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

SEP 25 1979

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AND 50-353

APPLICANT: PHILADELPHIA ELECTRIC COMPANY

FACILITY: LIMERICK GENERATING STATION, UNITS 1 AND 2

SUBJECT: SUMMARY OF MEETING HELD ON AUGUST 6-7, 1979 WITH PHILADELPHIA ELECTRIC COMPANY REGARDING THE CASE LOAD FORECAST FOR THE LIMERICK PLANT

On August 6-7, 1979 we met with representatives of the Philadelphia Electric Company (PECO) at the construction site of the Limerick Generating Station. The purpose of the meeting and subsequent tour of the plant was to gather information for an independent assessment of when Unit No. 1 of the Limerick plant would be ready for fuel loading. The persons attending the meeting are listed in Enclosure 1. The meeting agenda is shown in Enclosure 2.

In the meeting PECO addressed, point by point, the items in the meeting agenda. In PECO's presentation, a large number of handouts were used; copies of the handouts can be obtained from the project manager. After the initial discussion with PECO, we toured the plant, met among ourselves, and discussed our conclusions with PECO. In brief, we were in agreement with PECO's estimate of the percentage completion for Unit No. 1 and the structures and components common to both Unit Nos. 1 and 2; PECO's estimate was 54%. However, we disagreed with PECO's fuel load date of 10/82. The bases for this conclusion and a summary of the major points in the meeting are presented below.

Status of Construction

PECO's estimate of percentage completion of Unit No. 1 and common was calculated on a man hour basis; it was not weighed by bulk commodity usages. However, PECO had performed analysis of labor productivity and had concluded that to-date productivity had been equal to the original estimate.

The approximate amount of work complete in key categories (as of 6/79) is provided below:

Small pipe	12%
Large pipe	65%
Concrete (1, 2 and common)	82%
Cable Tray	57%
Conduit	20%
Wire and Cable	1%

The cable pulling is scheduled to begin in October 1979. The work force report given to us showed 1736 craft workers were onsite for Bechtel and subcontractors. A histogram of manpower requirements indicated a peak of 1800 craft workers. The crafts are working a single 40 hours per week shift. Unless construction lagged in a particular area, PECO does not intend to add a second shift.

The staff had two general comments on this: One, the bulk quantity listed for cable (4.5 million feet) for Limerick appeared to be low relative to other plants such as Susquehanna and Grand Gulf which estimated 5.5 million feet for Unit 1 and common. Two, the total number of craft personnel was significantly less than that employed at other projects which are trying to achieve a 1 1/2 percent per month completion rate for a single unit or first unit and common. PECO's response to the first comment was that based on their experience at Peach Bottom the cable estimate was correct. In addressing the second comment, PECO stated that their monitoring of labor productivity and their experience with cable installation rates at Peach Bottom indicated to them that the cable installation could be completed on time with the projected manpower. PECO also stated that a second shift could be added if cable installation fell behind.

Potential Areas of Delay

PECO identified three areas t at had the potential for delaying the fuel load. These areas are:

1. Licensing - At the construction permit phase, the hearings took 2 1/2 years to complete. The applicants predict the hearings at the operating license stage will exceed the standard hearing time used by the NRC in scheduling.

2. Three Mile Island - While PECO stated that they were following the results of the NRC's task forces working on TMI; PECO could not preclude delay due to changes required by the long term studies of TMI accident.

3. Financial Limitations - Based on the past load growth, PECO may not require Unit No. 1 in commercial operation until 1985 (fuel load in 1984). However, the construction budget for 1979 was increased in allow a construction schedule that would continue to support commercial operation in 1983 (fuel load in 1982). The construction budget for 1980 had not been determined yet. Approximately $142 million would be required to support fuel load in 1982; $117 million would be required for fuel load in 1984.

The staff commented that final resolution of the Mark II containment reassessment may be a potential problem. PECO stated that since construction of the Limerick containment did not begin until after the reassessment of the Mark II began, they were able to add extra steel and embedments to accommodate the ultimate design fixes.

The final potential problem identified by PECO might have an impact on commercial operation of the facility but not on fuel loading. Currently, PECO will be restricted from taking make-up water from the Schuylkill River when the river

flow goes below 550 cubic feet per second or when the water temperature goes above 59 degrees Fahrenheit. PECO is working on: (1) an agreement with two counties for a diversion of water from the Delaware River and (2) a pump-in reservoir to be built next to the Delaware River in conjunction with ten other utilities.

Engineering, Procurement and Startup

The engineering for the project is 86 percent complete. PECO did not identify any major procurement problems, aside from the recirculation piping for the reactor. A redesign of the piping was required after PECO decided in early 1979 to replace existing piping with piping that was made with 316L. This activity is on the critical path for the containment completion. The installation of the redesigned piping is scheduled to start in January 1980. With regard to the startup schedule, PECO is just beginning to assess the details required to support the startup schedule.

Staff Evaluation and Fuel Load Date

The staff concluded that overall Unit 1 and common were 54 percent complete; this was in agreement with PECO's estimate. However, based on PECO's proposed allocation of resources, the staff concluded that PECO would not be able to meet a October 1982 fuel load date. Instead fuel load would be November 1983 or later. Over the past 48 months, the construction rate has averaged one percent per month. In order to complete Unit 1 by October 1982, the construction rate would have to increase to greater than 1.5 percent per month. We concluded that this would require an increase of the construction work force to 2000 or more craft personnel working on just Unit 1 and common. PECO insisted that their monitoring of labor productivity and their experience at Peach Bottom indicated that the construction would be completed by October 1982. We stated that industry experience as evidenced in manpower levels and completion rates argued against the productivity assumed by PECO, especially for cable pulling and termination.

PECO asked what impact our conclusion would have on PECO's plans to submit the FSAR for Limerick in March 1980. We stated that we would prefer to visit the plant again prior to tendering of the FSAR. If at that time. we concluded that they could not demonstrate that they had committed the resources to meet the March 1982 fuel load date, then we would request that they delay submittal of the FSAR. PECO stated that following issuance of this meeting summary they would requested a meeting with NRC management to discuss this matter.

Dean L. Tibbitts
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Division of Project Management

Enclosures:
1. Attendance List
2. Meeting Agenda

ccs w/enclosures:
See next page

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ENCLOSURE 1

ATTENDANCE LIST
MEETING WITH PHILADELPHIA ELECTRIC COMPANY
AUGUST 6-7, 1979

PHILADELPHIA ELECTRIC COMPANY

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R. Logue
T. Gottis
R. Scott
J. Smugeresky
J. Franz

NRC - STAFF

B. Kirschner
T. Houghton
B. Lovelace
J. Mattis
D. Tibbitts

ENCLOSURE 2

LIMERICK GENERATING STATION, UNIT NO. 1
CASELOAD FORECAST PANEL SITE VISIT
AGENDA

1. Overview of project construction schedule including construction progress, major milestones completed, current problems and anticipated problem areas and schedule for licensing.

2. Overview of construction management organization and activities.

3. Review and current status of bulk quantities for Unit 1 and needed common facility including current total estimated quantities, quantities installed to date, quantities scheduled installed to date, current percent complete for each and average installation rates.

   a. Concrete (CY)
   b. Process Pipe (LF)
      - Large Bore Pipe 2 1/2" and larger
      - Small Bore Pipe 2" and smaller
   c. Yard Pipe
   d. Large Bore Hangers, Snubbers, etc. (ea)
   e. Small Bore Hangers, Snubbers, etc. (ea)
   f. Cable tray (LF)
   g. Conduit (LF)
   h. Cable (LF)
   i. Terminations (ea)
   j. Circuits (ea)
   k. Instrumentation

4. Detailed review and current status of pipe hangers, snubbers, restraints, etc., including design, fabrication, delivery and installation.

5. Review and current status of preop tests procedure writing, integration of preop testing activities with construction schedule, system turnover schedule, preop testing and current preop test program manpower.

6. Review of schedule identifying critical path items, amount of float for various activities, the current critical path to Fuel Loading and methods for implementation of corrective action for activities with negative float if any.

7. Estimated percent complete for Unit 1 and needed common facility as of July 1, 1979.

8. Site tour and observation of construction activities.

9. Utility commitments on power.

10. Anticipated financial problems.

11. Engineering organization and current status of design/engineering activities.

12. Procurement management and current status of major components including hangers, snubbers, pipe whips, valves, piping and etc.

13. Actual and proposed craft work force, craft availability, productivity, potential labor negotiations and problems.

14. Construction scheduling staff:

    a. Method of calculation of percent complete

    b. Method of monitoring rate of completion, identifying critical path items and implementation of corrective actions.

    c. Critical path activities, logic network and computer printout of critical and/or near critical items.