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Director, Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

SUBJECT: Waterford 3 SES
Docket No. 50-382
Draft Environmental Statement

Dear Sir:

Enclosed are the formal comments of the applicant, Louisiana Power & Light Company, on the Waterford 3 Draft Environmental Statement. We appreciate the opportunity to review and comment on the draft statement, and if there are any questions in this matter, please contact Mr. Roy Prados at (504) 363-8773.

We would also appreciate an opportunity to review and respond to any other comments filed in connection with the DES.

Yours very truly,

L. V. Maurin
Assistant Vice President
Nuclear Operations

LVM/MPF/sm

Enclosure

cc: S. Black, E. L. Blake, W. M. Stevenson



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Table 2.1 Data Showing Effect on Reserve Margin of MSU System Operations with and without Waterford 3 and the Load and Capability of LP&L for the Years 1983 through 1986

a. MSU Reserve Margin

Year	With Waterford 3			Without Waterford 3		
	Total Capability, MW	Load Responsibility, MW	Reserve Margin, %	Total Capability, MW	Load Responsibility, MW	Reserve Margin, %
1983	15882	10744	48	14778	10744	38
1984	15758	11364	39	14654	11364	29
1985	16118	11841	36	15014	11841	27
1986	15849	12225	30	14745	12225	21

b. LP&L Load and Capability (with Waterford 3)

Year	Total Capability, MW	Load Responsibility, MW
1983	5324	4553
1984	5280	4652
1985	5280	4824
1986	5280	5042

"Current official projections for the MSU system call for average annual rates of increase of 1.9 percent for peak load and 2.8 percent for net energy requirements from 1978 to 1986. Comparable values for LP&L for peak-load demand and net energy requirements are 3.8 percent and 3.1 percent, respectively.

Table 2.1 shows MSU's reserve margins with and without Waterford 3 in operation in the 1983 through 1986 time period. The peak-load responsibility values reported here reflect the official forecasts for system-maximum hourly load, adjusted downward for firm purchases. System capacity reflects capacity owned by the systems (adjusted downward for natural gas curtailments) plus purchases that are not firm.

LP&L and MSU have identified a 25 percent reserve margin as necessary to maintain minimum acceptable reliability. This standard is consistent with the 15 to 25 percent reserve margin recommended by the Federal Energy Regulatory Commission.

This reliability assessment assumes that 2977 MWe of new capacity, other than Waterford 3, will be added to the MSU system in 1980 through 1985 as scheduled. It also assumes that approximately 500 MWe of purchased power will be available in the 1984 through 1986 peak-use seasons. The conclusions of the reliability assessment could be altered by unavoidable slippages in or decisions to delay any of these subsequent additions, or by the uncertainty associated with MSU's reliance on these outside purchases."

Comment 3:

In Section 2.4.1 - Fuel Uncertainties (page 2-4) it should be specifically mentioned that The Power Plant and Industrial Fuel Use Act of 1978, prohibits the use of natural gas as a primary fuel in utility boilers by 1990. The mentioning of the act clearly illustrates that legislation already exists that can prohibit the use of natural gas, whereas the phrase "current curtailment proceedings" in Section 2.4.1 implies that the regulation of natural gas usage as a utility fuel currently is being considered.

Comment 4:

In Table 4.1 (page 4-4) there appears to be a typographical error. The total time after heat addition for the average low water level condition should be 383 seconds instead of 532 seconds.

Comment 5:

There appears to be a typographical error in Table 4.2 (page 4-9) concerning plant discharge velocities. The average spring discharge velocity should be 0.58 m/sec (1.9 ft/sec) instead of .0.78 m/sec (2.5 ft/sec).

Comment 6:

Since the subject of Section 4.2.4.5, "Laboratory and Decontamination Solutions" concerns a source of potentially radioactive wastes, it would be more appropriate to include this discussion in Section 4.2.3 "Radioactive Waste Treatment". In addition, the first sentence of the second paragraph in Section 4.2.4.5 (page 4-13) would be more correct if modified to the following:

"Drainage from the chemistry and radiation measurement laboratory sinks is collected in a drain tank, treated in the waste management system and then discharged into the circulating water system discharge".

Comment 7:

Figure 4.8 depicts site areas investigated in the 1977 Cultural Resources survey and it neglects to present those areas surveyed in 1980 which are the subject of a major portion of Section 4.3.6 (Cultural Resources of the Waterford Site). Therefore, in order to clarify this situation, it is suggested to add ER-OL Figure 2.6-3 - "Location of Archaeological Remains Associated with the Waterford Plantation" and to replace the title of DES Figure 4.8 with the following:

"Onsite Areas Scheduled to be Disturbed By Waterford 3 Construction Activity at the Time of the 1977 Cultural Resources Survey."

Comment 8:

It is suggested that the second sentence of the first paragraph (Section 4.3.7.1) on page 4-29 would be more easily understood by the public if it were replaced with the following two sentences:

"Transient population within 16.1 km (10 mi) of the site consists, in general, of industrial employees, visitors to festivals, attendees at sporting events, and people traveling through the area on transportation arteries. It is very difficult, when accounting for transient populations of these types, to distinguish residents from nonresidents."

Comment 9:

The fifth paragraph of Section 4.3.7.2 on page 4-29 states that "...industrial development is projected to take place southeast and northeast of Waterford 3." However, industrial development in the vicinity of Waterford 3 is taking place both west and northwest of the plant, as well as to the southeast and northeast. Therefore, the first sentence in this paragraph should be modified, as follows, to reflect this fact:

"In general, industrial development is projected to continue to take place along the Mississippi River in the vicinity of Waterford 3."

Comment 10: Because the first sentence of paragraph 1 on page 4-31 does not give an indication of the population density requiring the indicated land area, it is suggested that the sentence should be replaced with the following:

"Additional residential growth is expected to take place within 8 km (5 mi) of Waterford 3. The population in this area is expected to grow by 3,558 persons, or 19.6%, between 1980 and 1990. If one assumes a density of 17.3 persons per ha (7 persons per acre)*, an increase of 206 ha (508 acres) of residential land will result during this time period".

*Source: ER-OL, Section 6.1.4.2

Comment 11: The hydrothermal analysis performed by the staff and described in Section 5.3.2.3 of the DES, does not incorporate several engineering and site specific hydrologic phenomenon. This exclusion renders the staff's analysis overly conservative in the opinion of the applicant. The considerations excluded from the staff's analysis are the following: (a) the high velocity jet-type discharge resulting in a relatively fast temperature decay in the nearfield; (b) the observed "back eddy" current in the vicinity of the Waterford 1 and 2 discharge which causes an upstream

excursion of a portion of the Waterford 1 and 2 thermal discharge; and (c) correlation of the hydrothermal model predictions with actual measured data from the existing units. The applicant therefore believes that, based on these exclusions, in the staff's analysis and the applicant's conservative input assumptions, his analysis provides reasonably conservative, yet realistic results. Furthermore, as stated in the final sentence of Section 5.3.2.2 of the DES, the applicant's analysis is considered to be sufficiently conservative since it was based on all plants operating at maximum load for the temperature calculations, the models were calibrated against the largest plume observed and the surface heat exchange effect was neglected

Comment 12:

Section 2.6.1 (page 2.6-2) of the ER-OL describes the procedure that LP&L is using to protect identified cultural resources associated with the Waterford Plantation. This section indicates that the applicant is taking appropriate measures to ensure that the identified cultural resources will be protected. The DES should be modified to include the applicant's commitment. Therefore, the third sentence of the first paragraph of page 5-25 should be replaced with the following, and the additional statement should be inserted as noted below.

"The applicant is taking appropriate measures to protect the area during this process. Should any ground disturbance of these areas become necessary in the future, the applicant will consult with the SHPO and develop an approved mitigation plan. Operation of Waterford 3..." continue with the remainder of the paragraph.

Comment 13:

The number of operational work force employees at Waterford 3 presented in section 5.8.1 (page 5-25), fails to include security and other non-technical workers. The total operational work-force (technical and non-technical) for 1979 is 131 (the year cited in the DES - see reference 34 to Chapter 5 of DES) and for the first year of commercial operation (1983) is 267.

The omission of these nontechnical workers from the total operational work-force results in an under estimation of the benefits derived from these workers income that will be accrued within the region's non-basic (indirect or secondary) employment sectors.

Comment 14:

In September of 1979, the applicant conducted two surveys in response to NRC Question No. 301.34 and 301.35 and included those responses with Amendent No 1 to the ER-OL (Docket No. 50-382). These questions considered the impact of both immigrant construction and operational workers associated with Waterford 3 upon local public services (e.g. fire, police, water, sewer, schools, etc.) in the area within 0-10 miles of the facility. The results of this analysis projected different impacts upon public services than those cited in DES Section 5.8.1.

The basis for the determination of the effect of immigrant workers and their associated population upon public services is two recent surveys. A "Construction Worker Survey" was conducted on June 6 and 7, 1979 and an "Operational Worker Survey" was conducted between May 1 to 15, 1979. The results of these two surveys, with the aid of a fiscal impact model, were used to predict the impact of the

immigrant population upon public services from 1979 to 1982. At the time of the survey, 1982 was the expected operational date for Waterford 3. Since this analysis, the commercial operation of Waterford 3 has been delayed until March, 1983. However, even with this delay, the immigrant worker impacts upon public services for 1982 should remain representative for 1983 and therefore the survey results are still considered valid.

All the appropriate public service functions for the portion of St. Charles Parish that is within 10 miles of Waterford 3, exhibit excess capacities and have the ability to absorb the immigrant population's service demands. In the portion of St. John the Baptist Parish that is within 10 miles of Waterford 3, the applicant's analysis showed that all public service functions, except for the general control and library service functions, demonstrate excess capacities and have the ability to absorb the immigrant population's service demands during the operational phase. For these two above mentioned affected public service functions, the immigrant population service demand will have a marginal adverse impact. Furthermore, the hospital facilities, medical staff, and the firefighting staff and equipment were found to have sufficient existing excess capacity to absorb the immigrant service demand for the additional workforce from Waterford 3.

Therefore, the third sentence of Section 5.8.1 (page 5-25) should be replaced with the following sentence:

"A recent study which included the results of a field survey utilizing the aid of a fiscal impact model indicated that all public service functions within a 10 mile radius of Waterford 3 are adequate to serve the operation phase workers at Waterford 3 with the exception of the general control and library service functions within the adjacent St John the Baptist Parish. These service functions within St John the Baptist Parish will only be insignificantly impacted by Waterford 3."

Comment 15:

The monetary values that are expressed in section 5.8.2.1 (page 5-25) for both annual payroll (\$2.8 million) and induced expenditures (\$257.7 million) are taken from Chapter 8.0 of the original ER-OL which was submitted to the Nuclear Regulatory Commission in 1978. Since the original submission, these values have been revised in Amendment No. 18 to the FSAR (dated 5/81). These revisions are based upon a 1983 commercial operation of Waterford 3, as well as a 267 member operations staff. Therefore, the annual income that will be generated by the operations staff is expected to be about \$5.5 million (1983 dollars). Also there is anticipated to be about \$1.9 million (1983) generated in the region's non-basic employment sectors, resulting in an total annual income affect of about \$7.4 million (1983 dollars).

The induced expenditure level of \$257.7 million, presented in the DES is based upon the effect of the operational staff's accumulated payroll over the operational life (40 year) of the plant will have upon various sectors of the region's economy (regional product or output). Amendment No. 2 to the ER-OL utilized a somewhat different approach, by examining

the additional income that will be generated in both the region's basic and non-basic sectors from the operation of Waterford 3. This approach resulted in an additional income figure of \$205.8 million (discounted to 1983 dollars) for the entire operational phase.

Comment 16: In Section 5.8.2.2, the level of tax revenue (\$1,963 million) is derived from the original ER-OL. In Amendment No. 2 to the ER-OL, the revised level of tax revenue for local, state and Federal governments generated during the operational phase of Waterford 3 was revised to about \$2,196 million (discounted to 1983 dollars). Of this total amount, about 10 percent is expected to go to the state government.

Comment 17: The plant stack and air ejector charcoal filter has a 90% iodine removal efficiency. The calculated releases of radioactive materials in gaseous effluents from Waterford 3, as presented in Table 5.6 (page 5-30) should be revised to reflect the 90% removal efficiency. In addition, Table 5.3 contains a typographical error under the waste decay tanks heading. The word "continous" should be changed to "continuous".

Comment 18: Based on the applicants most recent survey, (see ER-OL Section 2.1.3.4) the nearest milk goat is located at 3.1 miles in the east direction, And the nearest milk cow is located 1.1 miles in the northeast direction from Waterford 3. Therefore, Tables 5.7, 5.8 and 5.9 should be revised to reflect this information.

Comment 19:

In order to evaluate one of the expressed areas of controversy, it is suggested that the following be added at the end of the second paragraph on page 5-46:

"One of the areas of controversy pertaining to the issuance of the operating license for Waterford 3 is the synergistic and cumulative effects of low level radiation and carcinogens. This issue has arisen because of prevalence and retrospective studies which have reported an increase in death rates due to cancer (e.g. lung cancer) in southern Louisiana relative to the national average⁽⁸⁵⁾. With such a pre-existing condition, concern has been expressed regarding the need to evaluate possible synergistic effects between existing environmental carcinogens which may be responsible for the elevated cancer incidence, and the low level radiation exposures which may be associated with the routine operation of the Waterford 3 facility.

In responding to this concern, consideration must be given to several factors concerning potential synergistic effects. First, consideration should be given to the exposure limits under which the Waterford 3 plant is required to operate as compared to other radiation exposures to which members of the general public are routinely exposed. This comparison is provided in Table 5.16 of the FES, which shows that the routine exposures associated with the operation of the station are required to be a small fraction of existing exposures, and well within the variability of natural background.

In addition, studies have either failed to find a synergistic effect, or have observed some synergistic effects only at much higher exposures than allowed for the Waterford station. For example, the exposures at which some synergistic effects have been experimentally observed were in excess of 10,000 mrem delivered over a short period of time (86-93). This is to be compared to the guidelines set forth in Appendix I to 10 CFR 50 of 5 mrem/yr to the whole body and 15 mrem/yr to the thyroid gland. This information provides considerable assurance that any such effects associated with Waterford 3 would be either vanishingly small or non-existent.

Furthermore, it is also noted that:

'when considering to what extent chemicals can cause synergistic effects even in the dose range relevant for radiological protection, it should be remembered that generally all experiments, investigations and tests for toxicological effects, cancerogenicity and mutagenicity of chemical substances are always carried out in combination with the influence of ionizing radiation, since natural exposure to radiation is present everywhere and at all times.

Thus since each determination of the hazard potential of chemicals is necessarily always carried out under a possible synergistic effect of ionizing radiation, this factor is included. It is thus certain that no unforeseen intensification of the effects can be caused by additional radiation exposure of the order of magnitude of natural radiation exposure.' ..(94)

REFERENCES (FOR COMMENT 19)

- 85 Mason, T.J.M. et al. "Atlas of Cancer Mortality for U.S. Counties: 1950-1969 DHEW Publication No. (NJH) 75-780.
- 86 Moroson, H and M Quinlan (Eds.). (1970). Radiation Protection and Sensitization. Proceedings of the Second International Symposium on Radiosensitizing and Radioprotective Drugs. Taylor and Francis, Ltd, London; Barnes and Noble, Inc, New York.
- 87 Streffer, C. Interaction Measurements of Radioactive, Chemical and Thermal Releases from the Nuclear Industry: Methodology for Considering Cooperative Effects. In "Combined Effects of Radioactive, Chemical and Thermal Releases to the Environment." IAEA, 1975 (STI/UB/404).
- 88 Leenouws, H P and K H Chadwick (1978). Interaction of Chemical Mutagens and Radiation in the Induction of Malignancy. In: Late Biological Effects of Ionizing Radiation." IAEA, 1978 (STI/PUB/489)
- 89 Lindell, B (Chairman) (1975). Panel Discussion on the Significance of Synergistic and Combination Effects in the Future Development of Nuclear Power Programmers, and the Need for Future Studies. In: IAEA, 1975 (STI/PUB/404)

- 90 Michel, C and H Fritz-Niggli (1978).
Radiation-Induced Developmental Anomalies in
Mammalian Embryos by Low Doses and Interaction
with Drugs, Stress and Genetic Factors. In: IAEA
(1978); SIT/PUB/489.
- 91 Lurie, A G and R M Rippey (1978). Low Level
Radiation-Induced Alterations of Functional
Haemodynamics in Normal and DMBA-Treated,
Tumour-Bearing Hamster Check Pouch Epithelium.
In: IAEA (1978); STI/PUB/489.
- 92 Myers, D K et al (1978). DNA Repair and the
Assessment of the Biological Hazards of Ionizing
Radiation. In: IAEA (1978); STI/PUB/489.
- 93 Streffer, C et al (1978). In Vitro Culture of
Pre-Implanted Mouse Embryos. A model system for
studying combined effects. In: IAEA (1978)
STI/PUB/489.
- 94 Synergism and Radiological Protection Comments of
the Radiological Protection Commission September,
1977. Translated as of August 1978. Printed by
Gesellschaft Fur Reaktorsicherheit (GRS) mbH
Glockergasse 2.5000 Koln 1.

Comment 20:

It is suggested that the last sentence of the third paragraph of Section 6.2.1 (page 6-1) would be clearer if reworded as follows:

"However, a sluiceway is available to remove impinged fish and macroinvertebrates from the traveling screens and return them to the river (Section 5.11), which can be expected to lower the impingement mortality rate to less than that which would otherwise be anticipated."

Comment 21:

In Section 6.2.4.1, on page 6-3 in the third complete paragraph it is noted that the preoperational program proposed by the applicant is summarized in Table 6.1. Since the preoperational program has been in effect since 1970 and is no longer proposed, the following sentence should be substituted for the first sentence:

"The preoperational radiological environmental monitoring program being followed by the applicant is..."

Comment 22:

Section 6.2.4.2, on page 6-3, second paragraph, it is stated that the applicant plans to essentially continue the proposed preoperational monitoring program during the operational period. Since the preoperational program has begun, the word "proposed" should be deleted. In addition, this sentence references Table 5.3 which presents thermal impact information. The correct reference is Table 6.1. Finally, the third sentence of this paragraph should be modified to include references to NUREG 0472. Therefore, this paragraph should read as follows:

"The applicant plans essentially to continue the preoperational program during the operational period (see Table 6.1). However, the TLD locations will be updated to reflect the 1979 Branch Technical Position, Revision 1. Other refinements may be made in the program to reflect changes in land use, preoperational monitoring experience and revisions to NUREG 0472, "Radiological Effluent Technical Specifications for PWR's"."

Comment 23:

In Section 6.6.2 - Benefits (page 6-6), the inclusion of data pertaining to the customer class percentage use of electrical energy is not pertinent to the discussion of benefits derived from Waterford 3. Therefore, it is suggested to delete this tabular data from the FES.