Docket Nos. 50-250
50-251

DEC 4 1974

Florida Power & Light Company
ATTN: Dr. Robert E. Uhrig
Director of Nuclear Affairs
P. O. Box 3100
Miami, Florida 33101

Change No. 13
License Nos. DPR-31
DPR-41

Gentlemen:

By letter dated October 1, 1973, you proposed a revision to the Environmental Technical Specifications attached as Appendix B to Facility Operating Licenses DPR-31 and DPR-41 for the Turkey Point Nuclear Plant Units 3 and 4. This revision was to provide a new aquatic monitoring program appropriate to the changed mode of operation of the cooling channel system. The new program was submitted in accordance with Section 4.A.3 of Appendix B.

We have reviewed the proposed new monitoring program and approve it, as discussed in the enclosed Environmental Evaluation. We conclude that the change does not involve significant hazards consideration and there is reasonable assurance that the health and safety of the public will not be endangered. Accordingly, pursuant to Section 50.59 of 10 CFR Part 50, Appendix B, Environmental Technical Specifications, is hereby changed for Facility Operating Licenses DPR-31 and DPR-41 as set forth in revised pages which are enclosed. This action is designated Change No. 13 and is effective January 1, 1974.

Sincerely,

/s/ V. Moore
for

R. C. DeYoung, Assistant Director
for Pressurized Water Reactors
Directorate of Licensing

Enclosure:
See next page

PWR-4 PSC
for KKniel
12/3/73

J. H.

L:EP-1
GWKnighton
12/27/73

CRESS OFFICE ▶	L:EP-1	OGC	PWR-2	RO	ADEP	AD/PWR
MT/ST# 2006						
mlr SURNAME ▶	RCleveland	PSeiffert	PCheck	LHigginbothom	DRMuller	RDeYoung
12/17/73 DATE ▶	12/26/73	~~12/~~ /73	12/3/73	12/4/73	12/4/73	12/ /73

Form AEC-318 (Rev. 9-53) AECM 0240

1/3/73

GOVERNMENT PRINTING OFFICE: 1973—499-254

Enclosures:
1. Revised pages (dated 1/1/74)
   5, 8, 9, 10, 11, 12, 12a, and 12b
   of Appendix B - Environmental
   Technical Specifications
2. Environmental Evaluation

cc w/enclosures:
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3.0 MONITORING REQUIREMENTS

Objective:

To verify the operating conditions of the cooling system and define monitoring and surveillance related to the cooling system and effluents discharged from the licensed facilities.

Specification:

1. TEMPERATURE OF COOLING WATER

Temperatures of cooling water used in the licensed facilities shall be measured at the point of intake, at the points of discharge from the Grand Canal and the Card Sound Canal, and at the outlet end of Lake Warren, not less often than at hourly intervals. The sensors should represent the mean canal temperatures to $\pm$ 0.5°F. | Change 13

2. CHEMICAL CONCENTRATIONS IN COOLING WATER

a. At the intake to the licensed facilities for water from Biscayne Bay measurements shall be made on intake water:

i. Not less often than at daily intervals for: | Change 13

(b) dissolved oxygen (D.O.) $\pm$ 0.2 ppm

ii. Monthly for:

Cu, Zn, Co, As, Hg, and NH_3

b. Prior to leaving Lake Warren measurements on cooling water from the licensed facilities shall be made

i. Not less often than at daily intervals for:

(a) pH $\pm$0.1

(b) dissolved oxygen (D.O.) $\pm$0.2 ppm

(c) salinity $\pm$ 1 ppt | Change 13

ii. Weekly for

(a) total residual chlorine (free and combined forms) at time of maximum concentration

4.0 SURVEILLANCE AND SPECIAL STUDY PROGRAMS

Objective:

To provide information to be used in assessment of plant operations upon the environment.

Specification:

The licensee shall establish and conduct an operational monitoring program and perform assessments of the impacts of plant operation on the environment. The monitoring program shall follow the following outline except as otherwise specifically approved by the AEC Directorate of Licensing.

ENVIRONMENTAL SURVEILLANCE AND ASSESSMENT PROGRAM

A. AQUATIC ENVIRONMENT

A program will be conducted to monitor and sample effluents discharged from the plant for temperature, salinity and chemical concentrations and the biological variables in the area of potential impact in Biscayne Bay/Card Sound. The objectives of the program are to (1) map the area affected by the plant discharges, (2) evaluate the planktonic, epibenthic and benthic characteristics of this area compared with a control area, (3) assess the effects of operation of the cooling system for the Turkey Point power plant on the physical, chemical and biological variables of the estuary and (4) measure recovery rates of affected areas when Grand Canal and other canals open to the bay are closed. This program, designed to provide data on the marine environmental impact of the closed and once-through modes of cooling, will include:

*1. Aquatic Biota — Change 13

A biological monitoring program will be conducted to detect any measurable changes in the planktonic, epibenthic and benthic communities of the Biscayne Bay/Card Sound area in the vicinity of the Turkey Point power plant. The results obtained will be correlated with the condenser cooling water data to determine biological changes that may occur as a result of operation of the Turkey Point power plant units. This information will be further compared with the three years of baseline data on the biological characteristics of this estuary system already collected by the University of Miami in a program jointly funded by the AEC and FPL.

* See Section 4.A.3, page 12. — Change 13

*a. Epibenthic Biology: Four replicate samples will be collected at each of 12 stations. Collection will be in seining or trawling at monthly intervals and the samples will be analyzed both qualitatively and, where possible, quantitatively for identification of different species present, their relative abundance, biomass, life history stage, and size distribution. |Change 13

*b. Benthic biology: Replicate benthic grab samples will be collected at the same stations as the epibenthic samples once every two months. Population characteristics, such as species composition, number of individuals, biomass, diversity and richness shall be determined. The data will be analyzed to detect any significant measurable changes in specific components of the benthic community. Samples will be taken to a depth of at least 20 cm, where practicable. |Change 13

*c. Plankton: Water samples for plankton analysis shall be collected at each of nine stations, including one station each in the intake and both discharge canals. |Change 13

Phytoplankton: Samples will be taken monthly and analyzed quantitatively in terms of sample volume to establish the dominant genera of the community, biomass, and chlorophyll "a" content. Primary production will be determined monthly.

Zooplankton: Samples will be taken monthly and analyzed quantitatively in terms of sample volume to determine generic composition, biomass and life history stage.

*d. Attached grasses, macroalgae and sponges: Twenty quadrats will be established in Card Sound and Biscayne Bay and examined every two months for biomass, growth, recruitment and relative health of the plant and animal community. |Change 13

*e. Macroinvertebrates and fish impinged on the traveling screens in a given day (24 hours) three times a week at the licensed facilities will be identified by species, size and quantity, and the data will be recorded in tabular form. In each periodic report the data will be reviewed to determine whether the sampling frequency can be reduced. In the event of exceptional kills on the |Change 13 |Change 9

* See Section 4.A.3, page 12. |Change 13

traveling screens or in the cooling system canals, notification shall be made within 24 hours by telephone or telegraph to the Director of the Region II Field Office of the Directorate of Regulatory Operations.

*f. Entrained Organisms: The effect of passage through the licensed facilities on survival of plant and animal forms will be evalauted to the level that present "state-of-the-art" techniques will permit. Representative water samples will be collected once every two weeks at the licensed facilities intake, plant discharge, a point partway down the Card Sound Canal, and at the discharge points of Grand Canal and Card Sound Canal into Biscayne Bay and Card Sound, respectively. The samples will be examined for numbers and kinds of representative organisms and their survival at different locations will be measured by applicable state-of-the-art techniques. Results will be compared with similar samples taken from four points in Biscayne Bay and Card Sound that are outside the influence of power plant operations. | Change 13 | Change 9 | Change 9

The data obtained from the above programs (paragraphs 1.a through 1.f) shall be analyzed as they are collected and will be compared with model and analytical predictions and preoperational data that have been collected. A report to the AEC of the results of this evaluation will be submitted within 60 days of the end of each six-month period or fraction thereof terminating on June 30 and December 31 of each year. At the end of each year, the program and the need for its continuance will be reevaluated.

g. Tolerance studies: Laboratory studies will be performed as a supplement to the existing programs being conducted by the University of Miami under AEC/FPL sponsorship to evaluate the effect of short-term exposures to temperatures and salinities that might be experienced under emergency conditions. These studies will be evaluated by July 1, 1974, and a report submitted to the AEC within 60 days thereafter, on the findings and any need for additional information.

* See Section 4.A.3, page 12.

| Change 13

h. Recovery in discharge areas: Following the construction and completion of the Card Sound control structure and closure of the Grand Canal discharge, quadrat stations in the affected area will be established to determine semiannually the rate of recovery in terms of sedimentation and revegetation by grasses and macroalgae.

i. Assessment of impacts from turbidity in discharged water: A program shall be conducted to assess the impacts on the receiving waters and marine ecosystems from turbidity in discharged water from the operation of the licensed facilities and the construction and testing of the cooling channel system. No later than thirty (30) days from the date of issuance of this license, FPL shall submit to the AEC Directorate of Licensing, for review and approval, the program implemented to provide this assessment. |Change 9

2. Groundwater

a. Groundwater studies will be conducted through groundwater monitoring at 23 wells which have been drilled south and east of the cooling system area. These wells will be checked monthly for water level, conductivity (salinity), temperature and biocides, and every three months for transmissivity.

b. A second groundwater program will be conducted in connection with an interceptor ditch located west of the cooling canal system to intercept cooling canal water from flowing westward underground. This program will involve monitoring of 41 wells and 10 surface points for temperature, water level and conductivity (salinity). The monitoring schedule for these locations varies in frequency from monthly to weekly. The monitoring schedule is reviewed on a quarterly basis by FPL with the Central and Southern Florida Flood Control District in consultation with the USGS. The monitoring schedule will continue as long as necessary as determined by the CSFFCD and the USGS.

c. Copies of reports prepared periodically for paragraphs a. and b. above will be submitted to the AEC simultaneously.

d. A water temperature survey will be conducted monthly in Biscayne Bay in the vicinity of the Grand Canal discharge and in Card Sound in the vicinity of the Card Sound Canal discharge. Temperatures just below the surface will be determined with calibrated thermocouples and strip chart recorder. Traverses will be made by boat along predetermined |Change 13

* See Section 4.A.3, page 12. |Change 13

courses in the areas of interest. Information thus obtained will be used to construct isotherms on a map of the area. In addition, in-depth temperature measurements will be taken at certain locations along the traverses, and noted on the map. The data will be submitted within 20 days of the end of each period. The need for continuance of this program will be reviewed when a pattern is established or at the end of one year.

3. In view of the current operation of the cooling channel system in the closed mode, the surveillance program set forth above in Sections 4.A.1.a, b, c, d, e, f and 2.d need not be performed while there is no discharge of water to Biscayne Bay or Card Sound. However, all of the above surveillance programs shall be instituted, or an alternative surveillance program shall be submitted for approval by the AEC Regulatory staff, within one month after the operating mode of the cooling system is revised to involve discharges of water to Biscayne Bay or Card Sound and FPL shall notify the Region II Office of Regulatory Operations and the Directorate of Licensing in accordance with Section 5.4.b.ii.a. Change 1

4. A program will be conducted to monitor and sample effluents discharged from the plant for their chemical and physical characteristics, the relationships of these characteristics to the aquatic biota of the cooling canal system, and the differences this system may develop compared to an adjacent estuary ecosystem for which three (3) years of baseline data are available. The objectives of the program are (1) to compare chemical and physical characteristics of water after its passage through the plant with water in the adjacent estuary; (2) to compare the chemical characteristics of sediments in the canal system with those of the adjacent estuary; and (3) to follow the biological succession that occurs in the Turkey Point cooling canal system and investigate correlations between this and the physicochemical characteristics of the aquatic system.

Aquatic Biota

A biological monitoring program will be conducted to document the ecological succession in the plankton, fish, and benthic

components of the aquatic community of the Turkey Point cooling canal system. The results obtained will be compared with condenser cooling water data and sediment chemistry data to detect any biological changes that may be the result of operation of the Turkey Point power plant units. This information will be further compared with the three years of baseline data on the biological characteristics of the adjacent Biscayne Bay/Card Sound estuary system already collected by the University of Miami in a program jointly funded by the AEC and FPL. Change 1

a. Plankton: Water samples for plankton analysis will be collected monthly at each of eight stations.

Phytoplankton: Samples will be taken monthly and analyzed quantitatively in terms of sample volume to establish the dominant genera of the community, biomass, and pigment (chlorophyll "a") content. Primary productivity will also be determined monthly.

Zooplankton: Samples will be taken monthly and analyzed quantitatively in terms of sample volume to determine taxonomic groups present, their relative abundance, biomass, and life history stage.

b. Fish: Samples will be collected monthly by seining or trawling at the same stations as plankton. These will be analyzed for species present, their relative abundance, life history stage, biomass, and size distribution.

In the event of exceptional kills in the cooling system canals, notification shall be made within 24 hours by telephone or telegraph to the Directorate of Regulatory Operations.

c. Benthos: Sediment samples will be collected monthly at the same locations as plankton and analyzed for:

Characteristics of the Soil: Samples will be analyzed for pH, salinity, conductivity, and the presence of selected nutrients. These data will be compared with samples collected from three aquatic control areas outside the cooling canal system itself.

Change

Microbial Activity in Sediments: Aliquots of sediment soil will be placed in enrichment media to determine the presence or absence of microorganisms responsible for nutrient turnover of organic materials trapped in sediments.

Benthic Organisms: Samples will be taken on a semi-annual basis to determine the kinds and quantities of benthic organisms inhabiting the cooling canal system.

The data obtained from the above programs (paragraph 4.a through 4.c) will be analyzed as they are collected and compared with preoperational data collected in Biscayne Bay/Card Sound. A report to the AEC of the results of this evaluation will be included in the Semiannual Environmental Monitoring Reports (Section 5.4.a), following the start of the program. At the end of each year, the direction of the program and the need for its continuance will be reevaluated.

B. TERRESTRIAL ENVIRONMENT

1. Baseline Program

In order to establish baseline conditions that are characteristic of the South Florida terrestrial ecosystem, an intensive and comprehensive three-year research program shall be conducted to provide control information against which the impact of the cooling canal system can be evaluated. This planned ecological program will include the following:

a. Definition of different types and relative abundance of natural plant associations as a function of topography over a 10,000-acre tract of land that includes tidal, mangrove salt marshes, freshwater wetlands, and dry land communities. This will include analyses of the characteristics of the soils in which these plants are formed (e.g., depth of organic layer, pH, available nutrients, soil profile, salinity, etc.) as a basis for predicting conditions under which these plant associations will survive.

UNITED STATES ATOMIC ENERGY COMMISSION

ENVIRONMENTAL EVALUATION BY THE DIRECTORATE OF LICENSING

DOCKET NOS. 50-250 AND 50-251

FLORIDA POWER AND LIGHT COMPANY

INTRODUCTION

By letter dated October 1, 1973, Florida Power and Light Company proposed a revision to the Environmental Technical Specifications attached as Appendix B to Facility Operating Licenses DPR-31 and DPR-41 for the Turkey Point Nuclear Plant Units 3 and 4. This revision was to provide a new aquatic monitoring program appropriate to the changed mode of operation of the cooling channel system. The new program was submitted in accordance with Section 4.A.3. of Appendix B.

EVALUATION

We have reviewed this proposed change and approve it, as discussed below, along with several additional minor revisions to Appendix B.

Sections 4.A.1.a. through f. and 4.A.2.d. of Appendix B provided for an aquatic monitoring program designed to assess possible environmental effects resulting from operation of the Turkey Point cooling channel system in a once-through mode. Since February 1973 the cooling system has been operated in a closed mode while undergoing test and adjustment and completion of construction. In recognition of this restricted mode of operation, which has not involved withdrawal from or discharge of water to Biscayne Bay and Card Sound, Section 4.A.3. of Appendix B provided that the above-noted monitoring program did not need to be conducted during testing while there was no once-through operation. Section 4.A.3. further provided that an alternative program for monitoring during revised mode of operation be prepared and submitted to the AEC by October 1, 1973.

The proposed revision to the monitoring program is judged to be appropriate to the current mode of operation where there are no withdrawals from or discharges of water to Biscayne Bay or Card Sound. The proposed plan was modified following AEC Staff review and discussion with FLP to include a

semi-annual sampling for assessment of the kinds and quantities of benthic organisms in the cooling channel system. This will involve a minimal effort and will yield additional useful information on the aquatic biota and effects of plant operation.

Section 3.1. is modified so that cooling water temperature will be measured at the point of intake to the licensed facilities at all times, rather than just when water is withdrawn from Biscayne Bay. In the closed mode of operation, this measurement was not specified, and information otherwise would be lacking which is needed to further assess operation of and conditions in the cooling system and possible correlations with other environmental parameters.

Section 3.2 is modified similarly to Section 3.1. and for the same reason so that salinity of the cooling water system will be measured at all times.

A cross-reference footnote is added to Sections 4.A.1.a. through 1.f. and 2.d. to clarify that Section 4.A.3. provides that these monitoring procedures are not required when the cooling system is operated without withdrawals from or discharges of water to Biscayne Bay or Card Sound.

Section 4.A.3. is modified in consideration that the previously required alternative monitoring program has been prepared and submitted to the AEC staff. Since the new monitoring program only relates to the mode of operation when there are no withdrawals from or discharges of water to Biscayne Bay or Card Sound, Section 4.A.3. retains the requirement which calls for resumption of the monitoring requirements of Sections 4.A.1.a. through 1.f. and 2.d. when a different mode of operation is in effect. In recognition that not all of these requirements may be necessary for an intermediate mode of operation which is neither once-through nor totally closed, the resumption of the extensive monitoring is not required in the first month, during which time FPL may propose other appropriate monitoring procedures for AEC staff approval.

Section 4.A.4. is added to provide for appropriate monitoring during operation of the cooling system in a closed mode, as discussed above.

CONCLUSION

Based on the above discussion, we have concluded that this change is appropriate for environmental considerations. Since no safety related systems are affected by this change, we have concluded this change does not present significant hazards consideration and there is reasonable assurance that the health and safety of the public will not be endangered. We have also found that the change does not conflict with the terms of the Final Judgment dated September 10, 1971, in U.S.A. vs Florida Power Light Company, Civil Action No. 70-328-CA (D.C.S.D. Florida).

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