



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAR 9 1979

JRC MR

Docket No. 50-382

Louisiana Power and Light Company
ATTN: Mr. D. L. Aswell
Vice President, Power Production
142 Delaronde Street
New Orleans, LA 70174

Gentlemen:

The purpose of this letter is to confirm arrangements made with Mr. Roy Prados of your staff for a March 20-21, 1979, official site visit and meeting related to the environmental review of the operating license application for Waterford Steam Electric Station Unit No. 3.

Mr. Prados has indicated that the March 20 site visit will begin with a brief presentation by your company in the Waterford 3 site training room at 9 a.m. In order to avoid confusion of those who are not aware of the changed location, our representatives to the visit will still meet at the Ebasco Administration Building at 9 a.m., and go from there to the site training room.

By copy of this letter, participants and observers at the site visit are informed that the company will not permit cameras to be brought on-site.

We have also been informed by Mr. Prados that your company will no longer provide a meeting room for the March 21 technical meeting in New Orleans. I have reserved for this meeting Room 125 in the Hale Boggs Federal Building, 500 Camp Street, New Orleans, Louisiana. The meeting will begin at 9 a.m., as we had originally intended.

Enclosed is a list of items for discussion, which will serve as the agenda for the March 21 technical meeting.

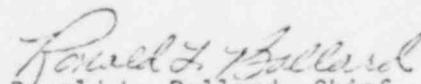
Dr. Phillip C. Cota of the NRC Office of Nuclear Reactor Regulation, the project manager for the preparation of the environmental statement, will represent the NRC staff. He will be accompanied by other members of the staff, including several members of the Argonne National Laboratory who are providing technical support in our environmental review. Also attending will be members of the Louisiana Consumers' League, the

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Oystershell Alliance, and Save our Wetlands (as observers) and representatives of the State of Louisiana. By copy of this letter, others on the distribution list are again invited to attend; anyone who wishes to attend but has not yet informed Dr. Cota should call Mr. Prados, of Louisiana Power and Light, as soon as possible at (504) 366-2345.

Sincerely,



Ronald L. Ballard, Chief
Environmental Projects Branch No. 1
Division of Site Safety
and Environmental Analysis

Enclosure:
As stated

cc: B. Jim Porter, Administrator
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Office of State Clearinghouse
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Teche Regional Clearinghouse
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Louisiana Power and Light Company
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Fred Humke, 6AEE, Enforcement Division
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Enclosure

ITEMS FOR DISCUSSION

1. Section 2.1.3 - Please provide references 27, 28, 31 & 32.
2. Section 2.4 - Please provide references 10, 11, 17 & 18.
3. Section 3.3.4c - Specify type of filtration media used in primary water treatment plant.
4. Section 3.6.2 - Estimate the types of metals and concentrations in the influent to the Waterford 1 & 2 waste treatment facility from Waterford 3 preoperational cleaning wastes and process waste streams.
Estimate percent removals of these metals by the Waterford 1 & 2 metal waste pond.
Describe the method of waste disposal from the pond.
5. Section 3.6.2.1 - Estimate the frequency of chlorination of raw water prior to filtration (in days/yr) and approximate amount of chlorine needed during each application.
6. Section 3.6.2.2 - Estimate the volume of the corrosion inhibitor solution containing sodium nitrate and sodium metasilicate to be applied during start-up and operation and frequency of application during operation.
7. Sections 3.6 & 3.7 - Because of the known harmful effects of chlorine and the resulting chlorinated organic compounds have any alternative methods, such as BrCl₂, been considered for biogrowth control, disinfection and oxidation?
8. Section 3.6.3 - Estimate the frequency of chlorine application to the circulating cooling water in days/yr.
9. Section 3.6.4 - Identify the wetting agent to be used in the preoperational cleaning solution.
10. Section 5.1 - Please provide reference 1.

~~1. Provide river stage vs. river flow at the site.~~

2. Supply any additional Mississippi River water temperature data acquired prior to or since that provided in Tables 2.4-11, 12, 13, and 14.
3. Please explain how the values of the various parameters on Table 5.1-4 are determined. For example, the 5°F excess isotherm for summer and fall extend from river bank to river bank, as shown in Figures 5.1-4 and 5.1-5, and yet the maximum lateral spread listed on the Table 5.1-4 is only 1700 ft. For non-connected isotherms (e.g. 10°F), explain what the entry in Table 5.1-4 refers to (the sum, the largest, etc.).
4. For low river flow conditions, the predicted excess temperature distributions in Mississippi River due to thermal plume interaction are questionable. In Appendix 5-1, no justifications were given for assuming that the combined excess temperature at a given point in the thermal field as a result of operating the three generating plants can be obtained by linearly combining the excess temperature due to the independent operation of each plant. Please discuss this in more detail.
5. The effects of recirculation between the Waterford 1 and 2 discharge and Waterford 3 intake under a wide variety of flow conditions were not clearly described in ER. Please provide a more comprehensive discussion.
6. The effect of river bend on thermal plume distribution was not included in the mathematical models selected for thermal predictions for all three power stations. Please provide further analysis on this problem.

1. Please supply the following references, if they are available and convenient to obtain:
 - a) ER pp. 2.2-33 through 2.2-35: Reference numbers: 9; 11, 12; 14 (aquatic Sections only); 24; 32,33.
 - b) ER pp. 5.1-20 through 5.1-23: Reference numbers 1; 15, 20, 21, 22; 26; 28; 38; 42.
 - c) For Table A2.2.2-1. Reference number 33.
2. What were the important impacts of station construction (intakes; discharge; dredging; major buildings, etc.) on the river biota in the Site area and downriver? How severe were these impacts on the fish, zooplankton and benthic communities?
3. ER, page 2.2-28: Please provide names of any Waterford-3 area aquatic or terrestrial species of animals or plants that have become endangered, rare or threatened, particularly since the publication of the September, 1976, Fish and Wildlife Service List?
4. Will the pipelines (Gas & Products) that cross the river south of the plant near taft (Fig. 2.1-13) significantly add thermal input to the river, or inhibit heat loss?
5. What measures will be used to prevent asiatic clams from becoming established in the condensers and other heat transfer systems at Waterford-3? What biocides will be used?
6. Were the data presented in ER Table 2.2-9 obtained at a different time of day, or from stations other than those used for data shown in Table 2.2-8? Does the term, "in the vicinity of Waterford-3" include all stations shown in Figure 6.1.1-1? Does this phrase consistently mean the same thing, i.e., does the definition remain constant throughout the aquatic Sections of the ER?
7. ER Tables 2.4-11, -12, -13: What does the term, "zero mean Sea level" mean? Is it the same as the surface of the river at Waterford-3? In the next two tables, do "-10 ft. and -20 ft." mean that the temperature probe was down 10 ft. and 20 ft., respectively, from the Surface?

- 8. In general, the evidence shows (e.g., p. 221, Qual. Criteria for Water, EPA, 1976) that the toxic impacts of chemical contaminants on aquatic biota increase as the temperature of the water is raised. That is, the organisms under toxic stress are not as tolerant of temperature stress. To what extent will the chemical and physical contaminants in the river at Waterford-3 "sensitize" the biota, especially fish and zooplankton, to the Waterford-3 thermal effluent?
 - a) Compared with similar fish and invertebrates in pristine waters, will the Waterford-3 river organisms be significantly more sensitive to the thermal effluent because of the present river pollution with chemical and physical contaminants? If so, can this increase in sensitivity be quantified?

- 9. ER, p. 5.1-12 through 15; FES, p. V-14 and 15: On the basis of data obtained by the applicant, the distribution of the plankton, river shrimp, and fish in the river appear to be quite uniformly distributed at the five stations of the Waterford area. Have statistical verifications been made, and if so, are these organisms randomly distributed?

It is assumed that the fraction of entrained organisms is in direct proportion to the fraction of the river flow utilized by the plant. If the biotic populations mentioned are not randomly distributed in the river cross-section, the percentage estimates of population kills, because of entrainment by Waterford-3, (and the other three plants), would likely be in error. Please comment. The expectation (stated in the ER) that the cumulative entrainment impact of all four power facilities on the biota will not be significant is based on the assumption that the river organisms are randomly distributed.

- 10. ER, p. 5.1-3, Sec. 5.1.2.4; p. 5.1-12 & 13: The collective thermal effluent impacts to the river biota from Little Gypsy, Waterford 1 & 2, and Waterford 3 will occur after the latter plant goes on-line.

In addition, the present chemical and physical stresses will continue plus entrainment impacts induced by the four power stations. What will be the total impacts on the fish, ichthyoplankton, zooplankton and river shrimp during the hottest months when low flows are likely? Will the monitoring programs detect significant impacts to the various biotic groups, and if so, how soon will the results be known? If the populations of, e.g., fish are significantly reduced, what corrective measures will be made? Which river organisms (especially fish & zooplankton) will be most severely stressed?

- 11. ER, p. 5.1-13 and 14: Entrainment of Ichthyoplankton.
Based on figures from sampling the river at Waterford-3, about 137,000 ichthyoplankton will be lost each day in this plant, which amounts to a loss of about 4 million per month.

If ichthyoplankton densities similar to those near St. Francisville appear at Waterford, about 115,000,000 will be lost each month because of this station. These losses each month, even for only four months each year, appear substantial. Will these losses have a significant impact on the fish populations?

- 12. ER, p. 5.1-10 next to last ¶, and p. 5.3-2 Sec. 5.3.5 ¶
a) "Free available chlorine ~~conc~~ at the point of discharge are expected to reach 0.2-0.5 ppm for 2 hrs/day when chlorinations is necessary." Where is the point of discharge referred to in these statements?

- 13. Chlorine Concentrations: p. 5.1-.0; Table 5.3-6; Fig. 5.3-1: Chlorine is expected to reach 0.2-0.1 ppm for 2 hrs/day, when chlorination is necessary, at the point of discharge. Explain how the high concentrations of chlorine in the Waterford-3 plume can be reduced to 0.05 ppm as it flows into the river.

- 14. ER, pp. 5.1-17 and 18: Because of the southern location of Waterford-3 in the United States, Cold thermal Shock to fish does not appear likely or if it occurs, it does not appear to be a significant threat. What has been the experience with Cold Shock at other power plants in the area, including Waterford 1, 2, and Little Gypsy? Does the applicant plan to shut Waterford-3 down gradually when a possibility of Cold Shock is present (except for emergency shutdowns)?

- 15. p. 5.1-12 of ER, and FES p. II-15. If the absolute upper temperature limit for the million gpm effluent to the river were placed at 35°C (95°F), what would be the order of alternatives used to comply, e.g., effluent canal sprays, mechanical draft auxilliary cooling, power cutbacks, etc.?

- 16. Zooplankton Sampling: ER, Table 6.1.1-6: The sampling gear for zooplankton during 1973-4 was done with #6 plankton nets(0.3 m diameter) with 0.243 mm mesh. Why was the diameter later changed to 0.5 m? Why was the mesh too large for the rotifers smaller than about 250 mm?

Additional Waterford-3 Questions for the Applicant

1. From past experience at the Waterford Site, does it appear that the station thermal input to the river will aggravate blue-green algal growth, and induce blooms?

2. The intake velocity under the skimmer wall at the river is 1.8 ft/sec. Can this be reduced to better conform with the present-day state-of-the art?

3. Can the accumulation of high concentrations of fish in the intake canal be prevented?

Ed Daniels

1. Please list the location by annular sector (L), distance to site (D), and/or daily peak employment (DPE) for the following industries (ref: Section 2.1.2.3.3 and Figure 2.1-11):

	<u>L</u>	<u>D</u>	<u>DPE</u>
Argus Chemical Co	X	X	
Shell Chemical Co	X		
Sewell Plastics Co	X	X	X
USAMEX	X	X	X
Witco Chemical Co	X	X	X
Chevron Oil Co	X	X	
General American Transportation	X	X	
Good Hope Refinery	X	X	
Shell Oil Co	X		
ADM Milling	X	X	X
Bayside Grain Elevator	X	X	X
Cargill	X	X	X
Costal Canning Co	X	X	X
St Charles Grain Elevator Co	X	X	X

2. What are the 1978 vacancy rates for each town listed in Section 2.1.2.1.1. Also, if available, list vacancy rates for the unincorporated areas in St John the Baptist Parish and St Charles Parish.

3. Please furnish information on secondary educational facilities that provide education to the residents within 0-10 miles, to include: location, and size. If applicable, list the institutions of higher learning (community colleges, universities) and vocational schools that are within the area of the site.

4. Please elaborate on the social services (i.e., police, fire, water, sewage, hospitals, medical services) offered to municipal residents within 0-10 miles of the site. Also, include what services St John the Baptist Parish and St Charles Parish offer to its citizenry.

5. Approximately, how much money was generated by labor and proprietors income during 1978 for the following economic activities: manufacturing; agriculture; forestry; and, retail/commercial services. This information should only involve the activities presented in Sections 2.1.3.5.2b,c, 2.1.3.5.3, and 2.1.3.5.4.

6. Please present information on property taxes for 1977 and 1978 for each community within 0-10 miles of the site and St John the Baptist Parish and St Charles Parish. This information should include a break down of taxes into amounts collected by each taxing district.

1. Provide a detailed discussion of the field methods, analysis, and results of the limited survey on the plant property and transmission corridor. Include a discussion of the chronology, structure and function of all cultural resources found and evaluated during this study including surface and sub-surface evidence. Include consideration of resources that may be important to the religious cultural rights and practices of Native Americans.
2. Provide the same kind of data specified in Question 1 for other disturbed areas of the plant property where a field reconnaissance for locating surface and buried sites is still feasible.
3. Provide a more specific discussion of the prehistory and history of the local area including information on the ethnohistory. Provide available state and county lists or registers of important cultural resources, chronology, etc. that have been listed.
4. Provide a monitoring/mitigation program for protecting and preserving the cultural resources that may remain on the plant property and in the transmission corridor. This program must consider both direct and indirect impacts.
5. Provide copies of all references used to prepare the environmental statement and response to these questions.

1. Please describe the plans for construction of the powerline with particular reference to the disruption of wetlands, both marsh and timbered swamp. We need more detail of the procedures for clearing the ROW and of the method for installing towers. A description of the amount of construction damage associated with installation of the towers and in construction of access routes. Section III of the ER and Supplement 3 of 12/15/72 do not provide an adequate description and are outdated.
2. Please provide a description of the towers and their foundations or anchoring devices.
3. What is the present state of construction of the transmission line? Is it still scheduled for completion in 1980?
4. How was the route chosen, and what factors were considered in plotting each segment of the route?
5. Please provide a ^{detailed} map of the transmission line showing the terrain type and dominant vegetation in each segment of the route.
6. Discuss effects of construction upon the biota, with particular attention to rare and endangered species.

In writing the need for power section, the approach suggested by the September 1978 issue of "Guide to Format and Content of an ES on a Nuclear Power Plant (OL)" could be best. Section 7 of that Guide indicates it to be "fundamental to the OL stage of review to assume the plant has been built and is ready for operation" (this is not quite true for Waterford 3). For the review, according to the guide, this section sets forth the staff's assessment for the need of operating the plant, not finishing its construction. Accordingly, the only alternatives considered are: not to operate the plant, or to operate it. The guide also says that other alternatives can be examined (such as coal) if staff believes that alternative was not properly treated in the CP-FES. More about this will be said later in this memo.

The case for operation must consider that the estimates of demand growth made for the ER (OL) (peak and energy) could be grossly high. But, since it is almost impossible to logically assume "no growth" for the next 10 or 15 years, sooner or later there would be a need for the plant. The argument would, suggest delay in start-up rather than non-operation. Delay will probably occur anyway for several reasons; e.g., actual numbers for average annual rate of growth for the years 74-77 or 78 which are lower than the rates forecast in the FES for the CP.

Applicants system is today more than 90% fueled by natural gas and fuel oil (not residual oil). Even with Waterford 3 coming on in 1982, the LPL system will still be 79% fueled by oil and gas. It would not be difficult to show that fuel costs for nuclear plants are less than those for oil or gas now and in the future.

The FES (for the Waterford CP) is not adequate in the treatment of the coal alternative. To date, the writer has not been able to locate the ER for the Waterford CP, but the search is still going on. You (GM) have given me a copy of the testimony before the ASLB given (by deduction) in January-March 1974 (about 1 year after the FES). In that testimony, there is evidence of a reasonably good assessment of the two alternatives (coal vs. nuclear) done (presumably) by NRC or the old AEC.

Rather than ask a long list of questions, the answers to which would require considerable effort on the applicants part, it is suggested that, at the time of the site visit, a meeting be arranged between myself and the person (or persons) involved in forecasting LPL (and MSU) future requirements. If the person who tracks current electricity demand is different from the forecaster, then that person should be available, too. If the person who tracks fuel prices (oil, gas, uranium) could be made available, that would help as well. I will go to all meetings with items for discussion. A visit with state or local people who might have applicable knowledge would also be helpful.

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HYDROLOGIC ENGINEERING QUESTIONS
WATERFORD STEAM ELECTRIC STATION, UNIT 3
DOCKET NO. 50-382

371.01.
(5.7.2.2)

The staff recognizes that the amount of water used consumptively by the plant will be small in relation to the flow of the Mississippi River. However, to be complete, the water use rates should be shown. Accordingly, provide estimates of water use under various operating conditions.

371.02.
(6.1.1)

There does not appear to be any means of monitoring the potential effects of deposition and/or erosion on the intake and discharge structures. Since the Mississippi River is constantly shifting in the area of the plant, there is the potential of adversely affecting these structures. Therefore, a program should be developed to monitor periodically aggradation and degradation in the vicinity of the structures so that remedial action can be taken if necessary. Provide a monitoring program for the stated purposes, or the bases for your determination that such a program is not necessary.

- 332.0 RADIOLOGICAL ASSESSMENT
- 332.1
(2.1.3) Provide data on the annual meat (Kg/yr), milk (liters/yr) and agricultural crop production (Kg/yr) by sectors for the area within a radius of 50 miles from the station (similar to Table 2.1-1).
- 332.2
(5.2.4.2) The referenced Table A-4 should be Table A-5.
- 332.3
(5.2.4.4) How many pounds per year or Kg/yr of fish and invertebrates were assumed to be eaten by the 50 mile population based on commercial and sport catches? What was the location used for the population (2,129,568) surface water drinking water intake downstream from the plant?
- 332.4
(6.2.3) In Table 6.1.5-5, the control river water composite sample analysis should be the same as the indicator drinking water samples. The St. Charles Parish drinking water intake should be used instead of Jefferson Parish in Table 6.1.5-5. Milk sample collection and analysis frequency will be semi-monthly, when animals are on pasture (monthly at other times) for the operational monitoring program.

332.5
(6.2.3)

The LLD's in Table 6.1.5-6 should be based on the NRC, Branch Technical Position (March 1978) Table 2, instead of the referenced Regulatory Guide 4.8, Table 3.

332.6
(App. B)

Confirm that the land use in Table B-9, Table 6.1.5-7 and Tables 2.1-13 through 17 has not changed since the 1976 based information. Table 6.1.5-7 and Table B-9 should be referenced in section 5.2.4-2.

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COMMENT ON WATERFORD ER

Sections 2.1.3.1 and 2.1.3.5.3. Agricultural Lands

Based upon consultation with the Soil Conservation Service, provide an estimate of the number of acres, if any, of "prime and unique farmlands" on the Waterford site. (Federal Register, Vol. 43, No. 21, pp. 4030-4033. January 31, 1978)