

AEC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

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FILE: ENVIRO

FROM: Carolina Power & Light Company Raleigh, North Carolina 27602 J. A. JONES			DATE OF DOC 9-25-73	DATE REC'D 9-27-73	LTR x	MEMO	RPT	OTHER
TO: John F. O'Leary			ORIG 3 signed	CC 40	OTHER	SENT AEC PDR <u>x</u> SENT LOCAL PDR <u>x</u>		
CLASS	UNCLASS	PROP INFO	INPUT	NO CYS REC'D 43		DOCKET NO: 50-261		
XXX								
DESCRIPTION: Ltr trans the following:				ENCLOSURES: Comments on comments from HEW, EPA & the State of North Carolina .				
PLANT NAME: H. B. Robinson Unit # 2				<p style="text-align: center;">ACKNOWLEDGED</p> <p style="text-align: center;">DO NOT REMOVE</p> <p style="text-align: center;">(43 cys rec'd)</p>				

FOR ACTION/INFORMATION

9-27-73

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1 - NSIC (BUCHANAN)	✓ 1-W. PENNINGTON, Rm E-201 GT	BROOKHAVEN NAT. LAB
1 - ASLB (YORE/SAYRE/ WOODARD/"H" ST.	1-CONSULTANT'S	1-AGMED (WALTER KOESTER
16 - CYS ACRS HOLDING	NEWMARK/BLUME/AGBABIAN	RM-C-427-GT
	1-GERALD ULRIKSON...ORNL	1-RD..MULLER..F-309 GT



Carolina Power & Light Company

September 25, 1973



Mr. John F. O'Leary
Directorate of Licensing
Office of Regulation
Atomic Energy Commission
Washington, D. C. 20545

RE: DOCKET NUMBERS 50-261

Regulatory

File Cy.

Dear Mr. O'Leary:

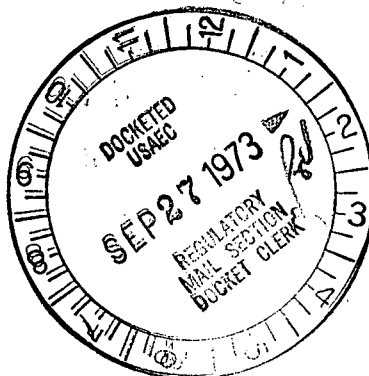
On August 28, 1973, Mr. William H. Regan, Jr., Chief, Environmental Projects Branch 4, submitted to Carolina Power & Light Company the comments made on the H. B. Robinson Unit No. 2 Draft Environmental Statement by the Department of Health, Education, and Welfare, Environmental Protection Agency and the State of North Carolina. We have reviewed these comments and are providing you at this time with three (3) signed originals and 40 additional copies of our responses to these comments. Our responses to other agency comments were submitted to you by separate cover on September 18, 1973.

Yours very truly,

J. A. Jones
Executive Vice President

JAJ:dcp

Enclosures



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Steam Electric
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REFERENCE LETTERS

1. Letter from Environmental Protection Agency dated August 13, 1973.
2. Letter from Department of Health, Education and Welfare, dated
July 23, 1973.
3. Letter from State of North Carolina Department of Administration dated
July 12, 1973.

Comment:

"Since this is an operating plant, actual operating data, especially for the last two years, would provide some bases for making estimates of plant performance. We, therefore, suggest that AEC utilize operating data available since August 1971, to evaluate the radiological impact of the plant and to compare the data with the assumptions used in the standard AEC models.

According to the draft statement (Table 3.5), under normal operating conditions, the plant's liquid radioactive discharge will exceed the activity discharge guidelines of the proposed Appendix I to 10 CFR Part 50. The major source of this discharge is the steam generator blowdown (29 curies of the total plant discharge of 30 curies), which is now discharged without treatment. The draft statement mentions that the licensee will control this effluent to within the limits of the Technical Specifications, which restrict the release of radioactive liquids, other than tritium, to 9.5 curies/yr while the proposed Appendix I level is 5 curies/yr. The final statement should clearly indicate the actions that will be required to conform with the proposed Appendix I. It appears that additional treatment equipment may be necessary since the equipment described in the draft statement does not have sufficient capacity to handle the steam generator blowdown rate." (Reference 1, page 3)

CP&L Response:

The Company concurs that actual operating data should be utilized in evaluating radiological impact of the plant. It should be noted that the values calculated by the AEC staff were arrived at using

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standard models and quite conservative assumptions. In the absence of operating data, these values would provide a basis for evaluating the impact of the plant. However, when data is available, it provides a more realistic evaluation, as in the case of H. B. Robinson Unit No. 2. Although the staff's calculation shows releases of 1000 Ci/yr of tritium, 30 Ci/yr gross liquid, 4260 Ci/yr gross noble gases and a violation of Technical Specifications, the actual total plant releases for 1972 were 429 Ci of tritium, 0.983 Ci gross liquid excluding tritium, and 179.2 Ci of noble gases. These values represent about 11.6%, 4.3%, and 1% of the Technical Specification limits for tritium, liquid and noble gas releases.

The Staff estimated 29 curies/year from steam generator blowdown. Accurate records of actual steam generator releases maintained since October 1, 1972, reveal the following:

Curies released - October 1 through December 31, 1972 = 0.058

Curies released - January 1 through August 24, 1973 = 0.022

It would appear that actual releases via steam generator blowdown will be approximately 0.1 curies per year and not 29 curies per year. Whereas the 29 curie figure could result in a costly addition of water treatment equipment, the 0.1 curie figure clearly demonstrates that such equipment is not necessary.

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Comment:

"We concur in the AEC's recommendations concerning the need to broaden the applicant's present radiological sampling programs, as discussed in Section 6.2.2. of the draft statement. Details of the improved programs should be included in the final statement."

(Reference 1, page 4)

CP&L Response:

The environmental radiological sampling program has been reviewed and expanded in response to Section 6.2.2. of the AEC Draft Environmental Statement. The expanded program complies with the Environmental Protection Agency's "Environmental Radioactivity Surveillance Guide," ORP/SID 72-2. Details of the program are included in the proposed environmental technical specifications for H. B. Robinson, Unit No. 2.

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Comment:

"The descriptions of the gaseous waste treatment system presented in the applicant's environmental report and the AEC's draft statement do not agree. The applicant indicates that the waste gas decay tanks provide 45 days of holdup while the draft statement indicates only 27 days of holdup. The waste gas decay tank capacity indicated in the draft statement is similar to several other plants which estimate 45 days of holdup. It should be indicated whether this difference in the decay time is reflective of actual operating restrictions or capabilities of the system or is due to some other cause. Although the doses resulting from normal operations of this plant after 27 days of holdup are within the guidelines of the proposed Appendix I to 10CFR50, there is a possible need to reevaluate other plants which utilize similar gas decay systems, if a generic design problem is the reason for the indicated shorter than design holdup." (Reference 1, page 13)

CP&L Response:

Actual operating data for gas decay tank holdup time is available. In 1972, the average holdup time was 37.4 days. This compares much more favorably with the predicted 45 days. Through August 1973, the following holdup times apply:

Disregarding March 65.2 days

Including March..... 31.4 days

It is the Company's opinion that in calculating average holdup time in 1973, the decay tank releases in March should be disregarded. This is based on the fact that 18 tanks were released in March at the beginning of the refueling outage. The releases were required to reduce hydrogen

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to below 5 cc/kg in the primary system. This was accomplished by "sweeping" the hydrogen to the gas decay tanks; this action being atypical of normal operation.

Further, the point needs to be made that with the predicted 45-day holdup time, a predicted 7,379 curies per year of gaseous activity would be released from the gas decay tanks. Since January 1, 1973, approximately 232 curies of actual gaseous activity has been released, and this number includes the abnormal month of March. It would appear that total releases in 1973 will be on the order of 250 curies, or 3.4% of the predicted. Similar numbers are available for 1972.

Comment:

"In our opinion, the high intake velocity of this plant (2.1 fps) is considerably higher than the 0.5 to 0.8 fps EPA has recommended in the past. We therefore concur with the AEC that additional studies be conducted to determine the extent of impingement losses and would call to the applicant's attention that Section 316(b) of the FWPCA requires that ". . . cooling water intake structures reflect the best technology available for minimizing adverse environmental impact." The results of these studies and the means to mitigate any impacts should be discussed in the final statement." (Reference 1, page 2)

"We concur with AEC that the applicant should conduct additional studies to obtain a clearer picture of impingement losses and recommend that these studies be described in sufficient detail in the final statement. A parallel study of impingement losses at the Unit 1 intake (immediately adjacent to Unit 2 intake) should also be conducted to allow an evaluation of total plant impact. Accompanying such studies, there should be an investigation of means to reduce these losses." (Reference 1, page 10)

CP&L Response:

During the months of June 1973 and August 1973, fish impinged on the traveling intake screens of Unit 2 were collected over a 48-hour period, identified to species, counted and sorted by length groups. Additional studies will be conducted to investigate impingement losses on a monthly basis, beginning in September 1973. Fish impinged on the traveling intake screens of both Units 1 and 2 will be collected over a 48-hour period, thus allowing assessment of impingement loss and diurnal and seasonal comparisons of numbers of fish impinged. Fish collected on the screens will be identified to species when possible, counted and sorted by length groups. Total weights for each group will be recorded.

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Comment:

"The lake was constructed primarily for industrial cooling and recreation and receives no discharges other than that of H. B. Robinson."
(Reference 1, page 7)

CP&L Response:

The primary purposes for the construction of the 2250 acre Robinson Impoundment in 1959 was to provide cooling water for the H. B. Robinson Unit 1 and to provide additional cooling water for subsequent development of additional units in the site area. After the completion of the impoundment, residents of the surrounding area found the impoundment attractive for recreational use. The impoundment, however, was not constructed for recreation.

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Comment:

"Lake waters subject to present federally approved South Carolina standards require maintenance of an average monthly water temperature limit of 30°C (90°F) and a maximum allowable increase above ambient of 1.7°C (3°F) after allowance for adequate mixing." (Reference 1, page 8)

CP&L Response:

This is apparently a misinterpretation of South Carolina's classification of Lake Robinson (see attached letter). Lake Robinson is classified by the South Carolina Pollution Control Authority as an impoundment; therefore, as specified in Section III - 10.f of the water classification-standards system for the State of South Carolina, compliance with temperature standards shall be based on measurements in the receiving waters below the impoundment. In reference to Section III - 10.f, Section III - b specifies that in the stream below the impoundment, waters shall not exceed a temperature of 90°F at any time, nor shall the water temperature after passing through an adequate zone for mixing be more than 5°F greater than that of water unaffected by the heated discharge.

South Carolina Pollution Control Authority



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C. MARION SHIVER, JR. CAMDEN

HUBERT J. WEBB, PH.D.
EXECUTIVE DIRECTOR

OWEN BUILDING
1321 LADY STREET P. O. BOX 11628
Columbia, South Carolina 29211

AUTHORITY MEMBERS EX-OFFICIO

E. KENNETH AYCOCK, M.D. . . . COLUMBIA
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AREA CODE 803
TELEPHONE: 758-2915

January 4, 1973

Carolina Power and Light Company
Raleigh
North Carolina 27602

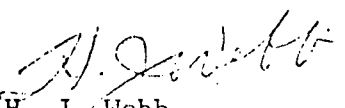
Attention: Mr. James M. Sell

Re: Robinson Impoundment
Darlington County

Dear Sir:

The South Carolina Pollution Control Authority has reviewed the past history of the development of this project and has issued a Water Quality Certificate and appropriate permits for the H. B. Robinson Unit No. Two. Based on the issuance of this certification and permits, the South Carolina Pollution Control Authority has, in effect, designated this body of water as an impoundment as defined under Section I of the Water Classification Standards System for the State of South Carolina.

Yours truly,


H. J. Webb
Executive Director

HJW:CRJ:bp

Comment:

"The draft statement does not supply sufficient information to fully evaluate the thermal effects of Unit 2 on Lake Robinson or the downstream impact on Black Creek. In particular, we feel that Unit 2 cannot be evaluated without relevant information about Unit 1. However, the simple, qualitative, thermal analysis supplied in the draft statement does indicate highly complex temperature patterns in the lake. To facilitate a full evaluation of the thermal impact, the following information should be included in the final statement:

1. A detailed, mathematical analysis which characterizes both horizontally and vertically, the thermal mixing zones required for both units 1 and 2 at 100 percent load factor under average and critical meteorological and hydrological conditions, and at maximum lake drawdown; and
2. Maximum anticipated temperatures of the lake discharge compared to the lake inflow under each of the above conditions." (Reference 1, page 8)

CP&L Response:

Impoundment inflow and outflow temperatures; plant intake and condenser outlet temperatures; and plant operational data have been monitored weekly since 1960. Continuous temperature data has been collected at the impoundment outflow since 1960 and upstream of the impoundment since 1964. Complete temperature profiles of the entire impoundment were collected in September, October, and November 1962; July 1963, and February 1964. Meteorological data are included. In addition, streamflows above and below the impoundment have been monitored by the USGS since 1959. All of these data apply to the period prior to the startup of Unit 2.

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Thermal analysis of the impoundment as supplied in the draft statement reflect these data and the use of additional data collected after the startup of Unit 2. Complete temperature profiles are available after the startup of Unit 2 for the months of September 1971 through September 1972, excluding October 1971, May 1972, and August 1972, and are presently being recorded monthly. Thus, data are available for a physical model rather than a theoretical model to assess thermal conditions under average and critical meteorological and hydrological conditions; thermal mixing zones for Units 1 and 2 at specified load factors; and actual maximum temperature of the impoundment outflow compared to inflow under various operational, meteorological and hydrological conditions.

For these reasons, mathematic analysis is not necessary since actual data are available to provide an actual operational physical analysis.

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Comment:

"The draft statement supplies very limited information about the bass-bluegill fishery in Lake Robinson. In order to assess fully the effects of plant operation (thermal and impingement) on the lake biota, studies should be conducted to document the size of the present fishery (pounds per acre per species) and to determine the availability of food in the fishery. The final statement should include a discussion of these studies. Such studies will be of prime importance should an evaluation of alternative effluent limitations be requested by the applicant under Section 316 of the FWPCA."

(Reference 1, page 10)

CP&L Response:

The CP&L Environmental Unit is presently conducting a biological monitoring program of the impoundment. On a quarterly basis, fish are collected by gill and trammel nets, wire baskets and seines in four (4) areas in the impoundment and in two (2) areas on Black Creek, one located above and one below the impoundment. Rotenone sampling is performed annually in selected coves with the cooperation of the South Carolina Wildlife and Marine Resources Department. Differences in the composition, abundance, and growth of the major fishes are determined. In addition, a tagging program will be used in the future to obtain a second estimate of the size (numbers and pounds per acre) of the present fishery.

Samples of two indicator species, a surface feeder (bluegill) and a bottom feeder (brown bullhead), will be analyzed for stomach content to determine nutrition habits. In addition, studies will be conducted to investigate various aspects of the energy (trophic) levels of the aquatic food chain. Plankton populations will be identified and counted and species diversity and spatial and temporal abundance analyzed. Chlorophyll concentrations and primary productivity will be determined.

A complete description of the environmental surveillance program will be included in the proposed Environmental Technical Specifications.

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Comment:

"Federally approved state water quality standards for South Carolina do not designate limits for any chemical included in the H. B. Robinson discharge. However, the waste disposal permit issued to the applicant by the South Carolina Pollution Control Authority limits the amount of chromate in Lake Robinson to 50 parts per billion. The draft statement identifies chromate as one of the discharge constituents but does not define the concentration. Since chromate can be very toxic to various lower organisms in the aquatic food chain, the final statement should discuss the monitoring procedure to ensure that the concentration does not exceed the above mentioned limit of 50 parts per billion. Chromium is being considered by EPA for inclusion on the toxic pollutant list as specified under Section 307(a) of the FWCPA." (Reference 1, page 10)

CP&L Response:

During 10 different months of 1971 and 1972, chemical data was collected in Black Creek above Robinson Impoundment and in Black Creek below Robinson Impoundment. Water entering the impoundment had an average chromium concentration of 8.3 ppb. Water leaving the impoundment had an average chromium concentration of 8.3 ppb.

In April 1973, CP&L instituted an environmental monitoring program which includes analysis for hexavalent chromium. Samples are taken monthly at three points in Robinson Impoundment (surface and bottom) and in Black Creek above and below the impoundment (surface). The chromium concentration of all the samples has been less than 50 ppb.

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Comment:

"Table 2.5 of the draft statement indicates the presence of 35 parts per billion of phenols in the lake water but offers no explanation of their origin. Chlorination, if conducted, will likely result in the formation of chlorinated phenols which can impart an odor to the lake and an unpleasant taste to the fish." (Reference 1, page 11)

CP&L Response:

During 10 different months of 1971 and 1972, chemical data was collected in Black Creek above Robinson Impoundment and in Black Creek below Robinson Impoundment. Water entering the impoundment had an average phenol concentration of 21 ppb and water leaving the impoundment had an average phenol concentration of 20 ppb. Apparently, the source of phenols is inflow from Black Creek.

Since nutrient concentrations in Robinson Impoundment are low, it is not expected that chlorination to reduce algae deposits in the condenser tubes will be necessary. Thus, no problems associated with chlorinated phenols are expected.

Comment:

"In view of the eventual requirements which section 301 of the FWPCA may impose on the chemical discharge of the plant, we recommend that the applicant evaluate and discuss in the final statement:

1. Treatment of laundry and similar waste streams containing organics, ammonia, and other nitrogen compounds by secondary biochemical and/or equivalent physical/chemical procedures; and
2. Treatment of all other non-radioactive chemical wastes in a closed-cycle system with ultimate in-plant reuse of treated water." (Reference 1, page 12)

CP&L Response:

As of this date there have been no effluent limitations established by the Environmental Protection Agency pursuant to Section 301 of the FWPCA.

In regard to present waste treatment procedures of non-radioactive wastes, Section 3.4 of the Environmental Report notes that chemical wastes which are subject to possible toxic concentrations are processed through the radioactive waste processing system. A description of this system and its operation is given in Sections 3.7.1 and 3.7.2. Chemical wastes not subject to radioactive contamination or toxic concentrations are discussed in Section 3.4 and in Section 3.5 the procedures for handling sanitary wastes are discussed.

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Comment:

"Information on the lengths of time required to pass the entire volume of water in the lake through the plant should be clarified to indicate whether data presented in the draft statement refers to both units or just Unit 2. Flow rates should be specified for water passing through the condenser and the entire plant system for both units." (Reference 1, page 14)

CP&L Response:

The normal full load flow rates for Units 1 and 2 are:

	<u>Unit 1</u>	<u>Unit 2</u>
Condenser circulation water	87,450 gpm	482,100 gpm
Service water	--	24,000 gpm

On Unit 1 all the water for plant use is taken in by the condenser circulating water pumps. Service water for Unit 1 is then withdrawn from this supply. The 14-day residence time for the Robinson Impoundment is based on the total capacity of the condenser circulating water pumps of Unit 1 and the normal condenser and service water flows associated with Unit 2.

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Comment:

"Intake screen debris should be disposed of at an approved sanitary fill or by another approved method rather than in Black Creek via the storm sewer." (Reference 1, page 14)

CP&L Response:

Suitable alternative means for disposal of intake screen debris are presently being investigated.

Comment:

"Table 2.3 contains data from two lake areas marked "F". One should probably be marked "E"." (Reference 1, page 14)

CP&L Response:

Table 2.3 has incorrectly identified two sets of data from areas marked "F". The table may be corrected by omitting the second set of data for "F". These data reflect temperatures recorded at various points within a 500-foot radius of the discharge and reflect neither temperatures along a transect nor dissolved oxygen levels.

In addition, this table does not apply to Figure 3.10 but to Figure 3.10a, Figure 3.11a and Figure 3.12a.

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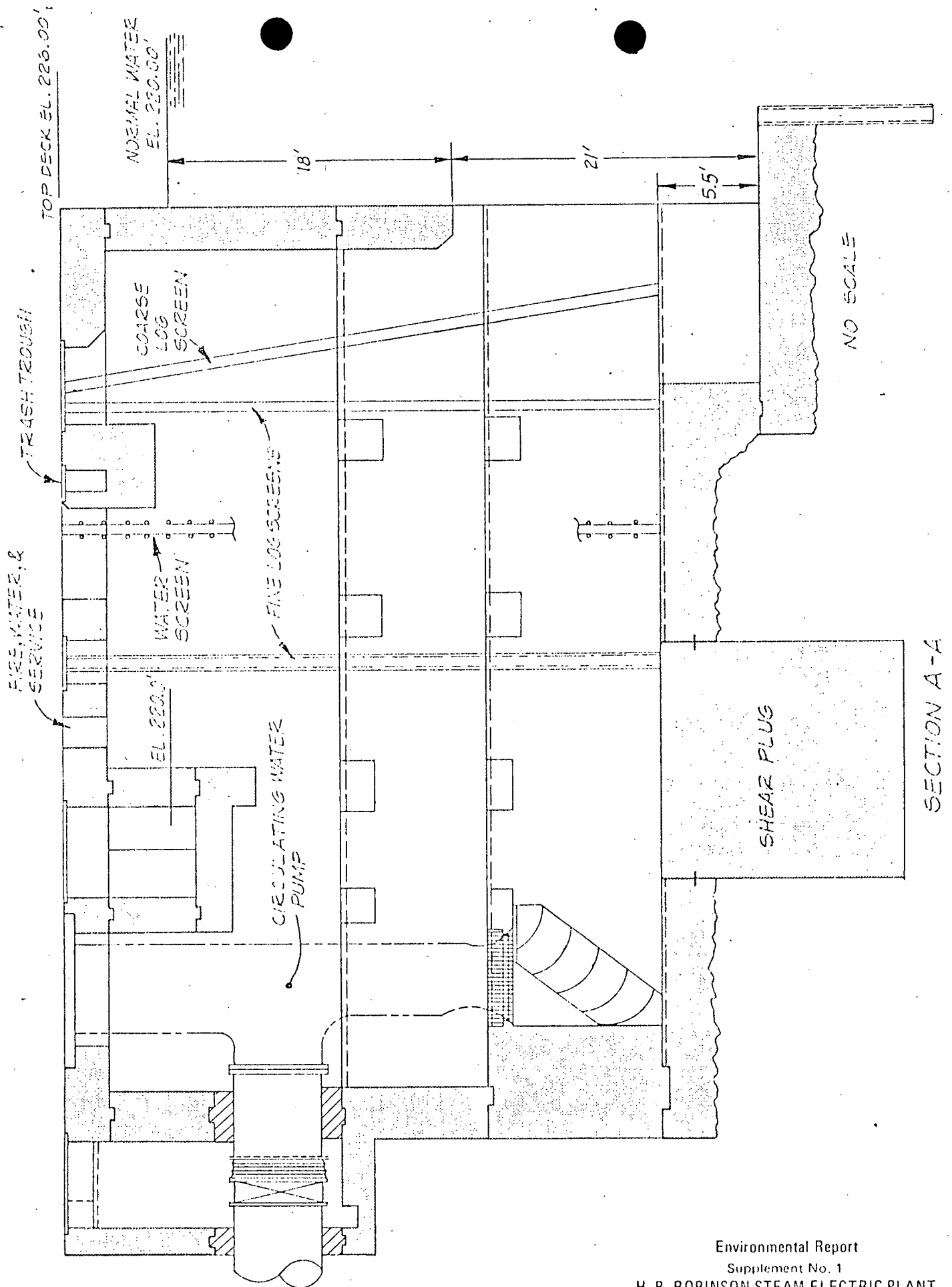
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Comment:

"The depth of penetration of the surface skimmer of the Unit 2 intake structure is not shown in either Figure 3.4 or 3.5. Since skimmers extend from the surface to varying depths, they control the depth from which incoming water is taken and therefore, its characteristics. The depth and impact of the Unit 2 skimmer should be discussed in the final statement." (Reference 1, page 15)

CP&L Response:

The revised figure is shown on the following page. The bottom of the skimmer wall is 18 feet below the lake surface; thus, water is continuously withdrawn from near the bottom.



Comment:

"Limited air quality impact from the intermittent operation of the two auxiliary boilers and the two diesel generators can be expected. Even though the impact on air quality from the operation of these facilities is expected to be minimal, the final statement should provide information on the emission of air pollutants. The information needed to calculate these emissions include the type of fuel (BTU rating and sulfur content) and the number of hours operated, including hourly and annual fuel use rate." (Reference 1, page 15)

CP&L Response:

The fuel used in the auxiliary boilers and the emergency diesels is No. 2 distillate. The BTU rating is 141,000 per gallon and the sulfur content is 0.3 - 0.5%. The auxiliary boilers are operated approximately 20% of the time, but part of this time they are on standby and very few emissions occur. The amount of fuel used in the auxiliary boilers, the amount of fuel used in the emergency diesels and the hours of operation of the diesels are as follows:

<u>Year</u>	<u>Gallons of fuel used in auxiliary boilers</u>	<u>Gallons of fuel used in emergency generators</u>	<u>Hours of diesel operation</u>
1971	178,588	20,067	139.2
1972	95,865	12,000	78.6
1973*	185,737	7,375	55.5

*January - July

