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

JAN 22 1981

Docket Nos.: 50-416/417

APPLICANTS: Mississippi Power and Light Company
Middle South Energy, Inc.

FACILITY: Grand Gulf Nuclear Station, Units 1 and 2

SUBJECT: SUMMARY OF NOVEMBER 19-21, 1980 CASELOAD FORECAST PANEL MEETING AND SITE VISIT

On November 19-21, 1980, the caseload forecast panel met with representatives of the applicant (Mississippi Power and Light Company; and Middle South Energy, Inc.), their architect-engineer (Bechtel Power Corporation), and their NSSS supplier (General Electric Company) to review the construction and preoperational testing progress at the Grand Gulf Nuclear Station (GGNS) Unit 1 and to evaluate the most likely fuel load date.

The previous caseload forecast panel visit in August 1979 (report dated September 12, 1979) had estimated a fuel load date of April 1981, compared to the applicant's estimate of November 1980. The forecast panel's estimate was influenced by concerns about: (1) the length of time required for preoperational testing, (2) the probable adverse impact on the test schedule resulting from final electrical work, and (3) unforeseen delays which may develop in the construction work that still must be completed.

The panel met at the construction site on November 19, 1980, and was briefed on the plant's engineering and construction status during the morning. In the afternoon, the panel toured the plant and inspected the status of construction and turnover activity. On the following day the panel continued its tour of the plant, and met again with the applicant to discuss several issues which had been identified the previous day. An exit interview was held on November 21, 1980 at the applicant's offices in Jackson, Mississippi. The meeting agenda and attendees for the panel's site visit are listed in Enclosures 1 and 2, respectively. The handouts provided at the meetings are available from the project manager.

By way of introduction, the applicant reiterated the company's financial and resource commitment to meet their predicted fuel load date of August 31, 1981, although their recent preliminary startup testing milestone schedule indicated about 2-3 months of negative float in their predicted schedule. Mr. James P. McGaughy, Jr., MP&L Assistant Vice President for Nuclear Production, stressed their intention to get the project back on schedule, and discussed organizational changes recently adopted which should result in considerable progress in controlling the construction and startup effort.

The status of plant design, procurement, manpower, construction, startup pre-operational test program, resolution of 50.55e items, and the impact of recent licensing requirements are discussed below.

Plant Design

Plant design is being performed by Bechtel Power Corporation, at both their Gaithersburg, Maryland offices and at the plant site. Overall design and engineering on Unit 1 and common facilities required for Unit 1 operation are estimated to be 98% complete, with essentially only electrical work remaining. However, these estimates do not reflect engineering required for outstanding issues such as ATWS, TMI requirements, the Power Generation Control Complex, or rework. The applicant indicated that engineering is proceeding on these outstanding items, and is not expected to impact their fuel load schedule.

Procurement

Procurement of bulk quantities appears to be in good shape and is estimated now to be above 90% overall. Procurement of 273 of 313 major purchase orders is complete, with delivery of the remaining incomplete orders scheduled for the first half of 1981.

Manpower

MP&L described the construction work force activities and indicated that manpower availability for completion of Unit 1 should not be a problem. The current work force of about 1700 represents the full complement needed to complete Unit 1 and is not expected to increase significantly in the future. In addition, contracts with local unions, many of which expire in mid 1981, contain no-strike agreements.

Construction

MP&L described construction progress since the last forecast panel (August 1979). They indicated that the current work scope has expanded from that previously estimated, and that the current estimate of 86% complete reflects an 18% workoff (1.2% per month) since August 1979. In order to support an August 31, 1981 fuel load with construction at about 96% complete, an average workoff rate of 1% per month would have to be sustained for the remaining 10 months.

As indicated in Enclosure 3, concrete work is 99% complete. Large pipe hangers and small pipe hangers are 90% and 80% complete, respectively. Cable trays have been completely installed. Wire and cable is 87% complete, conduit 87% complete, and connection 79% complete. The required quantities of conduit and cable pulling have been increased over previous estimates, thus necessitating a substantial level of effort to complete these items within the current schedule. A comparison of Grand Gulf cable pulling experience in 1980 with those quantities required in 1981 to meet the scheduled August 1981 fuel load date is provided in Enclosure 3.

Status and Resolution of 50.55(e) Items

MP&L discussed the design deficiencies that have been identified and reported to the NRC pursuant to 10 CFR 50.55(e), and stated that these are being resolved and are not expected to impact the construction schedule. They indicated that the number of potentially reportable deficiencies reflects MP&L's cooperation in reporting this information to NRC Region II, rather than excessive deficiencies at Grand Gulf. Potential problem areas identified include: (1) ventilation ductwork; (2) fillet welds; (3) QA related to reactor controls design; and (4) Hilti anchor bolts. In view of the length of time a number of these items have been outstanding, the panel expressed a concern regarding their resolution and workoff so as not to impact the fuel load schedule.

Effects of Recent Licensing Requirements

MP&L indicated that they are actively pursuing implementation of recent TMI requirements, and that all items are expected to be implemented in accordance with the required NRC schedules. In addition, they expect no fuel load impacts with respect to ATWS or environmental qualification requirements.

Startup Preoperational Test Program

The startup preoperational test program and milestones were outlined by the applicant. In contrast to their previous estimate of 18 months, they now consider a period of two years, from plant energization in May 1979 until May 1981, sufficient to accomplish this program. Although this compares favorable with an industry average of about 24 months, this may be misleading due to the limited number of system turnovers to date. The applicant indicated that the average number of turnovers is projected to increase from about 3.2 per month in 1980, to about 10-15 per month in 1981. The actions taken by the applicant to achieve this improvement include: (1) combining the component turnover and startup groups to improve coordination and flexibility; (2) the formation of a turnover package group to increase administrative efficiency; and (3) establishment of daily critical items meetings, held on-site, to identify and oversee critical path items.

The panel considers the preoperational test schedule to be the major delaying item for plant fuel load. Our reasons are as follows:

1) Recent experience with other plants indicates an industry average of about 5-7 system turnovers per month, whereas MP&L projects a turnover rate higher than this. Even a doubling of their past turnover rate would place the applicant's fuel load at about July 1982;

2) The applicant stated that a preliminary review of their preoperational critical path schedule indicates a possible delay in fuel load of about 2-3 months; and

3) The completion of remaining electrical work is likely to interfere with and delay preoperational testing.

Conclusion

The applicant has made significant progress in actual construction since the last caseload forecast panel meeting, and is implementing aggressive managerial techniques to expedite component and system turnovers and reduce the number of punch list items. The applicant stressed the company's commitment to meet its predicted August 1981 fuel load date, but indicated that recent delays in system turnovers could result in a slippage of between 2-3 months. However, the panel feels this prediction is overly optimistic. Based on the panel's experience with plant construction and preoperational testing, using the same techniques that have been used to estimate the fuel load date for all other domestic facilities, and considering the general rework currently in progress and the final electrical work remaining, the panel estimates a fuel load date of July 1982. In making this estimate, the forecast panel noted that, although not factored into this conclusion, there are several issues which could potentially result in additional delays to the fuel load date. These include:

1) resolution of suppression pool hydrodynamic loads questions;

2) resolution of TMI requirements and ATWS issues;

3) resolution of environmental qualification of equipment; and

4) impact of the Hilti anchor bolt design deficiency and resolution of other design deficiencies that currently exist or may arise in the future.

The panel further concluded that the estimated fuel load date depends on aggressive construction and preoperational testing progress, and high quality work and system turnovers. The panel stressed the commitment of the NRC staff to complete its licensing review in a timely but thorough manner so as not to delay plant operation unnecessarily.

Joseph A. Martore

Joseph A. Martore, Project Manager
Licensing Branch #3
Division of Licensing

Enclosoures:
1. Meeting Agenda
2. Meeting Attendees
3. MP&L Documentation

cc: See next page.

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MEETING SUMMARY DISTRIBUTION

Docket File
NRC PDR
Local PDR
TIC/NSIC/Tera
NRR Reading
LB#3 Reading
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E. Case
D. Eisenhut
R. Purple
B. J. Youngblood
A. Schwencer
F. Miraglia
J. Miller
G. Lainas
R. Vollmer
J. P. Knight
R. Bosnak
F. Schauer
R. E. Jackson
Project Manager J. MARTORE
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OIE (3)
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R. Tedesco

NRC Participants:
W. Lovelace
A. Wagner, Reg. II

bcc: Applicant & Service List

G. Lear
V. Noonan
S. Pawlicki
V. Benaroya
Z. Rosztoczy
W. Haass
D. Muller
R. Ballard
W. Regan
D. Ross
P. Check
R. Satterfield
O. Parr
F. Rosa
W. Butler
W. Kreger
R. Houston
T. Murphy
L. Rubenstein
T. Speis
W. Johnston
J. Stolz
S. Hanauer
W. Gammill
T. Murley
F. Schroeder
D. Skovholt
M. Ernst
R. Baer
C. Berlinger
K. Kniel
G. Knighton
A. Thadani
D. Tondi
J. Kramer
D. Vassallo
P. Collins
D. Ziemann

ENCLOSURE 1

AGENDA

NOVEMBER 19-20, 1980
GRAND GULF NUCLEAR STATION, UNIT 1
AND NEEDED FACILITIES

1. Overview of project construction schedule including progress and major milestones completed, since Caseload Panel visit of August 1979, current problems and any anticipated problem areas that may impact the current projected fuel load date.

2. Detailed review and current status of design and engineering effort (by major discipline) including any potential problems that may arise from necessary rework.

3. Detailed review and current status of procurement activities including valves, pipe, instruments, cable, major components, etc.

4. Actual and proposed craft work force (by major craft), craft availability, productivity, potential labor negotiations and problems.

5. Detailed review and current status of all large and small bore pipe hangers, restraints, snubbers, etc., including design, rework, procurement, fabrication, delivery and installation.

6. Detailed review of project schedule identifying critical path items, near critical items, amount of float for various activities, the current critical path to fuel loading, methods of implementation of corrective action for any activities with negative float, and provisions for contingencies. The estimated project percent complete as of October 31, 1980.

7. Detailed review and current status of bulk quantities including current estimated quantities, quantities installed to date, quantities scheduled to date, current percent complete for each, actual versus forecast installation rates, and basis for figures.

   (a) Concrete (CY)

   (b) Process Pipe (LF)

   - Large Bore Pipe (2 1/2" and larger)
   - Small Bore Pipe (2" and smaller)

   (c) Yard Pipe (LF)

   (d) Large Bore Pipe Hangers, Restraints, Snubbers (ea)

(e) Small Bore Pipe Hangers, Restraints (ea)

(f) Cable Tray (LF)

(g) Total Conduit (LF)

(h) Total Exposed Metal Conduit (LF)

(i) Cable (LF)

- Power
- Control
- Security
- Instrumentation
- Plant Lighting

(j) Terminations (ea)

- Power
- Control
- Security
- Instrumentation
- Plant Lighting

(k) Electrical Circuits (ea)

- Power
- Control
- Security

(l) Instrumentation (ea)

8. Detailed review and current status of preparation of preop test procedures, integration of preop test activities with construction schedule, system turnover schedule, preop test schedule, current and proposed preop test program manpower.

(a) Total number of procedures required for fuel load.
(b) Number of draft procedures not started.
(c) Number of draft procedures being written.
(d) Number of procedures approved.
(e) Number of procedures in review.
(f) Total number of preop tests required for fuel load.
(g) Number of preop tests completed.
(h) Number of preop tests currently in progress.
(i) Number of systems turned over to start-up.

9. Detailed discussion of potential schedular influence due to changes attributed to NUREG-0660, NUREG-0694 and other recent licensing requirements.

10. Site tour and observation of construction activities.

11. Discussion of 50.55e items which may have an impact on the construction completion schedule.

ENCLOSURE 2

MEETING ATTENDEES
GRAND GULF
CASELOAD FORECASE PANEL MEETING

NOVEMBER 19, 1980

NAME	ORGANIZATION
J. Martore	NRC
W. Lovelace	NRC
A. Wagner, Region II	NRC
M. Archdeacon	Bechtel
H. Brooks	Bechtel
L. Ruhland	Bechtel
A. Smith	GE
C. Gibbs	MSEI
T. Cloninger	MP&L
L. Dale	MP&L
C. Stuart	MP&L
G. Rogers	MP&L
J. McGaughy	MP&L
J. Richardson	MP&L
C. McCoy	MP&L
T. Reaves	MP&L

ENCLOSURE 3

MAJOR MILESTONES AND ACCOMPLISHMENTS

. CONDENSATE/FEEDWATER FLUSH - 4/18/80

. DRYWELL SIT - 6/7/80

(. RPV HYDRO - 11/28/80)

- CONDENSER CONNECTIONS AND HYDRO
- PIPING AND INSTRUMENT CONNECTIONS TO RPV
- NSSS SYSTEM BUILD AND COMMENCED FLUSHING
- COMMENCED TMI MODIFICATIONS
- PLACED TURBINE ON TURNING GEAR
- COMPLETED COOLING TOWER SHELL
- APPROXIMATELY 70% OF TOTAL SYSTEMS SCOPE RELEASED TO TEST GROUP FOR COMPONENT CHECKOUT

. CONSTRUCTION PROGRESS AND PERCENT COMPLETE

- AUGUST, 1979 - 68%
- NOVEMBER, 1980 - 86%
- 18% IN 15 MONTHS
- 1.2% PER MONTH

. PLANT PERCENT COMPLETE BY FUEL LOAD - AUGUST 31, 1981

- HISTORICALLY: 94% - 98%
- TO GO: 86% → 96%
- 10% IN 10 MONTHS
- 1% PER MONTH

· ENGINEERING OVERALL STATUS ·

ENGINEERING DISCIPLINE	EST. QUANTITY	% ENGINEERING COMPLETE
1. CIVIL/STRUCTURAL		
CONCRETE ($YD.^3$)	235,000	100%
2. MECHANICAL		
LARGE PIPE (FT.)	288,000	100%
LARGE PIPE HANGERS	12,150	100%
INSTRUMENTS	2,320	99%
3. ELECTRICAL		
CIRCUITS	29,840	97%
CABLE TRAY (FT.)	98,400	100%
CONDUIT (FT.)	583,000	98%
WIRE AND CABLE (FT.)	8,538,000	97%
CONNECTIONS	277,800	97%

ABOVE STATUS DOES NOT INCLUDE ENGINEERING INVOLVED WITH TMI CORRECTIVE ACTIONS OR ATWS.

QUANTITY STATUS

COMMODITY	CURRENT ESTIMATE	INSTALLED	SCHEDULED	% COMPLETE
Concrete	235,000 Yd.	233,000	233,000	99%
Large Pipe	288,000	284,800	288,000	99%
Large Pipe Hangers	12,150	10,900	11,200	90%
Small Pipe	195,500	184,200	186,250	94%
Small Pipe Hangers	19,000	15,289	16,270	80%
Instruments	2,300	2,000	N/S	87%
Cable Tray	98,400	98,400	98,400	100%
Conduit	600,000	520,600	520,000	87%
Wire and Cable	8,600,000	7,447,644	7,617,500	87%
Connections	280,000	220,000	234,500	79%

/

Cable pulling

Experience during 1980 in ft/mo

1/80	199,000
2/80	107,000
3/80	161,000
4/80	119,000
5/80	127,000
6/80	90,000
7/80	67,000
8/80	94,000
9/80	96,000
10/80	165,000

Present schedule for pulling cable through 8/81

11/80	103,000
12/80	103,000
1/81	223,000
2/81	223,000
3/81	100,000
4/81	100,000
5/81	100,000
6/81	100,000
7/81	100,000
8/81	40,000

AFFECTS OF RECENT LICENSING REQUIREMENTS

TMI

- ACTIVELY PURSUING IMPLEMENTATION OF REQUIREMENTS OF NUREGS 0578, 0660, 0694, 0696, 0654, AND 0737.

- MAJOR PROCUREMENT ITEMS

	FORECAST COMPLETION
- POST ACCIDENT SAMPLE PANELS	4/81
- EFFLUENT MONITORING	4/81, HIGH RANGE 6/81
- RADIATION MONITORS	1/81

- BULK QUANTITIES

	TMI	11/80 FORECAST 7
- SMALL PIPE (LF)	1,000	195,500
- SMALL PIPE HANGERS (Ea.)	150	19,000
- INSTRUMENTS (Ea.)	100	2,320
- CIRCUITS (Ea.)	260	30,000
- METALLIC CONDUIT (LF)	17,000	600,000
- WIRE AND CABLE (LF)	62,000	8,600,000
- CONNECTIONS (Ea.)	2,200	280,000

- ALL ITEMS EXPECTED TO BE IMPLEMENTED IN ACCORDANCE WITH NRC SCHEDULE.

- NUREG-0737 SCHEDULE MUST BE EVALUATED.

AFFECTS OF RECENT LICENSING REQUIREMENTS

ATWS

- GGNS AGGRESSIVELY PURSUING IMPLEMENTATION OF ALT. 3A, PER NUREG-0460.
  - BEGAN DESIGN JUNE 1980
  - COMPLETION SCHEDULE:
    - DESIGN - 12/82
    - IMPLEMENTATION - 1/84
  - BY FUEL LOAD:
    - RPT
    - PROCEDURES
- NO FUEL LOAD IMPACTS.
- ATWS RULE IMPLEMENTATION SCHEDULE WILL CAUSE PROBLEM.

AFFECTS OF RECENT LICENSING REQUIREMENTS

ENVIRONMENTAL QUALIFICATION

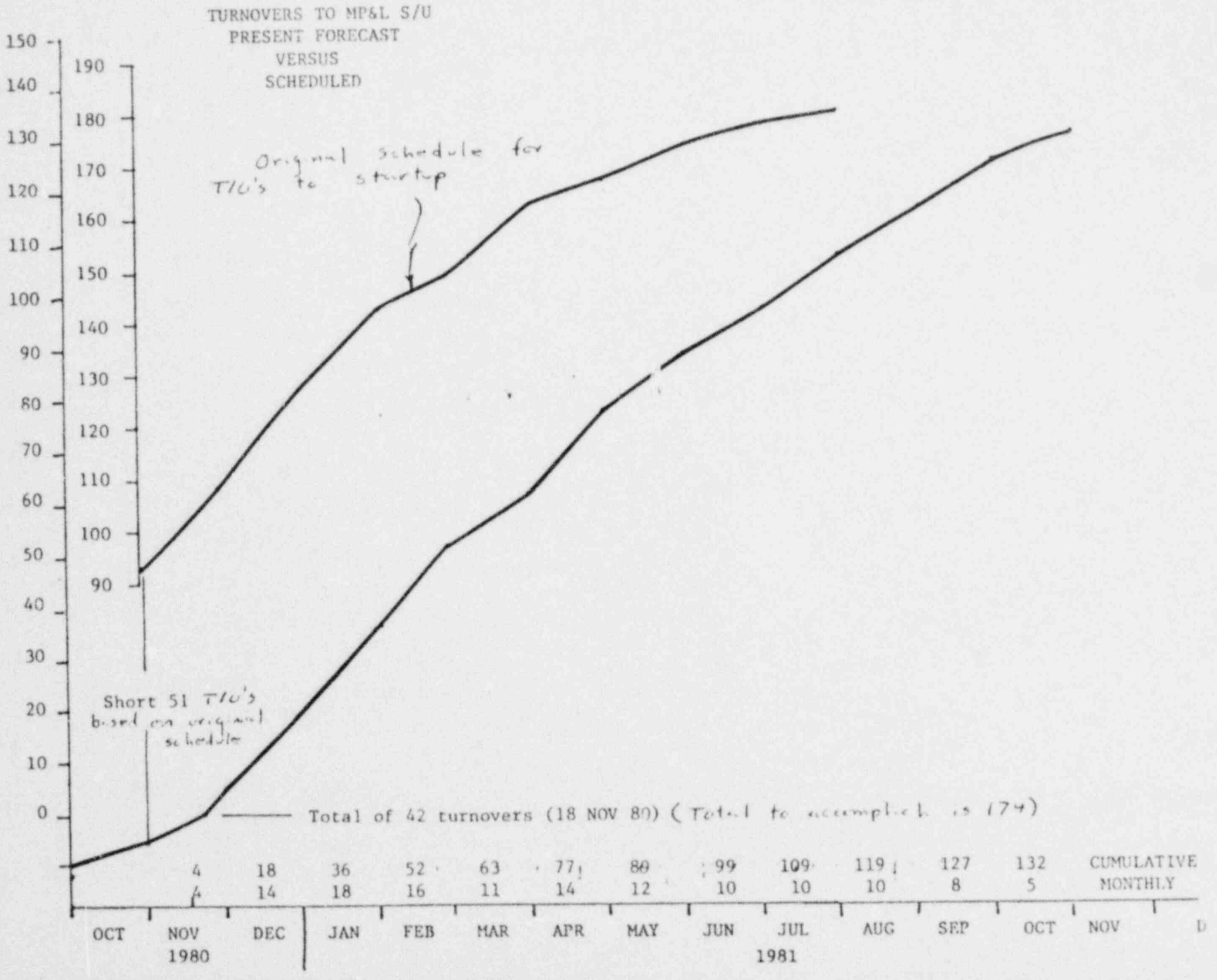
- PROGRAM TO COMPLY WITH NUREG-0588.
  - EQUIPMENT IN HOSTILE ENVIRONMENT IDENTIFIED
  - REVIEW OF COMPLIANCE WITH QUALIFICATION REQUIREMENTS BY 4/81
  - QUALIFICATION TO MEET 0588 IN ACCORDANCE WITH NRC SCHEDULE - 6/82
- NO FUEL LOAD IMPACT IDENTIFIED TO DATE.

Status of Component Testing

Electrical Check out	- 55%	Complete
Mechanical Check out	- 55%	Complete
I & C Calibration	- 50%	Complete
Flushing	- 70%	Complete
Total	~ 60%	

BREAKDOWN OF RELEASES AND TURNOVERS - 1980

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total	Short
Releases	3	3	10	9	10	12	13	14	6	8	84	32
Scheduled	2	5	10	11	18	13	16	20	12	13	120	
Turnovers	0	0	4	10	4	3	1	4	0	6	32	51
Scheduled	0	4	5	12	11	7	12	14	6	15	84	


TURNOVERS TO MP&L S/U
PRESENT FORECAST
VERSUS
SCHEDULED
Original schedule for T/O's to startup
Short 51 T/O's based on original schedule
Total of 42 turnovers (18 NOV 80) (Total to accomplish is 174)
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
190
180
170
160
150
140
130
120
110
100
90
4 18 36 52 63 77 80 99 109 119 127 132 CUMULATIVE
4 14 18 16 11 14 12 10 10 10 8 5 MONTHLY
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV
1980
1981