

POOR ORIGINAL

ENVIRON

MAR 8 1972

Docket No. 50-302

Florida Power Corporation
ATTN: Mr. J. T. Rodgers
Nuclear Project Manager
P. O. Box 14042
St. Petersburg, Florida 33733

Enclosure:

We are enclosing a list of questions relating to our environmental review of the Crystal River Unit 3 plant. The questions were generated by our Division of Radiological and Environmental Protection and the Battelle Pacific Northwest Laboratories task group assigned to assist the Commission in its preparation of an environmental statement for Crystal River. We wish to use those questions as a basis for discussion in the meetings scheduled for the week of March 27, 1972, between members of your staff, the Battelle task group, and Commission personnel. Following this meeting, we plan to send you a formal request for information needed to supplement your environmental report.

Sincerely yours,

R. G. DeFazio, Assistant Director
for Prescribed Waste Disposal
Division of Nuclear Licensing

Enclosure:
List of Questions

cc: w/enc1

Florida Power Corporation
ATTN: Mr. S. A. Brandimore
Vice President and General
Counsel
P. O. Box 14042
St. Petersburg, Florida 33733

ENVIRON

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D

DISCUSSION QUESTIONS PREPARED BY DREP AND BNL RELATIVE
TO THE ENVIRONMENTAL STATEMENT FOR CRYSTAL RIVER UNIT 3

I. ECOLOGY

A. Terrestrial

No mention is made of birds particularly of rare and endangered species. What information can be supplied on rare and endangered birds, mammals, and reptiles and the expected impact on their environment which might occur at the Crystal River site. Who officially designated the plant site as an Eagle Sanctuary?

B. Aquatic

1. References are given to reports of ecological scientists studying the effects of Units 1 and 2, and to data published in the Environmental Status Reports. Copies of the quarterly Environmental Status Reports as well as the original aquatic ecology (effect studies) reports, where available would be helpful.
2. Where copies of reports mentioned are not available, it would be helpful to have a list of the names, mailing addresses, major research emphasis, and pertinent reports of the principal investigators involved.
3. Units 1 and 2, under full load, provide a 12.5°F temperature rise in the discharge canal and all units would provide an estimated 15°F increment. Thus peak temperatures in the discharge canal would reach 102°F. What fish enter the discharge canal during the summer or is there a definite avoidance at this time? Are there any on-site data on this phenomenon?
4. The Florida Department of Natural Resources was said to be conducting environmental studies (effect of heated water on oysters, sampling of plankton in intake canal, fish holding pens in discharge canal, etc.). Results of these studies were discussed briefly. Details of these studies should be presented, if available.
5. We should like to have a table or figure providing data on the ambient intake temperature, the estimated tempera-

tures in the discharge canal from Units 1, 2 and 3 under full load operation, and the percent frequency over the year that these temperature conditions will exist. Calculations at 2° intervals, and correlated with season are suggested.

6. Table V-8 is incomplete for effective evaluation. It should include estimate of numbers and size ranges of the species involved, on a monthly basis. The data should be available for operation of Units 1 and 2 and estimated for operation of Unit 3.
7. What is the expected extent and frequency of shutdown of the various units?
8. The thermal effects of entrainment of planktonic organisms through the plants depend both on the temperature increment and the duration of exposure. About how long, on the average, does it take a drifting plankton organism to pass through the plant and discharge canal under projected flowthrough conditions?
9. What are the durations of the spawning seasons for the commercially valuable finfish and shellfish in the vicinity of the Crystal River plant? What is the duration of occurrence of juveniles?

II. HYDROLOGY - HYDRAULICS

1. Alternate Cooling - Fresh Water Cooling Tower
 - a. What volume of flow would be required for makeup and blowdown?
 - b. Could this amount of flow be supplied from a source other than the local aquifer system? At what cost?
2. Has a hold-up pond been considered as a cooling enhancement for the once-through condenser effluent? If so, what are the conclusions? If not, would such a pond compare favorably with other evaluated cooling enhancements?
3. If numerical results predict that water quality standards (thermal) cannot be satisfied with the proposed outfall design, what action will be taken?
4. In the event water quality standards (thermal) are exceeded at some time after the plant start-up what action would be taken:
 - a. If this is a chronic condition
 - b. If this condition is occasional (say, 10% of the time)?

5. Although the receiving water is shallow, the environmental report states that effluent from Units 1 and 2 results in a hot salt wedge to some extent. Do you feel this will be a chronic effect covering significant bottom area for the proposed operation? What bottom temperature do you expect extending over what areas? How does this density current eventually mix with the receiving water?
6. In the absence of fresh water influence from the Withlacoochee River, is the receiving water and plume well mixed vertically?
7. What computational assumptions were used in preparation of the thermal field predictions?
8. What supporting technology in the way of comparisons of models and field data were used to verify the computational system employed?
9. Disregarding tidal influences, what is the general circulation pattern in the vicinity of the outfall? Are there local prevailing currents?
10. What is condenser coolant transit time from condenser entry to ocean discharge point? What are condenser tube coolant velocity and transit time?
11. How was the 5°F isotherm area arrived at for the proposed outfall system?

III. PLANT EFFLUENTS

A. Chemical Wastes

1. A table of anticipated chemical releases for each source is desired to show average quantities as well as maximum and average concentrations at point of discharge. Include, among others, chromates and boron.
2. The Applicant states that hypochlorite will be used to control marine growth in the condenser tubes of Unit 3. Hypochlorite is currently used for this purpose in Units 1 and 2 (fossil fuel plants) and no chlorine residual is detectable in the circulating water discharge. Is the chlorine demand of the circulating water always sufficient to prevent significant chlorine residuals in the circulating water discharge? What safeguards are used to prevent an accidental overdose of hypochlorite?

3. It is planned to treat chemical wastes by evaporation. What is planned for the disposal of the waste concentrates?

B. Radioactive Wastes

1. Detailed population data are given for the years 1967 and 2015 in the FSAR. The 1970 data should be provided for man-rem calculations and extrapolation to 1973 or 75.
2. The 1970 population data (above) should be shifted by $11-1/4^{\circ}$ (one-half sector) so that the center of the sectors coincides with the compass directions given for the wind data.
3. Meteorological data in the FSAR list only the average wind speed per stability class. Improvement in the accuracy of the air-submersion dose calculations would result if the frequency of occurrence of various wind speeds is used, i.e., a joint frequency distribution of wind-speed, -direction, and -stability class.
4. More description of sampling locations, frequency, and schedules is desired.
5. State the species of fish that are caught in the canals, the number of people that catch the fish, and the pounds per person per year. Estimates should be made where applicable.
6. What is known regarding movement of water from the outfall back to the shrimp beds?

IV. COST-BENEFIT CONSIDERATIONS

1. What was the 1960 and 1970 population in the Applicant's service area and what population is estimated for 1980?
2. What is the initial and ultimate net power capacity of Crystal River Unit 3 and what is the appropriate 30-year plant factor?
3. How complete is over-all plant construction as of this date?
4. What is the current expenditure of funds on the plant, i.e., the walk-away cost?

5. What generating capacity is due to be retired from 1973 to 1980?
6. Describe the generating capacity, in addition to Crystal River Unit 3, that is to be added to the system by 1980; e.g., gas turbines for peaking?
7. Provide the following information for years 1960, 1965, 1970 through 1980?
 - a. FPC generating capacity with and without Crystal River Unit 3?
 - b. Firm capacity purchases and firm capacity sales to other utilities?
 - c. System capacity with and without Crystal River Unit 3?
 - d. Peak load and reserve?
 - e. "Net" capacity with and without Crystal River Unit 3? (c less d)
8. At what distance from the Crystal River facilities are the closer wildlife preserves?
9. Where is the location of the undeveloped state park describe on page III-53 of the Environmental Report?
10. On page III-53, you state that "A competition between recreational and residential land uses will occur in the Crystal River Area." Are these lands near or similar to those within the Crystal River site?
11. Can the Crystal River utility facilities be seen from the Crystal River Indian Mounds historical landmark?
12. The extension of the two canals to Unit 3 involves excavating 175,000 yards of material. How many acres are involved with the deposit of these spoils?
13. Identify the acreage of land required for exclusive use by Unit 3 plant features, and identify any additional acreage that would be required by each alternative.

14. Assuming that the alternative heat dissipation methods identified were associated with Unit 3 operation only, discuss how the benefits and costs of the alternatives may vary from those schemes identified to handle Units 1, 2 and 3.
15. Are there any plans for a visitor's center at the Crystal River site?
16. The 1100 acres of land associated with the cooling pond alternative was assessed to have a 30-year present worth of \$4,002,700. Please describe the values which make up this figure.
17. Provide copies of the 1965, 1970 and 1971 Annual Reports?

V. SITING AND MISCELLANEOUS

1. Provide a map of Florida showing the transmission system of the Florida Power Corporation.
2. What other sites were considered and why rejected?
3. Is there an electric plant at Port Inglis? Is the old residence occupied?
4. What is the Crystal River Historic Memorial? What is the size, usage, and activities in this Memorial?
5. Where in the 50-mile radius area are the "sites of archeological and paleontological importance"?

FROM
Jeffrey S. Knudson
Riverside Villas
Newnan, Fla.

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3473

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TO
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Requests info re the nuclear power plant near Yankeetown,
Florida.

REMARKS

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(Date)

TO:

Dr

REPLY FOR CHAIRMAN'S SIGNATURE

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(Please send two copies of reply to Office of Chairman)

Dr
FOR APPROPRIATE HANDLING

FOR INFORMATION: GM _____ DR _____ Commissioners _____

REMARKS:

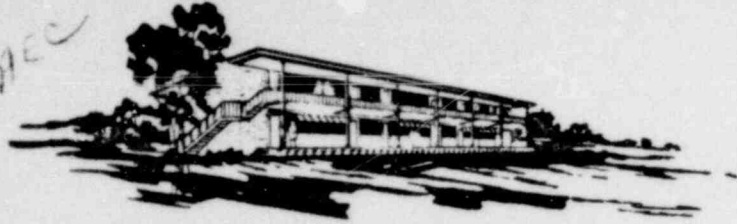
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Julius H. Rubin
For the Chairman

RIVERSIDE VILLAS



P. O. BOX 258 PHONE 795-2474
HOMOSASSA, FLORIDA 32646


May 25, 1971

President Richard M. Nixon
1600 Pennsylvania Avenue
Washington, D.C.

Dear President Nixon:

For as long as I have lived, a grand total of 20 years, I have enjoyed the clear blue skies of the gulf coast of Florida. Now the governemnt has built a supposedly much need nuclear power plant at the end of the barge canal in Yankeetown, Florida. This great gross machine spewes great clouds of pale yellow smoke in a neat line for as far as my eyes can see. WHY???

Yours sincerley,


Jeffrey S. Knudsen

3479