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FROM: Tennessee Valley Authority Chattanooga, Tenn. 37401 J.E. Gilleland		DATE OF DOG 3-27-74	DATE REC'D 3-30-74	LTR X	MEMO	RPT	OTHER
TO: D. R. Muller		ORIG 1 signed	CC	OTHER	SENT AEC PDR XXX SENT LOCAL PDR XXX		
CLASS	UNCLASS XXX	PROP INFO	INPUT	NO CYS REC'D 1	DOCKET NO: 50-438/439		

DESCRIPTION:
Ltr re our 2-5-74 ltr...trans the following..

PLANT NAME: Bellefonte

ENCLOSURES:
Comments on the DES for Bellefonte Nuclear
Generating Station....
ACKNOWLEDGED
(1 cy encl rec'd)
DO NOT REMOVE

FOR ACTION/INFORMATION 4-2-74 JB

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| ✓ 1 - DTIE(ABERNATHY) | 1-ASLBP(E/W Bldg, Rm 529) | 1-GERALD LELLOUCHE |
| 1 - NSIC(BUCHANAN) | 1-W. PENNINGTON, Rm E-201 GT | BROOKHAVEN NAT. LAB |
| 1 - ASLB(YORE) | 1-CONSULTANT'S | 1-AGMED(Ruth Gussman) |
| 16 - CYS ACRS HOLDING | NEWMARK/BLUME/AGBABIAN | RM-B-127, GT.. |
| | 1-GERALD ULRIKSON...ORNL | 1-RD..MULLER..F-309 GT |

Regulatory File Cy
TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE
37401



March 27, 1974

Mr. Daniel R. Muller
Assistant Director for
Environmental Projects
Directorate of Licensing
U.S. Atomic Energy Commission
Washington, D.C. 20545

50-438

50-439

Dear Mr. Muller:

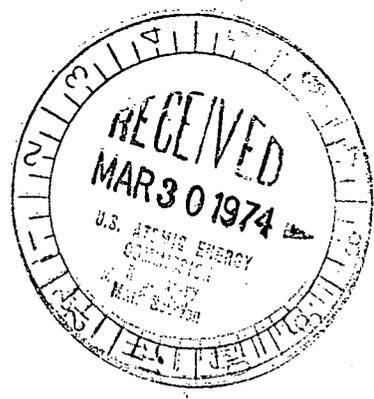
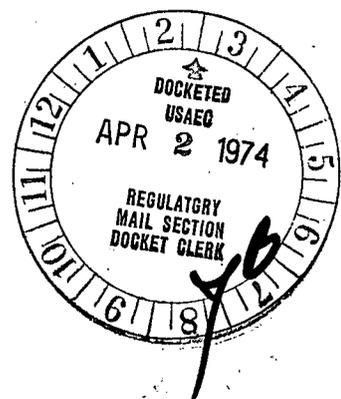
The TVA staff has reviewed the AEC draft environmental statement transmitted by William H. Regan's letter of February 5, 1974, to James E. Watson. The enclosed comments are offered for AEC's consideration.

These comments have been restricted to four topical areas: construction of the access road across Town Creek via causeway, fisheries investigations, transmission line construction and maintenance methods, and control of onsite construction activities. These comments are included as enclosures 1-4. Additional comments of a minor nature have been identified and will be discussed with the AEC staff on an informal basis.

Very truly yours,

J. E. Gilleland
Assistant to the Manager of Power

Enclosures



2700

ENCLOSURE 1

Construction of Access Road Across Town Creek via Causeway

TVA considered two locations for road access to the Bellefonte Nuclear Plant site in the early planning stages. One location utilized the existing county road that passes through old town Bellefonte near the plant site. The other required construction of a new road that would cross Town Creek (via a causeway) to the end of the peninsula.

The existing county road would need to be upgraded to provide permanent access to the site. Also, it passed through the old Bellefonte townsite which was listed in the Alabama Statewide Plan of Historic Preservation and was being processed for nomination to the National Register of Historical Places. The volume of heavy traffic (e.g., delivery trucks and construction equipment) that would use this route if it were the only access to the site would probably cause more rapid deterioration of the already deteriorated structures of possible historic significance in the townsite. The road across Town Creek embayment, after construction, would allow the heavy traffic to avoid the Bellefonte townsite. This access would also allow development of approximately 500 acres of land on the tip of the peninsula for public use, as well as reduce traffic congestion during construction.

Prior to AEC's issuance of their draft environmental statement for the Bellefonte project, recreational use of the peninsula was unspecified; therefore, few benefits on the recreational use of the peninsula were available for consideration. The AEC staff states that the aquatic impacts associated with construction of the causeway would be undesirable but acceptable and concludes that, on balance, the causeway should not be constructed. The AEC staff also indicates that the peninsula should be preserved as a wildlife region.

Recently, the additional information given below has been developed in relation to the causeway and the alternate route, recreation development on the peninsula, and its compatibility with wildlife uses of the peninsula.

The natural flow pattern in Town Creek consists primarily of runoff flowing into Guntersville from a small drainage area of 0.43 square mile. The average runoff flow is estimated to be 5 cfs. The construction of the causeway will not alter the magnitude of the net flow in the creek. In the immediate vicinity of the causeway there will be a local increase in water velocity as the flow passes through the box culverts. For an average runoff the velocity in the culverts is estimated to be only 0.033 ft/sec. Changes in the transport and deposition of sediment may also result, but only in the immediate vicinity of the causeway. Sedimentation in the creek upstream from the causeway will not be generally increased.

The Bellefonte tract is important to recreation development on Guntersville Lake for several reasons:

1. Although much of the upper portion of the reservoir is in TVA ownership it is generally in narrow strips which limit development. The south side of the reservoir borders the Sand Mountain escarpment, is extremely steep, and lacks road access. The north side of the reservoir extends into the gently sloping to flat valley area, and the lands acquired by TVA are subject to flooding. Most of this land is licensed to the State of Alabama as wildlife management areas. Addition of the Bellefonte tract to the public land base and development of the tip of the peninsula for public recreation would be a significant increase in upper Guntersville Lake recreation opportunities.
2. Recreational development on Guntersville has been traditionally concentrated at the end of the lake nearest the dam and the city of Guntersville. Future growth of other population centers, such as the cities of Scottsboro, Hollywood, and Stevenson, will necessitate a better dispersion of shoreline recreational developments and lake activities. Bellefonte peninsula is within 10 miles of each of these cities, as well as on the same side of the lake.
3. The gentle topography and large size of the tract make it suitable for a number of types of recreational developments.

A preliminary recreation plan has been developed and includes development of a campground-park complex offering a complete range of camping facilities and passive recreation opportunities emphasizing the ecological and natural resources of the area. A system of foot trails and nature study opportunities as suggested by the AEC on page 5-2 of their draft environmental statement, as well as a boat access area and bank fishing opportunities, are planned to enhance recreational opportunities.

Day use facilities, including swimming, picnicking, playfields, etc., are also planned as a part of the complex. The feasibility of incorporating hunting into the total recreational package will be explored with the Alabama Department of Natural Resources.

It is estimated that the present worth of the recreation provided by this area over the life of the plant based on \$1.25 per visit is \$2,800,000.

Further investigation shows that, if the recreation development on the peninsula were done in a manner to specifically avoid disturbance of important habitat to the maximum extent practical, properly managed wildlife development on the peninsula could actually enhance wildlife benefits when compared to the alternative of allowing no access and leaving the peninsula to natural changes. The adverse impacts on wildlife would principally be those associated with habitat losses due to factors such as recreation facilities and access roads. Careful planning, however, could result in realization of benefits to both recreation and wildlife.

The development of the recreation facilities will be carried out so that adverse impacts on the environs of the peninsula will be minimized. The riparian woodlands along the tip of the peninsula, the steeper slopes, and known heron roosting areas will be left largely in their natural state. Facilities will be located for the most part in the midportion of the peninsula on land that is, at present, primarily open.

Protection of the areas indicated above and the planting of various tree and shrub species in the open areas to be developed along with natural succession is expected to improve the peninsula habitat.

The route across the Town Creek embayment requires the construction of an access road 2.7 miles long which will remove about 10 acres of land from productive use. This route is estimated to cost approximately \$160,000 more than the direct route discussed above. TVA's Bellefonte draft environmental statement stated this cost difference to be \$400,000. However, more detailed studies made since the statement was issued show that the total cost of the access via the Town Creek causeway is expected to be about \$1,070,000, while the total cost of upgrading the road through old town Bellefonte is expected to be about \$910,000. As stated above the environmental impacts associated with building the causeway across the Town Creek embayment--the turbidity and siltation during construction, the more limited water transfer, and loss of some aquatic habitat in Town Creek embayment--are minimal. The advantages of this route are that it minimizes possible damage or destruction to the historical structures in the Bellefonte townsite and the public convenience and recreation potential of the peninsula is enhanced.

In summary, the principal costs associated with recreational development of the peninsula include an incremental total cost of \$160,000 for access construction, approximately \$500,000 for development of the recreation area, and the impact on wildlife of some habitat removal and disturbance. Benefits derived from the recreational development include \$2,800,000 (1985 dollars) in recreation benefit over the life of the plant, reduced traffic through old town Bellefonte, and increased utilization of existing wildlife resources.

After considering the alternatives, TVA selected the indicated route across Town Creek as representing the best balance between cost, environmental impact, and the other considerations discussed.

ENCLOSURE 2

Intake and Related Fisheries Investigations

The AEC staff states in their draft environmental statement that the intake structures should be located in deep water because fish impingement "would most likely be reduced" (page 5-28). They state that "it is imperative that loss of fish eggs and larvae be minimized . . . by location of the intake opening in an area of low larval density" (page 5-30). These points are reiterated by the staff at various places in the statement.

The staff also states (page 5-42) that they will require that TVA develop and submit a plan for a 2-year fishery investigation to assess the impacts of the proposed intake design and that "Construction activities related to the intake structure shall not commence until the staff has had an opportunity to review the results of the studies as outlined above."

In response to previous AEC requests, TVA has studied and submitted to the AEC staff six viable alternative intake designs, three of which utilize deepwater intake openings. TVA agrees that a deepwater intake would reduce the number of larval fish entrained; however, it is the judgment of TVA fishery biologists that the number entrained utilizing the proposed intake will not result in significant impact. They also judge the number of healthy fish that will be impinged on the traveling screen to be inconsequential due to the very low velocity in the intake channel of the proposed design.

In reference to the fishery investigation outlined on page 5-42, TVA questions the necessity for such detailed studies to determine that impacts due to the proposed intake are insignificant. Beginning in early April 1974 weekly samples will be taken to describe the distribution, relative abundance, and seasonal timing of ichthyoplankton in the vicinity of the plant. These studies will be used as a basis for verifying TVA's judgment that entrainment of ichthyoplankton will not result in significant impacts to the fishery of Guntersville Reservoir.

Studies of distribution and abundance of "fish" (it is presumed that AEC's usage of this term refers to post-larval fish) were conducted and appear in TVA's draft environmental statement. Fecundity and spawning habits information on important species is available in the published literature. Consequently, no studies of this type are considered necessary. Spawning sites and nursery grounds will be identified if in the vicinity of the plant or in an area of projected plant impact, but no reservoir-wide survey is planned. While determination of survival rates and age class strengths is a worthy objective, TVA doubts that meaningful quantification of these is possible in a 2-year period.

TVA feels that it would be sufficient to make water velocity surveys at the site to determine the distribution of flow in the river cross section at the intake and to use this information to estimate the source (i.e., shoreline, midchannel, etc.) of the intake flow. The water velocity surveys would be a one-time data collection and not a part of a continuing monitoring program. It should also be noted that there is no way of measuring the actual intake effects in the field prior to operation and that only estimates of the intake flow source can be made. However, TVA believes that the estimates described above would be adequate to determine the recruitment pattern of nearshore and offshore waters into the intake openings.

Vulnerability to entrainment is limited to the larval stage (i.e., from hatching to approximately 2 months). Data obtained at Browns Ferry Nuclear Plant in October 1973 and January-March 1974 indicate that vulnerability of healthy fish to impingement was limited primarily (90 to 95 percent) to fish less than 150 mm total length, that more than 90 percent of impinged fish are clupeids, and that from two to four age groups (depending on species) are impinged. The fact that the proposed intake design for Bellefonte will have intake screen velocities about an order of magnitude less than those at Browns Ferry should result in much smaller impingement.

While the studies suggested on page 5-42 are appropriate in considering population dynamics and impact assessment in general, TVA does not believe that all of the studies are necessary to determine that the impact of the proposed intake will be minimal nor that delays in construction are justified in view of the responsible judgments regarding potential impacts presented in TVA's draft environmental statement.

Based on the cost-benefit analysis of the intake alternatives that was supplied to AEC previously, TVA concludes that the originally proposed intake design is the best choice.

ENCLOSURE 3

Transmission Line Construction and Maintenance

TVA does not agree with the AEC staff statement that TVA's ". . . basic approach is not consistent with good construction practices and basic ecological principles." However, TVA is willing to conduct an evaluation study to assess alternative methods of construction and maintenance of transmission lines.

The line sections to be used in this evaluation study are an 11-mile section along the Tennessee River and a 4.6-mile section located atop Sand Mountain. A description of these line segments and clearing methods to be used is given below.

Approximately 11 miles of the proposed Bellefonte-Widows Creek No. 2 500-kV line parallels the Tennessee River at a distance of 2,000 to 3,000 feet from the river. The land traversed by this section of line is relatively flat and varies in elevation from 600 to 650 feet. Approximately 10.5 miles of this line section is managed by the State of Alabama Department of Conservation and Natural Resources as a waterfowl management area. Farming and pasturing (both active and inactive) constitute about 50 percent of the present land usage along the right of way. The remaining right of way area consists of various trees and brush cover which are scattered at random locations along the 11-mile route.

Special clearing methods will be used for this 11-mile section in which only select tall trees and fast-growing species will be removed. The use of herbicides in TVA's clearing operation for the initial transmission line constructed under step one (as designated by AEC in their draft statement) will be limited to spot application of herbicides to the stump resulting from the special clearing methods used on a portion of this line. No broadcast use of herbicides is planned for the clearing operations associated with this transmission line connection to Bellefonte. For the transmission lines to be constructed under steps two and three, the use of herbicides will be contingent upon the results of the right of way clearing studies performed on the transmission line constructed under step one.

The 4.6-mile section of line atop Sand Mountain generally parallels the river, traversing alternately open farmland, pasture, and wooded farm lots. The shear clearing method will be utilized where wooded areas cross the proposed route. The potential for soil erosion through this relatively level and semiagricultural area is very slight. The longest continuous wooded area along this line section is approximately 4,800 feet. Following construction, the right of way in this section will be seeded with fescue grass.

In critical areas near the Tennessee River and other waters, minimum clearing will be done and screening will be left. Screens will be left at major or scenic roads.

During construction, access roads will be held to a minimum and an extreme effort will be made to limit them to tower sites only. Where an access road is necessary, visual impact, as well as soil stability, will be a prime consideration; and the access will be designed to minimize both.

On the final cleanup where seeding is required, efforts will be made to reestablish some areas as game habitats by utilizing seed mixtures as suggested by state and wildlife management personnel rather than Kentucky 31 fescue. In those seeded areas not marked for game habitat, fescue will be used.

During subsequent maintenance periods, plant reinvasion and the vegetative regrowth rate will be recorded to determine the effectiveness of these two right of way clearing methods as it relates to maintenance and environmental impacts.

Prior to construction of the transmission line connections discussed under step one (as designated in AEC's draft environmental statement), an inventory of vegetation on specific test tracts along the right of way will be evaluated.

The specific tracts to be used in this evaluation program will be determined at a later date. During subsequent maintenance periods, plant reinvasion and regrowth rates will be recorded to determine the effectiveness of various right of way clearing methods, including shear clearing treatment as it relates to line maintenance and environmental impacts. Concurrent studies will be performed also on other transmission line projects in the TVA area to determine specific impacts to wildlife, understory development, and ecotonal influences.

Cost and relative benefits for shear clearing and select clearing methods of right of way clearing will be obtained from proposed test sections. Results from these test areas, in addition to other proposed TVA research projects on right of way clearing methods, will form the basis for assessment of clearing practices to be used for the transmission lines to be constructed under steps two and three of this project.

ENCLOSURE 4

Control of Onsite Construction Activities

Environmental monitoring feedback to assure minimization to the extent practical of adverse impacts due to construction activities is accomplished through TVA's administrative control procedures. As discussed below, initial decisions regarding modification of construction activities are made by construction personnel who can assess the relative importance of the activities being performed. In the event that the monitoring program identifies a need to alter the manner in which an important activity is being performed, the decision to alter the construction schedule to reduce impacts may be made at a higher administrative level than the construction project manager on recommendation of personnel having the responsibility for environmental monitoring and assessment.

Monitoring for the adverse effects due to runoff caused by construction activities as outlined in TVA's environmental statement will be performed by the construction organization on a continuing basis and periodically conducted by other divisions of TVA as the work is being performed. The construction project manager will assign responsibility for the continuous monitoring to the construction engineer and/or safety engineer and their organizations. Adverse effects resulting from construction activities will be corrected immediately upon detection when practical. Those not considered practical to correct or alleviate immediately will be brought to the attention of the project manager for final decision. If action is delayed, reasons will be documented.

Periodic monitoring will be performed as outlined in the revised nonradiological environmental monitoring program for the Bellefonte Nuclear Plant. Any variances, ill effects, potential problems, or suggestions of personnel not a part of the construction organization will be discussed on the site with the appropriate project officials and documented if considered significant. Action to be taken will be decided by the project manager after consultation with appropriate personnel outside the construction organization. The administrative control procedures within TVA can be used should further action than that proposed by the project personnel be thought necessary.

TVA does not anticipate encountering problems with construction personnel having access to nonconstruction areas of the site and sees no need to exclude construction personnel from these areas. Consequently, TVA does not intend to erect signs and/or fences for this purpose.