is returned to the reservoir by way of the holding pool, particularly during periods of minimum flow.
- c. Expected chemical and radioisotope concentrations by species in the discharge effluent would be helpful.

#### 2. Heat Dissipation

An expanded discussion of certain aspects of heat dissipation would be useful. Those aspects of particular concern include the following:

- a. A more definitive description of water intake structure design in terms of its effect on reservoir biota; such as screen mesh size, intake dimensions, fish escape pathways, and depth of intake structure.
- b. Holding pool characteristics, including water budget, expected seasonal flow and temperature characteristics of discharge water, and a discussion of expected effects of floods on the holding pond.

### 3. Ground Water -

Operation of the holding pool will recharge the ground water system and no doubt modify the local ground water gradient. A discussion of potential impact on the ground water table and on individual water wells in the immediate vicinity would be useful.

### 4. Radiological Aspects -

Several comments regarding radiological aspects of the report are as follows:

- a. A summary of temperature inversion information, including duration, frequency, relationship to fog, and wind velocities would be relevant.
- b. The man-rem dose calculations are based on populations within a 5-mile radius. Calculations based on a larger radius would be more representative of the general population. The AEC routinely utilizes a 50-mile radius for man-rem calculations. Also, some consideration should be given to man-rem doses to populations utilizing the river as a source of public water supply. Some of these centers are in a down-stream direction beyond the 50-mile radius, but well within the range of potential effects.
- c. The discussion on radiation doses from gaseous releases (sec. 2. 3. 7. 4) considers external doses from noble gases. The 3.5 mrem/year reported on line 9, p. 61, is a dose rate rather than a dose, and the value is of such a magnitude that it probably represents both gamma and beta radiation. Some consideration should also be given to the halogen and particulate releases and their effects by inhalation and ingestion.
- d. An estimate of doses that could be expected by ingestion of edible aquatic organisms from the reservoir (e.g. fish and clams) would provide a more complete evaluation of total impact of the plant operation.

### 5. Environmental Monitoring Program -

The monitoring program appears to be extensive and adequate. The only comment in this regard relates to the sediment sampling schedule described on Table 21, in which no samples are collected at Station X. Sediment samples at this point would provide useful comparative data.