

AEC DISTRIBUTION FOR PART 50 DOCKET MATERIAL
(TEMPORARY FORM)

CONTROL NO: 2752

FILE: ENVIRO

FROM: U. S. Enviro Protection Agency Washington, D. C. Sheldon, Meyers			DATE OF DOC 3-29-74	DATE REC'D 3-29-74	LTR X	MEMO	RPT	OTHER
TO: L. Manning Muntzing			ORIG 1 signed	CC 1	OTHER	SENT AEC PDR <u>XXX</u> SENT LOCAL PDR <u>XXX</u>		
CLASS	UNCLASS	PROP INFO	INPUT	NO CYS REC'D		DOCKET NO:		
	XXX			1		50-438/439		

DESCRIPTION:

Ltr furn info re comments on the Bellefonte DES trans the following....

PLANT NAME: BELLEFONTE UNITS 1 & 2

ENCLOSURES:

Comments re Bellefonte Units 1 & 2 DES

DO NOT REMOVE

(2 cys encl rec'd)

FOR ACTION/INFORMATION 4-1-74 GMC

- | | | | |
|------------------------|-----------------------------------|----------------------------|--------------------------|
| BUTLER(L)
W/ Copies | ✓ SCHWENCER(L)
W/1 Copies info | ZIEMANN(L)
W/ Copies | ✓ REGAN(E)
W/1 Copies |
| CLARK(L)
W/ Copies | STOLZ(L)
W/ Copies | DICKER(E)
W/ Copies | W/ Copies |
| GOLLER(L)
W/ Copies | VASSALLO(L)
W/ Copies | KNIGHTON(E)
W/ Copies | W/ Copies |
| KNIEL(L)
W/ Copies | SCHEMEL(L)
W/ Copies | YOUNGBLOOD(E)
W/ Copies | W/ Copies |

INTERNAL DISTRIBUTION

- | | | | | |
|--------------------|--------------------|-------------------|------------------|----------------|
| ✓ REG FILE Ltr 439 | <u>TECH REVIEW</u> | DENTON | <u>LIC ASST</u> | <u>A/T IND</u> |
| ✓ AEC PDR Ltr 439 | HENDRIE | GRIMES | | BRAITMAN |
| OGC, ROOM P-506A | SCHROEDER | GAMMILL | DIGGS (L) | SALTZMAN |
| ✓ MUNTZING/STAFF | MACCARY | KASTNER | GEARIN (L) | B. HURT |
| CASE | KNIGHT | ✓ BALLARD | ✓ GOULBOURNE (L) | <u>PLANS</u> |
| GIAMBUSSO | PAWLICKI | SPANGLER | LEE (L) | MCDONALD |
| BOYD | SHAO | | MAIGRET (L) | DUBE w/Input |
| ✓ MOORE (L)(BWR) | STELLO | <u>ENVIRO</u> | ✓ REED (E) | <u>INFO</u> |
| DEYOUNG(L)(PWR) | HOUSTON | MULLER | SERVICE (L) | C. MILES |
| SKOVHOLT (L) | NOVAK | DICKER | SHEPPARD (L) | B. KING |
| P. COLLINS | ROSS | KNIGHTON | SLATER (E) | |
| DENISE | IPPOLITO | YOUNGBLOOD | SMITH (L) | |
| ✓ <u>REG OPR</u> | TEDESCO | REGAN | TEETS (L) | |
| FILE & REGION(3) | LONG | PROJECT LDR | WADE (E) | |
| MORRIS | LAINAS | ✓ DITTMAN adv + 2 | WILLIAMS (E) | |
| STEELE | ✓ BENAROYA | ✓ HARLESS | WILSON (L) | |
| | VOLLMER | | | |

EXTERNAL DISTRIBUTION

- | | | |
|---------------------------------|--|------------------------|
| ✓ 1 - LOCAL PDR SCOTTSBORO, ALA | ✓ (1) env NATIONAL LAB'S <u>ANL</u> | 1-PDR-SAN/LA/NY |
| ✓ 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) |
| | NEWMARK/BLUME/AGBABIAN | RM-B-127, GT. |
| 16 - CYS ACRS HOLDING | 1-GERALD ULRIKSON...ORNL | 1-RD..MULLER..F-309 GT |



Regulatory

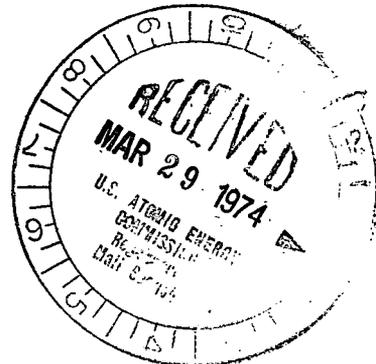
File Cy.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

29 MAR 1974

Mr. L. Manning Muntzing
Director of Regulation
U.S. Atomic Energy Commission
Washington, D. C. 20545

50-438
50-439



Dear Mr. Muntzing:

The Environmental Protection Agency has reviewed the draft environmental statement issued in conjunction with the application of the Tennessee Valley Authority for a construction permit for the proposed Bellefonte Nuclear Plant Units 1 and 2. Our detailed comments are enclosed.

Our review indicates that operation of the Bellefonte Nuclear Plant, as proposed, will comply with Alabama water quality standards and the thermal requirements of the Federal Water Pollution Control Act (FWPCA) Amendments of 1972. However, the choice of intake structure location may not reflect the best available technology as presented in Section 316(b) of the FWPCA. Accordingly, we believe the AEC staff should encourage the applicant to explore methods of locating the intake structure such that impacts are further reduced.

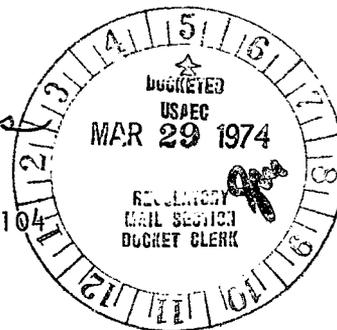
The radioactive waste treatment equipment planned for Bellefonte Nuclear Plant Units 1 and 2, in combination with TVA commitments to maintain and operate the equipment properly, should result in population and individual doses which can be considered "as low as practicable."

In light of our review and in accordance with EPA procedures, we have classified this project as LO (Lack of Objections) and have rated the draft environmental statement Category 1 (Adequate). If you or your staff have any questions concerning our classification or comments, we will be happy to discuss them with you.

Sincerely yours.

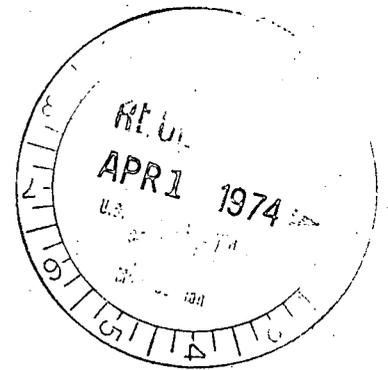
Sheldon Meyers

Sheldon Meyers, Director
Office of Federal Activities A-104



Enclosure

~~20~~ 2752.



ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D. C. 20460

MARCH 1974

ENVIRONMENTAL IMPACT STATEMENT COMMENTS

Bellefonte Nuclear Plant, Units 1 and 2

TABLE OF CONTENTS

	<u>PAGES</u>
INTRODUCTION AND CONCLUSIONS	1
RADIOLOGICAL ASPECTS	2
Radioactive Waste Management	
Transportation	
Reactor Accidents	
NON-RADIOLOGICAL ASPECTS	3
Thermal and Biological Effects	
ADDITIONAL COMMENTS	4



INTRODUCTION AND CONCLUSIONS

The Environmental Protection Agency has reviewed the draft environmental impact statement issued by the U.S. Atomic Energy Commission (February 1, 1974) in conjunction with the application of the Tennessee Valley Authority for permits to construct the Bellefonte Nuclear Plant, Units 1 and 2. Our major conclusions are as follows:

1. It is anticipated that the operation of the Bellefonte Nuclear Plant, as proposed, will comply with Alabama water quality standards and the thermal requirements of The Federal Water Pollution Control Act Amendments of 1972 (FWPCA). However, we recommend that the applicant further explore methods (e.g., alternative intake structure locations) for reducing the potential impact upon the aquatic environment, and evaluate the potential impact of an increase in concentration factor in the cooling water system, prior to blowdown. In addition, the applicant is urged to make available details of the blowdown discharge scheme, as they are developed, to EPA and other interested parties.
2. Our review indicates that the radioactive waste treatment equipment planned for Bellefonte, in combination with TVA commitments to maintain and operate the equipment properly, should result in population and individual doses which can be considered "as low as practicable."

RADIOLOGICAL ASPECTS

Radioactive Waste Management

Based on our review of the draft environmental statement, we find that the radioactive waste management practices and treatment equipment planned for Bellefonte will be consistent with state-of-the-art technology. Thus, the radioactive effluents will be consistent with the "as low as practicable" philosophy of 10 CFR Part 50.34.a.

However, in the draft statement, the AEC has indicated that TVA's plan to truck tritiated liquid waste to the nearest approved low level burial site, is not in conformance with the "as low as practicable" guidance, and other disposal methods should be considered. EPA agrees with this determination, since commercial facilities have not been licensed to dispose of low level liquid wastes. The final statement should include a discussion of the possible disposal alternatives for these liquids, including a cost-benefit analysis and description of the environmental impact of each alternative. The optimum alternative should be selected based on a balance between cost and environmental consequences.

Transportation

In our earlier reviews of the environmental impact of transportation of radioactive material, we agreed with the AEC that many aspects of this problem could best be treated on a generic basis. The generic approach has reached the point where on February 5, 1973, the AEC published for comment in the Federal Register a rulemaking proposal concerning the "Environmental Effects of Transportation of Fuel and Wastes from Nuclear Power Reactors." We commented on the proposed rulemaking by a letter to the AEC, dated March 22, 1973, and by an appearance at the public hearing on April 2, 1973.

Until such time as a generic rule is established, we will continue to assess the adequacy of the quantitative estimates of environmental radiation impact resulting from transportation of radioactive materials provided in environmental statements. The estimates provided for this station are deemed adequate based on currently available information.

Reactor Accidents

We have examined the AEC analysis of accidents and their potential risks which AEC has developed in the course of the engineering evaluation of reactor safety in the design of nuclear plants. Since these accident questions are common to all nuclear power plants of a given type, we concur with the AEC's approach to evaluate the environmental risk for each accident class on a generic basis. The AEC has in the past and still continues to devote extensive efforts to assure safety through plant design and accident analyses in the licensing process on a case-by-case basis. However, we favor the additional step now being undertaken by the AEC of a thorough analysis on a more quantitative basis of the risk of potential accidents in all

ranges. We continue to encourage this effort and urge the AEC to press forward to its timely completion and publication. We believe this will result in a better understanding of the possible risks to the environment.

We are pleased to note in the draft statement the discussion of the Reactor Safety Study and the commitment for timely public presentation of its results. If AEC's efforts indicate that unwarranted risks are being taken at the Bellefonte Nuclear Plant, we are confident that the AEC will assure appropriate corrective action. Similarly, if our efforts related to the accident area uncover any environmentally unacceptable conditions related to the safety of the plant, we will make our views known.

NON-RADIOLOGICAL ASPECTS

Thermal and Biological Effects

The proposed Bellefonte Nuclear Plant will have two pressurized water reactors with an electrical output of 2,664 megawatts. Condenser cooling will be accomplished by evaporative, natural-draft cooling towers within a closed-cycle system. Make-up water for the cooling system will be drawn from the Tennessee River at the rate of 4.20 cubic meters/second (148.5 cfs) and at an intake velocity of from .076 meters/second (.25fps) in winter to .073 meters/second (.24fps) in summer. Cooling-tower blowdown will be discharged downstream from the intake at the rate of 2.09 cubic meters/second (74 cfs).

Alabama water quality standards, applicable to the Tennessee River at the Bellefonte site, limit maximum stream temperature to 30°C (86°F) with an allowable maximum rise over ambient stream temperature of 2.8°C (5°F). TVA has stated that they will operate the Bellefonte plant in compliance with these standards. This will be accomplished by holdup of the blowdown to the extent required to restrict heated discharges to time periods when the wet-bulb temperature is most favorable. However, AEC indicates (p. 5-4) "... temperatures in the reservoir are, at times, close to or actually in excess of 30°C (86°F), and any blowdown at this time would violate this standard."

The applicant proposes not to operate the discharge system if violations of the temperature standards would result. However, no contingency plans are offered in the draft for these anticipated periods of no-discharge. In this regard, we recommend that the applicant explore methods for temporary retention (e.g. holdup pond) which would preclude the need for blowdown discharge under adverse conditions.

Temperatures at Guntersville Dam are noted in the draft statement to have reached a maximum of 31.5°C (88.7°F) (page 5-10); however, no indication is given as to whether this is due, at least in part, to operation of Widows Creek Stream Plant (the second largest fossil fired station in the TVA system) upstream on Guntersville Reservoir. Interaction between these facilities should be evaluated in the final statement.

TVA proposes to operate the cooling towers at two cycles of concentration. This will result in a two-fold increase in the dissolved solids present in the system, except during those periods when hold-up is required because of low flow releases from peaking power operation at Nickajack Dam. Under these conditions, increases in dissolved solids to approximately three times those in the river are anticipated. We recommend that the applicant study the feasibility of operating the cooling towers at higher concentration factors than the two to three, as presently proposed. For instance, use of a concentration factor of ten would reduce make-up requirements by approximately 50 percent and would reduce intake velocities and expected impingement, as well as reducing entrainment damage by about 50 percent. Additionally, blowdown volume would be reduced by almost 90 percent, as would be the heat discharged from the plant. Discharge concentrations of natural and added pollutants would be increased at higher concentration factors; use of a concentration factor of ten and a ten-to-one dilution as presently proposed, would result in an approximate doubling of the presently expected pollutant concentrations in the river. However, the reduced volume could be discharged through a multiport diffuser system to obtain similar dilution to that presently proposed. Therefore, it is recommended that cooling tower blowdown procedures, reduced flow or closed-cycle cooling for the essential raw cooling water system, diffuser alternatives, and the associated costs be re-evaluated in the final statement.

Section 316(b) of the Federal Water Pollution Control Act Amendments of 1972 requires that "... the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact." In order to implement these requirements, draft regulations and a development document ("Development Document for Proposed Best Technology Available for Minimizing Adverse Environmental Impact of Cooling Water Intake Structures" December 1973) have recently been published by EPA. It is recommended that the proposed intake design be re-evaluated against the technology presently in the development document. Return of impinged nekton to Guntersville Reservoir at a point unaffected by the plant intake should be provided. However, debris collected by the trash boom and intake screens should be disposed of by sanitary landfill, or other acceptable method, and should not be returned to the reservoir.

ADDITIONAL COMMENTS

In certain instances the draft statement does not provide sufficient information to substantiate the conclusions presented. We recognize that much of this information is not of major importance in evaluating the environmental impact of the Bellefonte Nuclear Plant. The cumulative importance, however, could be significant. It would, therefore, be helpful in determining the impact of the plant if the following topics were addressed in the final statement.

1. Figure 3.3 should show treatment of gaseous release from the air ejector as a component of the gaseous waste treatment system, as mentioned on page 3-11.
2. The draft statement does not discuss the impact of fuel oil storage facilities. Strategies that will be employed to prevent air pollution should be provided.
3. The impact of the concrete batch plant that will be used in the construction phase of the plant is not discussed adequately in the draft statement. Particulate emissions from this source should be quantified and control measures that will be employed addressed.
4. An assessment of ozone production by energized high voltage transmission lines should be provided in the final statement.
5. Noise impact during the construction phase is both temporary and difficult to analyze; however, it should receive more attention than the depth of analysis implied by the brief statements on page 8-15 to the effect that ". . .no environmentally unacceptable noise levels are postulated. . ." It would be helpful if the final statement includes noise level projections and a description and analysis of noise abatement schemes.
6. Waste treatment facilities should be provided to achieve the requirements proposed by EPA (Limitations Guidelines for Existing Sources in Standards of Performance and Pretreatment Standards for New Sources for the Steam Electric Power Generating Point Source Category) to provide "best practical control technology currently available," for both preoperational and operating wastes. Although these requirements, as proposed, do not include conditions for radioactive waste discharges, facilities have been proposed for other nuclear plants (e.g. Shearon Harris), which provide significantly greater removal for organics and other oxygen-demanding pollutants. Use of such facilities for the chemical and detergent waste subsystems should be evaluated.
7. Specific measures to be instituted to limit adverse effects during construction (Section 4.4) should be included in the final statement. Discussion of construction impacts in the reservoir (intake and discharge structures) should also be provided.
8. We concur with comments on the need for additional evaluation of alternatives for transmission line construction and maintenance (especially the broadcast application of herbicides) and the need for a study to determine the impacts of transmission line construction.
9. Design parameters other than dry bulb temperature and relative humidity for the cooling towers (such as wet bulb, approach, etc.) should be provided in the final statement as well as the expected frequency of occurrence for all design parameters.