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

Docket No. 50-382

MEMORANDUM FOR: Herbert N. Berkow, Program Assistant, Division of Project Management, NRR

THRU: Robert L. Baer, Chief, Light Water Reactors Branch No. 2, DPM

FROM: Robert A. Benedict, Project Manager, Light Water Reactors Branch No. 2, DPM

SUBJECT: WATERFORD 3 - REVIEW SCHEDULE AND FUEL LOAD DATE

When the caseload forecast panel met with the applicant in October 1978, the panel accepted the applicant's 5/81 fuel load date, but with the reservation that we felt it was "achievable" but was probably optimistic by five-six months. We asked the applicant to provide up-dated information in early 1979.

On February 21, we received up-dated information from the applicant, presenting construction progress data through 1/31/79. The Region IV inspector, Bob Stewart and I looked at the data and, later, listened to the applicant's explanation of it by telephone. The next day, Bill Lovelace reviewed the information. He had questions concerning certain parts of it and I discussed these items with the applicant on 2/26. A summary of this conversation is presented in Enclosure 1.

I have not been able to discuss with Lovelace my 2/26 conversation with the applicant. He was on travel. However, I did discuss the matter with Sybil Kari.

As of 2/26, Lovelace estimates a FLD of 12/81. The applicant still maintains a FLD of 5/81. Although Lovelace may be proven correct in the future, I do not believe we can use a 12/81 FLD as a PDD for the licensing review. Bob Stewart concurs with my view and so does Sybil Kari. If we base the review schedule on 12/81, the applicant might well be ready to load fuel before then and our name would be mud. Furthermore, our history of on-schedule reviews is not such as to give me confidence that, if 12/81 were to be our proposed PDD, we would be ready to issue the OL in 12/81.

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On the other hand, we cannot complete the review by 5/81 unless we went the dedicated reviewer route or applied some similar time-saving scheme.

Therefore, I recommend (and Stewart and Kari concur) that our review schedule be based upon the 9/18/81 PDD that I have proposed and which utilizes our latest standard assumptions. This date should also be used as the new forecast panel's fuel load date.

The 9/18/81 date also provides a bit of flexibility in the review schedule. Should later information show that the applicant might well meet the 5/81 date, there will be less of the review yet to be done and we would stand a better chance of being able to accelerate the remainder of the review.

R.A. Benedict

Robert A. Benedict
Light Water Reactors
Branch No. 2
Division of Project Management

Enclosure:
Result of Telecon
on 2/26/79

ccs w/enclosure:
S. Kari
W. Lovelace ✓
R. Stewart, IE Region IV
D. Vassallo
D. Ross
F. Williams

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ENCLOSURE 1

RESULTS OF TELECON WITH APPLICANT
FEBRUARY 26, 1979

1. Lovelace had noted that the total quantity of exposed conduit had increased between 8/31/78 and 1/31/79, but the quantity of cable stayed the same. More small piping is required also.

   The applicant stated that these quantities are under continual re-evaluation, but the re-evaluation is incorporated in the over-all scheduling.

2. Lovelace noted that Waterford still estimates about 10 craft manhours/kilowatt. Other plants are running about 12.4 manhours, which is supported by a recent NUS study "Nuclear Power Plant Lead Times," published by the Rockefeller Foundation, November 1978. The applicant stated that the 10 manhours does not include contingency. With contingency this number would be closer to 14 manhours.

3. Lovelace noted that his comparison with San Onofre leads him to believe that Waterford is probably not 58% complete as reported.

   The applicant stated that an overall completion percentage does not have much meaning and he wished that we wouldn't use that parameter as a deciding factor. Some people determine those numbers based on quantities installed, some on dollars expended, and some on manhours expended. Therefore, Yellow Book figures reported by applicants may not tell the same story for each plant.

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NOV 8 1978

DOCKET NO. 50-382

APPLICANT: LOUISIANA POWER AND LIGHT COMPANY

FACILITY: WATERFORD STEAM ELECTRIC STATION, UNIT 3

SUBJECT: SUMMARY OF CASE LOAD FORECAST PANEL MEETING WITH APPLICANT - WATERFORD UNIT 3

A meeting was held with the applicant, at the Waterford plant site, on September 19, 1978. The purpose of the meeting was to obtain information for use by the Forecast Panel in predicting the Waterford Unit 3 fuel load date.

A list of those who attended this meeting is attached as Enclosure 1. The agenda for the meeting, prepared by the applicant, is attached as Enclosure 2. The more important slides presented by the applicant are included in Enclosure 3. These slides have been given individual figure numbers.

The salient points brought out during the meeting are:

1. The plant staff will ultimately total 160. There are now 70 on the staff, and there are 25 in operator training which began in December 1977 and will be completed in April 1979.

2. The applicant's need for Waterford 3 is presented in graphical form in Figures 1 and 2. This plant is needed in order to maintain a 16% reserve on the Middle South Utilities System, of which LP&L is one of five operating companies.

3. An improvement in turnaround time for design engineering work has been realized by having Ebasco do this work at the site rather than at its home office in New York. Drawing and specification issuances are 97% and 98% complete, respectively.

4. LP&L supports its projected fuel load date by a curve (Figure 3). Since early in 1978 they have kept close track of actual construction accomplishments. Although there appears to be a lag in accomplishment since July of this year (as shown in Figure 3), LP&L stated that this only affected the river water intake structures and was caused by high level of the river. These structures are not on the critical path.

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The applicant also compared Waterford 3 with similar plants. The comparison included time from the first concrete pouring to fuel load (Figures 4 and 5) and time from setting of the reactor vessel to fuel load (Figure 6). He also provided a comparison of the test schedules of Waterford 3, the Yellow Book average, and that recommended in Regulatory Guide 1.68. Figure 7 shows the critical path for construction.

5. LP&L provided the following data on quantities of materials installed. It should be noted that piping is considered installed when it is in-place in temporary hangers and tack-welded.

Item	Quantity Required	Quantity Installed 8/31/78	Peak Rate Of Installation
Concrete	206,000 yds.	177,000 yds.	
Pipe, 2 1/2" & larger	110,000 ft.	36,500 ft.	6400 ft./month
Pipe, 2" & under	116,000 ft.	10,000 ft.	
Hangers for pipe 2 1/2" & over (not including restraints)	6400	1300	
Exposed conduit	300,000 ft.	31,000 ft.	
Cable Tray	42,000 ft.	24,300 ft.	
Cable	4,000,000 ft.	5,000 ft.	19,000 ft./month
Terminations	131,000	- 0 -	
Total craft manhours	10,800,000	5,137,000	

6. As of the end of August, 89% of the procurement purchase orders have been placed. Of the total purchase order value, 74% has been delivered. Procurement hardspots have included:

   a. Structural Steel
   b. Late design of supports for asymmetric loads
   c. Pipe hangers
   d. Fan vendor quality assurance program
   e. Electrical Equipment

7. The startup organization has been established. About 25 people from LP&L and several consultants are working on the startup program. They all report to the LP&L Lead Startup Engineer (Tom Armington), not to their home offices. Startup schedules are being computerized and tied in with the construction schedules. Ultimately there will be about 150 people in the startup group.

8. At the close of the meeting, the NRC staff stated that it believes the applicant's May 1981 fuel load date is based on an "aggressive" schedule. LP&L's comparison of the Waterford construction schedule to that of other plants (see Figure 5) shows comparable or slightly shorter span times. However, our past experience has shown that actual construction time usually exceeds that anticipated. Further, the Waterford construction critical path (see Figure 7) includes no contingencies to accomodate unforeseen events. Based on our experience with other plants, we believe that there may be an additional five to six months required due to a large amount of work yet to be done inside containment. However, we will go along with the May 1981 date for now, but would like to have up-dated information, in early February 1979, on construction accomplishments (as in Figure 3), on bulk quantities (as in Item 5 above), and on critical path progress (as in Figure 7). The applicant agreed to provide this information.

R A Benedict

R. A. Benedict
Light Water Reactors
Branch No. 2
Division of Project Management

Enclosures:
As Stated

ccs w/enclosures:
See next page