August 10, 1982

Note to: Elinor G. Adensam

From: William D. Paton

Subject: Quality Assurance Issues to be Addressed at an Evidentiary Session in the Midland Proceeding

Attached to this note is the July 7, 1982 Memorandum and Order (hereafter "July Order") by the Midland licensing board in which they comment on issues they wish to have addressed at the forthcoming evidentiary session on quality assurance and quality control matters. Those issues are:

1. As discussed on page 3 of the July Order, Staff testimony should discuss "in detail" the basis for the Staff's position set forth in our June 29, 1982 letter in which we expressed our conclusion that it was necessary to supplement the testimony previously submitted with respect to quality assurance. The Board suggests that not only Mr. Keppler be available but also any QC inspectors who might have more detailed knowledge of significant matters dealt with by Mr. Keppler to the extent that their presence might in assist creating an adequate record. We will have to consult with Mr. Keppler to determine precisely what he had in mind when he concluded that it was necessary to supplement his previous testimony, but it appears at this point that one of the major factors was the apparent discrepancies in the facts set forth in our recent SALP report and Consumers' response to that report.

2. Qualifications of QC inspectors. (July Order, p.4)

3. Questions asked by the Board concerning the adequacy of the QA program for underpinning activities. (July Order p.4)

4. "Certain matters" discussed in the Licensing Board's April 30, 1982 Memorandum and Order (hereafter April Order). (I also attached a copy of the April Order).

   A. The coverage of the QA program for soils related activities. Pg 4

AUG 13 19[illegible]

B. The matter referred to by the Licensing Board beginning at page 16 of its April Order concerning a 42 inch diameter hole that was drilled to a depth of 40 feet within the "Q" fill area apparently without proper authority without the development of or adherence to written procedures without the participation of the onsite geotechnical engineer and without adequate QA/QC surveillance.

Hood C. The matter referred to at page 17 of the Board's April Order concerning loose sands.

D. Staff inspection reports 82-05 (Detp) and 82-06 (Detp). MOI-4-2-008; MOI-9-2-033

E. NCR #MO1-9-2-051 (April 21, 1982), Bechtel Non-Conformance Reports Nos. 4199 (including Stop Work Order FSW-22) and 4245.

F. The suggestion in the interim ACRS report of June 8, 1982 that there be a broader assessment of Midland's design adequacy and construction quality.

G. The results of the Staff evaluation of Drawing 7220-C-45 (See Memorandum and Order of May 7, 1982).

The above subjects were addressed by the Licensing Board in its April 30, and July 7, 1982 Orders. There are other QA matters that will have to be addressed at the evidentiary hearing. One is fairly extensive testimony concerning the impact of the subject matter of the "management meeting" that is to take place with CPC sometime within the next 3 weeks. If Mr. Keppler believes that the outcome of that meeting remedies CPC's QA problems, he will have to explain that to the Board.

We may also have to address the subject of recent affidavits provided NRC by GAP and other documents provided Region III concerning ZACK (provided by T.Howard).

Region III confirmed yesterday that they expect to be able to prepare their QA testimony by October 31, 1982.

William D. Paton
Midland Counsel

Enclosures:
July Order
April Order

cc w/enclosures:
Robert F. Warnick (Reg. III)
Ross B. Landsman (Reg. III)
Darl Hood

MIDLAND SUMMARY REPORT

Facility Data

Docket Numbers	- 50-329 and 50-330
Construction Permits	- CPPR-81 and CPPR-82
Permits Issued	- December 14, 1972
Type Reactor	- PWR; Unit 1, 492 MWe*; Unit 2, 818 MWe
NSSS Supplier	- Babcox & Wilcox
Design/Constructor	- Bechtel Power Corporation
Fuel Load Dates	- Unit 1, 11/81; Unit 2, 11/80
Status of Construction	- Unit 1, 52%, Unit 2, 56%; Engineering 80%

*Approximately one-half the steam production for Unit 1 is dedicated, by contract, to be supplied to Dow Chemical Corporation, through appropriate isolation heat exchangers. Capability exists to alternate to Unit 2 for the steam source upon demand.

Chronological Listing of Major Events

July 1970	Start of Construction under exemption
9/29-30 & 10/1/70	Site inspection, four items of noncompliance identified, extensive review during CP hearings
1971 - 1972	Plant in mothballs pending CP
12/14/72	CP issued
9/73	Inspection at Bechtel Ann Arbor offices, five items of noncompliance identified
11/73	Inspection at site, four items of noncompliance identified (cadweld problem) precipitated the Show Cause Order
12/3/73	Show Cause Order issued suspending cadwelding operation
12/6-7/73	Special inspection conducted by RIII & HQ personnel
12/17/73	Show Cause order modified to allow cadwelding based on inspection findings of 12/6-7/73
12/29/73	Licensee answers Show Cause Order commits to improvements on QA program and QA/QC staff

12/5/74	CP reported that rebar spacing out of specification 50 locations in Unit 2 containment
3/5 & 10/75	CP reported that 63 #6 rebar were either missing or misplaced in Auxiliary Building
3/12/75	RIII held management meeting with CP

8/21/75	CP reported that 42 sets of #6 tie bars were missing in Auxiliary Building
3/22/76	CP reported that 32 #8 rebar were omitted in Auxiliary Building. A stop-work order was issued by CP
3/26/76	RIII inspector requested CP to inform RIII when stop-work order to be lifted and to investigate the cause and the extent of the problem. Additional rebar problems identified during site inspection
3/31/76	CP lifted the stop-work order
4/19 thru 5/14/76	RIII performed in-depth QA inspection at Midland
5/14/76	RIII management discussed inspection findings with site personnel
5/20/76	RIII management meeting with CP President, Vice President, and others.
6/7 & 8/76	RIII follow up meeting with CP management and discussed the CP 21 correction commitments
6/1-7/1/76	Overall rebar omission reviewed by R. E. Shewmaker
7/28/76	CP stops concrete placement work when further rebar placement errors found by their overview program. PN-III-76-52 issued by RIII
8/2/76	RIII recommends HQ notice of violation be issued
8/9 - 9/9/76	Five week full-time RIII inspection conducted
8/13/76	Notice issued
10/29/76	CP responded to HQ Notice of Violations
12/10/76	CP revised Midland QA program accepted by NRR
2/28/77	Unit 2 bulge of containment liner discovered
4/19/77	Tendon sheath omissions of Unit 1 reported
4/29/77	IAL issued relative to tendon sheath placement errors
5/5/77	Management meeting at CP Corporate Office relative to IAL regarding tendon sheath problem

5/24-27/77	Special inspection by RIII, RI and HQ personnel to determine adequacy of QA program implementation at Midland site
6/75 - 7/77	Series of meetings and letters between CP and NRR on applicability of Regulatory Guides to Midland. Commitments by CP to the guides was responsive
7/24/78	Construction resident inspection assigned
8/21/78	Measurements by Bechtel indicate excessive settlement of Diesel Generator Building. Officially reported to RIII on September 7, 1978
12/78 - 1/79	Special investigation/inspection conducted at Midland sites, Bechtel Ann Arbor Engineering offices and at CP corporate offices relative to Midland plant fill and Diesel Generator building settlement problem

Selected Major Events

Past Problems

1. Cadweld Splicing Problem and Show Cause Order

A routine inspection, conducted on November 6-8, 1973, as a result of intervenor information, identified eleven examples of four noncompliance items relative to rebar Cadwelding operations. These items were summarized as: (1) untrained Cadweld inspectors; (2) rejectable Cadwelds accepted by QC inspectors; (3) records inadequate to establish cadwelds met requirements; and (4) inadequate procedures.

As a result, the licensee stopped work on cadweld operations on November 9, 1973 which in turn stopped rebar installation. The licensee agreed not to resume work until the NRC reviewed and accepted their corrective action. However, Show Cause Order was issued on December 3, 1973, suspending Cadwelding operations. On December 6-7, 1973 RIII and HQ personnel conducted a special inspection and determined that construction activity could be resumed in a manner consistent with quality criteria. The show cause order was modified on December 17, 1973, allowing resumption of Cadwelding operations based on the inspection results.

The licensee answered the Show Cause Order on December 29, 1973, committing to revise and improve the QA manuals and procedures and make QA/QC personnel changes.

Prehearing conferences were held on March 28 and May 30, 1974, and the hearing began on July 16, 1974. On September 25, 1974, the Hearing Board found that the licensee was implementing its QA program in compliance with regulations and that construction should not be stopped.

2. Rebar Omission/Placements Errors Leading to IAL

Initial identification and report of rebar nonconformances occurred during an NRC inspection conducted on December 11-13, 1974. The licensee informed the inspector that an audit, had identified rebar spacing problems at elevations 642' - 7" to 652' - 9" of Unit 2 containment. This item was subsequently reported per 10 CFR 50.55(e) and was identified as a item of noncompliance in report Nos. 50-329/74-11 and 50-330/74-11.

Additional rebar deviations and omissions were identified in March and August 1975 and in April, May and June 1976. Inspection report Nos. 50-329/76-04 and 50-330/76-04 identified five noncompliance items regarding reinforcement steel deficiencies.

Licensee response dated June 18, 1976, listed 21 separate items (commitments) for corrective action. A June 24, 1976 letter provided a plan of action schedule for implementing the 21 items. The licensee committed not to resume concrete placement work until the items addressed in licensee's June 24 letter were resolved or implemented. This commitment was documented in a RIII letter to the licensee dated June 25, 1976. Although not stamped as an IAL, in-house memos referred to it as such.

Rebar installation and concrete placement activities were resumed in early July 1976, following completion of the items and verification by RIII.

Additional action taken is as follows:

a. By the NRC

(1) Assignment of an inspector full-time on site for five weeks to observe civil work in progress

(2) IE management meetings with the licensee at their corporate offices

(3) Inspection and evaluation by Headquarter personnel

b. By the Licensee

(1) June 18, 1976 letter committing to 21 items of corrective action

(2) Establishment of an overview inspection program to provide 100% reinspection of embedments by the licensee following acceptance by the contractor QC personnel

c. By the Contractor

(1) Personnel changes and retraining of personnel

(2) Prepared technical evaluation for acceptability of each identified construction deficiency

(3) Improvement in their QA/QC program coverage of civil work (this was imposed by the licensee)

3. Tendon Sheath Placement Errors and Resulting Immediate Action Letter (IAL)

On April 19, 1977, the licensee reported, as a Part 50, Section 50.55(e) item, the inadvertent omission of two hoop tendon sheaths from a Unit 1 containment concrete placement at

elevation 703' - 7". The tendon sheaths were, for the most part, located at an elevation in the next higher concrete placement lift, except that they were diverted to the lower placement lift to pass under a steam line penetration and it was where they were omitted. Failure to rely on the proper source documents by construction and inspection personnel, contributed to the omission.

An IAL was issued to the licensee on April 29, 1977, which spelled out six licensee commitments for correction which included: (1) repairs and cause corrective action; (2) expansion of the licensee's QC over view program; (3) revisions to procedures and training of construction and inspection personnel.

A special QA program inspection was conducted in early May 1977. The inspection team was made up of personnel from RI, RIII, and HQ. Although five items of noncompliance were identified, it was the concensus of the inspectors that the licensee's program was an acceptable program and that the Midland construction activities were comparable to most other construction projects.

The licensee issued its final report on August 12, 1977. Final review on site was conducted and documented in report No. 50-329/77-08.

Current Problems

1. Plant Fill - Diesel Generator Building Settlement

The licensee informed the RIII office on September 8, 1978, of per requirements of 10 CFR 50.55(e) that settlement of the diesel generator foundations and structures were greater than expected.

Fill material in this area was placed between 1975 and 1977, with construction starting on diesel generator building in mid-1977. Filling of the cooling pond began in early 1978 with the spring run-off water. Over the year the water level has increased approximately 21 feet and in turn increasing the site gound water level. It is not known at this time what effect (if any) the higher site ground water level has had on the plan fill and excessive settlement of the Diesel Generator Building. It is interesting to note however, that initially the PSAR indicated an underdrain system would be installed to maintain the ground water at its normal (pre pond) level but that it later was deleted.

The NRC activities, to date, include:

a. Transfer of lead responsibility to NRR from IE by memo dated November 17, 1978

b. Site meeting on December 3-4, 1978, between NRR, IE, Consumers Power and Bechtel to discuss the plant fill problem and proposed corrective action relative to the Diesel Generator Building settlement

c. RIII conducted an investigation/inspection relative to the plant fill and Diesel Generator Building settlement

The Constructor/Designer activities include:

a. Issued NCR-1482 (August 21, 1978)

b. Issued Management Corrective Action Report (MCAR) No. 24 (September 7, 1978)

c. Prepared a proposed corrective action option regarding placement of sand overburden surcharge to accelerate and achieve proper compaction of diesel generator building sub soils

Preliminary review of the results of the RIII investigation/ inspection into the plant fill/Diesel Generator Building settlement problem indicate many events occurred between late 1973 and early 1978 which should have alerted Bechtel and the licensee to the pending problem. These events included nonconformance reports, audit findings, field memos to engineering and problems with the administration building fill which caused modification and replacement of the already poured footing and replacement of the fill material with lean concrete.

2. Inspection and Quality Documentation to Establish Acceptability of Equipment

This problem consists of two parts and has just recently been identified by RIII inspectors relative to Midland. The scope and depth of the problem has not been determined.

The first part concerns the adequacy of engineering evaluation of quality documentation (test reports, etc.) to determine if the documentation establishes that the equipment meets specification and environmental requirements. The licensee,

by the licensee's overview program

on November 13, 1978, issued a construction deficiency report (10 CFR 50.55(e)) relative to this matter. Whether the report was triggered by RIII inspector inquiries or by IE Circular or Bulletin is not known. An interim report dated November 28, 1978 was received and stated Consumers Power was pursuing this matter not only for Bechtel procured equipment but also for NSS supplied equipment.

The second part of the problem concerns the adequacy of equipment acceptance inspection by Bechtel shop inspectors. Examples of this problem include: (1) Decay Heat Removal Pumps released by the shop inspector and shipped to the site with one pump assembled backwards, (2) electrical penetrations inspected and released by the shop inspector for shipment to the site. Site inspections to date indicate about 25% of the vendor wire terminations were improperly crimped.

Inspection History

The construction inspection program for Midland Units 1 and 2 is approximately 50% complete. This is consistent with status of construction of the two units. (Unit 1 - 52%; Unit 2 - 56%) In terms of required inspection procedures approximately 25 have been completed, 33 are in progress and 36 have not been initiated.

The routine inspection program has not identified an unusual number of enforcement items. Of the selected major events described above, only one is directly attributable to RIII enforcement activity (Cadweld splicing). The other were identified by the licensee and reported through the deficiency report system (50.55(e)). The Midland data for 1976 - 78 is tabulated below.

Year	Number of Noncompliances	Number of Inspections	Inspector Hours On Site
1976	14	9	646
1977	5	12	648
1978	11	18	706

A resident inspector was assigned to the Midland site in July 1978. The on site inspection hours shown above does not include his inspection time.

The licensee's QA program has repeatedly been subject to in-depth review by IE inspectors. Included are:

1. July 23-26 and August 8-10, 1973, inspection report Nos. 50-329/73-06 and 50-330/73-06: A detailed review was conducted relative to the implementation of the Consumers Power Company's QA manual and Bechtel Corporation's QA program for design activities at the Bechtel Ann Arbor office. The identified concerns were reported as discrepancies relative to the Part 50, Appendix B, criteria requirements.

2. September 10-11, 1973, report Nos. 50-329/73-08 and 50-330/73-08: A detailed review of the Bechtel Power Corporation QA program for Midland was performed. Noncompliances involving three separate Appendix B criteria with five different examples, were identified.

3. February 6-7, 1974, reports No. 50-329/74-03 and 50-330/74-03: A followup inspection at the licensee's corporate office, relative to the items identified during the September 1973 inspection (above) along with other followup.

4. June 16-17, 1975, report Nos. 50-329/75-05 and 50-330/75-05: Special inspection conducted at the licensee's corporate office to review the new corporate QA program manual.

5. August 9 through September 9, 1976, report Nos. 50-329/76-08 and 50-330/76-08: Special five-week inspection regarding QA program implementation on site primarily for rebar installation and other civil engineering work.

6. May 24-27, 1977, report Nos. 50-329/77-05 and 50-330/77-08: Special inspection conducted at the site by RIII, IE and RI personnel to examine the QA program implementation on site by Consumers Power Company and by Bechtel Corporation. Although five examples of noncompliance to Appendix B, Criterion V, were identified, the consensus of the inspectors involved was that the program and its implementation for Midland was considered to be adequate.

Although the licensee's Quality Assurance program has under gone a number of revisions to strengthen its provisions, no current concern exist regarding its adequacy. Their Topical QA Plan has been reviewed and accepted by NRR through revision 7. Implementation of the program has been and continues to be subject to further review with the mid-construction program review presently scheduled for March or April 1979.

Consumers Power Company expanded their QA/QC auditing and surveillance coverage to provide extensive overview inspection coverage. This began in 1975 with a commitment early in their experience with rebar installation problems and was further committed by the licensee in his letter of June 18, 1976, responding to report Nos. 50-329/76-04 and 50-330/76-04. This overview inspection activity by the licensee has been very effective as a supplement to the constructor's own program. Currently, this program is functioning across all significant activities at the site.

Enforcement History

Approximately 6 months after restart of construction activities (11 months after CP issuance) an inspection identified four noncompliance items regarding cadwelding activities. This resulted in a show cause order being issued on December 3, 1973. This enforcement action was aired publicly during hearings held by the Atomic Safety Licensing Board in May 1974. The hearing board issued its decision in September 1974

that concluded that construction could proceed with adequate assurance of quality.

Identification of reinforcing bar problems began in December of 1974 with the licensee reporting improper spacing of rebar in the Unit 2 containment wall. Further reinforcing bar spacing and/or omission of rebar was identified in August 1975 and again in May 1976 with the citations of 5 noncompliances in an inspection report. An IE:HQ notice of violation was issued regarding the citations in addition to the licensee issuing a stop work order. The licensee issued a response letter dated June 18, 1976 committing to 21 items of corrective action. A Bechtel prepared technical assessment for each instance of rebar deficiency was submitted to and review by IE:HQ who concluded that the structures involved will satisfy the SAR criteria and that the function of these structures will be maintained during all design conditions. The RIII office of NRC performed a special five week inspection to assess the corrective action implementation without further citation.

The licensee reported that two hoop tendon sheaths were omitted in concrete placements of Unit 2 containment wall in April 1977. An Immediate Action Letter was issued to the licensee on April 29, 1977 listing six items of licensee commitments to be completed. A special inspection was performed on May 24-27, 1977 with four NRC inspectors (1-HQ, 1-RI, and 2-RIII). Although five items of noncompliance were identified, it was the consensus of the inspectors that the QA/QC program in effect was adequate. The constructors nonconformance report provided an alternate method of installation for the tendon sheaths that was accepted.

The RIII office of inspection and enforcement instituted an augmented on site inspection coverage program during 1974, this program has continued in effect ever since and is still in effect. It is noted that the noncompliance history with this program is essentially the same as the history of other RIII facilities with a comparable status of construction. Further on site inspection augmentations was accomplished with the assignment of a full time resident inspector in August, 1978.

The noncompliance history for the Midland Project is provided in the following table.

ENFORCEMENT ACTIONS

Noncompliances

Year	# Total	Criteria (10 CFR 50 Appendix B) ( ) Number of Occurrances
1970	4	V, X, XI, XVI
1971-1972	0	Construction haulted pending CP
1973	9	II V(5) XIII, XV, XVII
1974	3	V(2) XVI
1975	0	
1976	10	V(4) X, XII, XV, XVI, XVII, XVIII
1977	5	V(5) 10 CFR 50.55(e) item
1978	11	V(4) VI(2), VII, IX(3), XVI

Criteria

II	QA Program
V	Instructions Procedures Drawing Control Work
VI	Document Control
VII	Control of Purchased Material
IX	Control of Special Processes
X	Inspection
XII	Control Measuring - Test Equipment
XIII	Handling - Storage
XV	Nonconforming Parts
XVI	Corrective Actions
XVII	QA Records
XVIII	Audits

Summary and Conclusions

Since the start of construction Midland has experienced some significant problems resulting in enforcement action. In evaluating these problems they have occurred in clumps: (1) in September 1970 relative to improper placement, sampling and testing of concrete and failure of QA/QC to act on identified deficiencies; (2) in September 1973 relative to drawing control and lack of or inadequate procedures for control of design and procurement activities at the Bechtel Engineering offices; (3) in November 1973 relative to inadequate training, procedures and inspection of cadweld activities; (4) in April, May and June 1976 resulting from a series of RIII in-depth QA inspections and meetings to identify underlying causes of weakness in the Midland QA program implementation relative to embedments. (The noncompliance items identified involved inadequate quality inspection, corrective action, procedures and documentation, all primarily concerned with installation of reinforcement steel); (5) in April 1977 relative to tendon sheath omissions; and (6) in August 1978 concerning plant soil foundations and excessive settlement of the Diesel Generator Building.

Following each of these problem periods (excluding the last which is still under investigation), the licensee has been responsive and has taken extensive action to evaluate and correct the problem and to upgrade his QA program and QA/QC staff. The most effective of these licensee actions has been an overview program which has been steadly expanded to cover almost all safety related activities.

The evaluation both by the licensee and IE of the structures and equipment affected by these problems (again except the last) has established that they fully meet design requirements.

Since 1974 these problems have either been identified by the licensee's quality program or provided direction to our inspectors.

Looking at the underlying causes of these problems two common threads emerge: (1) Consumers Power historically has tended to over rely on Bechtel, and (2) insensitivity on the part of both Bechtel and Consumers Power to recognize the significance of isolated events or failure to adequately evaluate possible generic application of these events either of which would have led to early identification and avoidance of the problem including the last on plant fill and diesel generator building settlement.

Notwithstanding the above, it is our conclusion that the problems experienced are not indicative of a broadbreakdown in the overall quality assurance program. Admittedly, deficiencies have occurred which should have been identified earlier by quality control personnel, but the licensee's program has been effective in the ultimate identification and subsequent correction of these deficiencies. While we cannot dismiss the possibility that problems may have gone undetected by the licensee's overall quality assurance program, our inspection program has not identified significant problems overlooked by the licensee --- and this inspection effort has utilized many different inspectors.

The RIII project inspectors believe that continuation of: (1) resident site coverage, (2) the licensee overview program including its recent expansion into engineering design/review activities, and (3) a continuing inspection program by regional inspectors will provide adequate assurance that construction will be performed in accordance with requirements and that any significant errors and deficiencies will be identified and corrected.

Consumers Power Company

ORAL COMMUNICATIONS RECORD

PROJECTS, ENGINEERING AND CONSTRUCTION - QUALITY ASSURANCE DEPARTMENT

CHRON. FILE NO 0.4.9.20.6

QA5-0

PAGE 1 OF 1

DATE OF CONVERSATION 11-8-82

QA-PE&C PERSONNEL PARTICIPATING JKMeisenheimer, TDCrnen, LAGouveia R A Wells, Executive Manager of MPQAD

TIME OF CONVERSATION PM

OTHER PARTY(S) Wayne Shafer, Ron Cook, Ron Gardner, Bruce Burgers

PREPARED BY

TOPICS AND/OR SUBJECTS DISCUSSED REINSPECTION REQUIREMENTS BASED ON RESULTS OF CERTIFICATION-TESTING

CONSUMERS POWER CO.
RECEIVED
NOV 10 1982
Site Proj.
Midland Project

SUMMARY OF CONVERSATION At the request of Consumers a meeting was held with the NRC, to discuss certification examination results and clarify the need for reinspection of past work of inspectors who do not pass portions of the exam sequence.

Mr. Wayne Shafer of the NRC stated that it was the NRC's understanding that Consumers had committed to reinspect work of inspectors who failed any portion of the certification examinations. Mr. Wells indicated that it was CPCo's understanding that we would reinspect work of those who failed to be recertified. Thus the need for the meeting to clarify our mutual understanding.

Subsequent discussion occurred. Agreements and understandings can be summarized as follows: 1) If failures occur during any part of the examination process for recertification, the significance of failed portions of the exam will be evaluated in regard to previous work performed by the inspector. A determination will be made as to whether and to what extent reinspection is required. Also, a determination will be made as to whether the inspector should be considered for further recertification. 2) If failure occurs during testing for new certification, this failure will be evaluated with respect to similar certification held by the inspector. 3) For each exam failure, results of the evaluation as to whether reinspection is required and the extent necessary will be shared with the NRC. 4) The recertification process can continue in parallel with the reinspection effort if desired. Recertification will not be granted until results of the reinspection effort are evaluated.

TURNOVERS · 573/870 = 66%

SYSTEM CHECKOUT BY DISCIPLINE

ELEC	91% T/O	85% Initially C/O Systems
I&C	52% T/O	37% Initially C/O Systems
NSSS	25% T/O	4% Initially C/O Systems
AUX	32% T/O	10% Initially C/O Systems
Feed/Cond	61% T/O	27% Initially C/O Systems
Turb/HVAC	59% T/O	28% Initially C/O Systems
Process Stm	80% T/O	15% Initially C/O Systems

PROCEDURES 51% Approved 87% In Review Cycle
Procedure Tests Complete 4%

MILESTONES

Unit 2

Process Stm 5 Partials to Go Expect to maintain 9-1 Heat-up

Turbine Roll Unit 2 [82% ECO, 50% I&C, 40% Mech C/O, 30% Flushed]

Condensate Pump Runs	T/O's Complete	Complete Commencing
Feedwater/Condensate Flushs thru Demins	1 System (AEA)	Flush Preparations
Condenser Vacuum	2 Systems (AFD,ALA)	AFD FCST 8-4
Turbine Roll	13 Systems to go (2-Q)	Expect by 9-30 Non-Q

Auxiliary Flushes Unit 2 7 System to go
[90% ECO, 50% I&C, 40% Mech C/O, 10% Flushed]

RCS Hydo Unit 2 27 Systems to go

Unit 1

Unit 1 Turbine Roll

Condensate Pump Runs	1 System (1ADA)	FCST 7-22
Feed/Cond Flush Thru Demin	2 Systems (1ADD,1AEA)	1ADD FCST 7-29
Condenser Vacuum	6 Systems (Non-Q, ALA)	Non-Q by 8-31
Turbine Roll	15 Systems (2-Q)	Expect Non-Q by 10-15

Auxiliary Flushes Unit 1 10 Systems to go
RCS Hydro Unit 1 21 Systems to go

MANPOWER

GSC	60 Non Manual
(current)	78 Mechanical
	32 Electrical

Operations

TEST PROGRAM STATUS
AND
REVISION 12 - TEST SCHEDULE

PREPARED BY: TECHNICAL DEPARTMENT
MIDLAND ENERGY CENTER
CONSUMERS POWER COMPANY
April 12, 1983

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9. Integrated Leak Rate Test
10. Integrated Safeguards Features Actuation System Test
11. Fuel Load

C. Manpower for Rev 12

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INTRO.

CASE LOAD FORECAST REPORT - APRIL 1983

TEST PROGRAM

I. INTRODUCTION

This report contains;

1. The status of the Test Program Schedule as of March 31, 1983, and

2. Revision 12 of the Test Schedule based upon the Two-Unit startup concept.

The basic premise in the development of this schedule is to establish a safe, organized, and logical approach to meeting the Project Objectives in a timely manner without sacrificing quality.

TEST STATUS

II. TEST PROGRAM SCHEDULE STATUS

The status of the Test Program Schedule as of March 31, 1983 is presented in this section in terms of System Turnovers, what we have accomplished so far in the Test Program, and where we are relative to Test Program Milestones leading to initial fuel load.

1. System Turnovers - Summary

Total scoped Systems (approximate) - ~~850~~ 870

Total System Turnovers Accepted - 543 573

Remaining System Turnovers - 307 297

% complete = $\frac{543}{850}$ = 64% 66%

Figure 1 shows a graph of actual number of systems accepted thru March 31, 1983. It also shows the remaining system turnovers based upon Revision 12 Turnover demand dates. The numbers in parenthesis show ACTUAL % complete.

2. TESTING ACTIVITIES SUMMARY

The status of the Test Program Network as of 3-31-83 is presented below. It should be noted that "checkout complete" as reported in this Section may not be necessarily 100% complete due to remaining punchlist open items such as design changes, corrective actions, and turnover exceptions requiring checkout and/or retest.

a. ELECTRICAL SYSTEMS

321 of 371 Electrical Systems have been turned over to CPCo.

(87 %).

83 % have been initially checked out and energized. No

Preoperational tests or Acceptance Tests have started. Significant activities completed and/or in progress include:

- BOTH UNITS' MAIN POWER XFMRS and STATION POWER XFMRS have been turned over and checked out. The Common Startup Power XFMRS are energized and in operation. Final "Pre-energize" testing will be performed in 1983. Backfeed from 345 KV System is dependent on Turnover of Main Generator Protection and Microwave Systems.

- all 6.9 KV BUSSES, 4.16 KV Busses, have been energized; major portions of 480 VAC Load Control Centers, 460 VAC Motor Control Centers, 250 VDC Motor Control Centers, 125 VDC Control Power Panels, 120 VAC Instrument Power Panels, and 480 VAC Distribution Panels have also been energized and are in operation.

- QA overinspection of class 1E cable routing is 91% complete.

- Electrical Reactor Building penetration repairs and replacement resulting from rodent damage and faulty Bunker-RAYMO modules is 95% complete.

b. Instrumentation and Control (I&C) Systems

36 of 69 I&C Systems have been turned over to CPCo (52 %).

37% of I&C Systems have been checked out.

No Pre-operations/Acceptance Tests have started. Six specific procedures have been completed.

Significant Activities completed and/or in progress include:

- Plant computer installation, checkout, energization, and vendor acceptance test are complete. Computer points input verification is in progress and will continue throughout the Preoperational Test Program.

- Unit Control Room Annunciator Cabinets (both Units), Evaporator Building Annunciator Logic cabinets, and Radwaste annunciator logic cabinet, have been energized and logic verification completed. The HVAC Annunciator logic cabinet has been energized.

- Non-Nuclear Instrumentation (NNI Cabinets and Modules both units) - The electrical checkout and initial energization of NNI cabinets are complete.

- Incore Monitor Remote Analog Peripherals (both units) - partial I&C checkout is complete. The Incore Guide Tube Clearance checks have been completed.

- CRD Stator Preinstallation check was completed on both Units.

- ICS cabinets and Modules (both units) - The electrical checkout is complete, the pre-turnover calibration of modules is complete; initial energization of ICS cabinets is in progress including the Evaporator System Development Demand (ESDD) Cabinets.

- Instrument Racks - (Note: Each instrument rack represents one system) - Electrical checkout and energization, of the following instrument racks are complete:

Balance of Plant Instr. Rack	1C-49, 2C-49
	1C-53, 2C-53
	1C-166, 2C-166
	OC-180 2C-146
	OC-343
Radwaste Instrument Rack	OC-167
Evaporator Instrument Rack	OC-168
	OC-281

- Analog Isolation Cabinets 1C46, 2C46 - Electrical and I&C check-out are complete.

- Digital Isolation Cabinets 1C47, 2C47 - Electrical and I&C checkout are complete.

- Process Steam Transfer Instrument Rack, including power supply and peripheral - electrical checkout, I&C checkout of power supply, and energization of Instrument Racks 0C391 and 0C386 are complete.

- Boron Recovery and Liquid Waste Programmatic Controller System including remote I/O Cabinets - Prepower checks, and electrical checkout of I/O cabinets are complete, ladder checks are essentially complete except for design changes requiring retest.

- Radwaste Gas System Programmatic Controller System including remote I/O cabinets - prepower checks, Part 1 - Power ON preliminary checks, and Part 2 Ladder checks are complete.

C. Nuclear Steam Supply Systems (NSSS)

14 of 56 systems have been turned over to CPCo (or 25 %.)

No Preop or Acceptance Tests have been started. One specific procedure (Unit 2 Decay Heat Removal Initial Pump Run) has been completed.

Significant Activities completed or in progress include:

RJC B

May Can use at next
forecast Panel
Whenever that is.

RP 9915

REQUEST FOR APPROVAL FOR USE OF PRIVATELY OWNED VEHICLE OR RENTAL CAR FROM THE OFFICE OR FROM HOME FOR OFFICIAL BUSINESS

NAME: _____ DATES OF TRAVEL: _____

DESTINATION: _____ PURPOSE: _____

POINT OF DEPARTURE: OFFICE: _____ (CITY) RESIDENCE: _____ (CITY)

☐ APPROVAL IS REQUESTED FOR USE OF PRIVATELY OWNED VEHICLE FOR TRAVEL IDENTIFIED ABOVE IN LIEU OF TRANSPORTATION BY:

- ☐ COMMON CARRIER (AIR, RAIL, BUS)
- ☐ GOVERNMENT-OWNED AUTOMOBILE

I UNDERSTAND THE REIMBURSEMENT WILL BE ON THE FOLLOWING BASIS:

- ☐ MILEAGE RATE 20¢ PER MILE BUT LIMITED TO THE COST OF TRAVEL BY COMMON CARRIER
- ☐ MILEAGE RATE 20¢ PER MILE WHICH IS LESS COSTLY THAN TRAVEL BY COMMON CARRIER AND RENTAL CAR/LIMO
- ☐ MILEAGE RATE 20¢ PER MILE - PRIVATELY OWNED VEHICLE IS ADVANTAGEOUS TO THE GOVERNMENT BECAUSE: _____

  _____

  _____
- ☐ MILEAGE RATE 16.5¢ PER MILE - GOA IS AVAILABLE; USE OF POA IS PREFERRED

☐ APPROVAL IS REQUESTED FOR USE OF RENTAL CAR IN LIEU OF GOA BECAUSE:

- ☐ GOA IS NOT AVAILABLE
- ☐ OTHER _____ (STATE REASON)

_____ (SIGNATURE OF TRAVELER)

_____ (DATE)

APPROVED _____ (SECTION/BRANCH CHIEF)

REV. 3/82

THIS FORM MUST BE SUBMITTED BEFORE OFFICIAL TRAVEL BEGINS

EXHIBIT B

REPORT ON REVISION 12 SCHEDULE

CONSUMERS POWER COMPANY

MIDLAND ENERGY CENTER

WHY CONSUMERS POWER COMPANY BELIEVES THAT REV. 12 SCHEDULE IS ACHIEVABLE

I. COMPARISON OF NRC CASELOAD FORECAST PANEL VISITS

(See Transparency #1)

The results of the August 1981 Caseload Forecast Panel visit agreed reasonably well with CPCo's own estimate (3 month's difference). At that time, 164 System Turnover's (T/O's) had been accepted (or 19%), less than 7% of systems had been checked out, and no flushes, preoperational, acceptance, specific tests were completed. The time span between the 1st Test Milestone (2A-Fuel Handling Dry Index Test) and Unit 1 Fuel Load was 22 months.

When compared to the recent Caseload Forecast meeting (April 1983), it is apparent that CPCo has made considerable progress in the Test Program with 64% of System T/O's accepted, 45% of system checkouts completed, 4% of Preoperational/Acceptance/Flush/Specific Tests completed, and 17 Flushes and 23 Specific Tests in progress. Despite these achievements, we maintained the same time span (22 months) of the Test Program Schedule through Unit 1 Fuel Load. This indicates that the Rev 12 workload will be considerably less compared to Rev 11 within the same time frame of 22 months. Based upon the NRC Caseload Forecast Panel's conclusion in August 1981, we see no reason why the schedules that we projected then, cannot be reaffirmed by the NRC for Rev 12 of the Project Schedule.

Further breakdown of Test Program Status - Turnovers, Checkout, and Testing is shown on Transparency #2

II. TEST PROGRAM - PROCEDURE DEVELOPMENT STATUS

(See Transparency #3)

Procedure Development to support the Test Program is at least two months ahead of the Rev 12 Test scheduled start dates. Considerable progress has been made in Procedure Development (50% complete). This implies that, in terms of Procedure Development, we foresee no problem that could impact the Test Schedule. Note that progress in Procedure Development was recognized as a problem in support of the earlier schedule (Rev 11); but this is no longer the case with Rev 12.

III. PRE-OPERATIONAL & ACCEPTANCE TEST SCHEDULED START DATES

(See Transparency #4)

The graph shows the Preop and Acceptance Tests for Revision 12 of the Test Program. ~~Two~~ Four curves are shown:

(1) The first curve depicts scheduled Early Test Start. This curve represents the earliest time that tests can start based upon Rev 12 Forecast T/O dates. Therefore, the number of Test Starts are front-end loaded, i.e. it is an optimistic curve.

(2) The second curve depicts LATE TEST START - i.e., the latest time that Tests can start without impacting the fuel load date. This curve is just the opposite of early starts. The number of Test Starts is very small in the front end, gradually slopes up, then becomes progressively steep as we conduct HFT and approach Fuel Load.

(3) The ideal case is a curve that falls between the EARLY and LATE start curves. Our target @ Midland is to fall on this "middle" curve (#3 graph), since it will insure that prerequisites to Tests are met before starting the Test; will allow resource leveling; and will allow leeway (or slack) before the Tests will start to impact the Fuel Load date.

This goal is achievable, we believe, since plants that utilized this concept (ex. Davis-Besse), were able to achieve a time span of under 8 months between Cold Hydro and Fuel Load.

(continued)

III. PRE-OPERATIONAL & ACCEPTANCE TEST SCHEDULED START DATES (continued)

(4) The Fourth curve on the graph shows the Davis-Besse actual Test Completions. At Cold Hydro, 19% of Tests were completed; at HFT, 33% and prior to Fuel Load 75%. By scheduling RCS Cold Hydro at a later date, this will allow as much Turnovers as possible, Checkout, and Testing as possible, thus shortening the time span between Cold Hydro and Fuel Load. Midland's goal is on curve #3, which has a projected Test Schedule above the Davis-Besse Curve.

IV. SYSTEM TURNOVER (REV. 12)
(See Transparency #5, 6, 7)

1. There are 322 remaining System T/O's spread out over 15 months. Twenty Four (24) of these have already been accepted (shown in green, Transparency #5) vs two (2) required in May of 1983, and Fourteen (14) required in June of 1983.

2. Bechtel's performance in 1982 was 320 System T/O's in a 12 month period. Therefore, it is conceivable that Bechtel can meet Rev 12 T/O dates for the same number in 1982, but this time, spread over a 15 month period vs 12 month. For the Month of May-1983, alone, the number of required T/O's Two (2) was surpassed (13 T/O's). Therefore, we already have a good head start.

3. The Rev 12 T/O dates are levelized. The maximum number of T/O's in one month is 32, with an average of 22 T/O's per month. This is definitely achievable, considering that in 1982, Bechtel turned over an average of 27 T/O's per month; one month alone, there were 46 System T/O's (May 1982). In addition the levelized approach ensures that no more than 13 System T/O's per month is required for any Discipline (see Transparency #6). Levelization of T/O's have the affect of minimizing resource peaks and valleys, maintaining steady work load, and eliminating "crashing" of System T/O's close to the Milestone.

TURNOVER SCHEDULE CONCERNS:

4. Transparency #7 shows the Q Systems (highlighted in Red) for the months of May, June, July, and August. Since Q work was not released in accordance with our original projections, these turnovers are in jeopardy. We have attempted to relieve any possible schedule impact by partialing some of these systems. Additional steps can be taken when the full impact of this delay is determined. The critical concern however is still release of Q work to allow construction to finish these systems.

(Curves are being updated

I. MASTER PUNCHLIST ITEMS.

At the time the NRC Caseload Forecast Panel met with CPCo (April 1983), the total open items in the Punchlist was 9500. Since then, the number of open items has dropped to 8676 (end of May 1983) indicating significant progress towards reducing the punchlist items to support the Test Program.

~~As you are aware~~ Note that the count of total open items in the Punchlist contains double and sometimes triple accounting of some items. This can occur when one type of item (ie a Turnover Exception) is being worked off using another type of document to authorize the work (ie a Contractor Work Request). Since both documents are tracked on the Punchlist they both get counted into the total open items number. ~~In an effort~~ To eliminate ~~this inaccuracy we~~ double-accounting the following approach has been implemented. ~~the following plan.~~ Total open items will be comprised of Turnover Exception items (TOE's), Design Change Packages (DCP's), and Corrective Action Report (CAR's). This then would reduce the total open items count to only those items which must be worked off and the item should be counted only once. Using this method Total Open Items at the end of June are _____. Attachment _____ shows the status of the above open punchlist items by type using the new method for the Total Open Item curve.

Reasons for ~~excepting~~ EXPECTING significant Punchlist reduction

A. Turnover Exceptions (TOE's) - This represents the largest number of open items. Attachment 5 shows a downward trend ~~starting at the beginning of the year~~ primarily due to lack of system T/O's pending implementation of the CCP.

We have reason to believe that despite the 322 remaining T/O's, the number of open TOE's will continue to decline because we predict that more items will be closed out than items being added (as more T/O's occur). We have seen the effect of this recently based upon 19 T/O's in 1983 - the average number of TOE's per System was 3, compared to 1982 System T/O's in which the average number was 29 TOE's per System.

"Cleaner" System T/O's can be directly attributed to the CCP and the basic premise that System T/O's will be free of major construction deficiencies as much as possible.

GSO's performance over the past 5 months has been 237 TOE close-outs per month on the average, despite the "hold" on Q-work. When the Q-work is fully released, we project that the number of TOE closeouts will increase. GSO is manned to support this work effort.

Significant number of TOE's on Mechanical Systems are due to insulation installation and adjustment of hangers during initial fill and vent or System Heatup. As the tempo of the Test Program increase, the number of TOE's that can be closed out will subsequently increase.

B. CWR's - CWR's are not included in the count for total open items in Punchlist, these items represent double accounting of items since these are work related to TOE's, CAR's, DCP's, or NCR's.

C. DCP's - Based upon the Hardware Configuration Task Force recommendations, DCP's on non-turned over Systems will be worked off prior to Turnover with minor exceptions. What this means is that there will be fewer DCP's issued in the future against Turned-over Systems.

D. CAR's/NCR's - These types are projected to increase because of the nature of the Test Program. As more checkouts and Testing occur, deficiencies (if any) will be written and resolved. The Rev 12 Schedule has helped in providing more time to respond to CAR's/NCR's. Management attention on non-conformances has been increased. This increased awareness will lead to an effective control by Management in dealing with timely response of non-conformances by the respective action organization.

NT NAME	RCS HYDRO START DATE	FUEL LOAD START DATE	Δ(MO.)	COMMENTS (SEE ATTACH.)
ER VALLEY 2	1-28-85	12-31-85	11	✓
EFONTE 1	3-84	5-85	14	
EFONTE 2	4-85	5-86	14	
DWOOD 1	9-82	4-85	31	✓
DWOOD 2	6-83	4-86	34	✓
ON 1	7-81 A	4-83	21	✓
ON 2	3-83	4-84	13	
LAWAY 1	~~6-13~~-82 A	~~6-82~~ 4-82	10	✓
AWBA 1	2-84	10-84	8	✓
AWBA 2	1-86	10-86	9	✓
EROKEE 1	NOT GIVEN	NOT GIVEN	—	
EROKEE 2	" "	" "	—	
EROKEE 3	" "	" "	—	
IANCHE PEAK 1	6-82	6-83	12	
IANCHE PEAK 2	NOT GIVEN	NOT GIVEN	—	
BLO CANYON 1	6-75 A	" "	—	✓
BLO CANYON 2	NOT GIVEN	NOT GIVEN	—	
RRIS 1	5-1-84	12-84	7	✓
RRIS 2	11-1-87	6-1-88	7	✓
RBLE HILL 1	8-85	6-86	13	
RBLE HILL 2	2-87	12-87	10	
GUIRE 2	5-24-82 A	4-1-83	10	✓
ILLSTONE 3	3-85	12-85	9	✓
RTH ANNA 3	9-26-88	4-89	6	✓
ALO VERDE 1	7-82 A	8-83	11	✓
ALO VERDE 2	7-83	8-84	13	✓
ALO VERDE 3	2-85	11-85	9	
AN ONOFRE 3	3-10-82	11-1-82	8	✓
EABROOK 1	7-83	11-30-83	5	✓
EABROOK 2	10-85	2-28-86	5	✓
OUTH TEXAS 1	6-86	12-86	6	✓
OUTH TEXAS 2	6-88	12-88	6	✓
T LUCIE 2	5-19-82 A	10-28-82	5	✓
UMMER 1	11-1-79 A	8-82 A	33	✓
OGTLE 1	3-1-86	9-1-86	6	✓
OGTLE 2	9-1-87	3-1-88	6	✓
ASHINGTON NUCLEAR 1	6-85	NOT GIVEN	—	✓
WASHINGTON NUCLEAR 3	10-84	6-85	8	✓
WATERFORD 3	6-15-82	1-83	7	✓

WATTS BAR 1	10-15-81	8-83	22	✓
WATTS BAR 2	10-83	8-84	10	✓
WOLF CREEK 1	1~~2~~-~~20~~-83	~~12~~-16-8~~4~~	8	
YELLOW CREEK 1	11-30-87	7-1-89	19	
YELLOW CREEK 2	NOT GIVEN	NOT GIVEN	—	
FARLEY	7-79 A	3-81 A	21	✓

[illegible] source.
NC. [illegible] 6 30 [illegible]

FUEL LOAD DATE CHANGES – REASONS

PLANT NAME	REASONS
EAVER VALLEY 2	1. FINANCING PROBLEMS 2. SOIL FOUNDATION PROBLEMS 3. FINANCIAL PROBLEMS AND REDUCED LOAD FORECASTS 4. " " CAUSED REDUCED CONSTR. LEVEL
RAIDWOOD 1	1. FINANCIAL CONSIDERATIONS
RAIDWOOD 2	1. " "
BYRON 1	1. REVISED LOAD DEMAND FORECAST
CALLAWAY 1	1. FINANCING IMPACT OF PROPOSITION 1 PASSAGE BY STATE OF MISSOURI VOTERS. 2. UNABLE TO MEET CONSTR. SCHEDULES. REAPPRAISAL OF WORK LEFT TO BE COMPLETED.
CATAWBA 1 CATAWBA 2	1. FINANCIAL PROBLEMS 2. REVISED LOAD FORECASTS. 3. REASSESSMENT OF REMAINING WORK.
DIABLO CANYON 1	1. STRIKES BY UNIONS 2. RETUBING OF MAIN CONDENSER 3. REBLADING OF LOW PRESSURE TURBINES.
DIABLO CANYON 2	1. REASONS 1 AND 2 FROM ABOVE 2 ELECTRICAL INSTALLATION PROBLEMS
HARRIS 1	1. REVISED DEMAND FORECASTS.
HARRIS 2	1 " " " 2. EXPANDED CONSERVATION AND LOAD MANAGEMENT PROGRAM.
GUIRE 2	1. INITIAL CONSTR. DELAY BY MATERIAL DELIVERY 2 FINANCIAL PPOBLEMS 3 REGULATORY REQUIREMENTS CHANGED. 4 DESIGN MODS.

)NE 3	1. UNCERTAIN FUEL SUPPLY 2. CHANGES IN LOAD DEMAND 3. INCREASE IN PROJECT COST 4. MODS. IN LONG RANGE PLANNING.
ANNA 3	1. ECONOMIC FACTORS 2. EFFORTS AT CONSERVATION AND LOAD MANAGEMEN
'ERDE 1	1. AUGMENTATION OF PLANTS EMERGENCY RESPONSE SYST. BECAUSE OF TMI.
VERDE 2	1. DELAYS IN UNIT 1.
ONOFRE 3	1. ISSUANCE OF PERMIT 2. LABOR PROBLEMS
ROOK 1 3ROOK 2	1. EPA REVERSED APPROVAL OF ONCE TROUGH CIRC. WATER SYS. & SUBSEQ. NRC WITHDRAWL OF CONSTR. PERMIT, & TIME TO REMOBILIZE
TH TEXAS 1 TH TEXAS 2	1. SCHEDULE REEVALUATION 2. CHANGE IN A/E AND CONSTRUCTOR
LUCIE 2	1. LWA HALTED BY COURT ORDER 2. PROJECT AUTHORIZED TO USE TWO SHIFTS
)MMER 1	1 POWER NEEDS DEFERRED; FINANCIAL PROBL.
)GTLE 1)GTLE 2	1. FINANCIAL REASONS 2. OVERESTIMATED POWER NEEDS
JASHINGTON NUCLEAR 1	1. ENG. COMPL DELAYED. LABOR PROBLEMS 2. POOR LABOR-PRODUCTIVITY. 3. INCREASE IN PLANNED DURATIONS FOR PREOP. TESTING TO COMMERCIAL OPER.
○SHINGTON NUCLEAR 3	1. LATE PIPING START. 2. REVISED PRODUCTIVITY AND QUANTITY ESTIMATE 3. 4 MO. SCHEDULE RECOVERY BASED ON REASSESSMENT OF PROJECT CAPABILITY AND CONTRACT INCENTIVES FOR PRIME

ATERFORD 3	1. INORDINATELY LENGTHLY LISCENSING PROCEEDING, CURRENTLY BEING PROLONGED BY ANTI-TRUST ISSUE. 2. REEVALVATION OF CONSTR. SCHEDULE.
WATTS BAR 1 WATTS BAR 2	1. INABILITY TO OBTAIN STEEL ANCHOR BOLTS AND REINFORCING RODS. 2. REDISIGN OF CONTAINMENT TO ACCOMODATE HIGHER TRANSIENT PRESSURES. INCREASE IN TIME TO ERECT STEEL PLATE THICKER THAN ORIGINAL DESIGN. 3 LATE DELIVERY OF PRINCIPAL PIPING, VALVES, AND HANGERS WHICH FORCED IMPOSSIBLE PEAKS IN STEAMFITTER MANPOWER. 4. LATE DELIVERY OF ICE CONDENSER EMBEDMENTS. 5. STEAM GENERATOR PROBLEMS AND PIPING.

St Lucie II - Bob Dawson - Asst SU Supt

Steve Marshall - 305-464-7990 x 258

St Lucie II schedule logic is similar to our plans at Midland. Cold Hydro was performed after RCS support systems were checked out, shaken down, & in most cases preoped. Checkout & preops on systems not required to support Cold Hydro were completed prior to HFT (HVAC, piping supports, snubbers). RV internals were inspected & installed prior to hydro, head installed, & not removed until after HFT (our plan).

Hydro Complete 5/25/82 } → 5 month Δ - complete HFT support preops

HFT Start 10/21/82 Finish 11/15/82

Fuel Load 4/6/83 (5 months from finish of HFT)

Chuck Tomashek - Byron I

Introduced conversation giving history. In '81 they were in the middle of licensing process & TMI mods were going to bite them. They made a Mgmt decision to reduce work force & slow down the job until that got sorted out. However, they had an RCS that would support hydro, so they did it. Probably equivalent to us doing hydro on Dec 5, then stopping Q work on 12th

RCS Hydro	HFT
7/81	4/4/83 - began valve lineups
	4/25/83 - began procedure - heatup
	Presently still in it -
	- 3 week outage - RCP bearings
	- 1 week " MSIV problems
	- must complete 28 day soak for corrosion layer.
	- Complete HFT ~ 7/10

Fuel Load → Nov '83
→ ILRT / Int ESFAS Testing - Between HFT & Fuel Load
→ Structural Steel Mods - delaying Fuel Load

For Hydro, they used normal systems, but their own procedures. Systems were not prepped.

Summer

Hydro 12/79 } 33 month Δ
Fuel Load 8/82 }

1/79 1st Hydro - Political - they knew this prior to performing it. They had some more work to do which would require another RCS Hydro.

HFT - Summer 1980 - lasted 100 days (complete in Aug '80)
They had major problems with Rx Bldg Cooling - 150°F in containment - 120°F limit - required major fully rigs to complete.

2nd Hydro - 8/81 →

mini HFT - complete on 11/81 - complete left over items & to complete checkout of RB Cooling mod work.

Major delays were due to seismic reanalysis hanger problems Required mods &/or additions to 1/3 of 4000 hangers. This occurred from 8/81 -- 8/82.

Fuel Load 8/82.

TEST PROGRAM STATUS SUMMARY

	AUGUST 1981*	APRIL 1983*
SYSTEM TURNOVERS	164 (19%)	543 (64%)
SYSTEM CHECKOUT	LESS THAN 7%	45%
TESTS COMPLETE (PREOP, ACCEPTANCE, FLUSH, SPECIFIC)	0	28 (4%) DOES NOT INCLUDE: 17 FLUSHES STARTED 23 SPECIFIC TESTS STARTED
TEST MILESTONES COMPLETED	0	4
TIME SPAN BETWEEN 1ST MILESTONE (UNIT 2 DRY INDEX TEST) AND UNIT 1 FUEL LOAD	22 MONTHS	22 MONTHS

* DATES REPRESENT NRC CASELOAD FORECAST PANEL VISITS.

TRANSPARENCY #1

BREAKDOWN OF TEST PROGRAM STATUS

	AUGUST 1981	APRIL 1983
ELECTRICAL SYSTEMS	-145 SYSTEM T/O's (39%)	-321 T/O's (87%)
	-30% ELECTRICAL SYSTEMS ENERGIZED	-83% ENERGIZED
I & C	-3 SYSTEM T/O's (4%)	-36 T/O's (52%)
	-2% SYSTEM C/O COMPLETE	-37% SYSTEM C/O COMPLETE
		-9 SPECIFIC TEST PROCEDURES COMPLETE
NSSS	-0 SYSTEM T/O's	-14 T/O's (25%)
	-0 SYSTEM C/O	-4% C/O COMPLETE
		-1 SPECIFIC TEST PROCEDURE COMPLETE
AUXILIARY	-0 T/O	-26 T/O's (31%)
	-0 C/O	-8% C/O COMPLETE
		-2 FLUSHES COMPLETE
		-1 SPECIFIC TEST PROCEDURE COMPLETE
		-2 PREOP TESTS STARTED
FEEDWATER/CONDENSATE	-4 SYSTEM T/O (4%)	-55 T/O's (55%)
	-2% C/O COMPLETE	-25% C/O COMPLETE
		-6 FLUSHES COMPLETE
		-1 SPECIFIC TEST PROCEDURE COMPLETE
TURBINE/HVAC	-12 SYSTEM T/O (8%)	-76 T/O's (50%)
	-2% C/O COMPLETE	-24% C/O COMPLETE -7 FLUSHES COMPLETE -1 ACCEPTANCE TEST COMPLETE
PROCESS STEAM	-0	-12 T/O's (80%) -15% C/O COMPLETE -1 FLUSH COMPLETE

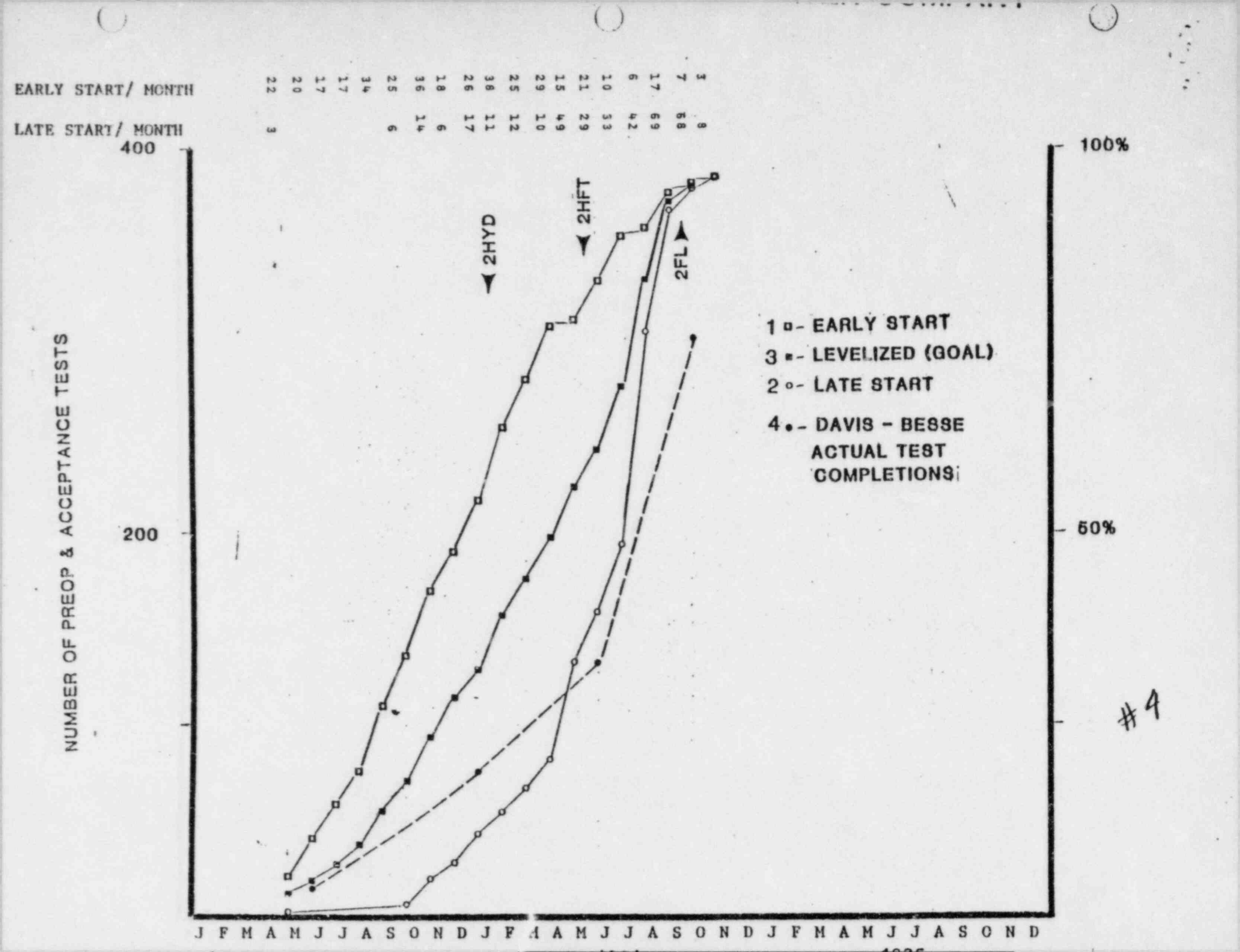
TRANSPARENCY # 2

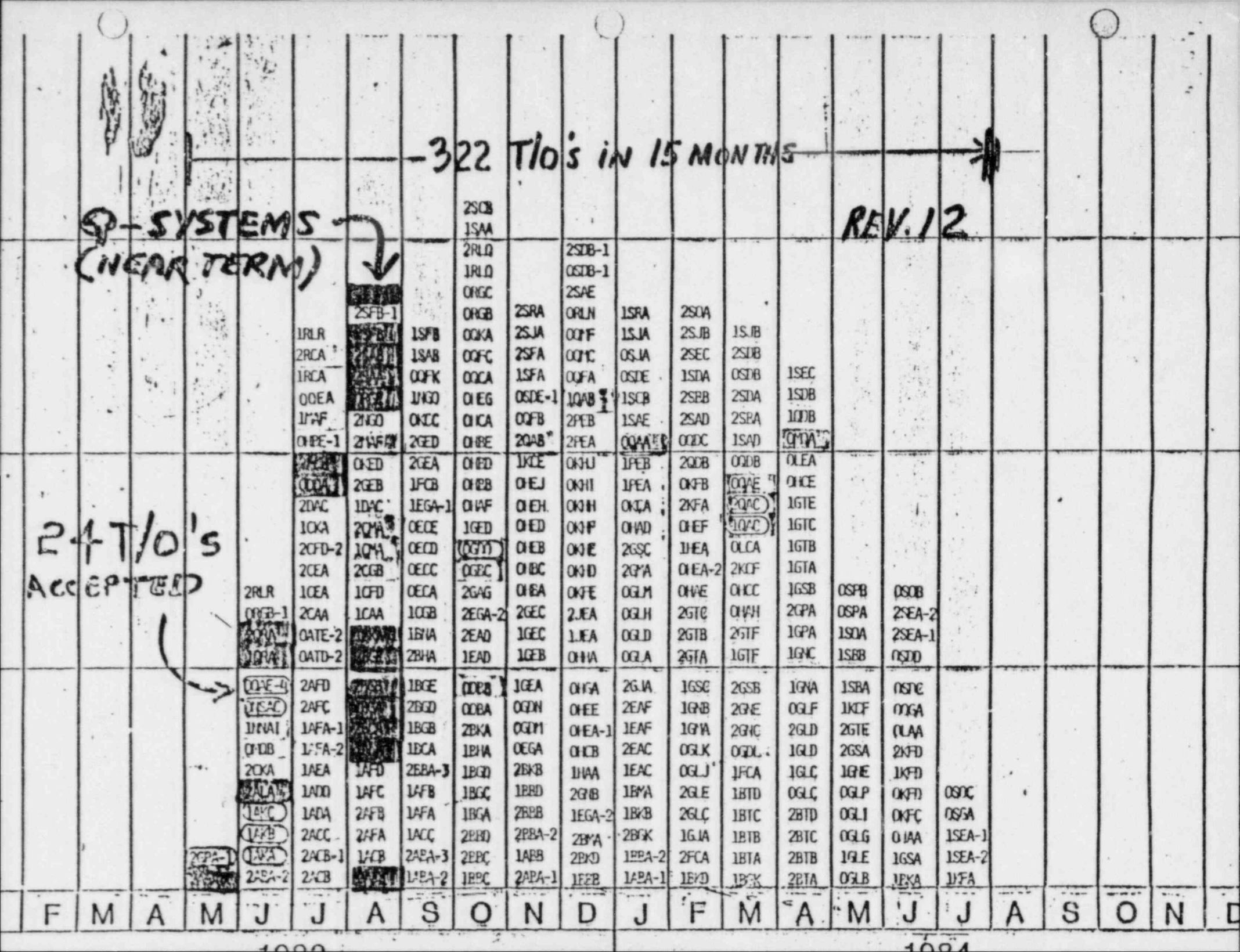
TEST PROGRAM

PROCEDURE DEVELOPMENT STATUS

PROCEDURE TYPE	CASELOAD F/C 8/81	CASELOAD F/C 4/83	PRESENTLY 5-30-83
PRE-OPERATIONAL	0	21%	24%
ACCEPTANCE	0	33%	50%
FLUSH	3%	69%	72%
SPECIFIC	6%	66%	70%
% TOTAL	2%	45%	50%

#3


EARLY START/ MONTH
22 20 17 17 34 25 36 18 26 36 25 29 15 29 21 10 6 17 7 3
LATE START/ MONTH
3 6 14 6 17 11 12 10 49 29 33 42 69 68 8
400
200
100%
50%
NUMBER OF PREOP & ACCEPTANCE TESTS
2HYD
2HFT
2FL
1 ▫ - EARLY START
3 ▪ - LEVELIZED (GOAL)
2 ◦ - LATE START
4 • - DAVIS - BESSE ACTUAL TEST COMPLETIONS
J F M A M J J A S O N D J F A A M J J A S O N D J F M A M J J A S O N D
#4


-322 T/O's IN 15 MONTHS
REV. 12
9-SYSTEMS (NEAR TERM)
24 T/O's ACCEPTED
F M A M J J A S O N D J F M A M J J A S O N D
1983
1984

SYSTEM TURNOVER REV. 12 BY CPCo TECH DEP'T DISCIPLINE

	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
I & C	0	1	1	4	2	4	4	4	4	5	5	2	5	5	4
ELEC	0	7	2	4	2	5	2	4	1	2	4	2	0	1	0
AUX	0	0	1	1	5	11	8	11	9	5	7	5	0	0	0
PT/P	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0
NSS	0	1	0	7	9	8	5	3	5	2	2	0	0	1	0
FW/CONT	1	3	11	7	5	0	1	7	1	2	2	0	1	6	1
PSS	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0
TURB/HVAC	0	1	7	5	3	4	6	1	7	11	6	13	8	1	0
TOTAL	2	14	26	28	26	32	27	30	27	27	26	24	14	14	5

MAX. No. of T/O's /MONTH

REV. 12 AVERAGE T/O /MONTH = 22

IN 1982 -

ACTUAL AVERAGE T/O's = 27

PEAK T/O (MAY '82) = 46

LIST OF Q-SYSTEMS TURNOVERS THROUGH AUGUST

SYSTEM DESIGNATOR	SYSTEM DESCRIPTION	REV 12 T/O DATE
1-QRA	ELECTRICAL PENETRATIONS	30 JUNE 83
2-QRA	ELECTRICAL PENETRATIONS	30 JUNE 83
2-AEA-3	Q-PORTION OF FEEDWATER PIPING	15 JULY 83
2-FCB	MN. FEEDWATER PUMP TURBINE	26 JULY 83
2-ALA-2	AUX. FEEDWATER PUMP & LINE	14 AUG. 83
2-BGB	LETDOWN PURIFICATION SYSTEM	15 AUG. 83
2-SAB	ESFAS CABINET & CONTROLS	15 AUG. 83
0-SSA	MULTIPLE SYSTEM CONTROL PANELS	15 AUG. 83
0-DDA-1	HYPOCHLORATE STORAGE TANK	15 AUG. 83
1-AEA-2	Q PORTION OF FEEDWATER PIPING	21 AUG. 83
2-ABB-2	BALANCE OF MAIN STEAM ISOLATION	21 AUG. 83
2-BGA	LETDOWN	28 AUG. 83
2-BGE	HIGH PRES SAFETY INJECTION	31 AUG. 83
2-SFB-2	CRDC CABINETS/CNTLS/ MG SET	31 AUG. 83
2-BCA-3	BALANCE OF DECAY HEAT REMOVAL	31 AUG. 83
2-SAA	ECCAS CAB & CNTLS	31 AUG. 83
1-ALA-4	AFW PUMP & LINE	31 AUG. 83
1-BKA-1	R B SPRAY SYSTEM TO RING HEADER	31 AUG. 83
0-RGE	FIRE PROTECTION SUPERVISORY INST.	31 AUG. 83

MIDLAND ENERGY CENTER

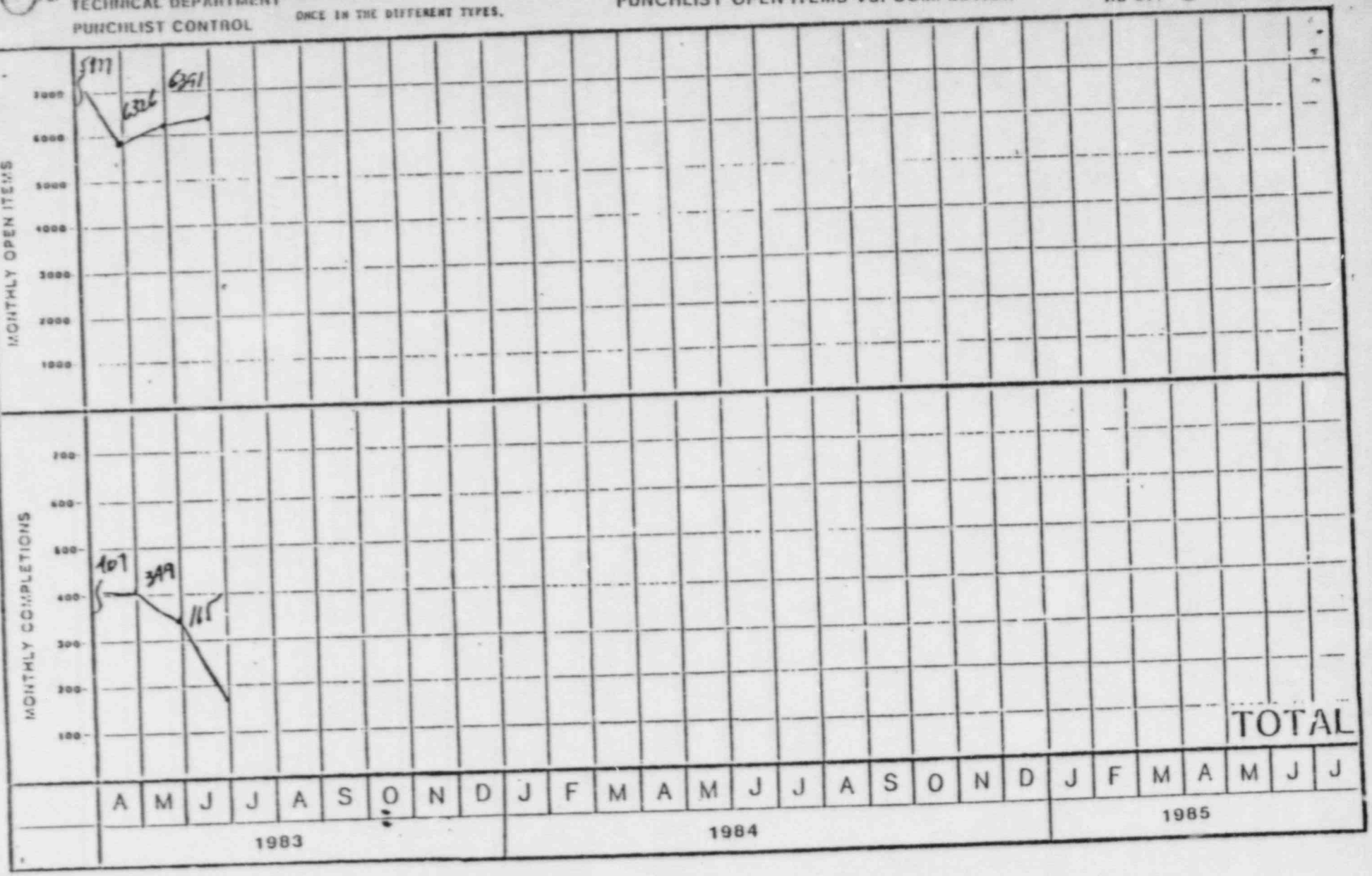
TECHNICAL DEPARTMENT

PUNCHLIST CONTROL

ONLY AN ITEM MAY BE COUNTED MORE THAN ONCE IN THE DIFFERENT TYPES.

PUNCHLIST OPEN ITEMS VS. COMPLETION

AS OF: 6-21-83

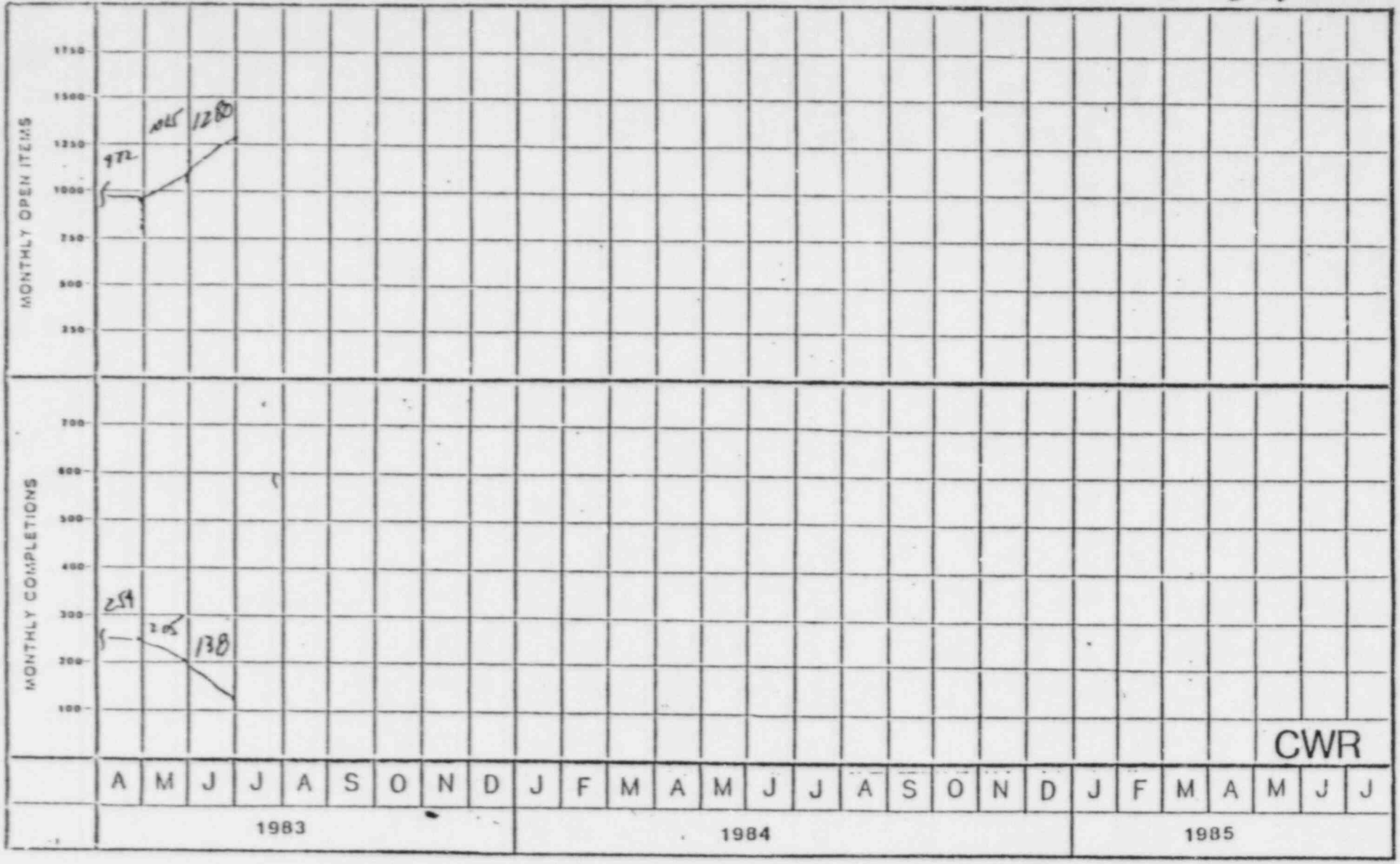


MIDLAND ENERGY CENTER
TECHNICAL DEPARTMENT
PUNCHLIST CONTROL

CONTRACTORS WORK REQUESTS (CWR)

PUNCHLIST OPEN ITEMS VS. COMPLETION

AS OF: 6-27-83

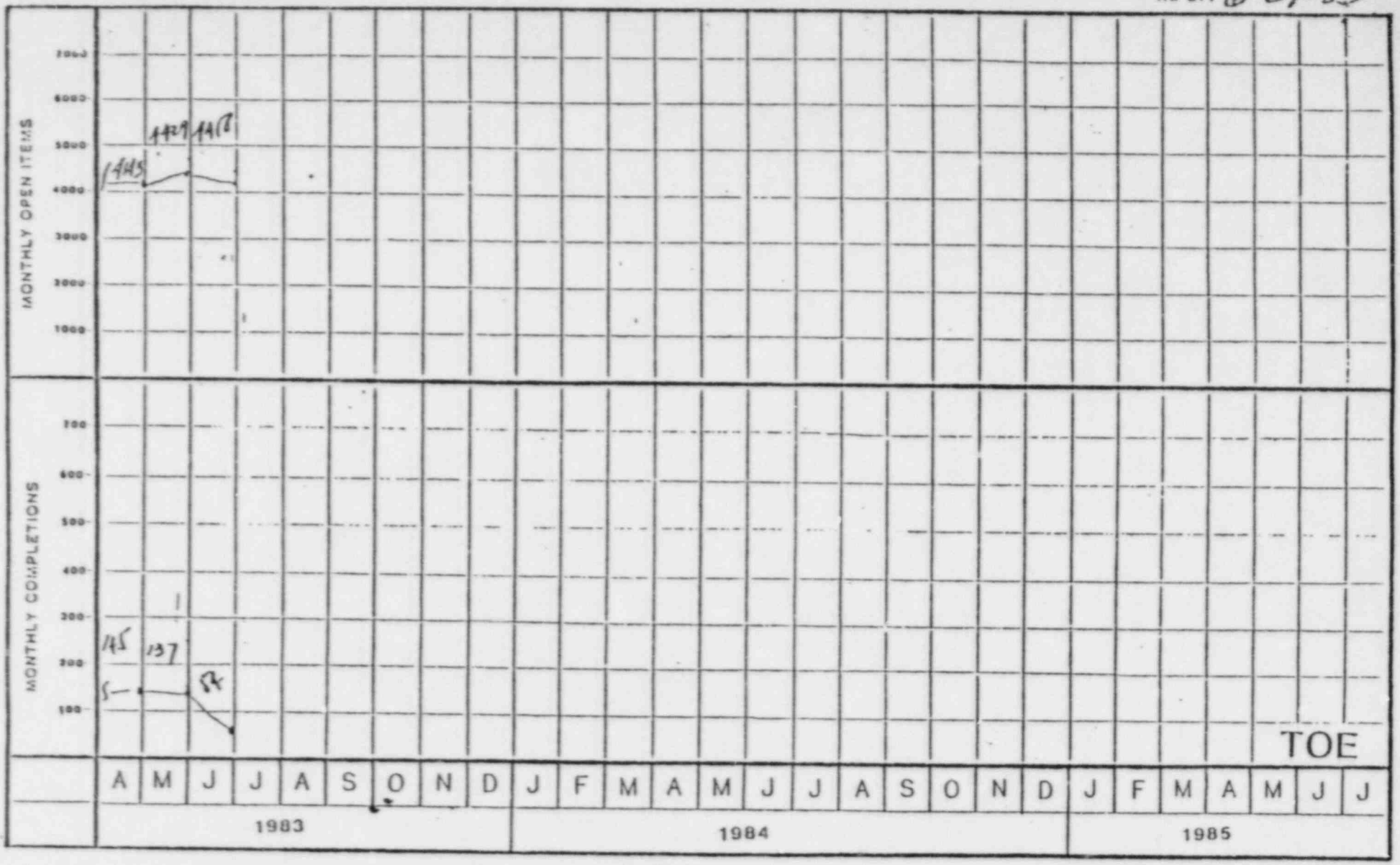


MIDLAND ENERGY CENTER
TECHNICAL DEPARTMENT
PUNCHLIST CONTROL

TURNOVER EXCEPTIONS (TOE)

PUNCHLIST OPEN ITEMS VS. COMPLETION

AS OF: 6-27-83

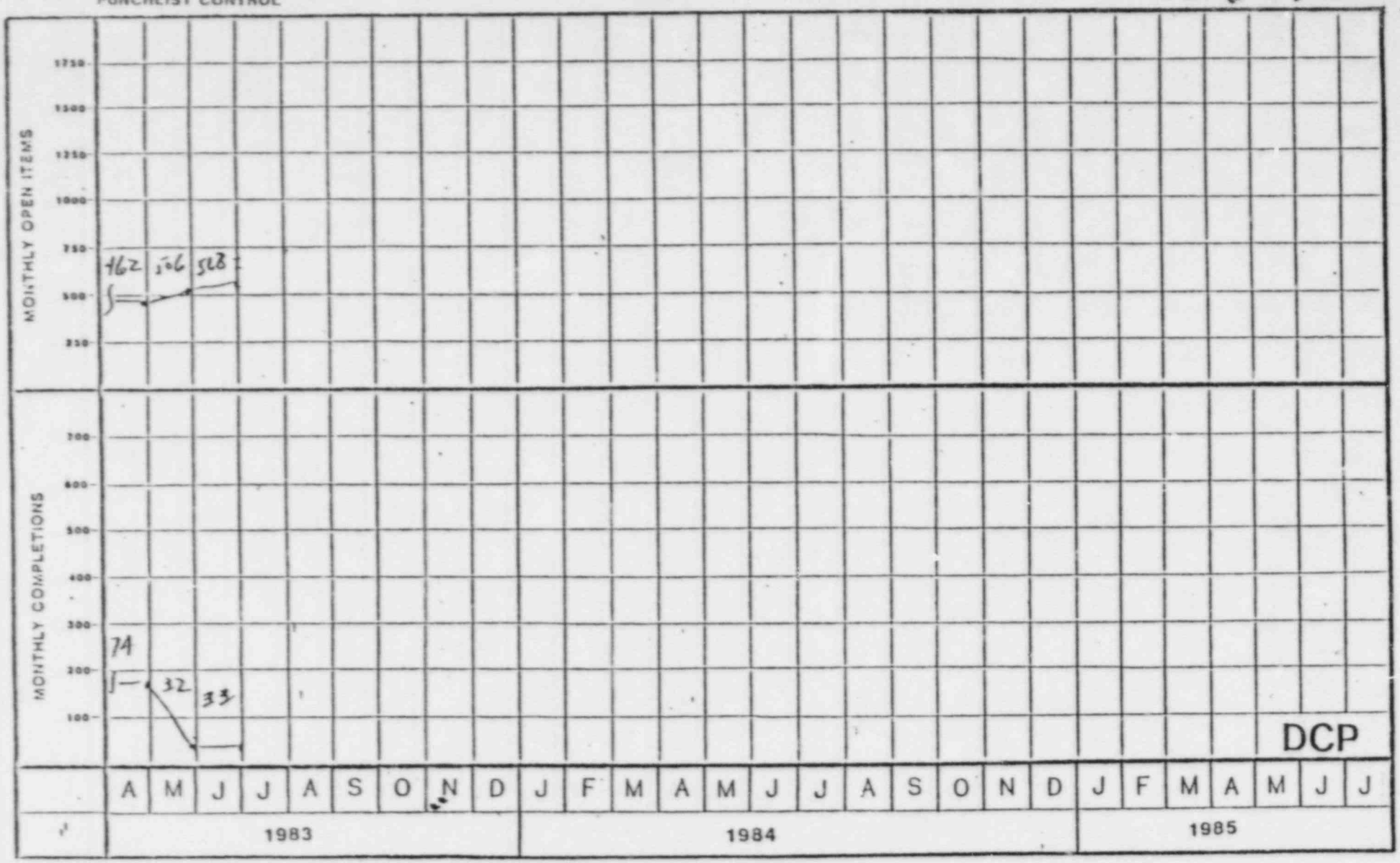


MIDLAND ENERGY CENTER
TECHNICAL DEPARTMENT
PUNCHLIST CONTROL

DESIGN CHANGE PACKAGES (DCP)

PUNCHLIST OPEN ITEMS VS. COMPLETION

AS OF: 6-27-83



- Turbine Bypass Valves - Unit 1 Electrical and I&C checkout complete; Unit 2 electrical checkout complete.

- Unit 1 Reactor Vessel Internals Modification is in progress

- Unit 2 Reactor Vessel Internals Modification complete; the HFT Flow screen is installed/attached to the PLENUM; the CRD dummy guide assemblies being installed in the PLENUM.

- Unit 2 Reactor Coolant Pump Motors - partial electrical checkout complete; all 4 RCPM's have been bumped for proper rotation and anti-rotation devices have been installed. Preparations are underway for initial motor runs.

- Unit 2 Decay Heat Removal System (portions in the Auxiliary Building) - Electrical and I&C checkout are essentially complete; Initial Pump Runs-Recirc Mode, complete; Gravity flush to suction of DH Pumps and Velocity Flush of lines from pump discharge to BWST recirc lines complete.

- Unit 2 Makeup System (High Pressure Injection Pumps) - Gravity flush to MU pump suction complete; two of the 3 HPI pump motors have been run and preparations are underway to run the third HPI pump motor.

- Unit 1 & 2 Boronometer - Electrical checkout complete.

- Unit 2 - Boric Acid Addition - The mix tank has been cleaned; electrical and I&C checkout in progress

- Unit 1 & 2 Hydrazine and Lithium hydroxide - Electrical I&C, and mechanical checkouts complete. Nitrogen blow to hydrazine drums complete. Unit 2 flush to suction of LIOH and Hydrazine Pumps complete.

- Unit 2 RB Spray suction piping - partial flush complete.

- Unit 2 Borated Water Storage Tank Outlet Piping - Flush to suction of DH pumps complete. The BWST Circulation pump initial run complete.

d. AUXILIARY SYSTEMS

26 of 84 Auxiliary systems have been turned over to CPCo (31 %).

Preformance of two flush procedures (Unit 1 & 2 FH Bridge Air System Flush) and one Specific Procedure (Receipt of Dummy Fuel Assemblies and Control Rods) have been completed.

Significant Activities completed and/or in progress include:

- Service Water Sluice Gates - I&C checkout complete; electrical checkout in progress.

- component cooling water - Portions of the system (B-Loop) required to provide cooling water to the RCP motors have been checked out and flushed; this includes piping to the CCW and Decay Heat Coolers and DH Pump Seal Coolers.

- Reactor Building Vent Header - Electrical checkout of valves complete.

- Radwaste pump seal water/headers - electrical checkout complete.

- Filter Handling - Electrical checkout complete.

- Primary Mixed Bed demineralizer - Electrical checkout complete.

- New Fuel Elevator - electrical checkout complete.

- Spent Fuel Pool Handling Bridge - electrical checkout complete

- Unit 1 Reactor Building Fuel Handling (FH) - electrical and I&C checkout complete, portions associated with Dry Indexing Preoperational Test (Milestone 1A) complete

- Unit 2 Reactor Building Fuel Handling - Electrical and I&C checkout complete, portions associated with Dry Indexing Preoperational Test (MILESTONE 2A) complete

- Unit 1 FH Transfer Mechanism - I&C checkout complete; Fuel Transfer Hydraulic System Flush in progress

- Unit 2 FH Transfer Mechanism - Electrical and I&C checkout complete, FH Transfer Hydraulic System Flush in progress.

- Service Water System - electrical c/o Main Header valves in progress, I&C checkout of common Header to the Turbine Building Service Water complete; electrical checkout Unit 1 & 2 Turbine Building Service water complete; electrical checkout Unit 2 Turbine Building service water complete.

- Initial Pump and/or motor runs completed to date include: Primary Water Storage Transfer and Vacuum Pumps (Motor only), service water Travelling screens, four of the five service water pump motors, four of the five service water strainers, and one of the CCW pumps.

e. Feedwater/Condensate Systems

55 of 100 systems have been turned over to CPCo (55%).

Performance of one Specific Procedure (Aux Boiler Initial Operation and Boilout) and 6 Flush Procedures, described below, have been completed.

Significant Activities completed and/or in progress include:

- Unit 2 Condensate supply and Low Pressure Feedwater Heating - Electrical, I&C, and mechanical checkouts complete; condensate pumps initial run complete.

- Unit 1 & 2 Hotwell makeup and Rejection - Electrical and I&C checkout complete except for Unit 2 I&C checkout which is in progress.

- Unit 1 & 2 Main Condenser - I&C checkout complete.

- Unit 1 & 2 Condenser Hotwell sampling - Electrical checkout complete.

- Common Feedwater crossconnect - electrical C/O complete.

- Unit 2 Condensate Demineralizers and Associated Systems - Electrical and I&C C/O in progress.

- Makeup Demineralizers - all checkouts complete, system is functional.

- Demineralized Water Storage and Transfer - all checkout essentially complete; system is functional and providing primary source of Flush Water; Flushes associated with the storage and transfer header branch lines to all hose stations, and Unit 1 & 2 Reactor Building piping, complete.

- Makeup Demineralizer Chemical Storage and Transfer - all system checkout and flushes complete; system is functional.

- Condensate storage (common system) - partial electrical and I&C checkout complete, flush to Unit 1 &2 Auxiliary Feedwater Pump recirc lines complete.

- Unit 1 Condensate Storage - Tank has been cleaned; I&C C/O complete.

- Unit 2 Condensate Storage - all system C/O complete except for electrical C/O; tank has been cleaned; flush from tank to Hotwell complete (Milestone 2E).

- Condensate Transfer - For the common system, all electrical and I&C C/O complete; condensate jockey and transfer pumps have been run; flush of the system is complete.

  Unit 1 system electrical and I&C C/O complete.

- Ammonium Hydroxide Storage and Transfer - The common unit electrical and I&C C/O complete; chemical addition pumps have been coupled. The Unit 1 & 2 systems electrical and I&C C/O complete.

- Hydrazine Addition System - Unit 1 & 2 Electrical and I&C C/O complete.

- Hogging/Exhaust Piping Vacuum Relief - Unit 1 & 2 I&C C/O complete.

- Circulating Water Supply - Unit 1 & 2 initial motor run of circulating water pump motors complete.

- Water Box Scavenging - Unit 1 & 2 Electrical and I&C C/O complete.

- Acid Storage, Supply, Distribution - Electrical checkout complete; pumps have been coupled.

- Auxiliary Boiler - all system C/O complete; both boilers have been fired and Auxiliary System flushes completed; boiler tuning and load test is in progress.

- Auxiliary Boiler Steam Distribution - all system C/O complete steam blow of main headers complete.

- Air Compressors/Instrument Air Dryer - all system C/O complete; compressors are functional; presently clearing punchlist open items; air blows main header complete.

- Service Air Distribution - all system C/O of the Unit 1, 2 and common headers complete; air blows to subheaders and branch lines in progress.

- Instrument Air Distribution - All system C/O complete; Instrument air is available to Evap Bldg, Miscellaneous Buildings, Dow pump house, Turbine Building (both units), and portions of the Auxiliary Building.

- Fire Water Supply/Distribution - System C/O complete; Diesel Fire and electric pump initial runs is complete. System is supplying site fire water protection.

- Transformer Deluge - I&C C/O complete.

- Carbon Dioxide Fire Protection - I&C and Electrical C/O in progress on those portions that are turned over.

- Building Deluge Protection - Electrical and I&C C/O for portions of the system turned over is complete.

- Hose Station Protection - Checkout of Hose Stations complete (to Warehouse 2, Turbine Building, Reactor Building, and Miscellaneous Buildings.

- Nitrogen System - System C/O complete; N_2 blow/purge of system complete; the distribution system is undergoing redesign work and therefore flushing will have to be done over.

- Natural Gas Evap Bldg Lab - System C/O complete; flush of system complete.

- Vacuum Fume Hood (Evap Bldg Lab) - Elect C/O and piping flush complete.

- Acid and Caustic Waste - Unit 2 sumps have been cleaned; I&C and electrical C/O complete; initial pump run of Neutralizing sump pump complete.

f. Turbine/HVAC Systems

76 of 150 systems have been turned over to CPCo (50%).

Performance of one Acceptance Test (D G Electric Heat Test) and 6 Flush Procedures as described below have been completed.

Significant activities completed or in progess include:

- Unit 1 & 2 Turbines - System C/O complete; Turbine has been placed on turning gear.

- Unit 1 & 2 Turbine Generator Bearing Lube Oil Supply - System C/O complete; Oil flush complete; system functional.

- Generator H_2 and CO_2 - Unit 1 & 2 I&C C/O complete; preparations under way to perform Generator Air Drop Test.

- Unit 1 & 2 Hydrogen Seal Oil - System C/O complete except for I&C C/O. Oil flush complete.

- Turbine Lube Oil Storage, Transfer, and Purification (Unit 1, 2, and Common) - All system C/O complete; oil flush complete; system functional.

- Cooling Pond Makeup Screens/Screen Wash - System C/O complete: system is functional.

- Cooling Pond Makeup, traveling screens, sluice gates, trash racks - Cooling Pond has been filled with water, checkout of screen wash pumps, screens, makeup pumps, sluice gate, valves complete. Cooling Pond blowdown system checkout is in progress.

- Hot Water Supply/Chemical Treatment - Electrical C/O complete; initial motor run of hot water pumps complete.

- Plant Hot Water Heat Systems - Unit 1 & 2 Turbine Building electrical C/O and initial motor runs complete; electrical C/O Auxiliary Bldg Hot Water heat complete; Unit 2 electrical, I&C C/O and initial motor runs complete; office, Service Building electrical, I&C C/O complete including initial motor runs; Intake, Hypochlorination, Service Water Building electric heat-system C/O complete; Unit 1 & 2 Diesel Generator Building electric heat - system C/O complete - The Diesel Generator Building Electric Heat Acceptance Test is complete.

  Reactor Buidling Hot Water Heat (Unit 1, common) electrical C/O complete; Process Evaporator Hot Water Heat electrical C/O including initial motor runs complete; Auxiliary Building Safeguard Room Electric Heat - electrical and I&C C/O complete (common Unit; Unit 1 - electrical C/O in progress); Guard House electric Heat - I&C and electrical C/O complete.

- Turbine Building Chilled Water - Unit 1 & 2 I&C C/O complete; chilled water pump motors were run and coupled; the system flushes are in progress.

- Office/Service Building Chilled Water - Electrical and I&C C/O complete; startup of chillers and pumps complete; proof flush is complete.

- Office/Service Building HVAC - System C/O complete, air balancing and setting of dampers complete.

- Chlorination Building HVAC, Cooling Pond MU Building HVAC, Cooling Pond Intake Building HVAC, Guard House HVAC, and Pond Blowdown Building HVAC - System C/O is complete.

- Evaporator Building HVAC, Circulating Water Intake Building HVAC, Oily Waste Treatment Building HVAC, and Dow Condensate Return Pump House HVAC - electrical C/O in progress.

- Refuel Pool Air Supply (Unit 1) - electrical c/o in progress.

- Domestic Water Storage, Transfer, and Heating - System c/o complete and system is functional.

- Hydrogen Supply - Electrical and I&C C/O complete; purging H_2 system with nitrogen complete (common system); Unit 1 & 2 H_2 system is functional up to the Main Generator and to the RCS MU Tank.

- Oily Waste System - Common Unit electrical and I&C c/o complete. Unit 1 electrical and I&C c/o complete and flush is complete; Unit 2 electrical and I&C c/o complete.

- Turbine Bolt Heater Panels - Both Unit 1 heater panels have been turned over; one of the panels have been checked out. Four of the Unit 2 Heater panels have been turned over; of these 1 heater panel has been checked out.

g. Process Steam

12 of 15 Process Steam Systems have been turned over to CPCo (80%). Performance of one Flush Procedure (Demineralized Water Supply) has been completed.

Significant Activities completed and/or in progress include:

- Steam to HP Evaporator - I&C C/O complete, electrical C/O in progress.

- condensate Return/Unit 2 Condenser, HP steam to Dow Isolation Valves - I&C C/O complete

- LP Steam to Dow Isolation Valve - I&C C/O in progress.

- Process Steam Blowdown to Dow - Electrical and I&C C/O complete; motor run has been performed and coupling of pump to motors complete.

- condensate return from Dow - Electrical, mechanical and I&C C/O complete (for CPCo equipment only).

- Condensate Chemical addition - electrical c/o complete; HP chemical Feed flush, sodium sulfite chemical feed flush and associated pump runs complete.

- condensate Supply/Vacuum Deaerator - system c/o complete; Dow Demineralized Water Tank (2.5 million gal) is filled with water for flushes; initial demin pump run and flush complete, evap dearator feed pump initial run complete.

- Feedwater Supply - Electrical, Mechanical, and I&C C/O is near completion; initial motor run of HP Feed Pump motor is complete.

- Iron removal (Condensate Return) - Mechanical and I&C c/o complete.

- Iron Removal sump - system c/o and iron removal sump pump run complete.

- HP Boilers - Initial checkout, start up, and testing complete, all 3 boilers have been fired up.

- Process steam plant sample - I&C c/o complete.

h. Programmatic Testing

3 of 5 systems were accepted by CPCo (60%)

Significant activities completed and/or in progress include:

- The Unit 1 & 2 Reactor Building Tendon Test Facility has been turned over as well as the Unit 2 RB Structural Integrity Test Facility.

3. Procedure Development

a. The status of Procedure Development and Approval required for the Test Program is summarized below and detailed breakdown of each Procedure type and Discipline is shown on Table 1.

Procedure Type		STATUS - PERCENT OF TOTAL		
	Total	Drafts Not Written	In Review & Approval Cycle	Approved
Preoperational Test Procedure	268	23%	56%	21%
Acceptance Test Procedures	128	29%	38%	33%

Flush Procedures	168	2%	20%	69%
Specific Procedures	119	13%	21%	66%
Generic Procedures	46	4	22%	74%
	729	16%	33%	45%
	(Total)	(Not Written)	(in Review)	(Approved)

Our goal is to have all Procedures approved by March 1984. Figure 2 shows a curve of Procedure Development - Actual vs Scheduled. Based upon Rev 12 Test Schedule, we project that procedures required to support Testing Activities will be developed and approved at least 2 months before the scheduled test start date.

b. The status of Test Program Procedure Performance completions is summarized below and shown in detail in TABLE 2 and Figure 3.

PROCEDURES COMPLETED

Preoperational Tests completed -	None
Preoperational Tests started/not complete -	2
Acceptance Tests completed -	1
Acceptance Tests started (not complete)	0
Flushes completed -	16

Flushes started (not complete) - 17

Specific Tests completed - 9

Specific Test started (not complete) - 23

Generic Tests/Checkout - Checkout procedures are performed for all components, subsystems, controls, and similar items to ensure that they function properly and are installed correctly prior to the start of system Preoperational or Acceptance Testing. Due to the nature of checkout (i.e. required for electrical, mechanical, and I&C), the status of checkout is presented below only as an approximate. The "completion" status is assumed that the checkout activity in itself is complete but there may be punchlist items that are still open and require checkout testing. In addition, the following guidelines were assumed in reporting checkout complete:

Electrical - system is checked out and energized

Mechanical System - electrical, I&C, and mechanical C/O are complete

I&C - electrical and I&C C/O are complete

DISCIPLINE	Generic Checkout Percent Complete
Electrical	83
I & C	37
Turbine/HVAC	24
Feedwater/Condensate	25
NSSS	4
Auxiliary System	8
Process Steam	15
Total	45%

In summary, 45% of the Systems (850) in the Plant have been initially checked out, and 4% of required Tests (Preop, Acceptance, Flush, and Specific) have been performed.

Project Test Schedule - Rev 12

A. Rev 12 Test Schedule Philosophy

The Rev 12 Test Schedule Philosophy is basically the same as Rev 11 relative to the dual Unit startup concept and is summarized in this section. Figure 4 shows Rev 12 Test sequence through commercial operation for both Units.

1. The majority (95%) of Unit 1 preoperational testing will be performed prior to Unit 2 Fuel Load.

This will relieve Unit 1 preoperational testing of restraints and delays due to Unit 2 license operating restrictions (technical specifications and surveillance testing). This will increase Unit 2 availability for power production owing to fewer interferences from Unit 1 preoperational testing.

2. Inherent timeframes are built into the merged schedule to absorb corrective design and/or maintenance following major periods of integrated initial plant operation and preoperational testing.

Historically, nuclear plant test programs have suffered lengthy delays immediately following the Cold Hydro Test Phase and the Hot Functional Test Phase due to equipment or other operational failures. These failures have in the past slowed and in many cases stopped critical path progression onto the next succeeding scheduled event(s) until repairs and/or design problems were resolved. These timeframes are shown on Figure 2 as "Resolve Punchlist Items---".

3. No two Unit 1 and Unit 2 milestone events are required to be performed simultaneously.

It is impractical to focus site activities on more than one (1) major Unit 1 and Unit 2 milestone activity at the same time. The Midland Site is currently being staffed to permit simultaneous component testing with each Unit but not for simultaneous integrated milestone testing. To do so would require two of every resource including the Testing Group, Operations Group, Bechtel, B&W, and CPCo Management support.

However, one major change in this philosophy is that, on Rev 12 the ILRT on one Unit is now scheduled to be performed simultaneously with HFT on the other unit. Since Testing manpower required to perform ILRT is different from HFT, and since there is no system nor technical relationship between ILRT on one unit and HFT on the other unit, we believe that these two events can occur in parallel.

4. Separation of Fuel Loads

Unit 1 and Unit 2 Fuel Loads are separated in time to support the Dow requirements with regard to process steam availability.

5. LLRT/ILRT/SIT are performed nearly piggy-back during the same timeframes.

Containment leak rate and structrual integrity testing would benefit by capitalizing on the commonality of equipment, personnel, and vendor support required to perform these tests.

6. The integrated ESFAS Test would be a common test phase.

The safeguards system for the Midland Project is essentially a common system in that each plant is designed to respond to the others safeguards action. As such, this particular milestone test for each plant will include the other plant to the extent that neither could provide sustained power during conduct of the test. Thus, ESFAS testing will be performed for each plant at approximately the same timeframe to avoid duplication of effort and interruption of power production from the "on-line" plant.

7. Several disadvantages with the Rev 11 schedule at the time it was developed have become less significant in terms of the Rev 12 schedule. These are:

a. <u>The potential problem of Spent Fuel Pool area work interferring with fuel receipt would be less significant</u>.

Receipt and storage of new fuel on site imposes a number of restrictions on the fuel storage facilities (spent fuel pool area). Typically, this means all activities are limited to either fuel handling itself or to routine maintenance of fuel handling related equipment. Usually, the license for receipt and storage of "special nuclear materials" (fuel) specifically prohibits construction activity or any other dirt generating or heavy maintenance work which could potentially affect cleanliness or structural integrity of the new fuel.

Based upon Rev 12, only 7 systems remain to be turned-over to support fuel receipt. The potential problem of receiving and storing Unit 2 fuel conflicting with construction of Unit 1 (construction access to the inside of the containment) is now much less significant due to large amount of construction work completed. There is no longer the problem associated with Tendon tensioning on the Unit 1 RB interferring with fuel receipt because the Tendon tensioning is complete.

b. Construction has a better chance of achieving the turnover demand dates since there are only 307 of 850 turnovers remaining. In addition, the CCP concept is predicated on quality work which would result in a more complete system at the time of turnover, i.e. less construction deficiencies.

c. The feedwater and condensate system will not have to be laid up for a long time between chemical cleaning and the start of HFT.

d. We have more time to reduce backlog punchlist open items.

8. Initial Turbine Roll - Three temporary high pressure boilers were installed in 1982 and fully tested to primarily allow early testing of the Process Steam Systems which will result in considerable schedule gains during power escalation testing of Unit 1. The Temporary High Pressure Boilers will also be capable of supplying steam to support Secondary Plant Testing including Initial Turbine Roll. Early Testing of the Secondary Steam Side of the plant and the Main Turbine will result in overall test schedule gains in the secondary side of the Plant. A Turbine Roll Milestone (TR) has been added to the Test Sequence which is required to be accomplished approximately 1 to 2 months prior to HFT. The Pre HFT Schedule Gains is expected from being able to perform early testing of relief valves, initial steam leak tests, steam blows and flushes of Secondary Side Systems.

B. REV 12 TEST PROGRAM PLAN

This section describes the Test Program Plan Revision 12, both in narrative form discussing the Testing highlights and Tabular/Chart forms showing details of the Test Program.

Figure 4 shows the Rev 12 Test Program Schedule Sequence showing the major milestones leading to initial fuel load and commercial operation. Figure 5 shows the full-blown Test Schedule in Tabular form listing the projected start dates for Preoperational, Acceptance, and Specific tests as well as system flushes.

The narrative presented below pertain to Unit 2; however, due to similarities between the two units, it is applicable also to Unit 1.

1. Planned Activities Leading to the Next Target Milestones (B-Auxiliary System Flushes and G-Feedwater System Flushes)

The major thrust during this period is to complete system checkouts and flushes for the 543 systems now in the hands of CPCo (as of 3-31-83). In addition, approximately 60 System Turnovers and subsequent checkout and flushing activities are projected to occur during this time frame.

In the electrical area, turnover of the remaining electrical power systems and subsequent energization are scheduled to provide permanent power to run the mechanical systems. Backfeed from the 345 KV lines through the Station Transformers will be a major event to ensure that sufficient power is available to support major test events and their power load requirements, and allow testing of the electrical systems.

In the I&C area, the major effort will be devoted to completing I&C checkout of instrument racks, cabinets, modules, and annunciators that have been turned over to CPCo. The majority of the remaining I&C system turnovers are scheduled during this time frame to allow as much checkout as possible in support of Mechanical systems checkout and startup. Verification of input/output

signals to the plant computer, annunciators, indicators, and controls will be an on-going process.

In the primary systems area, seven (7) systems remain to be turned over to support Milestone B-Auxiliary System Flushes into the Reactor Vessel. The major objective during this period is to checkout and flush the individual auxiliary systems which support the Reactor Coolant System (RCS). These include the DH Removal, High Pressure Injection, RCP seal injection, RC makeup, Core Flood, RCS letdown, and portions of the Reactor Coolant System Cold leg piping.

In the secondary side of the plant, the major testing activities involve checkout and flushing of the entire Condensate system and the Deaerators. Seven (7) Systems remain to be turned over to allow the next target Milestone (G) to start, which is the Main Feedwater Flush.

In the Evaporator Building, major activities in 1983 will include complete checkout and flush of Secondary and Tertiary Systems; complete flushing after remaining five (5) systems are turned over to CPCo; complete Tunnel modifications, and initial piping heatup using the HP Boilers.

2. Milestone B-Auxiliary System Flushes into Reactor Vessel

This Milestone involves flushing of the low and high pressure injection, and Core Flooding lines into the Reactor Vessel. Other activities scheduled to be performed/completed during this period include:

- Reactor Vessel internals modification and final clean up

- Reactor Vessel internals pre-HFT baseline inspection

- Reactor Cooling Pump Motor initial runs, seal installation, alignment and coupling to pumps,

- After flushes to the RV, setting the Core Support Assembly and filling the RV up to the flange level.

- Conducting the Reactor internals Vent Valve Test, and surveillance specimen holder tube test.

3. Milestone C - Refueling Canal Hydro and Wet Fuel Handling Test

The Milestone will verify the integrity of the Refueling Canal and the seal plate, and the FH equipment and fuel index test with refueling canal water at its full level (simulating refueling operations).

Following CANAL Hydro, several key events take place in preparation for RCS COLD Hydro. Some of the activities include the following:

- Set Plenum in Reactor Vessel

- Install RV Head and Tension Studs

- Couple Control Rod Drive Mechanism lead screws and install closures.

- Fill and Vent Reactor Coolant System

- Draw Pressurizer Bubble, and Run Reactor Coolant Pumps.

4. Milestone D - RCS COLD HYDRO

During this test, the RCS is pressurized to 125% of design pressure to verify system integrity. During the Hydro phase, miscellaneous tests will be conducted such as:

- RCP Flow Tests

- MU/HPI/LPI/CF System Tests

- Secondary Side, Steam Generator Hydro Test

Following Unit 2 RCS depressurization, test and manpower emphasis will be shifted to Unit 1. At this point, resolution of punchlist open items will be vigorously pursued and remaining RCS insulation will be installed in preparation for Unit 2 HFT.

5. Milestone G - Feedwater System Flush

Following the Condensate System flushes and Turnover of the Feedwater System, the Deaerator will be filled and the Feedwater Booster Pumps will be used to flush the feedwater system including piping through the condensate demineralizers. Other activities during this time period include:

- Turnovers, checkout, and flush of remaining systems required for drawing vacuum in Condenser and initial Turbine roll.

6. Milestone H - Condenser Vacuum

Drawing a vacuum in the condenser involves the checkout and operation of the air ejectors, vacuum pumps, and the Circulating Water System. Any air inleakage to the condenser will be identified and required at this time prior to HFT. The permanent Auxiliary Boilers or temporary HP Boilers will be operated to provide steam to the gland seal steam system and blanketing steam on the Moisture Separator reheater, tube side. The HP Heater

Vents, drains and level control sytem will be in operation. The Turbine will be placed on turning gear with support systems such as Seal and Lube oil, and cooling water, in operation.

7. Milestone TR - Initial Turbine Roll

Due to the availability of the HP Boilers, the Main Turbine initial roll can be accomplished independent of the Reactor Coolant System and Steam Generators. To support initial Turbine roll the Condensate and portions of the Feedwater System have to be in operation and the Condenser in a vacuum. In addition, the following systems have to be functional:

- Main Turbine Steam Supply and drains.

- Moisture Separator Reheater supply and drains

- Stator Cooling

- Turbine EHC System

- Main Turbine Supervisory Instrumentation

- Main Generator Protection

- Microwave System

8. Milestone J - Hot Functional Testing

During HFT, operation of the NSSS and secondary systems is integrated for the first time: The test will be conducted at ambient conditions, heatup, hot shutdown conditions (2,155 psig and 532F), and cooldown. A significant number of Preoperational and Acceptance Tests will be conducted during this time.

9. Milestone K - Integrated Leak Rate Test

The ILRT involves pressurizing the Containment above the Design Bases Accident Pressure and conducting a leak integrity check to ensure that the building and penetrations are air tight and capable of isolating the structure in the unlikely event of an accident involving release of radioactivity. Prior to this test, the Local Leak Rate Test of all containment penetrations will be conducted. Based upon the two-Unit startup concept, the ILRT for Unit 1 will precede Unit 2 ILRT.

10. Milestone L - Integrated Safeguards Features Activation System Test

Upon completion of HFT and ILRT, the next major milestone is the SFAS Test. The prerequisites for this test involve:

- Reactor Vessel Head Removal

- RV internals removal

- Turnover, checkout, and testing of all system/components that receive a signal from the SFAS cabinets.

During the SFAS test, operation of all emergency core cooling systems is checked. An emergency condition will be simulated which will cause the plant's automatic safeguard systems to start in response to the signal. The Diesel Generators, HPI and LPI pumps, and containment spray pumps will be actuated. Required flow conditions will be verified as well as the order in which systems respond and the length of time elapsed before the response is initiated.

11. Milestone M thru O - Fuel Load and Post Fuel Load Activities

This phase of the Test Program is called the Startup phase and will not be described in this report. For planning purposes, Figure 2 shows the Major Milestone Target dates beyond Fuel Load, and shows a duration of approximately 4.5 months from Fuel Load to Commercial Operation (UNIT 2) and approximately 6 months for Unit 1.

C. Manpower Requirements - Revision 12

Figure 5 shows manpower resource curves for Test Engineers, operators, electrical checkout (ECO) personnel, I&C Technicians, Maintenance Mechanics, Maintenance electricians, and Chemistry and Health Physics Technicians required to support Revision 12 of the Test Schedule.

The Midland Plant has been staffed to support the Dual Unit Startup Plan. The resource availability for each of the above resources has been superimposed on the appropriate curves. It is also worth noting that a separate organization, Construction General Service Organization (CGSO), will perform the majority of work associated with Post Turnover Punchlist items. The present load of CGSO personnel is:

Non-Manual - 55

Manual (Crafts) 100

Breakdown of Manual:

Pipefitters and Welders - 55

Electricians - 35

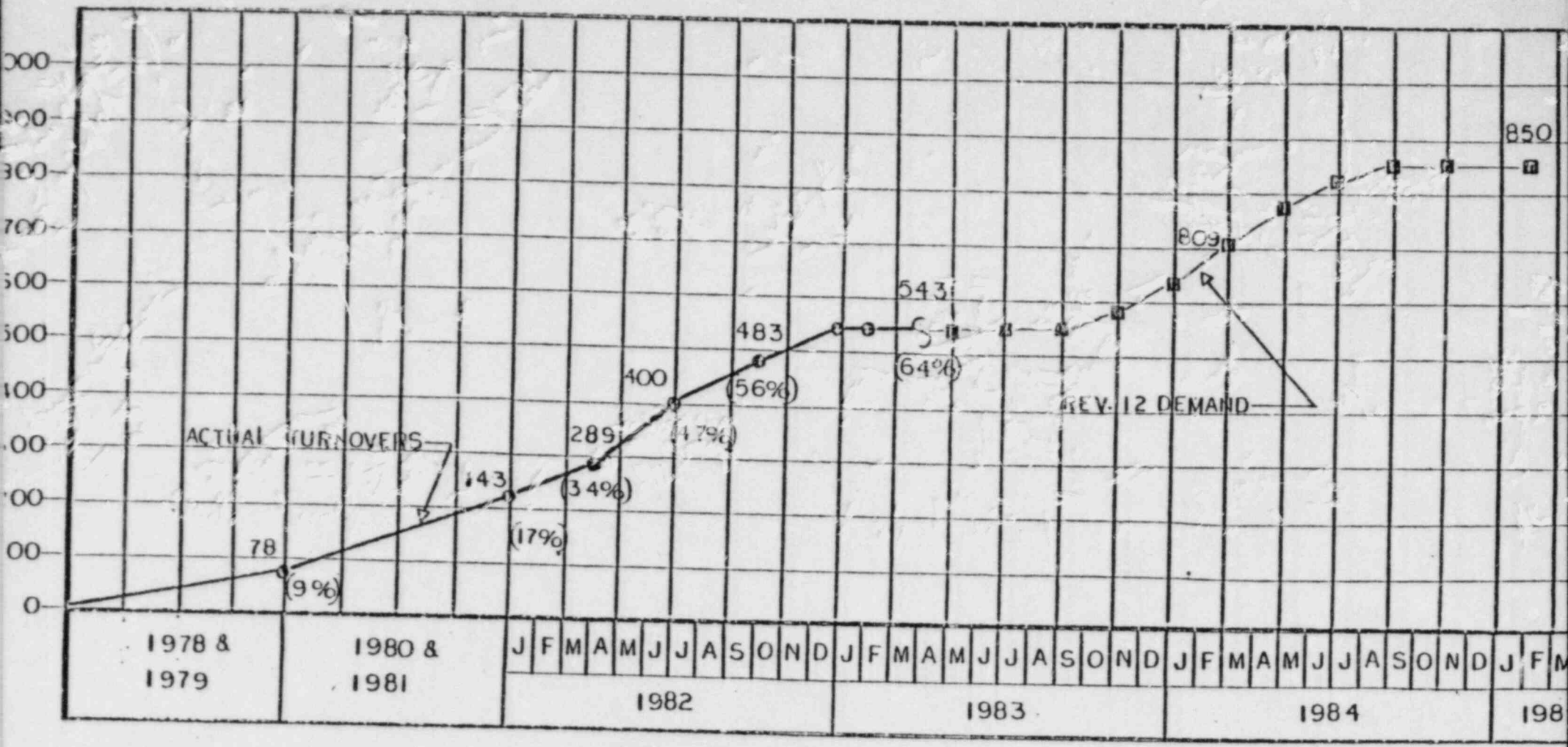
Laborers - 10

In terms of shift work, the estimated durations in the Test Schedule were assumed as follows:

1. The majority of Post Turned-over activities were assigned a 5-day work week, 8 hrs/day.

2. Mainline Activities and Milestones (such as RCS initial fill and vent, RCS Hydro, HFT, etc.) AND key systems (such as Auxiliary Systems required to support RCS Hydro) were assigned a 7 day work week, 24 hrs/day.

3. The majority of System Flushes and initial fill and vent operations requiring Operations support were assigned a 7 day work week, 24 hours/day.



ACTUAL TURNOVERS AND REV. 12 DEMAND TURNOVER CURVE

FIGURE 1

MIDLAND POWER PLANT
TECHNICAL DEPARTMENT

PROCEDURE DEVELOPMENT-ACTUAL VS SCHEDULED

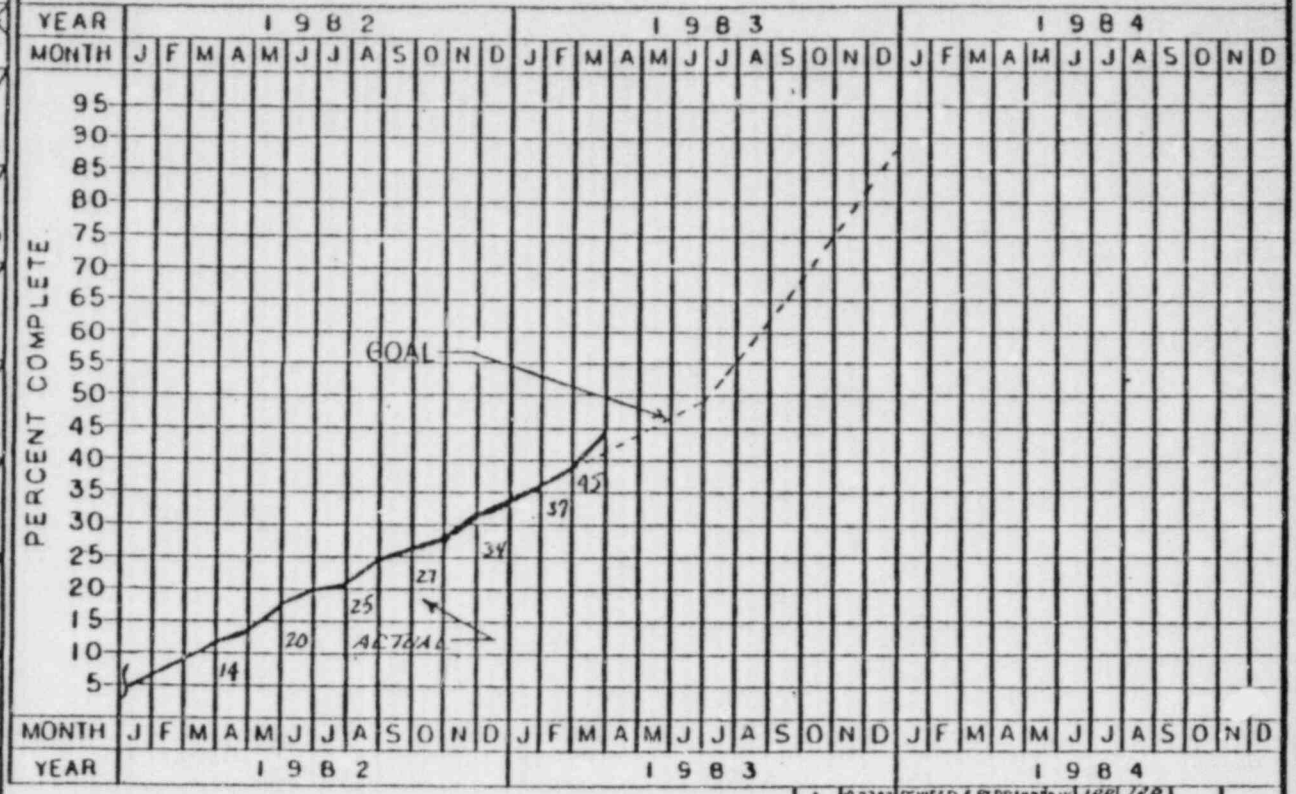
PROGRESS SUMMARY

APPROVED

DISCIPLINE	% COMPLETE 10 20 30 40 50 60 70 80 90	WT FACT	EST / ACT
AUXILIARY	31	154	112 / 49
		.060	
ELECTRICAL	35	118	86 / 30
		.041	
FEEDWATER / CONDENSATE	50	146	107 / 53
		.073	
INSTRUMENT / CONTROL	65	182	133 / 86
		.118	
NUCLEAR STEAM SUPPLY SYSTEM	58	134	98 / 57
		.078	
PROCESS STEAM	23	.064	47 / 11
		.015	
PROGRAMATIC TESTING & PERFORMANCE	6	.064	47 / 3
		.004	
TURBINE / HVAC	44	136	99 / 44
		.060	
		1.0	729 / 328
		.371	

AS OF 3-31-83

PERFORMANCE CURVE



REV	DATE	REVISIONS	BY	CHK	APPR	APPR	APPR
1	10 27 82	REVISED & RE-DRAWN	JRP		APP	JRP	
0	2-82	INITIAL ISSUE	JRP		APP	JRP	

SCALE NONE | DESIGNED JRP | DRAWN Klonowski

MIDLAND PLANT

PROCEDURE DEVELOPMENT

Consumers Power Company

DRAWING NO	REV
TPS-5	2

2	2-1-83	ESTIMATE/PROJECT	MRK/KAG	KAG	

FIGURE 2

MIDLAND POWER PLANT
TECHNICAL DEPARTMENT

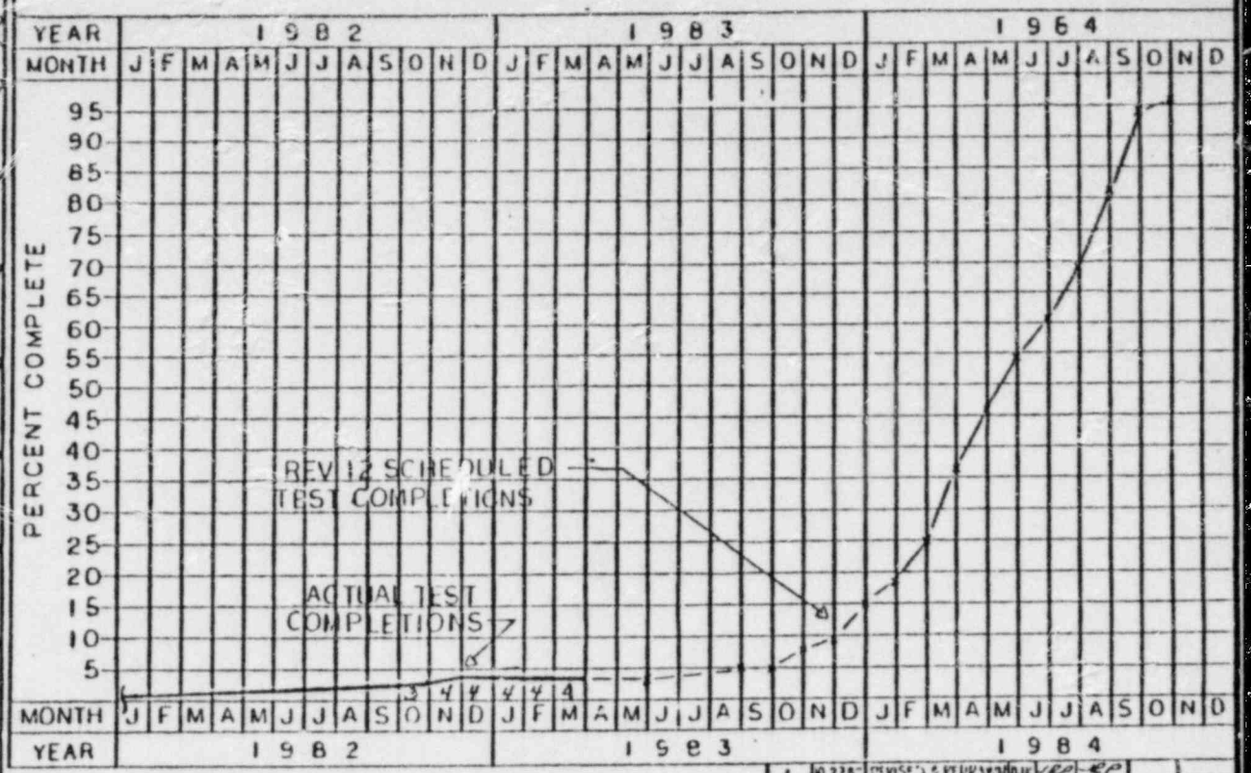
PROCEDURE PERFORMANCE (LESS GP) – ACTUAL VS SCHEDULED

PROGRESS SUMMARY

DISCIPLINE	% COMPLETE 10 20 30 40 50 60 70 80 90	WT FACT	EST / ACT
AUXILIARY	5	169	112
		.004	3
ELECTRICAL	0	.095	65
		0	0
FEEDWATER / CONDENSATE	9	.150	103
		.010	7
INSTRUMENT / CONTROL	5	.185	126
		.009	6
NUCLEAR STEAM SUPPLY SYSTEM	1	.143	98
		.001	1
PROCESS STEAM	2	.067	46
		.001	1
PROGRAMATIC TESTING & PERFORMANCE	0	.059	40
		0	0
TURBINE / HVAC	8	.136	93
		.010	7
		1.0	683
		.037	25

AS OF 3-31-83

PERFORMANCE CURVE



REV	DATE	REVISIONS	BY	CHK	APPR	APPR	APPR
1	10-27-82	REVISED & REVISED SCHEDULE	RD	RP	RP		
0	5-82	INITIAL ISSUE	RD	RP	RP		

SCALE NONE | DESIGNED JLD | DRAWN Klanowski

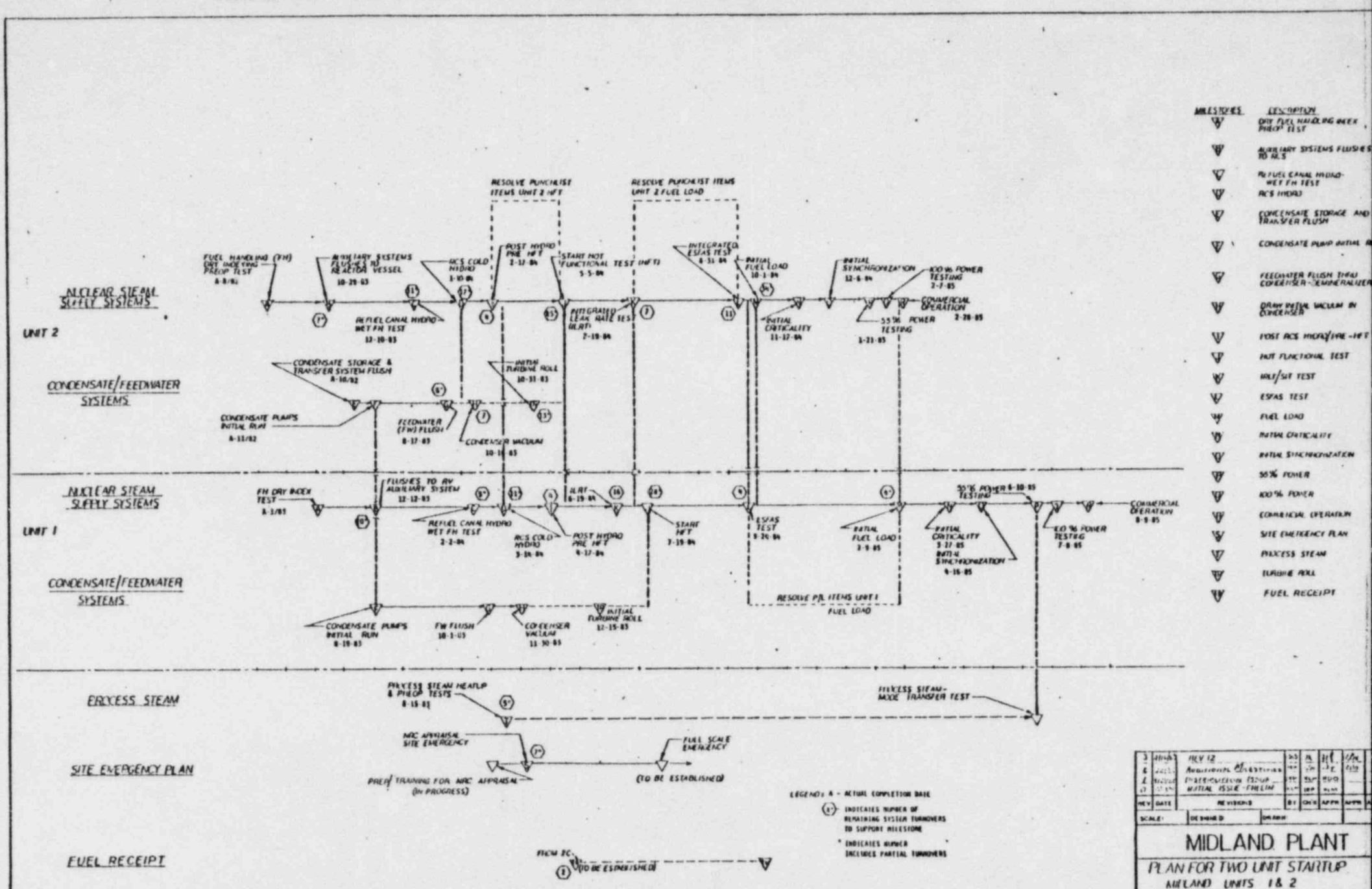
MIDLAND PLANT
PROCEDURE PERFORMANCE

Consumers Power Company

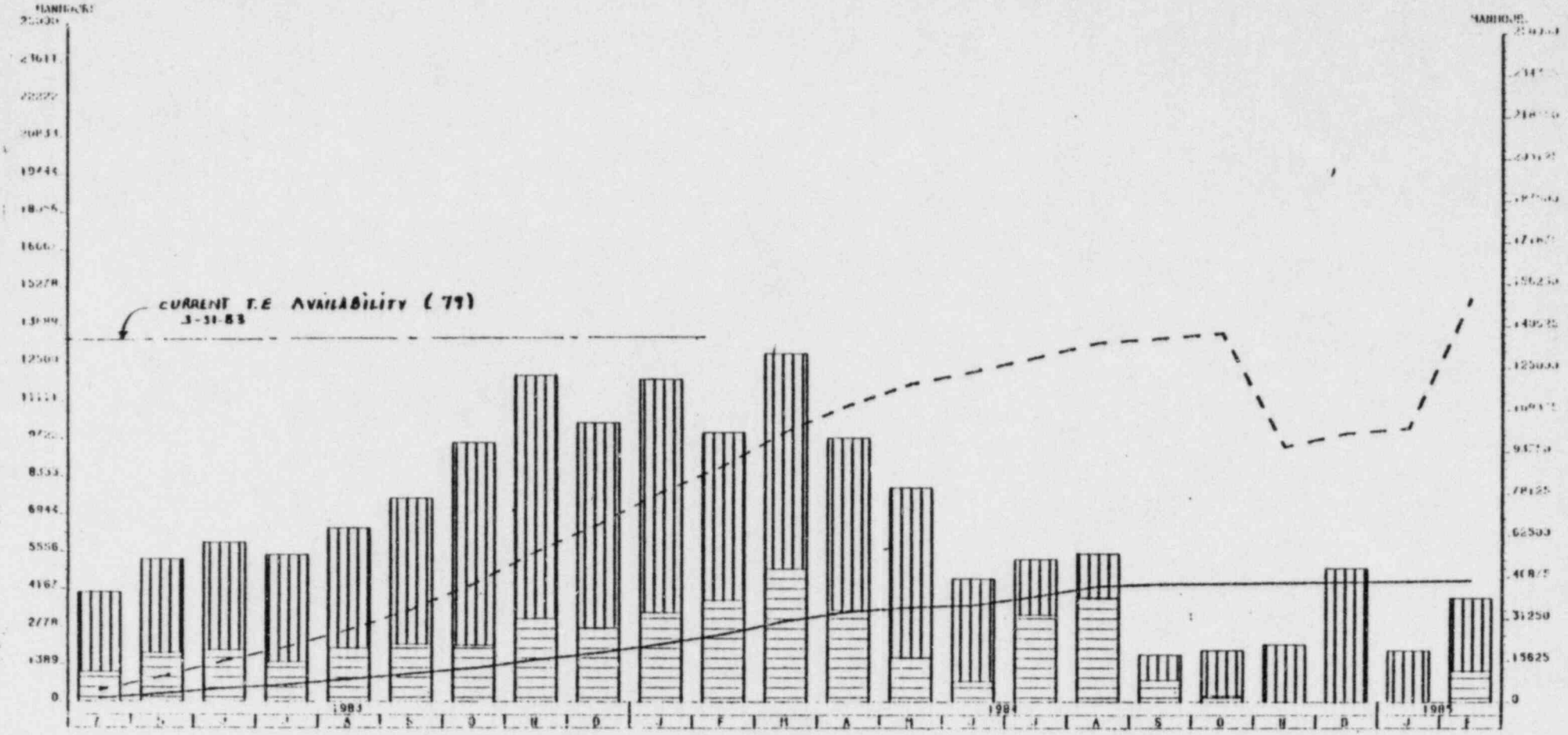
DRAWING NO TPS-6 | REV 2

2 | 85 GOALS/OBJECT | NAS | CRG | KAG

FIGURE 3– TEST COMPLETIONS


RESOLVE PUNCHLIST ITEMS UNIT 2 HFT
RESOLVE PUNCHLIST ITEMS UNIT 2 FUEL LOAD
NUCLEAR STEAM SUPPLY SYSTEMS
UNIT 2
CONDENSATE/FEEDWATER SYSTEMS
NUCLEAR STEAM SUPPLY SYSTEMS
UNIT 1
CONDENSATE/FEEDWATER SYSTEMS
PROCESS STEAM
SITE EMERGENCY PLAN
FUEL RECEIPT
FUEL HANDLING (FH) DRY INCORING PREOP TEST 8-8-84
AUXILIARY SYSTEMS FLUSHES TO REACTOR VESSEL 10-29-83
RCS COLD HYDRO 1-10-84
POST HYDRO PRE HFT 2-12-84
START HOT FUNCTIONAL TEST (HFT) 5-5-84
INTEGRATED ESFAS TEST 6-31-84
INITIAL FUEL LOAD 10-1-84
INITIAL SYNCHRONIZATION 12-6-84
100% POWER TESTING 2-7-85
COMMERCIAL OPERATION 2-28-85
REFUEL CANAL HYDRO-WET FH TEST 12-10-83
INTEGRATED LEAK RATE TEST (ILRT) 7-19-84
INITIAL CRITICALITY 11-17-84
55% POWER TESTING 1-21-85
CONDENSATE STORAGE & TRANSFER SYSTEM FLUSH 8-10-82
INITIAL TURBINE ROLL 10-31-83
CONDENSATE PUMPS INITIAL RUN 8-11-82
FEEDWATER (FW) FLUSH 8-17-83
CONDENSER VACUUM 10-16-83
FH DRY INCORE TEST 8-1-81
FLUSHES TO AN AUXILIARY SYSTEM 12-12-83
ILRT 6-19-84
REFUEL CANAL HYDRO WET FH TEST 2-2-84
RCS COLD HYDRO 3-26-84
POST HYDRO PRE HFT 4-17-84
START HFT 7-19-84
ESFAS TEST 9-29-84
INITIAL FUEL LOAD 2-9-85
55% POWER TESTING 8-10-85
INITIAL CRITICALITY 3-27-85
INITIAL SYNCHRONIZATION 4-15-85
100% POWER TESTING 7-8-85
COMMERCIAL OPERATION 8-9-85
RESOLVE P/L ITEMS UNIT 1 FUEL LOAD
CONDENSATE PUMPS INITIAL RUN 8-19-83
FW FLUSH 10-1-83
CONDENSER VACUUM 11-30-83
INITIAL TURBINE ROLL 12-15-83
PROCESS STEAM HEATUP & PREOP TESTS 8-15-83
PROCESS STEAM-MODE TRANSFER TEST
NRC APPRAISAL SITE EMERGENCY
FUEL SCALE EMERGENCY
PREP/TRAINING FOR NRC APPRAISAL (IN PROGRESS)
(TO BE ESTABLISHED)
FROM FC
(TO BE ESTABLISHED)
LEGEND: A - ACTUAL COMPLETION DATE
(x) INDICATES NUMBER OF REMAINING SYSTEM TURNOVERS TO SUPPORT MILESTONE
* INDICATES NUMBER INCLUDES PARTIAL TURNOVERS
MILESTONES
DESCRIPTION
DRY FUEL HANDLING WEEK PREOP TEST
AUXILIARY SYSTEMS FLUSHES TO RCS
REFUEL CANAL HYDRO-WET FH TEST
RCS HYDRO
CONDENSATE STORAGE AND TRANSFER FLUSH
CONDENSATE PUMP INITIAL RUN
FEEDWATER FLUSH THRU CONDENSER-DEMINERALIZER
DRAW INITIAL VACUUM IN CONDENSER
POST RCS HYDRO/PRE-HFT
HOT FUNCTIONAL TEST
HALT/SIT TEST
ESFAS TEST
FUEL LOAD
INITIAL CRITICALITY
INITIAL SYNCHRONIZATION
55% POWER
100% POWER
COMMERCIAL OPERATION
SITE EMERGENCY PLAN
PROCESS STEAM
TURBINE ROLL
FUEL RECEIPT
MIDLAND PLANT
PLAN FOR TWO UNIT STARTUP
MIDLAND UNITS 1 & 2

MIDLAND PROJECT RESOURCE CURVE - REVISION 12
TESTING ENGINEERS
LEVELIZED MANPOWER PROJECTIONS
TOTAL SYSTEMS - 41 T.E. /DAY AVERAGE



MONTHLY RESOURCE USAGE
MANHOURS INCREASING BASE

UNIT 2&0 TE FORCASTED MONTHLY MANHOURS
MANHRS RESOURCE 21000
TARG SCH 32 ES

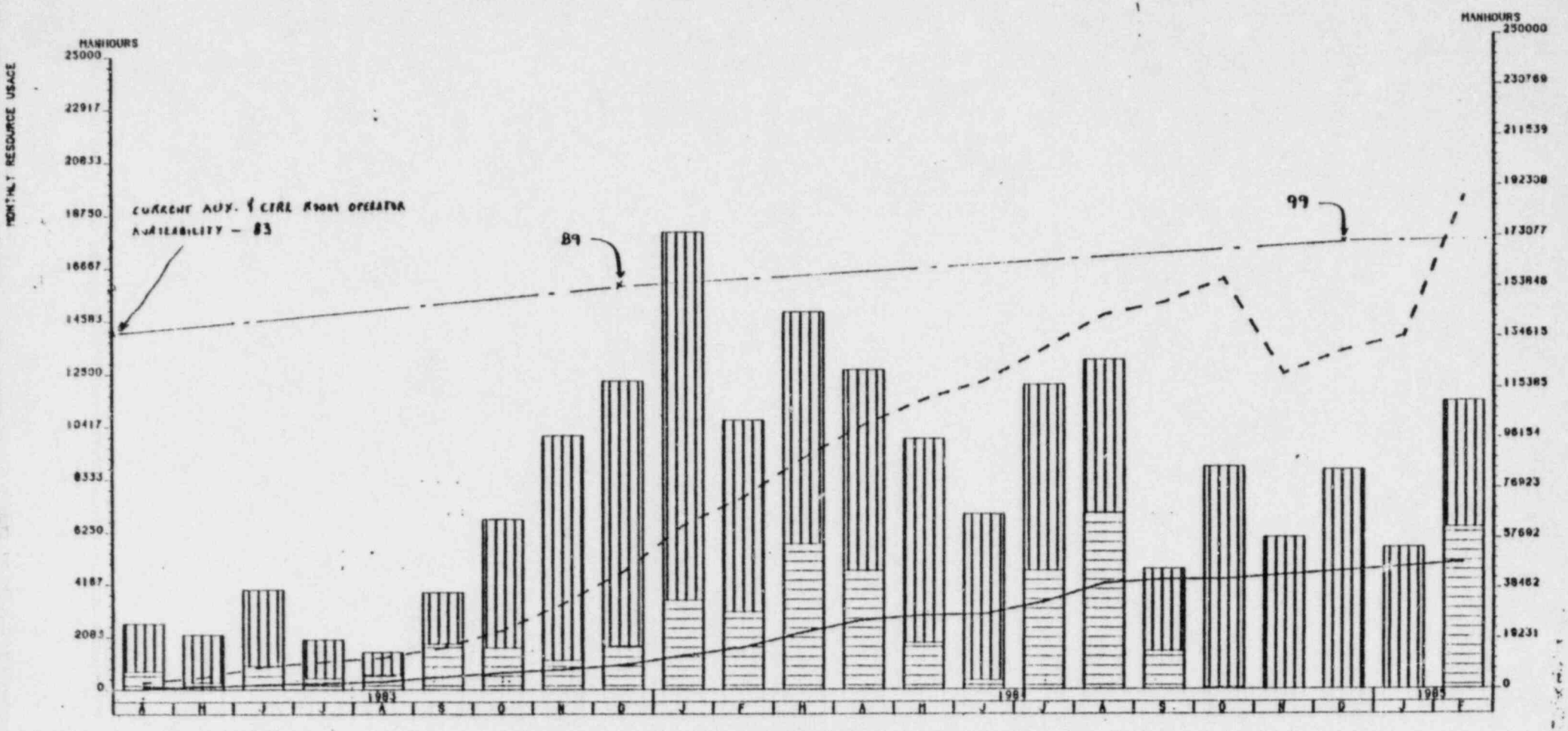
UNIT 1 TE FORCASTED MONTHLY MANHOURS
MANHRS RESOURCE 21000
TARG SCH 31 ES

CUMULATIVE RESOURCE USAGE
MANHOURS INCREASING BASE

UNIT 2&0 TE CUMULATIVE MANHOURS
MANHRS RESOURCE 21000
TARG SCH 32 ES CUM

UNIT 1 TE CUMULATIVE MANHOURS
MANHRS RESOURCE 21000
TARG SCH 31 ES CUM

MIDLAND PROJECT RESOURCE CURVE - REVISION 12
OPERATORS
LEVELIZED MANPOWER PROJECTIONS
TOTAL SYSTEMS - 50 IOPS /DAY AVERAGE



MONTHLY RESOURCE USAGE
MANHOURS INCREASING BASE

UNIT 2&0 OP FORCASTED MONTHLY MANHOURS
MANHRS RESOURCE 31100
TARG SCH 32 ES

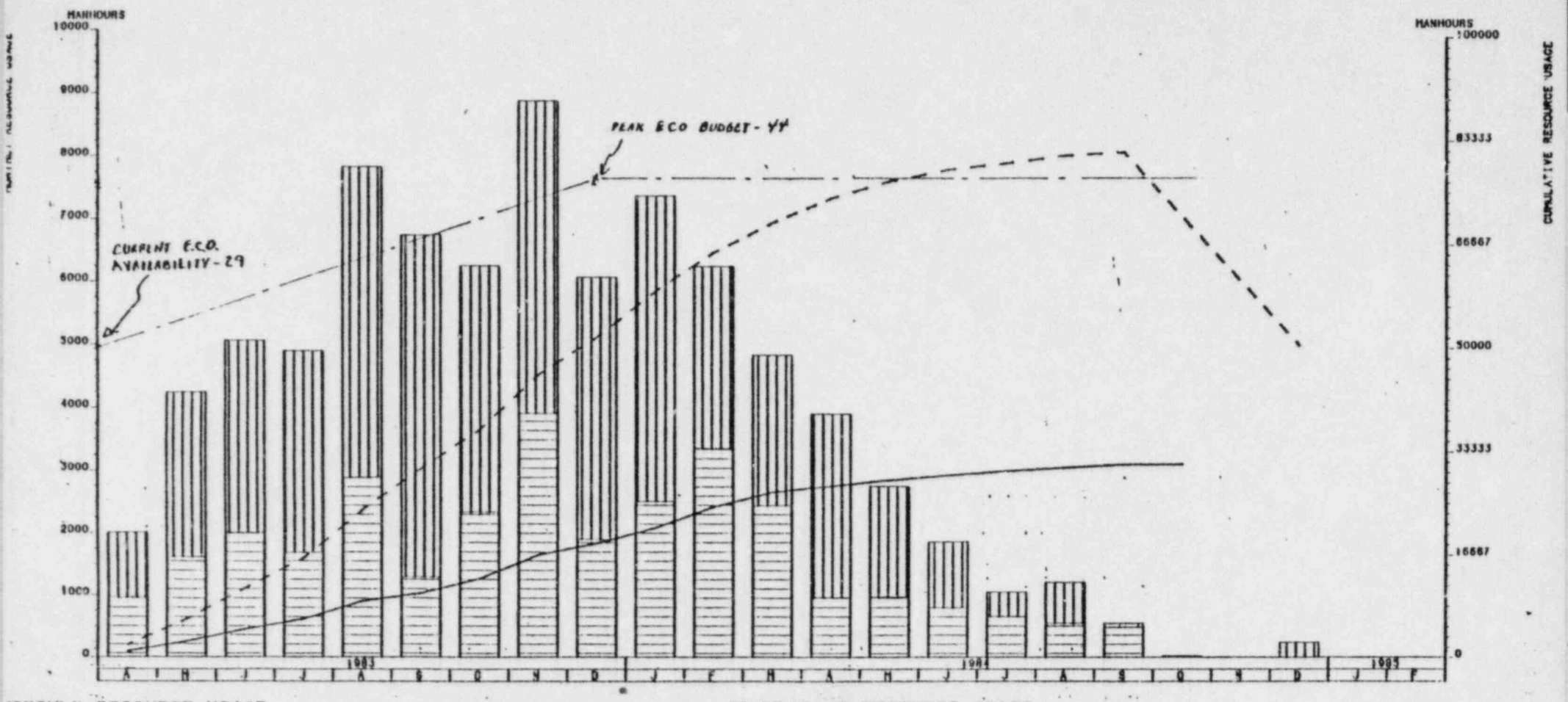
UNIT 1 OP FORCASTED MONTHLY MANHOURS
MANHRS RESOURCE 31100
TARG SCH 31 ES

CUMULATIVE RESOURCE USAGE
MANHOURS INCREASING BASE

UNIT 2&0 OP CUMULATIVE MANHOURS
MANHRS RESOURCE 31100
TARG SCH 32 ES CUM

UNIT 1 OP CUMULATIVE MANHOURS
MANHRS RESOURCE 31100
TARG SCH 31 ES CUM

MIDLAND PROJECT RESOURCE CURVE - REVISION 12
ELECTRICAL CHECKOUT TECHNICIAN
LEVELIZED MANPOWER PROJECTIONS
TOTAL SYSTEMS - 301 E.C.O./DAY AVERAGE



MONTHLY RESOURCE USAGE
MANHOURS INCREASING BASE.

UNIT 2&0 ECO FORCASTED MONTHLY MANHOURS
MANHRS RESOURCE 21200
TARG SCH 32 ES

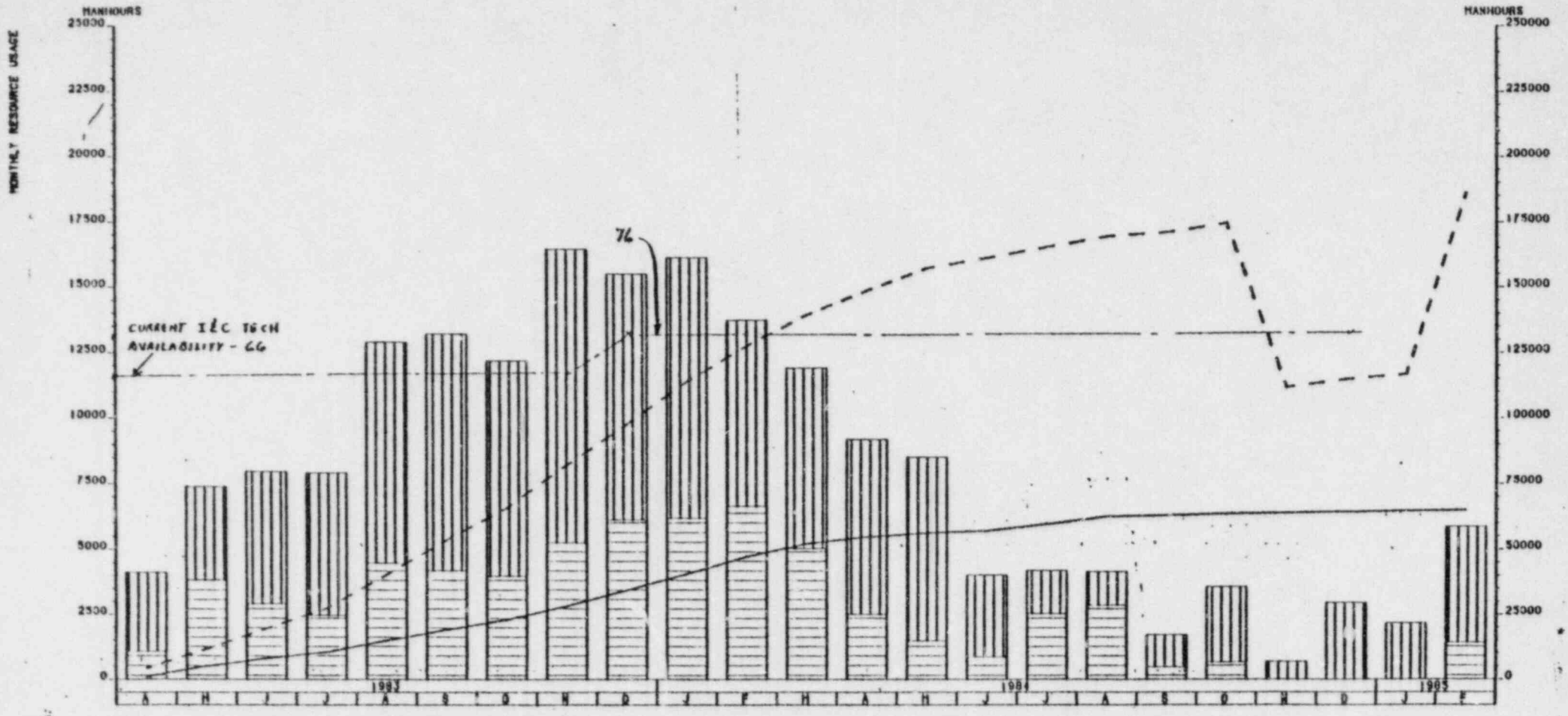
UNIT 1 ECO FORCASTED MONTHLY MANHOURS
MANHRS RESOURCE 21200
TARG SCH 31 ES

CUMULATIVE RESOURCE USAGE.
MANHOURS INCREASING BASE

UNIT 2&0 ECO CUMULATIVE MANHOURS
MANHRS RESOURCE 21200
TARG SCH 32 ES CUM

UNIT 1 ECO CUMULATIVE MANHOURS
MANHRS RESOURCE 21200
TARG SCH 31 ES CUM

MIDLAND PROJECT RESOURCE CURVE - REVISION 12
INSTRUMENTATION AND CONTROL TECHNICIANS
LEVELIZED MANPOWER PROJECTIONS
TOTAL SYSTEMS - 50 I&C /DAY AVERAGE



MONTHLY RESOURCE USAGE
MANHOURS INCREASING BASE

UNIT 2&0 I&C FORCASTED MONTHLY MANHOURS
MANHRS RESOURCE 31300
TARG SCH 32 ES

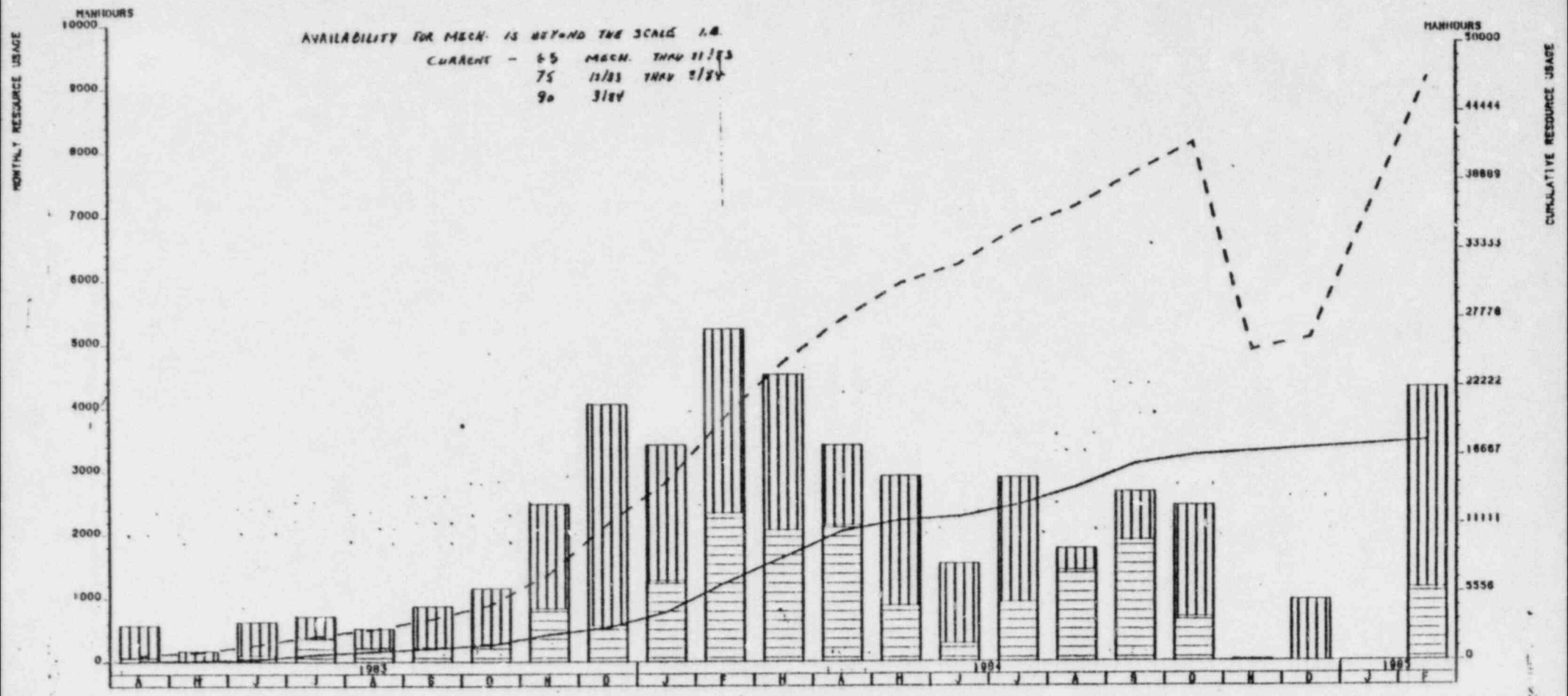
UNIT 1 I&C FORCASTED MONTHLY MANHOURS
MANHRS RESOURCE 31300
TARG SCH 31 ES

CUMULATIVE RESOURCE USAGE
MANHOURS INCREASING BASE

UNIT 2&0 I&C CUMULATIVE MANHOURS
MANHRS RESOURCE 31300
TARG SCH 32 ES CUM

UNIT 1 I&C CUMULATIVE MANHOURS
MANHRS RESOURCE 31300
TARG SCH 31 ES CUM

MIDLAND PROJECT RESOURCE CURVE - REVISION 12
MAINTENANCE MECHANICS
LEVELIZED MANPOWER PROJECTIONS
TOTAL * SYSTEMS - 13 MANP /DAY



MONTHLY RESOURCE USAGE
MANHOURS INCREASING BASE

UNIT 2&0 MM FORCASTED MONTHLY MANHOURS
MANHRS RESOURCE 31500
TARG SCH 32 ES

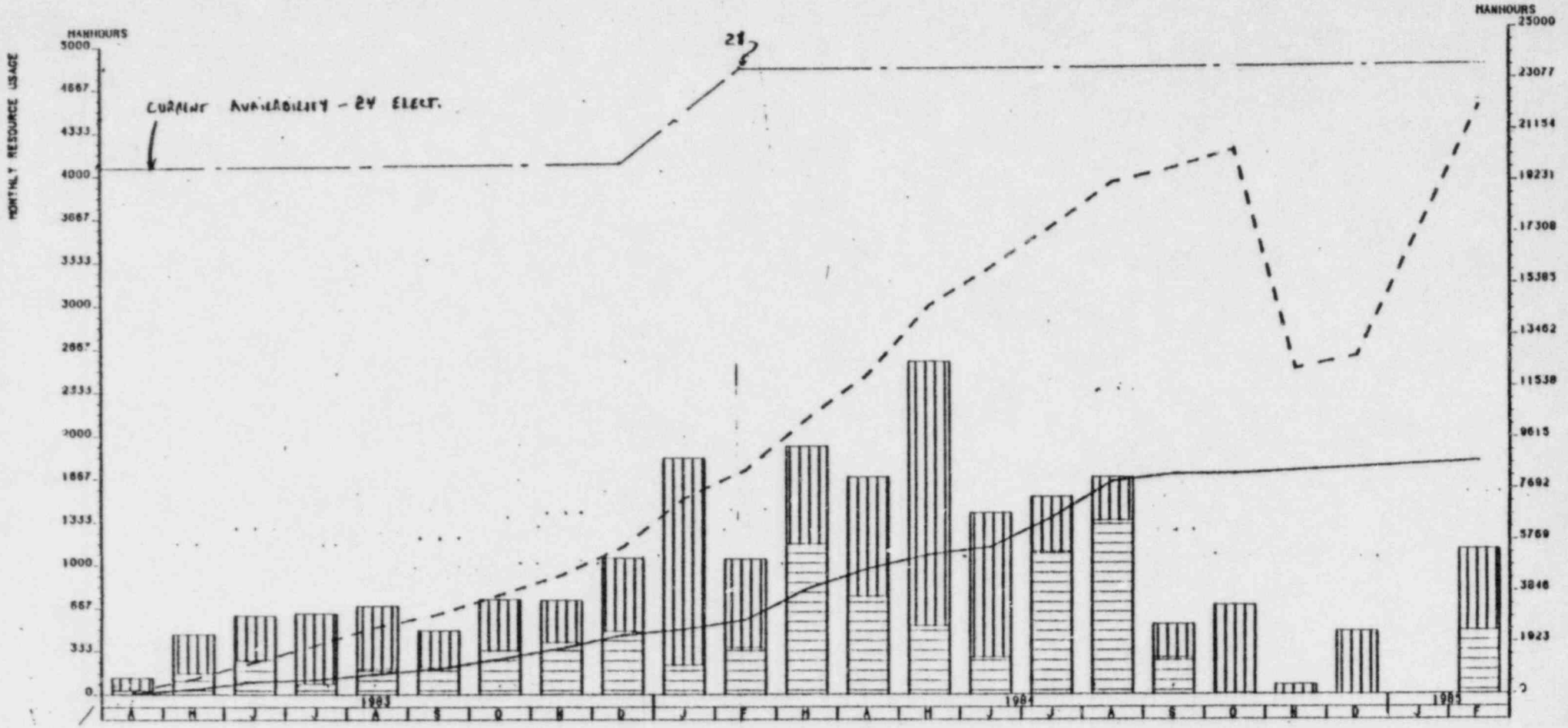
UNIT 1 MM FORCASTED MONTHLY MANHOURS
MANHRS RESOURCE 31500
TARG SCH 31 ES

CUMULATIVE RESOURCE USAGE
MANHOURS INCREASING BASE

UNIT 2&0 MM CUMULATIVE MANHOURS
MANHRS RESOURCE 31500
TARG SCH 32 ES CUM

UNIT 1 MM CUMULATIVE MANHOURS
MANHRS RESOURCE 31500
TARG SCH 31 ES CUM

MIDLAND PROJECT RESOURCE CURVE - REVISION 12
MAINTENANCE ELECTRICIANS
LEVELIZED MANPOWER PROJECTIONS
TOTAL SYSTEMS - 6 ELECT /DAY



MONTHLY RESOURCE USAGE
MANHOURS INCREASING BASE

UNIT 2&O ME FORCASTED MONTHLY MANHOURS
MANHRS RESOURCE 31400
TARG SCH 32 ES

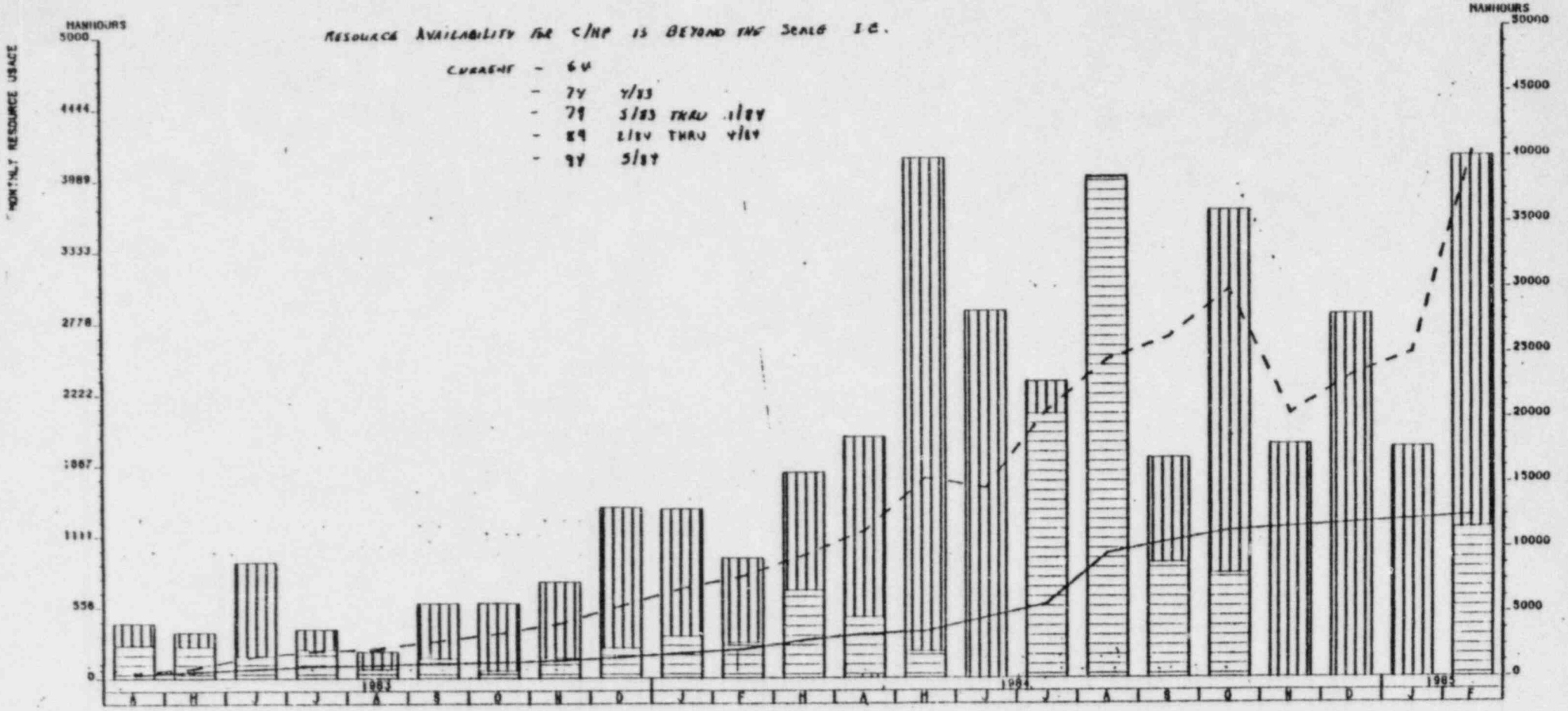
UNIT 1 ME FORCASTED MONTHLY MANHOURS
MANHRS RESOURCE 31400
TARG SCH 31 ES

CUMULATIVE RESOURCE USAGE
MANHOURS INCREASING BASE

UNIT 2&O ME CUMULATIVE MANHOURS
MANHRS RESOURCE 31400
TARG SCH 32 ES CUM

UNIT 1 ME CUMULATIVE MANHOURS
MANHRS RESOURCE 31400
TARG SCH 31 ES CUM

MIDLAND PROJECT RESOURCE CURVE - REVISION 12
CHEMICAL AND HEALTH PHYSICS TECHNICIANS
LEVELIZED MANPOWER PROJECTIONS
TOTAL SYSTEMS - 10 MAN /DAY



MONTHLY RESOURCE USAGE
MANHOURS INCREASING BASE

UNIT 2&0 C&H FORCASTED MONTHLY MANHOURS
MANHRS RESOURCE 31900
TARG SCH 32 ES

UNIT 1 C&H FORCASTED MONTHLY MANHOURS
MANHRS RESOURCE 31900
TARG SCH 31 ES

CUMULATIVE RESOURCE USAGE
MANHOURS INCREASING BASE

UNIT 2&0 C&H CUMULATIVE MANHOURS
MANHRS RESOURCE 31900
TARG SCH 32 ES CUM

UNIT 1 C&H CUMULATIVE MANHOURS
MANHRS RESOURCE 31900
TARG SCH 31 ES CUM

TECHNICAL DEPT.

PROCEDURE DEVELOPMENT & APPROVAL STATUS REPORT

AS OF 3131123

		PROG	NSSS	AUX	TURB HVAC	FEED COND	ELEC	I & C	PS	TOTAL	REMARKS
ESTIMATED TO BE DEVELOPED	TP	20	66	43	29	17	44	55	0	268	725 LAST REPORT
	AP	1	0	5	37	34	10	1	40	128	
	FP	0	26	52	26	54	2	2	6	168	
	SP	19	6	12	1	4	9	68	—	119	
TOTAL	GP	7	0	0	6	4	21	7	1	46	
729	SUB-TOTAL	47	98	112	99	107	86	133	47	729	
DRAFTS NOT SUBMITTED BY DISCIPLINES	TP	3	3	9	4	7	26	9	—	61	129 LAST REPORT
	AP	0	—	2	2	13	10	1	9	37	
	FP	—	0	0	0	1	0	2	1	4	
	SP	11	0	0	1	0	3	0	—	15	
TOTAL	GP	0	—	—	0	1	0	0	1	2	
119	SUB-TOTAL	14	3	11	7	22	39	12	11	119	
PROCEDURES IN REVIEW & APPROVAL CYCLE	TP	14	9	21	14	4	5	5	—	72	217 LAST REPORT
	AP	0	—	2	11	13	0	0	23	49	
	FP	—	3	21	8	13	1	0	2	48	
	SP	6	0	-5	0	2	4	1	—	18	
TOTAL	GP	3	—	—	4	0	0	1	0	8	
195	SUB-TOTAL	23	12	49	37	32	10	7	25	195	
PROCEDURES IN TWG REVIEW CYCLE	TP	3	26	7	11	0	7	24	—	78	86 LAST REPORT
	AP	—	—	—	—	0	—	—	—	0	
	FP	—	—	—	—	—	—	—	—	—	
	SP	2	0	1	0		0	4	—	7	
TOTAL	GP	2	—	—	0	0	0	0	0	2	
87	SUB-TOTAL	7	26	8	11	0	7	28	0	87	
APPROVED TEST PROCEDURES	TP	0	28	6	0	0	6	17	—	57	293 LAST REPORT
	AP	1	—	1	24	8	0	0	8	42	
	FP	—	23	31	18	40	1	0	3	116	
	SP	0	6	6	0	2	2	63	—	79	
TOTAL	GP	2	—	—	2	3	21	6	0	34	
328	SUB-TOTAL	3	57	44	44	53	30	86	11	328	
PERCENT COMPLETE (APPROVED Vs EST. TOTAL)	TOTAL	6	58	39	44	50	35	65	23	45	40 LAST REPORT
TOTAL 45%											

TABLE I

TABLE 2 - TEST PROCEDURE PERFORMANCE COMPLETIONS

PROCEDURE NO	TEST	RESULTS REVIEW STATUS
PREOPERATIONAL TESTS		
NONE		
ACCEPTANCE TESTS		
OAP-PTH.03	Diesel Bldg Electric Heating Acceptance Test	DS/TE Review
FLUSHES		
OFP-AN.01	Demineralized Water Storage and Transfer Header Flush	Approval Cycle
OFP-AN.02	Demineralized Water Hose Station Flush	Approval Cycle
OFP-AN.04	Demineralized Water Flush of Containment Piping	Approval Cycle
OFP-AT.02	Demineralized Water Supply Flush	Approval Cycle
1FP-CB.01	Turbine Generator Lube Oil And Hydrogen Seal Oil Flush	Approval Cycle
2FP-CB.01	Turbine Generator Lube Oil And Hydrogen Seal Oil Flush	DS/TE Review
OFP-CF.01	Lube Oil Storage Purification And Transfer System	DS/TE Review
1FP-CF.01	Unit 1 Lube Oil Purification System Flush	Approval Cycle
2FP-CF.01	Unit 2 Lube Oil Purification System Flush	DS/TE Review

TABLE 2 - TEST PROCEDURE PERFORMANCE COMPLETIONS

PROCEDURE NO	TEST	RESULTS REVIEW STATUS
OFP-FA.01	Aux Steam Boiler System	Approval Cycle
OFP-GB.02	Admin Bldg Cooling Tower System	Approved
1FP-KE.02	Fuel Handling Bridge Air System Flush	Approved
2FP-KE.02	Fuel Handling Bridge Air System Flush	Approved
OFP-KH.02	Hydrogen Supply System Flush	Approval Cycle
OFP-KH.06	Evaporator Building Lab Natural Gas	Approval Cycle
OFP-KH.07	Evaporator Building Lab Vacuum System Flush	Approved
SPECIFIC TESTS		
OSP-ANN.02	OC173 Annunciator Cab Energization	Approval Cycle
OSP-ANN.03	OC155 Annunciator Cab Energization	Approval Cycle
OSP-AXB.01	Aux Boiler Initial Operation And Boilout	Approval Cycle
1SP-CRD.03	Control Rod Drive Tech Stator Pre-Inst Check	Approval Cycle
2SP-CRD.03	Control Rod Drive Tech Stator Pre-Inst Check	Approval Cycle
2SP-DHR.01	Decay Heat Removal Initial Pump Run	Approval Cycle

TABLE 2 - TEST PROCEDURE PERFORMANCE COMPLETIONS

PROCEDURE NO	TEST	RESULTS REVIEW STATUS
OSP-FHS.06	Receipt of Dummy Fuel Assemblies and Control Rods	Approved
ISP-NNI.01	Non-Nuclear Instrumentation (NNI) Initial Energization	Approval Cycle
OSP-PIN.05	BOP Rack Power Supply Checkout	Approved

JAN	FEB	MAR
[illegible] UNIT 2/COMMON	[illegible] UNIT 2/COMMON	[illegible] UNIT 2/COMMON

1983

APR	MAY	JUN
	CPLC 3SP-PIN.36 PDP RACK C/O CC-166 (PIN)3F CALL GSF-PIN.04 PT 2 LATCHUP CHECKS (PIN)3J UNIT 2/COMMON UNIT 1 IALA 1SF-PIN.3B PS RACK C/O IC-49 (PIN)1F	CALA 2FP-AC.31 CMC PDP IFR/FLSH VIA "I" (PES)2F CALC 3FP-AT.15 INST TEMP MODS (PES)2I CALP 3FP-AT.01 EVAP PD FLSH TO DA (PES)2I CALK 3FP-AT.11 FLUSH DA (PES)2T UNIT 2/COMMON

1983

JUL	AUG	SEP
[illegible] LOGIC VERIF [illegible] [illegible] SYSTEM FLUSH [illegible] [illegible] FLUSH LOOP 1 [illegible] [illegible] LP FD PMP FLUSH [illegible] [illegible] FLSH LOOP 2 [illegible] [illegible] LP FD PMP SUCTION FLSH [illegible] UNIT 2/COMMON	[illegible] FUEL XFER FD C/C&ADJ [illegible] [illegible] OPER X-F VLV F/LINE [illegible] [illegible] LOGIC VERIFICATION [illegible] [illegible] HP STM FLSH LINE IP TUNNEL [illegible] [illegible] FLSH LOOP 3 [illegible] [illegible] FLSH LOOP 4 [illegible] [illegible] HP FD PMP SUCTION FLSH [illegible] [illegible] MISC.FLUSH LP FD [illegible] [illegible] HP STM FLSH TO TUNNEL [illegible] UNIT 2/COMMON UNIT 1 1KE1 1SP-FH5.05 FUEL XFER C/O & ADJ (FPS)2C 1KS1 1FP-KE.31 FUEL XFER MECH FLUSH (FI5)2C 1KAC 0FP-K3.31 BLOW DOWN (IAS)1F	[illegible] IAC C/C [illegible] [illegible] FD PMPS/FX [illegible] [illegible] VELOCITY FLUSH [illegible] [illegible] ABFH BRIDGE (ONLY IAC) [illegible] [illegible] HATCH CHECK COLD [illegible] [illegible] EVAP TUBE SIDE CLEANING [illegible] [illegible] HP STM FLSH FX PRV [illegible] [illegible] HP STM IPSP & CLOSE [illegible] [illegible] FLSH LOOP 5 [illegible] [illegible] FLSH LOOP 6 [illegible] [illegible] LP STM OPER HDR EXTRACTION [illegible] [illegible] FLUSH LOOP 7 [illegible] UNIT 2/COMMON UNIT 1 1PLA 0FP-PL.31 FLSH UNIT 1 PRIM WTR SYS (PPW)1F 1BNA 1FF-BN.31 FLUSH BWST LINES (RES)1E 1AFA-2 0FF-AF.35 OPEN BTVS F/1&SP [illegible]

1983

OCT

UNIT 2/COMMON

UNIT 1

NOV

UNIT 2/COMMON

UNIT 1

DEC

UNIT 2/COMMON

UNIT 1

OCT	NOV	DEC
	UNIT 2/COMMON	UNIT 2/COMMON
	2BBA 2IP-RCS.04 PRE-HFT INTERN INSP(CCA) (RCS)2C 2BBC 2IP-RCS.05 RCP IMS & LOGIC (RCS)2C 2BBA 2IP-RCS.04 PRE-HFT INTERN INSP (RV) (RCS)2C 2SFA 2SP-CPC.04 PI C/O (CPC)2D 2PLC 2SP-PIT.06 BOP RACK C/O 2C-31 (PI)2E 2SFF 2SP-CPC.02 INIT ENER/CALIB CRC SYS (CPC)2J 2CCA 2FP-CC.01 COMPLETE SYS FLUSH (SCS)2F 2BGC 2FP-BG.01 FLSH CF FILL PMP TO CF IK (MUP)2E 2BGD 2FP-BG.01 FLUSH SEAL INJECTION LINES (MUP)2P 2BHA 2FP-BH.01 FLSH MU SUPPLY TO CF (CPS)2E 2BHA 2FP-BH.01 CF FLUSH TO RX VESSEL (CPS)2D 2BBA 2FP-BB.01 PM CF/CR/MU FLUSH TO RCS (RCS)2F	2BBA 2IP-RCS 16+ VENT VLV+ SSHT & DN TEST (RCS)2C 2HBA 2IP-CHP.01 RCS CHEM TEST RCS FILL (RCS)2C 2SBC 2IP-CHP.02 OISG PHEBR CHEM/OISG FIL (RCS)2C 2BCA 2IP-MUP.01 MU/P/RX CHEM AD VV/SSHT (MUP)2C 2BBA 2IP-RCS.18 RX VESSEL STUD HORL TEST (RCS)2C 2BBA 2IP-RCS.1+ SET FLEXUP IN RV (RCS)2D 2PBA 2IP-RCS.14+ PM RCS INITIAL FILL (RCS)2F 2RBA 2IP-RCS.15+ SET HEAD & TENSION (RCS)2F 2BCA 2IP-RCS.16+ OISG FILL & LVL VERIF (RCS)2D 2BBB 2IP-RCS.05 PZR LVL VERIFY RCS FILL (RCS)2D 2BBA 2IP-RCS.04 PRE-HFT INTER INSP(FLEX) (RCS)2C 2SAA 2IP-SIA.02 ECCAS LOGIC PRE-OP (ESA)2I 2SFB 2IP-CPC.01 CRD PRE-OP (CPD)2J 2SCP 2SP-NMI.06 POWER SUPPLY CALIB. (NMI)2B 2SC9 2SP-NMI.05 PROB PROXIMETER CALIB. (NMI)2B 2SC6 2SP-NMI.10 DUAL PULSE SHAPER CALIB (NMI)2C 2SCA 2SP-NMI.07 DUAL RAD VIB MON CALIB (NMI)2C 2SCB 2SP-NMI.08 IS-9 TAPE RECORDER C/O (PPI)2E 2SCD 2SP-NMI.09 BERT NEW 9000 SERIES C/O (NMI)2D 2AE 2SP-CHP.01 COND/FW ALKALINE CLEAN (FWS)2H 2AF 2SP-CHP.01 CHEM CLEAN COND & FW SYS (CES)2H 2CFA 2FP-CF.01 FILL IPR & FLUSH (EFCS)2 2ABA-2 2FP-AI.05 CLOSE MS XFER VALVE (MSS)2B 2AB 2FP-AL.01 CRAWL DOWN STM LINE 2C 2AFC 2FP-AA.03 COND DEMIN CHEM ADD FLUSH (CLD)2D 2AAE 2FP-AA.01 FILL & FLUSH (CLD)2E 2AFA 2FP-AF.02 COND DEMIN FLSH LG FIRE (CLD)2G 2RBA 2FP-RB.01 INSPECT & CLEAN RCS (RCS)2E 2BCC 2FP-BC.01 TO SEAL FIN CLR/MU IK (MUP)2D 2BGB 2FP-BG.01 FLSH EQ VENTS,DRNS W/ 2 (MUP)2E 2EAC 2FP-EA.01 PRELIM FLUSH & E&L LOOP D (FWS)2E 2EGA 2FP-EG.01 IPR/FSH CCW/DH HT EXC LP (CCW)2G 2EGA 2FP-EG.01 IPR CRC ESTP PMP/FSH CRD (CCW)2L 2EGA 2FP-EG.01 FSH BSTR PMP SUC/DVP CRD (CCW)2D 2EGA 2FP-EG.01 FLUSH GAS COMPRESSORS (CCW)2E 2EGA 2FP-EG.01 RCP SEAL CLRS 2P51A,B (CCW)2E 2EGA 2FP-EG.01 FUEL POOL HT EXCHS 2E-7A (CCW)2P 2EGA 2FP-EG.01 LETDOWN CLRS 2L-57 A&B (CCW)2D 2EGA 2FP-EG.01 FLUSH RAD WST EVAP 2E-27 (CCW)2P 2EGA 2FP-EG.01 FLUSH RAD WST EVAP 2E-24 (CCW)2G 2EGA 2FP-EG.01 FLUSH DECASIFIER DP-4,B,C (CCW)2E 2EGA 2FP-EG.01 SPR PMP SEAL CLRS 2P-69 (CCW)2D 2SJA 2FP-SJ.01 IPR & FLUSH (PCS)2D 2AQC 2FP-AQ.01 FLUSH & PUMP CAP CHECKS (FWC)2H 2AGC 2FP-AG.01 DRN TKS & REFL W/H2H2 SEA (FWC)2H

1983 (CONT.)

OCT	NOV	DEC
		UNIT 2/COMMON [illegible] 2TP-CFS.31 CF CHK VLVE VV/SSRT (CFS)2C [illegible] 2TP-FMS.0E CANAL HYDRC/WET FM (RCS)2C 2PBA 2TP-FPC.01* FILL REF CANAL (PCS)2C 2PBA 2TP-RCS.XX SET CSA/INDEX AG POLAR (RCS)2C

1985 (CONT.)

JAN

UNIT 2/COMMON

UNIT 1

1FHA 1TP-CH5.01 CF CHK VLVE VV/SSHT (FCFS31C
1FCA 1TP-CFP.01 DWR PREVV/SSHT (FFF31C
1CER 1TP-FFC.01 FILL REF CAVAL/IC IN (FCS31C
1CCE 1TP-RCS.04 PP PRE-HFT INTERVALS INSP(FCS31C
1HHA 1TP-RCS.16 VENT VLV/SSHT/EH TESTS (FCS31C
1HEA 1TP-FCS.XX SET CSA/INDEX FR C*ALE (FCS31C
1CFA 1TP-CFD.01 CFD PRE CP (FCFD31J
1CFA 1SP-1CS.01 INIT ICS SLEEP (FCS3DJ
1EFA 2FP-CF.01 FLSH/CLN/FILL SPCS IN LP (FCFV31C
1CCA 2FP-FC.01 GRAVITY FLSH TO PMP SUCT (FCCW31C
1AE 1FP-AF.01 REC FL FL THRU CORE DEMIN (FFLS31C
1AC 1FP-AC.01 REC FLSH CORE THRU DEMIN (FCFS31C
1AKA 1FP-AK.01 COND CE' IN FL SMALL PIPE (FCFD31C
1AHA 1FP-AH.01 IPR & COMPLETE FLUSH (FCFD31G
1ALA 1FP-AL.01 FL ARE/EYE CLEARNF TO E (FAFV31C
1ALA 1FP-AL.01 FLUSH TO OTSGS (FAFV31C
1ALA 1FP-AL.01 FLUSH TO PCRD (FAFV31G
1AFG 1FP-AF.01 FLUSH CONDENSATE MEEP SYS (FCFS31G
1EHA 1FP-EH.01 FLSH-PPP DISCH FP AUX FW (FCFR31C
1AHC 1FP-AH.01 COND DEMIN INST AIR FLOW (FCFD31C
1AHC 1FP-AH.01 CORE DEMIN INST AIR FLOW (FCFD31C
1CAP CFP-HA.02 PLOW FCNP (FAFS31C

FEB

UNIT 1

1BEA 1TP-FHS.06 CANAL HYDRO/WET FH (FCFS31C
1PED 1TF-CHP.02 DISG PRESSR CHM FILL (FCFS31C
1EEA 1TP-CFP.01 RCS CHEM TEST RCS FILL (FCFS31C
1PCA 1TF-PVT.01 PUMP AUX CHEM RECVRY/SSHT (FHPS31C
1EFA 1TP-PST.01 PRECFE THERM EXP RCS FIL (FCFS31C
1SDA 1TP-RCS.1F SET HEAD F TENSION (FCFS31C
1EEA 1TP-RCS.1P HX VESSEL STUD HOOL TEST (FCFS31C
1EBA 1TF-RCS.15 SFT PLENUM TP RV (FFFS31C
1EBD 1TP-RCS.06 DISC FILL/LEVEL VERIFY (FCFS31C
1HPA 1TP-RCS.14 PR RCS INITIAL FILL (FCFS31D
1EDE 1TP-RCS.05 PZR LEVEL VERIF RCS FILL (FCFS31L
1SAA 1TP-ESA.02 ECCAS LOGIC PREOP (FCSA31I
1EGC 1TF-MUF.01 MU SYS PRE-OP (PARTIAL) (FMUP31I
1SFA 1SP-CRD.14 RI C/D (FCFD31G
1SCF 1SP-RNI.26 POWER SUPPLY CALIB. (FRFI31L
1SCD 1SP-RNI.05 PROB PROXIMETER CALIB. (FRFI31C
1SCE 1SP-RNI.07 DUAL RAD VIB MON CALIB (FRFI31L
1AE 1SP-CHP.01 COND/FW ALKALINE CLEAR (FFWS31H
1CEA 1FP-CE.01 COMPLETE SYS FLUSH (FCFS31F
1CCA 1FP-CC.01 IPR & EXTERNAL FLSP (FCFS31F
1CFA 1FP-CF.01 FILL IPR & FLUSH (FFFC31F
1AHD 1FP-AH.01 FILL & FLUSH (FCFD31F
1AHC 1FP-AH.01 IPR & COMPLETE FLUSH (FCFD31F
1AHC 1FP-AH.01 COND DEMIN CHEM AND FLUSH (FCFD31G
1AKC 1FP-AK.01 PARTIAL FLUSH FROM 1AKA (FCLD31F
1AKA 1FP-AK.02 COND DEMIN FL LARGE PIPE (FCFD31G
1BEA 1FP-HE.01 INSPECT & CLEAN RCS (FFCS31C
1BFF 1FP-BE.01 FLSH SG VENTS,DRNS D/1 (FHPD31C
1BGC 1FP-EG.01 FLSH-SEAL HTR CLR & SU TK (FHFB31F
1EGA 1FP-EG.01 FLSH SSTR PMP SUC/EXP CND (FCCW31G
1ECA 1FP-EC.01 SPR PMP SEAL CLRS IE-89 (FCCW31C
1ECA 1FP-EC.01 FLSH LYDWN CLRS IE-87 AFF (FCCW31C
1ECA 1FP-EC.01 IFP CRD HSTR PMP/FLSH CAF (FCFV31L
1ECA 1FP-EC.01 HC EMF SEAL CLRS IE-81A/C (FCCW31C
1ECA 1FP-EC.01 IPR/FSH COMBOR HT EX LP (FCCW31C
1EFA 1FP-EF.01 FUEL POOL HT EXCHS 1E-7A (FCCW31D
1SJA 1FP-SJ.01 IPR & FLUSH (FRSX31E
1AGC 1FP-AG.01 FL/PRP HEAD CAPACITY C/D (FFLC31H
1AGC 1FP-AG.01 FLUSH & PMP CAPACITY CK (FFLC31H
1AGP 1FP-AG.01 DRAIN TK & REFILL W/DRAIN (FFLC31H
1AGC 1FP-AG.01 DRAIN TKS & REFILL W/RINSE (FFLC31H
1HGA 1FP-BC.01 FLSH L/D TO RCS W/DH PUMP (FHPP31I
1HAA 1FP-HA.01 PLOW/TIE HDR-AP VT SHAR (FFWS31D

MAR

UNIT 2/COMMON

UNIT 1

1PED 1TP-MUP.03 MU SYS LTDWN CTL TRCPRUN (FCS31C
1LEA 1TF-RCS.05 DRAW PZR BUBBLE (FCS31C
1HBA 1TP-RCS.01+ PP RCS HYDRO TEST (FCS31C
1PEA 1TF-RCS.02 RCF INIT RUN (FCS31I
1ALA 1TP-AFW.01 (PART) AUX FW PRE-OP (FFW31I
1ECA 1TP-GHP.01 RCS RECIRC & FLOW ALARMS (FHP31I
1CCA 1TP-CHP.01 EWST RECIRC DEMINERALIZER (FHP31I
1AEP 1TP-MSS.01 CMS ISOLATION VALVES (FFC31I
1PFA 1TP-MUP.04 PP HPI ESFAS TEST (FCS31I
1EFA 1TP-RCS.13 SM DISC HYDRO)1I
1EBA 1TP-RCS.12 PM RCP FLOW TEST (FCS31I
1BBB 1TP-RCS.0F PZR LEVL VERIF RCS HYDRO (FCS31I
1BEC 1SP-EEA.01 RCP START VOLT DOC TEST (FCS31C
1SCA 1SP-RNI.09 BENT REV 9000 SERIES C/D (FRI31C
1AE 1SP-CHP.01 COND/FW SYS RINSE (FWS31H
1EAE 1FP-EA.01 PRELIM FLUSH & BAL LOOP A (FAFS31N
1PFF 1FP-EF.01 HYDRAZINE SYS FLUSH (FFS31I
1PFF 1FP-EF.01 CLN 1T-A5/FLSH HYD PMP SU (FFS31I
1PFA 1FP-EF.01 FLSH SUCT PPG TO AP SPRAY (FFS31I
1EMA 1FP-EM.01 FLSH-VLV UPSTRM OF LWS FR (FCFS31I
1EMA 1FP-EM.01 IPF AND FLSH TO COOLG PND (FCFS31I
1BFD 1FP-BF.01 EMER SUMP FLUSH (FHFS31I
1EAC 1FP-EA.01 PRELIM FLUSH & BAL LOOP A (FAFS32J
1EAC 1FP-EA.01 PRELIM FLUSH & BAL LOOP A (FAFS32J
1EAC 1FP-EA.01 PRELIM FLUSH & BAL LOOP A (FAFS32J
1AEA 1FP-AF.01 STM BLOW PN STEAM LINES (FFS31I
1BGB 1FP-BG.01 BLOW SERVICE AIR TO T-MAI (FHFP31J
1EGG 1FP-BC.02 BLOW N2 TO SHAR (FHFP31J

JAN

UNIT 2/COMMON

.FBA	2TP-MUF.03	MU LTDWN CNTL PCP RUN	(RCS)2L
.EEA	2TP-RCS.01	PM RCS HYDRO	(FLS)2E
.MEA	2TP-RCS.05	DRAW PZR PUR (PZR LVL V)	(RCS)2D
DEA	2TP-RCS.02	INIT RC PUMP RUNS SEC .2	(RCS)2C
.ALA	2TP-AFW.01	(PART) AUX FW PRE-OP	(AFW)21
.HCA	2TP-DHR.01	DUMP TO SUMP FLOW TEST	(DHR)21
.ECA	2TP-DHR.01	RCS RECIRC & FLOW ALARMS	(DHR)21
.MCA	2TP-DHR.01	BWST RECIRC DEMONSTRATION	(DHR)21
.ECA	2TP-DHR.01	COMMON REPAIR MODE RECHC	(DHR)21
.AEE	2TP-MSS.01	MS ISOLATION VALVES	(MSS)21
.ECA	2TP-MUF.04	PD ESFAS TEST	(MCS)21
.FGC	2TP-MUF.01	MU SYSTEM PREOP	(MUP)21
.EDE	2TP-RCS.05	PZR LEVEL VENT RCS HYDR	(RCS)21
.ELA	2TP-RCS.12	PM RCP FLOW TEST	(RCS)21
.EEA	2TP-RCS.17	SM CISC HYDRO	(RCS)21
.ABA-2	2AP-FSS.03	HEATUP MS LINE TO MFGE	(MSS)2F
.AEA-2	2AP-XXX	C/O OPER VLV/LPSF COLD	(MSS)2F
.CCA	2AP-CGS.02	GEN AIR DROP TEST	(GGS)2H
.CGA	2AP-GSO.01	HYDROGEN SEAL OIL ACCEPT	(GSO)2F
.AE	2SP-CPM.01	CCND/FW SYS PURGE	(FWS)2H
.FCA	2SP-DHR.02	BWST LINE LOSS TEST	(DHR)21
.SCA	2SP-ICS.01	INIT ICS ENER	(ICS)2J
.AGA-2	2FP-AB.01	DRAWL STM LINE HET MSIV & TURB	
.ACC	0FP-AC.01	DRAIN TK & REFILL	(FWC)2H
.PGA	2FP-FC.01	FLSH L/D TO RCS W/DW PMF	(MUP)21
.FKA	2FP-FK.01	* INITIAL PMP RUN	(FLS)21

FEB

.FHA	2TP-CFS.01	PM CF CK VLV OPER TEST	(FCS)21
.ECA	2TP-CHF.05	PM LPI ESFAS TESTS	(RCS)21
.ECA	2TP-DHR.03	DHR ESAF TEST	(DHR)21
.ECA	2TP-DHR.01	BACKUP SF COOLING DEMO	(DHR)21
.JLA	2TP-EFC.01	EMER DFP STOR	(LFO)2J
.SGA	2TP-ICS.01	ICS OPEN LOOP PREOP	(ICS)2J
.CCA	2AP-GGS.01	GENERATOR GAS SYS ACCEPT	(GGS)2H
.CAA	2AP-GSS.01	STEAM SEAL SYS ACCEPT	(GSS)2H
.CH	2AP-TGS.03	CDA/CFC MN TUR L.O.	(MLO)2H
.EAS	2FP-EA.01	PRELIM FLUSH & PAL LOOP A	(SWS)2R
.ECA	2FP-EC.01	FLUSH LINES TO SF POOL	(DHR)21
.CFC	2FP-CJ.01	FILL FW PMP L/O SYS	(LCS)2J
.GCA	2FP-CP.01	IPR & PROOF FLUSH	(CHW)2J
.JFA	2FP-JF.01	IPR & FLUSH	(LFO)2J
.JEA	2FP-JE.01	DRAIN & CLEAN DAY TANKS	(DFO)2J
.PEA	2FP-PE.01	FLUSH F/C SYS	(PFS)2J
.PEA	2FP-PE.01	FLUSH F/C SYS	(PFS)2J
.HAA	0FP-HA.05	N2 BLOW PX & AUX BLDG VENT	(RWG)10
.KAC	0FP-KA.01	BLOWDOWN SEC 7.2	(IAS)2J
.ECA	1TP-FFC.01	PROOF TEST	(FFC)1C
.HSF	0TP-LWS.02	SEAL WATER SYS PREOP	(LWS)2J
.HCA	0TP-RWS.01	RESIN STOR & HDNL PREOP	(RWS)2J
.HCA	0TP-RWS.02	FILL/VNT SPENT RESIN SYS	(RWS)2J
.ATE	0AP-FSS.13	LP STM HDR SET HGRS HET	(FSS)2M
.ATE	0AP-FSS.15	LEAK TEST THE STEAM LINES	(PSS)2M
.DDA	0FP-DD.01	FLUSH	(CWI)2H
.HAF	0FP-HL.01	IFR/FL T/PMP FLANGES/FILL	(LWS)2J
.HBF	0FP-HE.01	FL PMP SUCT LINE TO COND	(LWS)2J
.HCF	0FP-HC.01	FILL & FLUSH	(RWS)2J
.HCA	0FP-HC.01	IPR & FLUSH	(RWS)2J
.HCP	0FP-HC.01	IPR & FLUSH	RWS)2J
.GCB	0FP-GC.02	FUEL OIL LINE FLUSH	(YFL)2S
	TCS.04	DOMESTIC WATER FLUSH	(TSC)2S

UNIT 2/COMMON

MAR

UNIT 2/COMMON

.FCB	2AP-AXI.01	FWF TURB NO LOAD TEST	(AXT)2J
2AE	2AP-CAR.01	SM CNDSR EVAC ACCEPT	(FWS)2J
.CFC	2AP-FLO.01	FWPT LUBE OIL ACCEPT	(LCS)2J
.GAC	2SP-CWS.01	FUNCTIONAL TEST	)2H
.PEB	2SP-PES.01	C/O AIR START SYS	(PFS)2J
2PEA	2SP-PES.01	C/O AIR START SYS	(FFS)2J
.RCA	2FP-RC.01	FLUSH SAMPLE LINES	(SPS)2H
.CFC	2FP-CJ.01	FLUSH FWPT L/O SYSTEM	(LCS)2J
.EAC	0FP-EA.01	PRELIM FLUSH & PAL LOOP B	(SWS)2J
.EAD	0FP-EA.01	PRELIM FLUSH & PAL LOOP A	(SWS)2J
.EAC	0FP-EA.01	PRELIM FLUSH & PAL LOOP A	(SWS)2J
.GJA	2FP-GJ.01	SFGRD CHILL WTR TRN 2A	(SCH)2J
.GJA	2FP-GJ.02	SFGRD CHILL WTR TRN 2B	(SCH)2J
.PEA	2FP-PE.03	FLUSH J/W SYS	(FES)2J
.PEA	2FP-PE.02	FLUSH S/A SYS	(FES)2J
2PEA	2FP-PE.04	FLUSH L/O SYS	(FES)2J
.PEB	2FP-PE.04	FLUSH L/O SYS	(FES)2J
.PEB	2FP-PE.02	FLUSH S/A SYS	(FES)2J
.PEB	2FP-PE.03	FLUSH J/W SYS	(FES)2J
.CGB	0FP-FE.01	STM BLOW AIR EJECTOR RPG	(CAR)2H
.CGA	0FP-FF.01	STM BLOW AIR HOGGER PIPING	(CAR)2H
.BGG	2FP-BG.02	BLOW AIR TO DHAG	(HIP)2J
.BGB	2FP-BG.01	BLOW SERVICE AIR TO D-HAI	(HIP)2J
.HED	0TP-BFS.02	FILL ECT W/DEMIN WTR	(BFS)2J
.HFA	0TP-LWS.01	FILL RCVR TK FM MGA & HEM	(LWS)2J
.HEE	0TP-LWS.01	LIQUID WASTE SYS PREOP	(LWS)2J
.FA2	0TP-FST.03	EVAP SLEC PIPE THERM EXP	(FSS)2M
.GAE	0AP-FTH.02	MISC BLDG ELECTRIC ACCEPT	(FTH)2J
GATE	0AP-FSS.26	LP EVAP B REL VLVE TEST	(FSS)2M
.ATE	0AP-FSS.12	LP EVAP B HEATUP	(FSS)2M
.ATE	0AP-FSS.14	"C" EVAP BOILOUT	(FSS)2M
GATE	0AP-FSS.12	LP EVAP C HEATUP	(FSS)2M
GATE	0AP-FSS.26	LP EVAP C REL VLVE TEST	(FSS)2M
GATE	0AP-FSS.12	LP EVAP C POWER RUN UP	(FSS)2M
.ATE	0AP-FSS.12	LP EVAP D HEATUP	(FSS)2M
.ATE	0AP-FSS.12	LP EVAP B POWER RUN UP	(FSS)2M
.ATE	0AP-FSS.12	LP EVAP D POWER RUN UP	(FSS)2M
GATE	0AP-PSS.14	"B" EVAP BOILOUT	(FSS)2M
GATE	0AP-PSS.14	"C" EVAP BOILOUT	(FSS)2M
GATE	0AP-PSS.12	LP EVAP B POWER RUN UP	(PSS)2M
GATE	0AP-FSS.26	LP EVAP D REL VLVE TEST	(FSS)2M
0EAA	0SP-SWS.02	INIT RUN A,C,& E PUMPS	(SWS)2J
.DDB	0FP-DD.02	FLOW VERIF & FLUSH	(CWI)2J
0GBC	0FP-GB.02	AB CHILL WTR CLNG TWR	(CHW)2J
.GBC	0FP-GB.03	IPR & PROOF FLUSH	(CHW)2J

1984 (CONT.)

JAN	FEB	MAR
		UNIT 2/COMMON :CMA 2IP-EMC.32 EMC ELECTRICAL PRE-OP (EMC2IP .ACA 2IP-IGS.32 INIT TURB ROLL (TGS2IP :MMA 2IP-EEP.02 480 VAC MCC PRE-OP (EEP2IJ :SCA 2IP-ICS.01 ICS INPUT VERIF (ICS2IJ :MAU 2AP-MGS.03 MN & STA XFMPS ACCEPT (MGS2IP :MAA 2AP-MGS.01 MN GENER/EXCIT (MGS2IP .*26 2AP-MGT.32 ISO-PHASE BUS COOL ACCEPT(MGS2IP)

1984 (CONT.)

APR

UNIT 2/COMMON

UNIT 1

1BMA	1TP-CFS.01 PM CF CK VLV OPER TEST	(FCD)1I
1DFA	1TP-DFF.01 PM LPI ESFAS TEST	(FCS)1I
1PCA	1TP-CMS.01 COMP. REPAIR MODE PERMI	(FM)1I
1BCA	1TP-CMF.01 BACKUP SF COOLING DEMO	(CM)1I
1PC	1TP-CMF.01 ROLOUT CLEC ADD DEMO	(FM)1I
1BCA	1TP-CMA.03 DHR ESAF TEST	(EM)1I
1JEF	1TP-DFO.01 FIL DOFF TREC/O LVL INST	(EFC)1J
1CCA	1AP-ECS.02 GEN AIR PROP TEST	(SES)1S
1DCA	1FP-MC.01 FLUSH LINES TO SF POOL	(CM)1I
1CFA	1FP-CJ.01 FILL FW PMP L/O SYS	(LCS)1J
1GPA	1FP-GS.01 IPP & FROOF FLUSH	(CM)1J
1GJ3	1FP-GJ.02 SAFGRD CHILL WTR TRAIN 1B	(SCM)1J
1GJA	1FP-GJ.01 SAFGRD CHILL WTR TRAIN 1A	(SCM)1J
1JEA	1FP-JE.01 DRAIN & CLEAN CAV TANKS	(EFD)1J
1JEA	1FP-JC.01 IPP & FLUSH	(CFD)1J
1EAF	0FP-EA.01 PRELIM FLUSH & BAL	(SLS)2J
1MLC	CFP-MC.02 DOMESTIC WATER FLUSH	(CLS)2J
1KMC	0FP-MM.01 AIR BLOW PIPING	(MCC)1A
1SEA	0FP-SE.01 AIR BLOW SAMPLE LINES	(F/M)1A

UNIT 1

1BTA	1TP-RPP.01 RX PLNT PRESS (INST AIR)	(RFP)1F
1BTC	1TP-RPF.01 LK CHASE SYS LK TEST	(RFP)1K
1BGD	1TP-RTF.03 (F) 1Z17/61/25/65/66	(MLP)1K
1BGA	1TP-RTF.03 (F) 1Z46-MU	(MLP)1F
1BAD	1TP-RTF.03 (F) 1Z13	(RFS)1K
1BLA	1TP-RTF.03 (F) 1Z41	(RFS)1K
1BEA	1TP-RTF.03 1Z-19AEC20AB/35/45C-PZP	(RCS)1K
1GTC	1TP-RTF.03 (F) 1Z-33	(RFV)1K
1GSD	1TP-RTF.03 (F) 1Z-63/PE	(RFC)1K
1GSC	1TP-RTF.03 (F) 1Z-15PC/16PC	(RFC)1K
1BNA	1TP-RTF.03 (F) 1Z44AP/45AP	(RFS)1K
1BKA	1TP-RTF.03 (F) 1Z29/30/53/56	(PES)1K
1GTF	1TP-RTF.03 (F) 1Z-34	(RFV)1K
1SDA	1TP-RTF.03 1Z-49A/B/52A/B/15A/16A	(RAM)1K
1EGA	1TP-RTF.03 (F) 1Z37/39/10/68	(CCW)1K
1BGE	1TP-RTF.03 (F) 1Z1/47/60/67	(MLP)1K
1MEA	1TP-PTF.03 (F) 1Z-32	(RFS)1K
1FCB	1TP-RTF.03 (F) 1Z-72/7B	(RFC)1K
1GTS	1TP-RTF.03 (F) 1Z-58/81	(RCV)1K
1CMA	1AP-EHC.01 MN TURB EHC ACCEPT	(EHC)1P
1CCA	1AP-GGS.01 GENERATOR GAS SYS ACCEPT	(CCS)1R
1TAP	1AP-MCS.02 ISO-PHASE BUS COOL ACCEPT	(MCS)1P
1MEA	1AP-MCS.01 MN GENERA & EXCITER	(MCS)1P
1FCH	1AP-AXT.01 FWP TURB MN LOAD TEST	(FJ)1IJ
1CFC	1AP-FLC.01 FLPT LUBE OIL ACCEPT	(LCS)1J
1GAC	1SP-CWS.01 FUNCTIONAL TEST	1IP
1FFD	1SP-PES.01 C/O AIR START SYS	(FFS)1J
1PEA	1SP-PES.01 C/O AIR START SYS	(FFS)1J
1HCA	1FP-MC.01 FLUSH SAMPLE LINES	(SFS)1I
1CFB	0FP-CJ.01 FLUSH FWPT L/O SYSTEM	(LCS)1J
1PC	1FP-PE.03 FLUSH J/ SYS	(FFS)1J
1PEB	1FP-PE.01 FLUSH F/O SYS	(FFS)1J
1PEC	1FP-PE.01 FLUSH J/V COOL SYS	(FFS)1J
1PEA	1FP-PE.01 FLUSH F/O SYS	(FCS)1J
1PEA	1FP-PE.02 FLUSH S/A SYS	(FFS)1J
1PEB	1FP-PE.02 FLUSH S/A SYS	(PCS)1J
1BTB	1FP-BT.01 FLSH LTF LINES TO ISO VLVF	(RFP)1K
1MEA	0FP-ME.01 FINAL FLUSH	(EFS)1K
1MEA	0FP-ME.01 INIT FLSH ABOH WITH FPW	(EFS)1K
1MEA	0FP-PE.01 OTHER SYS FLSH TO ROCH	(EFS)1K
1CAF	1FP-CA.01 STEAM BLOW SEL LINES	(CCS)1H
1CGB	0FP-FB.01 STM BLOW AIR EJECT PPG	(CAP)1H
1CGA	0FP-FF.01 STM BLOW AIR HOGGER PIPING	(CCP)1H
1BTA	1FP-BT.01 BLOWDOWN PENET AIR LINES	(RFP)1K
1BTC	1FP-BT.01 BLOW LINES TO PENETRATIONS	(RFP)1K
1BTC	RUN COMPRESSORS & AIR BLOW	(RFP)1K

UNIT 1

1SFA	1TP-CFC.03 CFLM FUNCTIONAL TEST	(CFC)1J
1AHA	1TP-CEH.02 AHC VAC MCC FRE-OP	(EFB)1J
1GJA	1TP-SCF.01 SAFGRD LG CHIL -TP	(FCM)1J
1BTB	1TP-RPF.01 VERIFY/FILL BTF TMS	(RFP)1K
1BTF	1TP-RFP.01 VERIFY/FILL N2 SUPPLY	(RFP)1K
1BTA	1TP-RFP.01 RX PERT PRESS (N2)	(RFP)1K
1EAL	1TP-RTF.03 (F) 1Z-R,11	(SLS)1F
1GAG	1TP-RTF.03 (F) 1Z-42/43	(FIN)1F
1BBA	1TP-RTF.01 & RTF.02 PP RB SIT/ILRT	(RCS)1F
1BCA	1TP-RTF.03 (F) 1Z-58	(CM)1F
1AEA	1TF-RTF.03 (F) 1Z71	(MFS)1F
1ETA	1TF-RTF.03 (F) 1Z91P	(RFP)1K
1EAB	1TF-PTF.03 (F) 1Z-6,9	(SLS)1K
1SJA	1TP-PTF.03 (F) 1Z-44	(RFX)1F
1MEA	1TP-RTF.03 (F) 1Z-76	(FLS)1F
1KAE	1TP-RTF.03 (F) 1Z-55	(S/S)1F
1KAC	1TP-RTF.03 (F) 1Z-51A	(I/S)1K
1AE	1AP-CAF.01 SP CHDSP EVAC ACCEPT	(FAS)1J
1AKA	1AP-CLC.01 CONDENSATE DEMIN ACCEPT	(CIC)1J
1GEA	1AP-CHA.01 TURB BLDG CHILL WTR TEST	(CIL)1C
1APB	1AP-CSS.01 CND XFER ACCEPT	(CIS)1J
1CAA	1AP-CWS.01 CIRC WATER SYS ACCEPT	(CLS)1J
1AE	1AP-FWS.01 CROSATE/FW RECIRC ACCEPT	(FWS)1J
1CQA	1AP-GSC.01 HYDROGEN SEAL OIL ACCEPT	(GSC)1J
1CEA	1AP-SCS.01 STATOR COOLING ACCEPT	(SCS)1J
1HCA	1AP-SPE.01 STM PLANT SMPLNG TEST	(SFS)1J
1SCF	1SP-MAI.13 DUAL PULSE SHAPER CALIB	1IJ
1SCB	1SP-MAI.02 PCS XMT-1X SIG COND CALB	(MM)1J
1SCI	1SP-MAI.28 15-9 TAPE RECORDER C/C	(TM)1J
1SCH	1SP-MAI.34 NEUTRON NOISE MOF CALIB	(FM)1J
1PEA	1SP-PES.02 INITIAL PUR DIESEL ONLY	1IJ
1PEA	1SP-PES.03 1C-11 EMG ELEC C/O	1IJ
1PEB	1SP-PES.02 INITIAL PUR DIESEL ONLY	1IJ
1PEB	1SP-PES.04 1C-12 EMG ELEC C/O	1IJ
1TBA	1SP-MIS.01 IRIT RPS FAEP/PPC CALIB	(RPS)1L
1APA	1FP-AF.02 GRAVITY FL TURB AFWP SUCT	(CFS)1J
1PEA	1FP-PE.05 FLUSH INTAKE DUCTS	(PES)1J
1PEB	1FP-PE.05 FLUSH INTAKE DUCTS	(PCE)1J
1PEA	1FP-PE.04 FLUSH L/O SYS	(FFS)1J

MAY

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APR

UNIT 2/COMMON

GATE OAP-PSS.24 LP EVAP G REL VLVE TEST (PSS)2P
GATE OAP-PSS.14 "G"EVAP BOILOUT (PSS)2P
GATE OAP-PSS.14 "F" EVAP BOILOUT (PSS)2M
GATE OAP-PSS.12 LP EVAP G HEATUP (PSS)2M
GATE OAP-PSS.12 LP EVAP F HEATUP (PSS)2M
DELJ OSP-PIA.37 DEF RACK C/O 3C-18C (PIN)2P
PREL OSP-EPS.31 VALVE LOGIC LOOP CHECK 2J
TEGA OSP-CCL.31 COMP CL&C INIT PRF NUMS (CCW)2J
DEC2 OSP-PPS.01 DIESEL FIRE PMP INIT RUN (PPS)2J
DAPF OFP-AP.05 FLUSH (OPW)2J
CHLP OFP-HL.02 CLN OT-15/FSH-AUX COLL (LPW)2J
DELA OFP-EL.01 OT-54-AUX BLDG COLL RPR (PPW)2J
QFAA OFP-EA.01 FINAL FLUSH & BAL LOOP E (ES)2J
TECA OFP-EA.01 FINAL FLUSH & BAL LOOP A (ES)2J
WECA OFP-EG.31 GRAV FLSH TO PMP SUCT (ECW)2J
CHAH OFP-HA.04 LIQUID WASTE FLUSH (PAC)2J
CHEC OFP-HP.02 GRAVITY FL PMP SUCTION (LW)2J
CHEA OFP-HB.02 FILL/IPR FL T/CHM WST DRN (LW)2J
CHEE OFP-HB.02 FLUSH SYSTEM (LW)2J
CHEA OFP-HP.02 FLUSH CHEM WASTE (LW)2J
CHEF OFP-HP.02 FLUSH LWS FILTERS/EEMINS (LW)2J
CHEF OFP-HE.05 GRAV-REC TK PMP SUCT LINE (PPS)2J
HEB OFP-HE.08 FLUSH TO HEC (ERS)2J
CHEG OFP-HE.07 FLUSH TO HEA-HCP (ERS)2J
CHEH OFP-HE.10 GRAVITY FLSH PUMP SUCTS (ERS)2J
CHEC OFP-HE.11 FLSH &/SHEP PYPS TO DECAS (ERS)2J
CHEF OFP-HE.16 GRAV FLSH ABS TWR TO FLR (ERS)2J
CHEF OFP-HE.16 FILL COND W/PPW (ERS)2J
CHEH OFP-HE.18 FILL CORE TK IPR & FLUSH (ERS)2J
CHEH OFP-HE.18 INLET CORE TK W/LEMIN WTR (ERS)2J
CHEE OFP-HE.14 DRN R.TK/FIL W/PPW FP DEG (ERS)2J
CHCF OFP-HE.06 FILL CONDENSEP W/PPW (ERS)2J
CHED OFP-HE.14 AUX STM LINE TO REC TK (ERS)2J
CHEC OFP-HE.15 FLUSH GAS REC TANK INLET (ERS)2J
CHLF OFP-HE.16 IPR DIST PMP TO POLISH TK (ERS)2J
CHEP OFP-HE.16 FILL ABS TWR W/PPW (ERS)2J
CHED OFP-HE.17 TO MIX REC TK (NREC) & FLG (ERS)2J
CHEG OFP-HE.04 COND PMP IPR/FLSH TO CORE (ERS)2J
CHLF OFP-HE.16 GRAVITY FLSH COND TO FLR (ERS)2J
CHEF OFP-HE.06 IPR FSH TO REC/ABS NCR TK (ERS)2J
CHEF OFP-HE.16 TUBE SIDE OF EVAP W/CCW (ERS)2J
CHEF OFP-HE.16 FILL EVAP W/PPW (ERS)2J
CHEE OFP-HE.15 COMPLETE SYS FLUSH (ERS)2J
CHEE OFP-HE.05 FILL REC TK-PPW FM HCD (ERS)2J
CHEG OFP-HE.17 FSH FM/S.TK PMP THRU HEJ (ERS)2J
HEJ OFP-HE.29 FM REC TK EVPS THRU INEE (ERS)2J

MAY

UNIT 2/COMMON

QDAS OSP-DAS.15 LANYARD XDUCER CALIB 2J
CREC OSP-RCP.20 RCP MIR ERG PERF RCS532F (RCS)2J
QSDA OSP-AIS.01 INIT RPS EMER/MOD CALIB (RPS)2L
TAUE OFP-AC.02 FLUSH SAPP SYS (CCS)2J
QFCA OFP-FC.01 STEAM BLOW PIPING (AFW)2J
QSCA OFP-SC.11 AIR BLOW SAMPLE LINES (RAP)2K
QSDB OFP-SC.01 AIR BLOW SAMPLE LINES (RAP)2M
CREG OIP-PPS.06 WET FM TEST (SFP SIDE) (PPS)2P
CHEA OIP-PPS.12 PRS PRE-OP (PPS)2J
CHEJ OIP-PPS.12 PRE-OP (POST RESW LOAD) (PPS)2J
HEE OIP-PPS.12 PRE-OP (PPS)2J
CHEG OIP-PPS.02 PRE-OP (POST RESIN LOAD) (PPS)2J
HEA OIP-PRS.23 BERGN CTRL TEST RCS532F (PPS)2J
HCD OIP-PPS.12 FIRE PROT PRE-OP (PPS)2J
QLCA OAP-ACW.11 EV PLD AC/CAUS WST SUMP (ACW)2J
CHGC OAP-EWS.31 DOMESTIC WATER ACCEPT (EWS)2J
CHHA OAP-RGP.11 MISC GAS/N2 SUPPLY ACCEPT (PCA)2J
GATE OAP-PSS.12 LP EVAP H POWER RUN UP (PSS)2P
GATE OAP-PSS.26 LP EVAP H REL VLVE TEST (PSS)2P
GATE OAP-PSS.14 "J" EVAP BOILOUT (PSS)2M
GATE OAP-PSS.14 "K" EVAP BOILOUT (PSS)2P
GATE OAP-PSS.12 LP EVAP J HEATUP (PSS)2P
GATE OAP-PSS.26 LP EVAP J REL VLVE TEST (PSS)2P
GATE OAP-PSS.12 LP EVAP J POWER RUN UP (PSS)2M
GATE OAP-PSS.12 LP EVAP K HEATUP (PSS)2M
GATE OAP-PSS.12 LP EVAP K POWER RUN UP (PSS)2M
GATE OAP-PSS.14 "H" EVAP BOILOUT (PSS)2M
GATE OAP-PSS.24 LP EVAP H REL VLVE TEST (PSS)2M
CHEP OSP-FHS.03 NEW FUEL RACK INSPECTION (PPS)2P
CAPE OFP-AP.03 FLUSH AUX INSTR & EQUIP (OPW)2J
CHEH OFP-HE.18 FLUSH COMPLETE (ERS)2J
HEA OFP-HE.31 FINAL FLUSH (ERS)2J
CHHF OFP-AP.09 VAC (AUX+163)/EQUIP TEST (LSG)2J
APF WFP-PP.10 VAC (AUX+322)/EQUIP TEST (LSG)2J
AIF OFP-AI.21 FLUSH FWPC STEAM BLOWDOWN (ESS)2K

UNIT 2/COMMON

UNIT 1

ICHA IIP-EHC.02 EHC ELECTRICAL PREOP (EHC)1P
IACA IIP-IGS.32 INIT TURB ROLL (TCS)1A
IJEA IIP-CFC.01 EMER DSL FUEL STORAGE (DFO)1J
ISQA IIP-ICS.01 ICS OPER LOOP PREOP (ICS)1J
ISQA IIP-ICS.31 ICS INPUT VERIF (ICS)1J

JUN

SRTH OFP-RT.31 FSH WTR LNES TO ISO VLVS (RFP)2K
SRTC OFP-LT.31 BLOW LINES TO PENETRATIONS (RFP)2K
SRTA OFP-RT.31 BLOW PENETRATION AIR LINES (RFP)2P
SRTD RUN COMPRESSORS & AIR BLOW (RFP)2K
CAVE OIP-RTF.35 1&2 (F) 12-2 & 22-2 (DPW)1K
SECE OIP-RTF.35 1&2 (F) 12-18 & 22-18 (FPC)1K
QSLA OIP-RTF.35 2Z41 1J
QHEA OIP-RTF.35 (F) 22-32 (EFS)2K
QHCC OIP-RWS.03 FILL EXTR LUBE OIL SYS (RWS)2P
QHCC OIP-RWS.02 SPNT RES DECNT & RECRC P (RWS)2P
GATE OAP-PSS.23 LP THX STM QUAL"L" EVAP (PSS)2P
GATE OAP-PSS.17 LP SUBCOOL/2 PHASE FLOW (PSS)2M
GATE OAP-PSS.20 "C" EVAP QUALITY CHECK (PSS)2P
GATE OAP-PSS.12 LP EVAP A POWER RUN UP (PSS)2P
GATE OAP-PSS.20 "B" EVAP QUALITY "B" EVAP (PSS)2P
GATE OAP-PSS.20 "E" EVAP QUALITY CHECK (PSS)2M
GATE OAP-PSS.20 "F" EVAP QUALITY CHECK (PSS)2M
GATE OAP-PSS.20 "D" EVAP QUALITY CHECK (PSS)2P
GATE OAP-PSS.16 LP EVAP FH V/R1/02 CONT (PSS)2P
GATE OAP-PSS.34 LP DEPR/RECOV PHASE 1 2P
GATE OAP-PSS.24 LP EVAP A REL VLVE TEST (PSS)2P
GATE OAP-PSS.26 LP EVAP PRESS CFF NORMAL (PSS)2P
GATE OAP-PSS.22 "G" EVAP QUALITY CHECK (PSS)2P
GATE OAP-PSS.14 "A" EVAP BOILOUT (PSS)2M
GATE OAP-SPS.02 BLD & SAMP ACCEPT C EVAP 2M
GATE OAP-SPS.02 BLD & SAMP ACCEPT H EVAP 2M
GATE OAP-SPS.02 BLD & SAMP ACCEPT E EVAP 2M
GATE OAP-SPS.02 BLD & SAMP ACCEPT D EVAP 2M
GATE OAP-SPS.02 BLD & SAMP ACCEPT G EVAP 2M
GATE OAP-SPS.02 BLD & SAMP ACCEPT F EVAP 2M
GATE OAP-SPS.02 BLD & SAMP ACCEPT L EVAP 2M
QHCC OFP-HC.27 FLUSH & IPR RESIN DET (PWS)2P
QHCC OFP-HC.02 IPR/FSH OF-152,153,121&22 (PWS)2P
QHCC OFP-HC.02 FILL RES DET TANK (PWS)2P
QHCC OFP-HC.02 CLEAN ASPHALT TANK & FLUSH (PWS)2M
QHCC OFP-HC.02 FIL ELRS,CWIS,CLC STA,FLT (PWS)2P
QHCC OFP-HC.02 CLEAN/FLSH LUBE OIL TANK (PWS)2P
GATE OFP-AT.26 "G" EVAP STEAM BLOW (PSS)2M
GATE OFP-AT.26 "C" EVAP STEAM BLOW (PSS)2M
GATE OFP-AT.26 "F" EVAP STEAM BLOW (PSS)2M
GATE OFP-AT.26 "D" EVAP STEAM BLOW (PSS)2P
GATE OFP-AT.26 "E" EVAP STEAM BLOW (PSS)2M
GATE OFP-AT.26 "B" EVAP STEAM BLOW (PSS)2M
GATE OFP-AT.26 "A" EVAP STEAM BLOW (PSS)2M

UNIT 2/COMMON

1984 (CONT.)

UNIT 2/COMMON

APR	2EP-FL.05	FLUSH INTAKE DUCTS (FES)2J
PEB	2EP-FL.05	FLUSH INTAKE DUCTS (PES)2J
SJA	2EP-SJ.02	IPR/FLSH POST ACC SAMP (PS)2J
RCF		BLOWDOWN PIPING 2J
HEN	1IP-EHS.02	PRE-OP (EHS)2J
HEF	1IP-EFS.02	EVAPORATOR (EFS)2J
HEB	1IP-EFS.02	PRE-OP (EEGASIFIERS) (EFS)2J
HEG	1IP-EFS.02	PRE-OP (EFS)2J
HEJ	1IP-EFS.02	PRE-OP (EFS)2J
HEC	1IP-EFS.02	PRE-OP (EFS)2J
HEB	1IP-EHS.02	PRE-OP (EHS)2J
HES	1IP-LWS.01	LIQUED WASTE SYS PRECOP (LWS)2J
HEB	1IP-LWS.01	LIQUED WASTE SYS PRECOP (LWS)2J
HEC	1IP-LWS.01	LIQUED WASTE SYS PRECOP (LWS)2J
HEA	1IP-LWS.01	LIQUED WASTE SYS PRECOP (LWS)2J
HEE	1IP-LWS.01	LIQUED WASTE SYS PRECOP (LWS)2J
HEA	1IP-LWS.01	LIQUED WASTE SYS PRECOP (LWS)2J
HEA	1IP-LWS.01	FILL LWS DF TK FM SC DRN (FWD)2J
HAE	1IP-PWC.01	PW GAS (FLPTK/N2 PUR) (PWG)2J
HAF	1IP-PWG.01	PW GAS (SUR/ELEC/COMP) (PWG)2J
HGE	1IP-SEC.01	SECURITY SYS PRE-OP (SEC)2M
CCF	2AP-CHV.01	AUX ELEC CHILL WTR ACCEPT (CHW)2J
EE+	2AP-CFT.01	FORD FLUID/MAKEUP ACCEPT (CFT)2J
FJA	2AP-CFT.02	COMPUTER PRECOP TEST (CFT)2J
3F	2AP-CTS.01	CRD XFR (SAP/SFF2AP) (CTS)2J
EGJ	2AP-CWT.01	CIRC WTR CHEM INJECT TEST (CWT)2J
CEP	2AP-CWT.01	CIRC WTR CHEM INJECT TEST (CWT)2J
AMA	2AP-CMU.01	MAKEUP DEMIN SYS ACCEPT (CMU)2J
AFA	2AP-CMU.02	DEMIN WTR STO/XFER ACCEPT (CMU)2J
ACA	2AP-FWC.01	FW CHEM ACID ACCEPT (FWC)2J
GEJ	2AP-MHV.04	FLAM GAS STOR HVAC (MHV)2J
GE	2AP-MHV.01	GEN-E PIPE ELEC HVAC (MHV)2J
FEA	2AP-MHV.05	LOAD CTR TURB BLDG HVAC 2J
MEA	2AP-SAC.01	AUX ELEC SUPPS ACCEPT (SAC)2J
MAE	2AP-SAT.01	INST & SERVICE AIR ACCEPT (SAS)2J
FCA	2AP-SMV.01	OFF/SERV ELEC HVAC TEST (SMV)2J
MCA	2AP-SWT.01	XFMR DRAIN ACCEPT 2J
MEA	2AP-SWT.02	XFMR DRAIN ACCEPT 2J
ELB	2AP-WTL.01	UTIL WTR STOR/XFR (PPW)2J
LDA	2AP-WCS.01	OILY WASTE ACCEPT (WCS)2J
ATE	2AP-FSS.14	*FP EVAP BRILOUT (FSS)2M
AIE	2AP-FSS.12	LP EVAP E POWER RUN UP (FSS)2M
AIF	2AP-FSS.26	LP EVAP E FEL VLVE TEST (PSS)2M
AIF	2AP-FSS.26	LP EVAP F FEL VLVE TEST (FSS)2M
AIE	2AP-FSS.12	LP EVAP F POWER RUN UP (PSS)2M
AIE	2AP-FSS.13	LP EVAP E HEATUP (PSS)2M

UNIT 2/COMMON

EGA	2IP-CCL.03	FNL FLOW BAL CCW 532F (CCL)2J
EGA	2IP-CCL.01	CCW FLOW BALANCE (CCW)2J
BBA	2IP-CHP.03	PAD CHEM MONI RCS532F (PCS)2J
BBA	2IP-CHP.01	RCS CHEM TEST RCS<180 (PCS)2J
BBA	2IP-CHP.01	RCS CHEM TEST 180-532 (PCS)2J
BBA	2IP-CHP.01	RCS CHEM TEST RCS532F (PCS)2J
BFA	2IP-CRL.02	CRDM INTF/OPER 180-532 (CRD)2J
BFA	2IP-CRE.03	CRLT CRDM FUNC RCS<180 (CRD)2J
BFA	2IP-CRE.02	CRLT CRDM INTEG 180-532 (CRD)2J
BBA	2IP-HFT.01*	PM HEAT-UP PCS 180-532F (PCS)2J
BEA	2IP-HFT.01*	PM RCS @ 532F (PCS)2J
BBA	2IP-HFT.01*	PM RCS <180F (PCS)2J
BGA	2IP-ICS.02	ICS TUNING RCS532F (ICS)2J
BGA	2IP-ICS.02	ICS TUNING 180-532 (ICS)2J
AEA	2IP-MSS.01	MN STM ISO VLV RCS532F (MSS)2J
AGA	2IP-MUP.01	RX CHEM ADD(PRT RCS532F) (PUP)2J
BGA	2IP-MUP.02	MU/P SYS OPER RCS<180 (MUP)2J
BCH	2IP-MUT.01	MU SYS PRE-OP (MUP)2J
BCA	2IP-MUP.02	MU/P SYS OPER 180-532 (PUP)2J
BGA	2IP-MUP.02	MU/P OPER TEST RCS<180 (PUP)2J
BGA	2IP-MUP.02	MU/P SYS OPER RCS532F (PUP)2J
BCP	2IP-RAT.01	LSE FRIS MONIT RCS532F (RAT)2J
BFA	2IP-PFS.02	2G-11/12 ELEC PRE-OP 2J
BFA	2IP-PST.01	PRECR INER EXPAN 180-532 (PCS)2J
BBA	2IP-PST.01	PRECR INER EXPAN RCS532F (PCS)2J
BBE	2IP-PST.02	PZR RLF DISCH LNE 532F (PCS)2J
BBA	2IP-PST.01	PWR CONV SYS EXP RCS<180 (RCS)2J
BM	2IP-PBV.02	RP CCOLG OPER RCS532F (PBV)2J
BBA	2IP-RCS.07	PZR OPERL & SPRA RCS532F (RCS)2J
BLA	2IP-RCS.10	RCS POT LNGE/VLV RCS532F (PCS)2J
BBB	2IP-RCT.11	PZR PWR-OLV/OUF 180-532 (PCS)2J
BBC	2IP-RCS.12	RCP FLOW MEASURE RCS532F (RCS)2J
BBC	2IP-RCS.11	PZR PWR GP VLV/LVE 532F (PCS)2J
BBA	2IP-PPS.01	CRLT PPS IMC RSP RCS532F (PPS)2J
SJB	2IP-SSV.04	POST ACCIDENT SAMP (PFT) (PSX)2J
SJA	2IP-RSA.02	RX PLANT SAMPLG RCS532F (PSX)2J
SJA	2IP-RSX.02	RX PLANT SAMPLG 180-532 (PSX)2J
SJA	2IP-RSX.02	RX PLANT SAMPLG PCS<180 (PSX)2J
SJA	2IP-RSX.01	RX PLANT SMPL PRE-OP (RSX)2J
LCA	2AP-ACW.01	T62 ACID/CAUS WST ST (ACW)2J
AEC	2AP-CES.02	HOTWELL SAMP ACCEPT (CES)2J
AFC	2AP-HVD.02	MP HTR DRNS/VNTS/LVL CTL (HVD)2J
6E	2AP-HVT.01	TURB BLDG HVAC ACCEPT (HVT)2J

UNIT 2/COMMON

ALA	2IP-AFW.02	AFW SYS TEST TO AMP (AFW)2J
ALA	2IP-AFW.01	TURB DRIVEN PUMP (AFW)2J
ALA	2IP-AFW.02	HFT PRECOP TEST (AFW)2J
BCA	2IP-AXT.02	AFWP TURB NO LOAD TEST (AXT)2J
BBA	2IP-CHP.01	RCS CHEM TEST TO AMP (RCS)2J
BCA	2IP-CHR.02*	HFT RCS C/D & PZR SPRAY (CHR)2J
BCA	2IP-CHR.02	CHR (RCS COOLDOWN TO AMP) (CHR)2J
AAA	2IP-ECA.02	IE VOLT VAR RCS532F (ECA)2J
BBA	2IP-HFT.01	COOL DOWN TO 260F (HCS)2J
BPA	2IP-HFT.01	PM COOL DOWN TO AMBIENT (HCS)2J
BCA	2IP-ICS.02	ICS TUNING TO AMP (ICS)2J
BGA	2IP-MUP.02	MU/P SYS OPER TO AMP (PUP)2J
FFB	2IP-PES.01	STORY DIESEL GEN PRE-OP (PES)2J
PEA	2IP-PES.01	STORY DIESEL GEN PRE-OP (PES)2J
PEA	2IP-PFS.01	2G-11/12 AUTO START PRE-OP 2J
FCA	2IP-PST.02	RCS C/D (PHS)2J
BIC	2IP-REF.01	LK CHASE SYS LK TEST (RIP)2M
BIA	2IP-REF.01	RX PERT PRESS (INST AIR) (FRP)2M
BIB	2IP-RIF.03	(F) 22-60/61 (FFV)2M
SDA	2IP-RIF.03	22-60A,F/62A,B/15A/16A (RAM)2M
BBA	2IP-RIF.03	22-19ABC 20AE/35/45C-F2M (RCS)2M
BIC	2IP-RIF.03	(F) 2233 (FLV)2M
BHA	2IP-RIF.03	(F) 224*AF/95AH (CFS)2M
BSC	2IP-RIF.03	(F) 22-1550/16AC (FCC)2M
BBD	2IP-RIF.03	(F) 2217/61/35/65/56 (PLP)2M
BHC	2IP-RIF.03	(F) 2271/87/60/87 (PLP)2M
BBA	2IP-RIF.03	(F) 2241-*U (PLP)2M
BKA	2IP-RIF.03	(F) 2229/59/53/56 (FLS)2M
BCA	2IP-RIF.03	(F) 2251/11/62/48 (CCW)2M
BCC	2IP-RIF.03	(F) 22-72/7A (FPC)2M
BSB	2IP-PIF.03	(F) 22-61/86 (RFC)2M
BPD	2IP-RIF.03	(F) 2213 (FLS)2M
BIE	2IP-RIF.03	(F) 22-24 (FLV)2M
SDB	3IP-RAP.06	AIR RAD MONT (MSP) (RAM)2M
SDB	3IP-RAP.01	AREA RAD MONT (MSR) (RAM)2M
ACC	2AP-TCS.01	MSP HTR TEST (TCS)2J

APR	MAY	JUN

1984 (CONT.)

UNIT2/COMMON

	2IP-EEC.71	CLASS 1E DC SYS PRE-OP	
	2IP-EEC.72	CLASS 1E MIN VOLTAGE PRE-OP	
	2IP-EML.72	STATION EMER DC CIT	
	2IP-MSS.71	MMS X-CON VALVES	
	2IP-MMF.21	MAKEPURIF CHEM ADD PRE-OP	
	2IP-WAI.71	LSE PRTS PERIT SYS PART	
	2IP-WEC.32	PX BLDG SPRAY PREOP	
	2IP-RSS.31	POST ACC SAMPLE	
	2IP-SCP.71	INFORD EQ CHILL WTR	
	2AP-CAP.81	DELA/B CNDSR EVAC ACCEPT	
	2AP-CEE.71	CONDENSATE DEMIN ACCEPT	
	2AP-CES.31	CONDENSATE SYS ACCEPT	
	2AP-CPW.31	TURB BLDG CHILL WTR TEST	
	2AP-CWS.31	CIRC WATER SYS ACCEPT	
	2AP-FWC.91	FW CHEM ADD ACCEPT TEST	
	2AP-FWC.31	FW CHEM ADD ACCEPT TEST	
	2AP-FWS.71	CNDSATE/FW RECIRC ACCEPT	
	2AP-HVE.32	LE HTR DRNS/VNTS/LVL CTL	
	2AP-HVT.51	TURB BLD HVAC TEST	
	2AP-SCS.71	STATION COOLING ACCEPT	
	2AP-SPS.71	SIP PLANT SMPLNG TEST	
	[illegible]	ACCELF TEST TRAIN CALIB	
	2SP-EAS.14	LOAD SEQUENCING TRAIN CALIB	
	2SP-EAS.91	DATA ACQ SETUP F/UNIT 2 PFT	
	2SP-EAS.99	INSTALL LANYARD REDUCERS UNIT	
	2SP-EAS.74	INSTALL ACCELR IN UNIT 2	
	2SP-EAS.97	INSTALL LOAD CELLS IN UNITS	
	2SP-ECP.91	PCP START VOLT DRC TEST	
	2SP-ECP.21	2A31 FAST BUS XFER	
	2SP-MAI.72	P32 PHA-IX SIG COND CALB	
	2SP-MAI.29	MASTER DUAL AUDIO C/D	
	2SP-MAI.11	DUAL PULSE SHAPER CALIB	
	2SP-MAI.14	NEUTRON NOISE LOG CALIB	
	2SP-MAI.78	IP-4 TAPE RECORDER C/D	
	2SP-MAI.17	DIGIT LPM LOG C/C	
	2SP-RPS.72	INITIAL RUN DIESEL ONLY	
	2SP-RPS.32	INITIAL RUN DIESEL ONLY	
	2SP-RPS.35	2A-11 ESS ELEC C/D	
	2SP-RPS.34	2A-12 EES ELEC C/D	
	2SP-RPS.97	DIESEL GEN INIT RUN	
	2SP-RPS.97	DIESEL GEN INIT RUN	
	2FP-AF.72	GRAV FLSH TURB AFWP SUCT	
	2FP-FC.31	FLUSH INLET & OUTLET PPG	
	1FP-EA.91	PRELIM FLUSH & BAL	
	0FP-WF.93	DOMESTIC WATER FLUSH	
	0FP-EC.71	ACID & CAUSTIC WASTE	

APR	MAY	JUN

1984 (CONT.)

UNIT2/COMMON

[illegible]	2IP-[illegible].11	2E-[illegible] [illegible]
[illegible]	2IP-EP[illegible].11	EPEP FUNCTIONAL TEST
[illegible]	2IP-EPE.12	EPE S/S INTEGRATED TEST
[illegible]	2IP-EEA.11	PI MOD VOLT 66.5KV
[illegible]	2IP-EEA.21	MOD 1-E FEE VOLTS[illegible]KV
[illegible]	2IP-[illegible].11	480 VAC ECC PRE-OP
[illegible]	2IP-EEE.11	1-E LOW VOLT [illegible]VAC
[illegible]	2IP-EEC.11	1-E LOW VLT [illegible]VAC
[illegible]	2IP-EEA.61	120V AC MOD 1-E
[illegible]	2IP-EHA.11	120VAC-IPPT PREF FLR
[illegible]	2IP-EHE.11	120VAC 1-E PREF FLR
[illegible]	2IP-EHE.11	MOD 1-E EE SYS

APR	MAY	JUN

1984 (CONT.)

JUL

UNIT I

1SQA 1TP-ICS.02 ICS TUNING 180-532 (ICS)1J
1ACA 1TP-MSS.01 (MS X-CON VALVE) (MSS)1J
1BGA 1TP-MUP.02 MURP SYS OPER 180-532 (MUP)1J
1GCH 1TP-MUP.31 MU SYS PRE-OP (MUP)1J
1BGA 1TP-MUP.32 MURP SYS OPER RCS<180 (MUP)1J
1BGA 1TP-MUP.02 MURP SYS OPER TO AMB (MUP)1J
1GAP 1TP-NLS.01 NORM & CSS LITING PRE-OP (NLS)1J
1SCE 1TP-LPT.01 LOOSE PART MON SYS PART (LPT)1J
1PEB 1TP-PES.31 STDBY DIESEL GEN PRE-OP (PES)1J
1PEA 1TP-PES.31 STDBY DIESEL GEN PRE-OP (PES)1J
1PLA 0TP-PYW.31 PRIM WTR STOR/TRANS (PYW)1J
1BEA 1TP-PST.31 PWR CONV SYS EXP 180-532 (PCS)1J
1BBA 1TP-PST.31 PWR CONV SYS EXP RCS<180 (PCS)1J
1EMA 1TP-RBS.32 RB SPRAY SYS PRE-OP (RBS)1J
1BBB 1TP-RCS.11 PZR PWR VLV/GUE 180-532 (RCS)1J
1SJA 1TP-RSX.31 RX PLANT SMPL PRE-OP (RSX)1J
1SJB 1TP-RSX.33 POST ACCIDENT SAMPLE (RSX)1J
1SJA 1TP-RSX.32 RX PLANT SAMP RCS<180 (RSX)1J
1LCA 1AP-ACW.01 TUR 1-ACID/CAUS WST STO (ACW)1J
1CG 1AP-CRE.31 1CGA/B CNDSR EVAC ACCEPT (C/R)1J
1ACC 1AP-CDS.32 HOTWELL SAMP ACCEPT (CDS)1J
1ADA 1AP-CDS.31 CONDENSATE SYS ACCEPT (CDS)1J
1ACC CAP-FWC.31 FW CHEM ADD TEST (FWC)1J
1ACB CAP-FWC.01 FW CHEM ADD ACCEPT (FWC)1J
1CAA 1AP-GSS.31 STEAM SEAL SYS ACCEPT (GSS)1J
1AFC 1AP-HVE.32 HP HT DRN/VNT/LVL CTL (HVE)1J
1AFB 1AP-HVE.32 LP HT DRN/VNT/LVL CTL (HVE)1J
1GEA 1AP-HVT.31 TURB BLDG HVAC TEST (HVT)1J
1PAD 1AP-MGS.33 MN & STA XFMRS ACCEPT (MGS)1J
1CP 1AP-TCS.35 CHA/CFC MN TUR LDR CIL (PLS)1J
1EAS 1SP-EAS.14 LOAD SENSING TRAIN CALIB)1J
1EAS 0SP-EAS.15 LANYARD XDUCER CALIB)1J
1EAS 3SP-EAS.02 SETUP DATA ACQ F/UNIT 1 IFT)1J
1EAS 1SP-EAS.18 INSTALL LANYARD XDUCERS UNIT)1J
1GAA 1SP-ECA.31 1A&1 FAST BUS XFER)1J
1PCE 1SP-PNI.12 DIGIT LSC PART LOC C/O (NPI)1J
1SCD 1SP-PNI.35 MASTER DUAL AUDIO C/O (NPI)1J
1PEB 1SP-PES.32 DIESEL GEN INIT RUN (PES)1J
1PEA 1SP-PES.32 DIESEL GEN INIT RUN (PES)1J
1ABE 1FP-CF.32 FLUSH SAMP SYS (CFS)1J
1GLF 1FP-LC.31 FLSH INLET & OUTLET PPG (MUP)1J
1LCA 1FP-LC.31 CLEAN & FILL NEUT SUMP (ACW)1J
1LCA 1FP-LC.01 CLEAN SYS FLUSH (ACW)1J
1LCA 1FP-LC.31 NEUT SYS FLUSH (ACW)1J
1MCF BLOWDOWN PIPING)1J
1SGB 3FP-SL.31 AIR BLD SAMPLE LINES (RAM)2M

AUG

UNIT 1

1ALA 1TP-AFW.32 AUX F/W SYS TEST RCS532F (AFW)1J
1FCA 1TP-AXT.32 AFWP TURBINE NO LOAD TEST(AXT)1J
1NEA 1TP-EFS.33 BORON CTRL RCS532F (EFS)1J
1EGA 1TP-CCW.33 FAL FLOW CAL CCW RCS532F (CCW)1J
1FFA 1TP-CHM.35 RAD CHEM MON RCS532F (RCS)1J
1BBA 1TP-CHM.31 RCS CHEM TEST RCS532F (RCS)1J
1SFA 1TP-CRD.32 CRD SYS INTEG RCS532F (CRD)1J
1KAA 1TP-ECA.92 CLASS 1E VOLT VARIATION (ECA)1J
1BEA 1TP-HFT.91* PM RCS & 532F (RCS)1J
1SQA 1TP-ICS.02 ICS TUNING RCS532F (ICS)1J
1AHE 1TP-MSS.01 M/STEAM ISO VLV RCS532F (MSS)1J
1BGA 1TP-MUP.32 MURP OPER TEST RCS532F (MUP)1J
1BGA 1TP-MUP.31 RX CHEM ADD PART RCS532F (MUP)1J
1SCB 1TP-NNI.01 L.P.M. RCS532F (NNI)1J
1PEA 1TP-PES.32 1G-11/12 ELEC PRE-OP)1J
1PEA 1TP-PES.33 1G-11/12 AUTO START PRE-OP)1J
1BBA 1TP-PST.31 PRECRE THERM EXP RCS532F (RCS)1J
1BBC 1TP-PST.37 PZR REL DISC LIN RCS532F (RCS)1J
1GM 1TP-RIV.32 RX BLDG COOLING RCS532F (RIV)1J
1EBA 1TP-RCS.12 RC PMP FLOW MEAS RCS532F (RCS)1J
1BBA 1TP-RCS.08 RCS HOT LEAK/VIS RCS532F (RCS)1J
1BBB 1TP-RCS.11 PZR PWR VLV/GUE RCS532F (RCS)1J
1BBA 1TP-RCS.37 PZR OPER & SPRAY RCS532F (RCS)1J
1SBA 1TP-RPS.01 CPLT RPS RSE TME RCS532F (RPS)1J
1SJA 1TP-RSX.32 RX PLANT SAMP RCS532F (RSX)1J
1SJB 1TP-RSX.34 POST ACCIDENT SAMP (HFT) (RSX)1J
1SEA 1TP-RIS.35 NI PRE-OP CALIB TEST (RIS)1L
1SGA 0TP-RAM-04 1-E AIR RAD MON (RAM)1L
1GSC 1TP-RGC.35 H2 MONITORING PRE-OP (RGC)1L
1GSB 1TP-RGC.32 H2 VENT SUPPLY/EXH PRE-OP(RGC)1L
1SEA 1TP-RPS.32 RPS PRE-OP CALIB (RPS)1L
1SGB 0TP-RAM.31 AREA RAD MON (NSB) (RAM)2M
1SGB 0TP-RAM.05 LIQUID RAD MONT PRE-OP (RAM)2M
1SGA 2TP-RAM.31 AREA RAD MON (NSB) (RAM)2M
1SGB 3TP-RAM.06 AIRBORN RAD MON (NSP) (RAM)2M
1GE 1AP-HVT.01 TURB BLDG HVAC ACCEPT (HVT)1J
1ACC 1AP-TCS.31 MSR HTR TEST (TCS)1J
1SGA 1SP-RPS.31 RCP PWR MON RESP TIME (RPS)1L
1LCA 1FP-LC.01 CLEAN & FILL CLEAN SUMP (ACW)1J
1FCA 1FP-FC.31 STEAM BLOW PIPING (AXT)1J
1AQB 0FP-AG.31 BLOWDOWN INST AIR LINES (FWC)1M
1AQC 0FP-AG.31 BLOW DOWN INST AIR LINES (FWC)1M

SEP

CATD 3AP-SFS.02 FLUSH&SAMP SYS F HP EVAP ACCE)2M
CATL 3AP-SFS.02 SPS SYS ACCEPT SAMPLE SYS(PSS)2M
CATD 3AP-SFS.02 FLUSH&SAMP SYS A HP EVAP ACCE)2M
COGA 3SP-GRL.31 GROUND GRID RESIST (GRD)2M
CATD 3FP-AT.36 STM BLOW B TRAIN (PSS)2M
CATM 3FP-AT.02 FLUSH IRON REM COND RET (PSS)2M
CATK 3FP-AT.31 FLUSH IRON REMOVAL SUMP (PSS)2M
CDEA 3FP-FA.02 CLNG TWR M/U & FUNC C/O (CTP)2M
3HHA 3FP-HH.31 FLUSH SYSTEM PMP DISCH (LCW)2M
3HHB 3FP-HH-37 VAC (EVAP LAB) AL/FUNC (LFG)2M
TSC.05 HVAC PRE-OP (TSC)2M

UNIT 2/COMMON

UNIT 1

1RKA 1SP-ANN.97 CMPLT C/O)1L
1ALA 1TP-AFW.32 HFT PREOP TEST (AFW)1J
1ALA 1TP-AFW.32 AUX F/W SYS TEST AMB (AFW)1J
1ALA 1TP-AFW.01 COMPL (TURB DRIVEN PUMP) (AFW)1J
1BBA 1TP-CHM.01 RCS CHEM TEST TO AMB (RCS)1J
1BCA 1TP-DHR.32 DHR (RCS C/D TO AMB) (DHR)1J
1BCA 1TP-DHR.22* HFT RCS C/D & PZR SPRAY (DHR)1J
1BBA 1TP-HFT.01 COOL DOWN TO 280 DEG (RCS)1J
1BBA 1TP-HFT.31 PM COOL DOWN TO AMBIENT (RCS)1J
1SGA 1TP-ICS.32 ICS TUNING TO AMB (ICS)1J
1BGA 1TP-MUP.32 MURP SYS OPER TO AMB (MUP)1J
1BBA 1TP-PST.31 PRECRE THERM EXP TO AMB (RCS)1J
1BCA 1TP-PST.02 RCS C/D (DHR)1J
1BNA 1TP-BWS.31 BORATED WATER STOR PREOP (BWS)1L
1BCA 1TP-DHR.01 DUMP TO SUMP FLOW TEST (DHR)1L
1BBA 1TP-ESA.05 INTEGRATED ESFAS (RCS)1L
1SAB 1TP-ESA.04 ESFAS RESPONSE TIME TEST (ESA)1L
1SAB 1TP-ESA.37 TOT SFAS RESP TIME (ESA)1L
1SAB 1TP-ESA.33 ECCAS LOP SEQ PREOP (ESA)1L
1DGK 1TP-MUF.01 MU SYS PRE-OP (EPS) (EPS)1L
1SCF 0TP-RAM.32 1-E AREA RAD MONT PRE-OP (RAM)1L
1GTA 1TP-REV.31 RB AIR PUR/CLNUP/VNT (REV)1L
1GSA 1TP-RGC.31 H2 RECMBNR PRE-OP (RGC)1L
1SBB 1TP-RIS.33 ARIS SYS PREOP (RIS)1L
1SBA 1TP-RPS.31 RPS PREOP/TIME RESP (RPS)1L
1SCE 0TP-RAM.07 STACK HI RANGE RAD MON (RAM)2M
1SCB 0TP-RAM.03 CTMT HI-RANGE RAD MON (RAM)2M
1SEE 1SP-RPS.33 INITIAL ENERGIZATION (RPS)1L
1BGK 1FP-EG.33 FLUSH RECIRC FLOW PATH (EES)1L
1BGK 1FP-EG.33 FLSH PRIM WTR TO EBS TK (EES)1L
1BGK 1FP-EG.33 OPN EES TK & PARTIAL FILL (EES)1L
1MCE VENDOR BLOWDOWN PIPING)2M

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CATE JAP-PSS.18 TUBE INTEG EXPER LKR ID (PSS)2M
CATE JAP-PSS-29 LOS OF FEEDWTR LP EVAPS)2P
DATD JAP-PSS.15 HP EVAP B HEATUP (PSS)2P
CATE CAP-SPS.32 BLD & SAMP ACCEPT K EVAP)2P
CATE OAP-SPS.32 BLG & SAMP ACCEPT J EVAP)2P
CATE OAP-SPS.32 BLD & SAMP ACCEPT A EVAP)2P
CATE CAP-SPS.32 BLD & SAMP ACCEPT H EVAP)2P
CATE 3FP-AT.36 OPEN MON MOV (PSS)2P
CATE 3FP-AT.36 CLN,ILSP,FSH HP STM-DOW (PSS)2P
CATD 3FP-AT.36 INSPECT FLP & CLEAN (PSS)2P
CATE 0FP-AT.36 OPEN MOV HP STEAM TO DOW (PSS)2M
DATE-2 0FP-AT.36 CLSE HP STM TO DOW MOV (PSS)2M
CATE 0FP-AT.06 "K" EVAP STEAM BLOW (PSS)2P
CATE 9FP-AT.36 "A" EVAP STEAM FLOW (PSS)2P
CATE 0FP-AT.36 "H" EVAP STEAM BLOW (PSS)2P
CATE 3FP-AT.36 "J" EVAP STEAM BLOW (PSS)2P
SPR 1FP-SF-31 AIR BLOW SAMPLE LINES (PSR)2P

UNIT 2/COMMON

UNIT 1

1ALA 1TP-AFW.01 1F-05A AF HP ENDUR RUN (AFW)1J
1NFA 2TP-PPS.32 PPS PRE-OP (PPS)1J
1SGA 1TP-CCW.31 CCW FLOW BALANCE (CCW)1J
1NEA 1TP-CHP.31 RCS CHEM TEST RCS<180 (RCS)1J
1SFA 1TP-CRC.32 CPLT CROM INTEG 180-532 (CRD)1J
1SFE 1TP-CRL.32 SYS INTEGRATED TEST (CRC)1J
1SFA 1TP-CRL.32 CRP TRIP & OPER 160-532 (CRD)1J
1SFA 1TP-CRC.32 CPLT CRIM FUNC RCS<160 (CRC)1J
1PAA 1TP-ECA.01 HI MOD VOLT (6.9KV) (ECA)1J
1PFA 1TP-ELA.01 NON 1E MED VOLT(4.16KV) (EFA)1J
1PGA 1TP-EEL.31 1-E MED VLT(4.16KV) (ELB)1J
1PEA 1TP-EEL.31 480 VAC LCC PRE-OP (EEB)1J
1PGA 1TP-EEL.31 1-E LOW VLT 480VAC (EEC)1J
1PHA 1TP-EEC.31 1-E LOW VLT(480VAC) (EEC)1J
1NAA 1TP-ECA.01 120VAC NON 1E (ECA)1J
1NFA 1TP-EHA.31 120VAC CN-INPT PREF FWP (EHA)1J
1PNA 1TP-EHB.31 120 VAC 1E PRFERD PWR (EHB)1J
1NKA 1TP-EKC.31 NON 1E DC SYS (EKC)1J
1PKA 1TP-EKL.32 CLASS 1E MIN VOLTAGE PRE-OP)1J
1PKA 1TP-EKD.31 CLASS 1E DC SYS PRE-OP (EKD)1J
1GDB 1TP-EKL.32 STATN EMER DC CIT (EKL)1J
1PBA 1TP-HFT.31+ PH RCS <180F (RCS)1J
1PBA 1TP-HFT.31+ PH HEAT-UP RCS 180-532F (RCS)1J

JUL

2GLA 0TP-AHV.32 AUX BLDG HVAC PRE-OP (AHV)2L
2EAA 0TP-SWS.31 SW PREOP (SWS)2L
4DCA 0TP-SWS.33 SER WATER TRAV SCRN PREOP(SWS)2L
4GLF 0TP-AHV.33 FH AREA HVAC PRE-OP (AHV)2M
3GLK 0TP-AHV.34 ACCESS CNTL/CMPTR AREA (AHV)2P
2DEC 0TP-CPP.01 EMER COOL POND PRE-OP (CPP)2P
2SOF 0TP-ESA.06 HAZ GAS MONT SYS PREOP (HGM)2P
2KCC 0TP-FPS.33 FIRE PROTECTION PREOP (FPS)2M
2KCE 2TP-FPS.01 CO2 FIRE PROT PRE-OP (FPS)2M
4GLL 4TP-MHV.03 SER WTR STRUCT HVAC PREOP(MHV)2M
2OFC 0TP-PAS.03 SOUND POWERED PHONES (PAS)2P
2OEA 0TP-PCX.01 EXTERNAL COMMUNICATIONS (PCX)2M
2RLN 0TP-PIN.01 ROOM WATER LVL MON SYS (PIN)2M
2SPB 0TP-PSP.01 PROCS STM RAD MON (PSR)2M
4SDC 0TP-RAM.01 AREA RAD MON (NSR) (RAM)2P
2SDC 0TP-RAM.01 AREA RAD MON (PSR) (RAM)2P
1SDB 0TP-RAM.06 AIR RAD RAG MON ( ) (RAM)2P
2SCC 0TP-RAM.05 LIQUID RAD MONT PRE-OP (RAM)2P
2HCC 0TP-RWS.14 RAD WST DRUM MOML PREOP (RWS)2M
2EAA 0TP-SWS.05 SW VORTEX PREOP (SWS)2M
2GEB DAP-CHW.32 OFF BLDG CHILL WTR (CHW)2P
4GLA 0AP-MHV.32 PROCS EVAP BLDG HVAC (MHV)2P
2ATD 0AP-PSS.24 HP EVAP A REL VLV TST (PSS)2P
2ATC 0AP-PSS.35 HP EVAP FH VAMI/O2 CONT (PSS)2M
2ATC 0AP-PSS.37 HP EVAP RECRC SYS C/O (PSS)2M
2ATD 0AP-PSS.16 SUM COOLING TEST (PSS)2M
2ATD 0AP-PSS.27 HP EVAP PRESS OF NORMAL (PSS)2P
2ATD 0AP-PSS.38 HP DEPR/RECOV PHASE 1)2M
2ATE 0AP-PSS.15 HP EVAP A HEAT-UP (PSS)2M
2ATC 0AP-PSS.24 HP VNT STA/DUMP VLV ACC (PSS)2M
4GA 0AP-PTH.01 1A&GAJ AE ELEC HEAT (PTH)2M
2HCC 0AP-RWS.31 DRY WASTE COMPACTOR)2M
2LCA 0AP-SEW.31 DEWATERING SYS ACCEPT (SEW)2M
2FAP-HAS.24 GAS SUPPLY AIR TEST)2P
2RRB 0SP-AHV.35.31 CMPLT C/O)2L
2PRB 0SP-AHV.32 CMPLT C/O)2L
2SDF 0SP-ESA.06 INIT CALB HAZ GAS MON (HGM)2P
2HCD 0SP-RWS.35 FILTER RMNL C/O (RWS)2P
2GB 3FP-AT.14 SUCT PIPE TIES & CONNECT (PSS)2P
2ATD 3FP-AT.36 STM BLOW A TRAIN (PSS)2P
2HHA 3FP-HH.31 FLUSH TK SUCT & GRAV FL (LEW)2M
2SDB 0FP-SL.31 AIR BLOW SAMPLE LINES (RAM)2P
2SDC 0FP-SL.31 AIR BLOW SAMPLE LINES (RAM)2P

UNIT 2/COMMON

AUG

UNIT2/ COMMON

2PGK 2FP-EG.33 FLUSH SECIRC FLOW PATH (SFS)2M
2BGK 2FP-EG.33 FLUSH OUT CUT PIPE (SFS)2M
2BGK 2FP-EG.33 FLUSH TO EGC (EGS)2M
2KFP 0TP-CHE.01 AUX BLDG CRANE PREOP (CHE)2M
0GDC 0TP-EKL.01 CNTL ROOM EMER LIGHTS (EKL)2P
2GKA 2TP-FDA.01 FIRE DET & ALARM PREOP (FDA)2M
2KCD 0TP-FPS.24 XFMR DELUGE PREOP (FPS)2M
2KCA 0TP-FPS.01 FIRE WTR SUPPLY & DIST (FPS)2P
2GAA 2TP-LLS.01 NORM & ESS LITING PRE-OP (LLS)2P
0GFA 0TP-PAS.02 INTERNAL COMMUNICATIONS (PAS)2M
2GFC 0TP-PAS.04 RADIO COMM PRE-OP (PAS)2M
2SDH 0TP-RAM.03 CTMT HI RANGE RAD MONT (RAM)2M
2SDE 0TP-RAM.05 LIQUID RAD MONT PRE-OP (RAM)2P
2HCC 0TP-RWS.06 INTEG SOLID RAD WST PREOP(RWS)2P
2SGA 0TP-SIS.01 SEISMIC INST SYS PRE-OP (SIS)2M
2DEA 0AP-CPP.01 POND BLDWN/MAKEUP ACCEPT (CPP)2J
2FAA 0AP-AXB.32 AUX BLR ACCEPT F/CE-1&A (AXB)2M
2FAA 0AP-AXB.02 AUX BLR ACCEPT F/CE-1&B (AXB)2P
2KFC 0AP-CHE.01 TURBINE BLDG CRANE ACCEPT(CHE)2P
2FAP 0AP-HAF.01 GAS LEAK DETECT ACCEPT (HAS)2P
2FAH 0AP-HAS.10 LEAK TEST CONDENSATE (HAS)2M
2FAP 0AP-HAS.06 SERV LEAK TEST RECEVER (HAS)2M
2FAP 0AP-HAS.11 MUD DRUM HTG SYS TEST (HAS)2M
2FAP 0AP-HAS.09 LEAK TEST HP CONDENSATE (HAS)2P
2FAP 0AP-HAS.14 COND TO DA SER LEAK TEST)2P
2FAP 0AP-HAS.07 LEAK TEST MAIN STEAM (HAS)2P
2FAP 0AP-HAS.12 N2 SUPPLY TEST (HAS)2M
2HHA 0AP-LEW.01 LAUNDRY WASTE ACCEPT (LEW)2M
2GDC 0AP-MHV.03 MISC BLDGS HVAC ACCEPT (MHV)2P
2ATD-2 0AP-PSS.11 SERV LP TST TO VALVE (PSS)2P
2ATD 0AP-PSS.11 LEAK TEST (PSS)2P
2ATL 0AP-PSS.22 LP PMP HEAD CURVE (PSS)2P
2ATG 0AP-PSS.13 HP EVAP E POWER RUNUP (PSS)2P
2ATE 0AP-PSS.38 HP DEPR/RECOV PHASE 2)2M
2ATD 0AP-PSS.26 RELIEF VALVE TESTING (PSS)2P
2ATK 0AP-PSS.23 VACUUM PUMP PERFORMANCE (PSS)2P
2ATD 0AP-PSS.37 HP EVAP 1 COOLDOWN & INSP(PSS)2P
2ATP 0AP-PSS.32 HP & LP MAG FILTER ACCEPT(PSS)2M
2ATE 0AP-PSS.19 TUBE INTEG EXPERLEAKER ID(PSS)2P
2ATE 0AP-PSS.11 DOW HP STM HTDR TO VALVE (PSS)2P
2ATD 0AP-PSS.19 HP THX STM QUAL"A EVAP" (PSS)2P
2ATL 0AP-PSS.21 HP FD PMP HEAD CURVE (PSS)2P
2ATD 0AP-PSS.13 THERMAL PERFORM BASELINE (PSS)2P
2ATD 0AP-PSS.29 LOS OF FEEDWTR HP EVAPS)2P
2FAB 0AP-PST.01 HP BLR TEMP PPG EXAM (HAS)2P
2GAA 0AP-PTH.04 HOT WATER HEATING ACCEPT (PTH)2P

SEP

1984 (CONT.)

UNIT2/ COMMON

[illegible]	2TP-RHT.01	VERIFY/FILL N2 SUPPLY	(RHPD)2M
[illegible]	2TP-PPT.01	PR PERT PRESS (N2)	(PRPD)2M
[illegible]	2TP-RFT.01	VERIFY/FILL WTR TKS	(RFPD)2M
[illegible]	2TP-RTF.02	(F) 22-42/43	(F7HD)2M
[illegible]	2TP-RTF.03	(F) 22-P.11	(ELSD)2M
[illegible]	2TP-RTF.03	(F) 22-P1A	(F1AS)2M
[illegible]	2TP-RTF.03	(F) 22-P1B	(R1BD)2M
[illegible]	2TP-RTF.03	(F) 22-P.6	(ELSD)2M
[illegible]	2TP-RTF.03	(F) 22-P3	(PFSD)2M
[illegible]	2TP-RTF.01	& RTF.02 PR RD SET/TLRT	(PFSD)2M
[illegible]	2TP-RTF.03	(F) 22-P8	(F8RD)2M
[illegible]	2TP-RTF.03	(F) 22-P5	(F5RD)2M
[illegible]	2TP-RTF.03	(F) 22-P6	(F6PD)2M
[illegible]	2TP-RTF.03	(F) 22-P4	(R4PD)2M
[illegible]	2TP-RIS.05	NI PRE-OP CALIB TEST	(PRSD)2L
[illegible]	2TP-RPS.02	RPS PRE-OP CALB	(RPSD)2L
[illegible]	2TP-RIS.01	ICM ELECT TEST	(MISD)2M
[illegible]	2TP-RAP.05	LIQUID RAD MONT PRE-OP	(RAPD)2M
[illegible]	1TP-PPC.01	DRAIN SPENT FUEL POOL	PPCD)2P
[illegible]	1TP-PPL.01	PRIM WTR STOP/TRANSF	(PPWD)2L
[illegible]	1TP-RAT.02	1-E AREA RAD MONT PRE-OP	(RAPD)2L
[illegible]	1TP-RAT.01	AREA RAT MONT (MSP)	(RAMD)2M
[illegible]	1TP-RAT.03	FILL ASPHALT TANK	(RATD)2M
[illegible]	0TP-RAS.01	RAD LST SOLIDIFICATION	(RASD)2M
[illegible]	0TP-PSS.03	FILL STEAM DOME BOILOUT	(PSSD)2M
[illegible]	DAP-PSS.01	"A" EVAP QUALITY CHECK	(PESD)2M
[illegible]	DAP-PSS.02	"B" EVAP QUALITY CHECK	(PESD)2M
[illegible]	DAP-PSS.11	HP TEST STA AGR SET MOT	(PESD)2M
[illegible]	DAP-PSS.12	THERMAL PERFORM BASELIZ	(PESD)2M
[illegible]	DAP-PSS.37	RECIRC SYS LP COOLDOWN	(PESD)2M
[illegible]	DAP-PSS.01	PSS INTERLOCK & CTRL CHK	(PESD)2M
[illegible]	DAP-PSS.01	"B" EVAP QUALITY CHECK	(PESD)2M
[illegible]	DAP-PSS.20	"A" EVAP QUALITY CHECK	(PESD)2M
[illegible]	DAP-PSS.19	HP THR STH DUAL*R EVAP*	(PESD)2M
[illegible]	DAP-PSS.39	LP DEPR/RECOV PHASE 2	)2P
[illegible]	DAP-PSS.11	HANGER CHECK COLD	(PESD)2M

JUL

UNIT2/ COMMON

[illegible]	2TP-EAS.01	OPERATOR WATER STOP PREOP	(EPED)2L
[illegible]	2TP-ESA.04	ESFAS RESPONSE TIME TEST	(ESAD)2L
[illegible]	2TP-ESA.07	TOT SFAS RESPONSE TIME	(ESAD)2L
[illegible]	2TP-ESA.05	INTERFACED ESFAS LP	(EPCS)2L
[illegible]	2TP-ESA.03	ECCAS LOP SEQ PREOP	(ESAD)2L
[illegible]	0TP-RAP.02	1-E AREA RAD MONT PRE-OP	(RAPD)2L
[illegible]	1TP-RAT.04	1-E AIR RAD MONT	(RAMD)2L
[illegible]	2TP-REV.01	RP AIR PUR/CLNUP/VENT	(RIVD)2L
[illegible]	2TP-REC.03	H2 MONITORING PRE-OP	(RHCD)2L
[illegible]	2TP-REC.02	H2 VENT SUPPLY/EXH PRE-OP	(RHCD)2L
[illegible]	2TP-REC.01	H2 RECOMBR PRE-OP	(RHCD)2L
[illegible]	2TP-RPS.01	RPS TIME RESPONSE	(RPSD)2L
[illegible]	2TP-CHV.01	DG BLDG HVAC PRE-OP	(EHVD)2M
[illegible]	1TP-RAT.01	AREA RAD MONT (MSP)	(RAMD)2M
[illegible]	2TP-REV.02	CNMT HEAT REMOVAL PREOP	(RIVD)2M
[illegible]	2SP-ANP.06	CMPLT C/O	)2L
[illegible]	2SP-AFW.07	CMPLT C/O	)2L
[illegible]	2SP-SAI.01.01	CMPLT C/O	)2L
[illegible]	2SP-PIP.04	CMPLT C/O	)2L
[illegible]	2SP-RPS.01	RCP PWR PCP RESPONS TIME	(RPSD)2L
[illegible]	2SP-RPS.02	INITIAL ENERGIZATION	(RPSD)2M
[illegible]	2FP-EC.03	FLSH PRIM WTR INTO EPS TK	(EPSD)2M
[illegible]	0FP-AC.01	INST AIR BLDG	(FACD)2M
[illegible]	2TP-AHV.03	CNTL RM HVAC PRE-OP	(AHVD)2L

AUG

UNIT2/ COMMON

[illegible]	2TP-CHE.04	POLAR CRANE PRE-OP	(CHED)2M
[illegible]	2TP-FPS.02	HALON FIRE PROTECTION PRE-OP	)2M
[illegible]	2TP-MUP.01	MU SYS PRE-OP (EPSD)	(EPSD)2L
[illegible]	2TP-RIS.04	NI DETECTOR PRE-OP	(RISD)2M
[illegible]	2TP-RIS.06	SR/IR INITIAL SETTINGS	(RPSD)2M
[illegible]	2TP-RIS.02	ICM SYSTEM PRE-OP	(MISD)2M
[illegible]	2TP-RIS.03	NI DETECTOR CABLING TEST	(MISD)2M
[illegible]	0TP-RAP.03	CNMT HI RANGE RAD MON	(RAMD)2M
[illegible]	0TP-RAM.07	STACK HI RANGE RAD MON	(RAMD)2S
[illegible]	2TP-RPS.01	RP SPRAY PER AIR TEST	(RPED)2M
[illegible]	2TP-RCS.04	PST HET INTEP INSP(HVEC)	(RCSD)2M
[illegible]	2TP-RPS.03	ARTS SYS PREOP	(RPSD)2M
[illegible]	2AP-AHV.01	TENDON GALLERY HVAC	(AHVD)2M
[illegible]	2AP-CPS.01	CATHODIC PRPT ACCEPT	(CPSD)2M
[illegible]	2SP-PIP.02	CMPLT C/O	)2P
[illegible]	2SP-PIP.03	CMPLT C/O	)2P

SEP

1984 (CONT.)

OCT	NOV	DEC
		UNIT 1 1SEA ITP-MIS.01 ICM ELECT TEST 1SEB ITP-MIS.04 MI DETECTOR PRE-OP

1984

JAN	FEB	MAR
[illegible] DSP-[illegible].XX DATA ACQ SETUP F/UNIT 2 FES 1D8 UNIT 2/COMMON UNIT 1 DOA AFP-AT.XX DRAIN LINE TO DOA POND (FSS)1C DOW AFP-AT.XX COND LINE FLUSH TO POND (FES)1C 1FFA ITP-CHE.34 POLAR CRANE PRE-OP (CHE)1P 1GMA ITP-CHV.31 DG BLDG HVAC PRE-OP (CHV)1P 1GKA ITP-FEA.31 FIRE DET & ALARM PREOP (FEA)1P 1KCC ITP-FPS.31 CO2 FIRE PROT PRE-OP (FPS)1P 1KFF ITP-FPS.33 HALON FIRE PROTECTION PRE-OP 11P 1SEB ITP-MIC.37 AI DETECTOR CABLING TEST (MIS)1P 1SEA ITP-MIC.3C ICP SYS PRE-OP (MIS)1P 1SDA ITP-MIC.3A SM/TIR INITIAL SETTINGS (MIS)1P 1GKA ITP-MIC.01 RB SPRAY HDR AIR TEST (MIS)1P 1GYA ITP-REV.32 CRT HEAT REMOVAL PREOP (REV)1P 1GKA ITP-RCS.1D RM FLOW SCRS/INTERF INSP (RCS)1P 1GLE IAP-AHV.31 TURB GALLERY HVAC (HVA)1P 1GMA IAP-CIS.31 CATHODIC PROTECTION (CPS)1M 1PKA ISP-ANA.0R CABLE C/O 11P 1GGK IFP-LG.33 FILL EBS TK COMPLETELY (EPS)1M 1HGK IFP-RC.33 FLUSH OUT CUT PIPE (EES)1M 1GGK IFP-EC.32 BACK FLUSH FM/IPCC FES)1M	?EAS JSP-EAS.14 LOAD SENSING TRAIN CALIB 32F ?EAS JSP-EAS.13 ACCELR TRAIN CALIB 32F ?EAS JSP-EAS.0A INSTALL LANYARD XDUCERS 32F ?EAS JSP-EAS.15 LANYARD XDUCER CALIB 32F UNIT 2/COMMON	

1985

UNIT 1

[illegible] MAP-PSS.14 UNIT MTUP EXT LINE TO TURBIN

UNIT 2/COMMON

[illegible] ATP-PSS.XX MODE 1 INTEG. CPS & EXT
GATE TE-9020.14 HP DOW LINE STEAM FLOW
GATE TE-9021.14 LP DOW WEST STEAM FLOW
GATE TE-9121.14 LP DOW EAST STEAM FLOW
GATE TE-9021.14 LP DOW TUR LNE STM FLOW

APR	MAY	JUN

1985

UNIT 1

IDAS	DSP-DAS.04	DATA ACQ SETUP F/UNIT 1 FEE
IDAS	DSP-DAS.14	LOAD CELL CALIB
IDAS	DSP-DAS.06	INSTALL ACCELR IN UNIT 1
IDAS	DSP-DAS.17	ACCEL TRAIN CALIB
IDAS	DSP-DAS.08	INSTALL LANYARD XDUCERS IN UN
IDAS	DSP-DAS.15	LANYARD XDUCER CALIB

JUL	AUG	SEP

1985

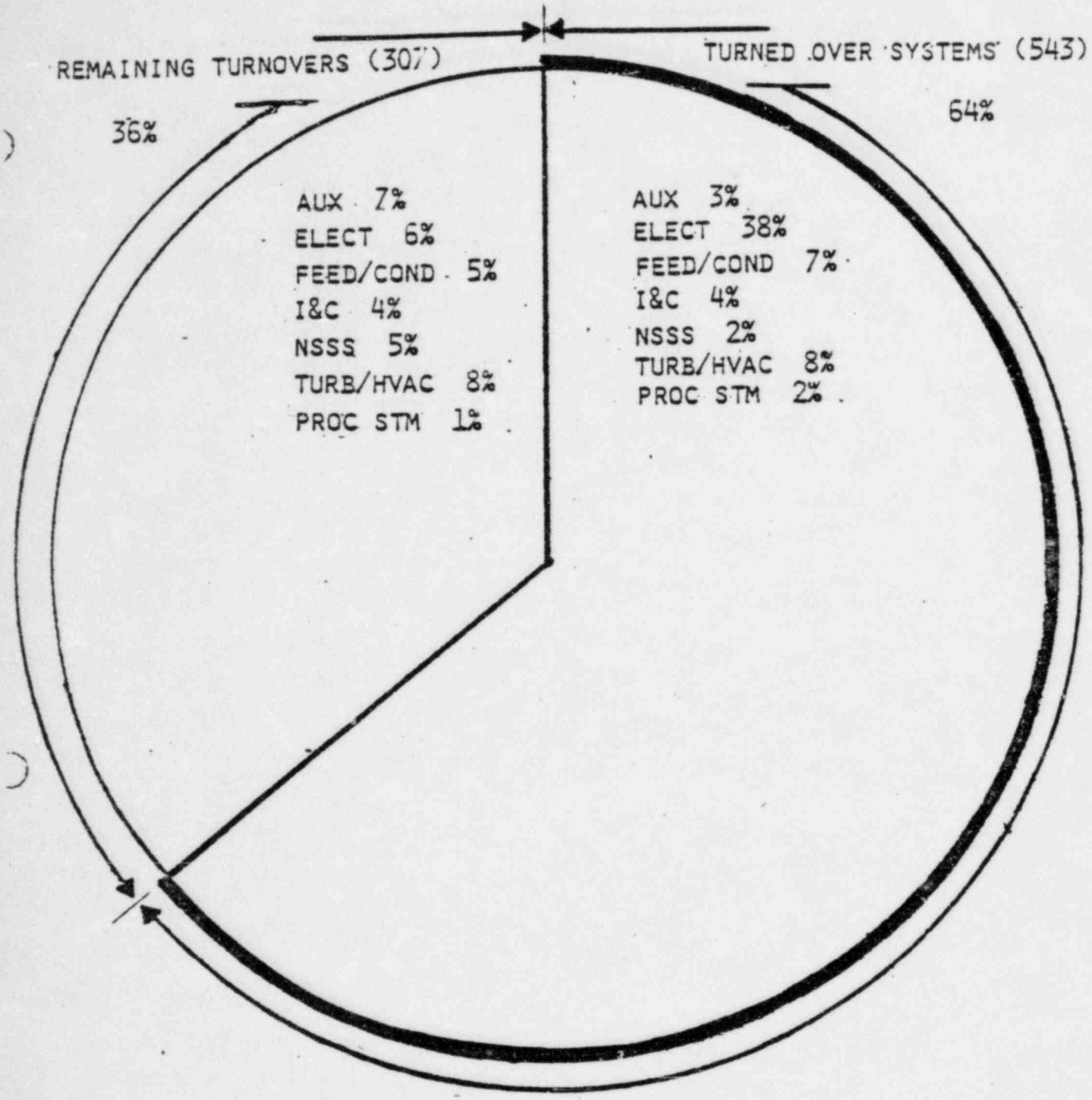
OCT	NOV	DEC

1985

SYSTEM

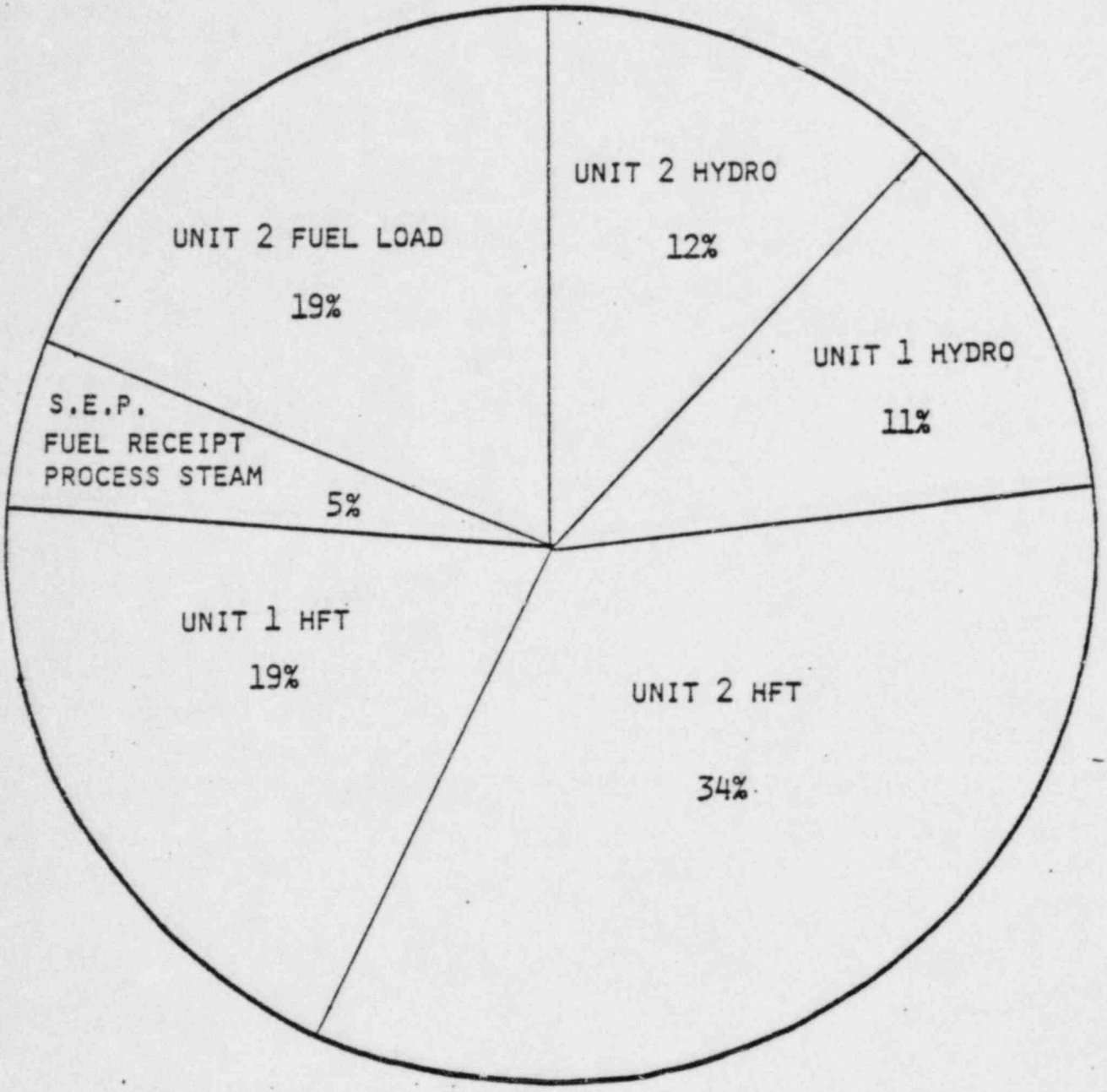
TURNOVER

STATUS



TOTAL SYSTEMS = 850
TURNED OVER = 543
REMAINING = 307
% COMPLETE = 64

SYSTEM TURNOVERS BY DISCIPLINE - (3-31-83)

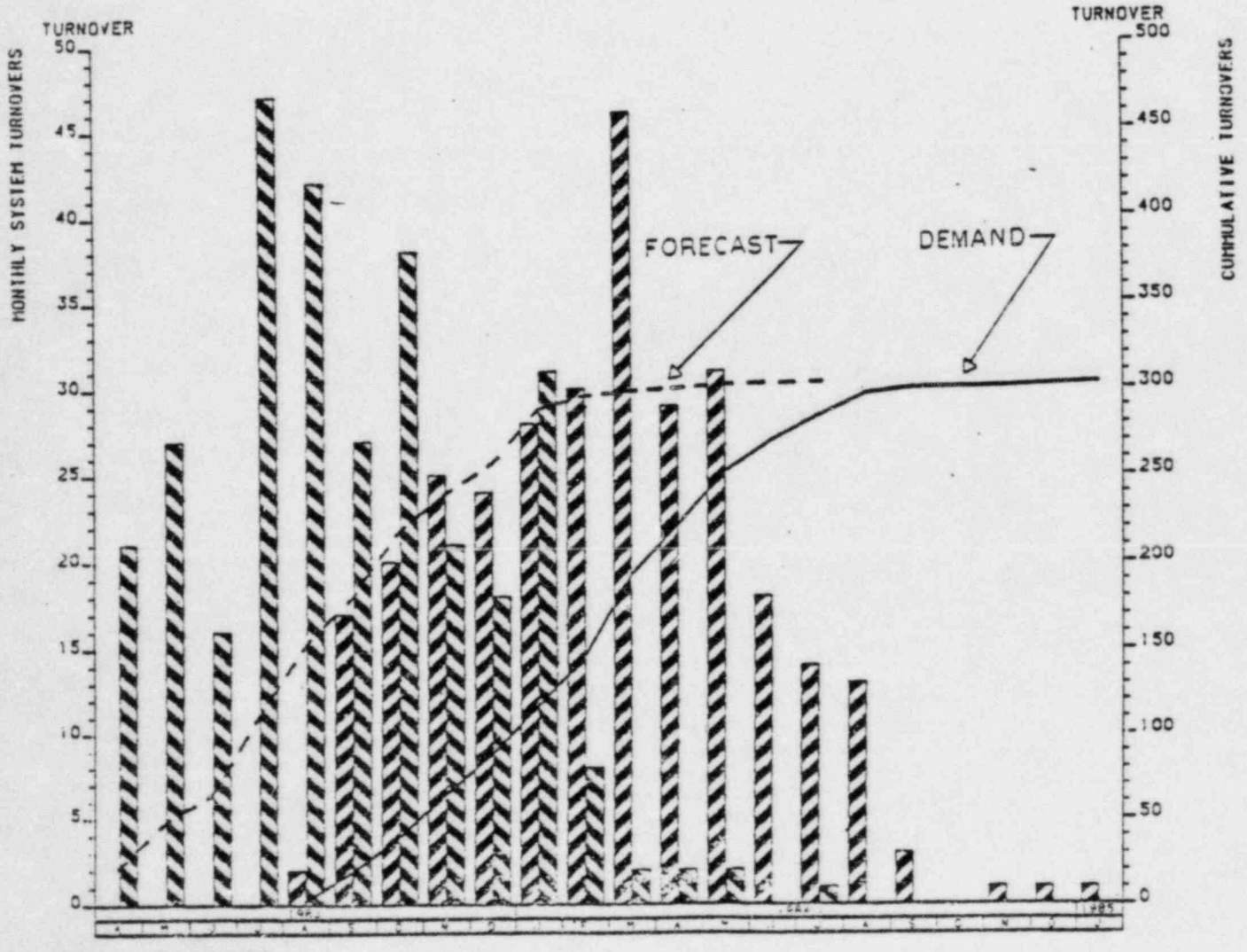


REMAINING SYSTEMS = 307

REMAINING SYSTEMS BY MILESTONES - (3-31-83)

••• REVISION 12 •••

SYSTEMS ACCEPTED= 544 OF 850 TOTAL



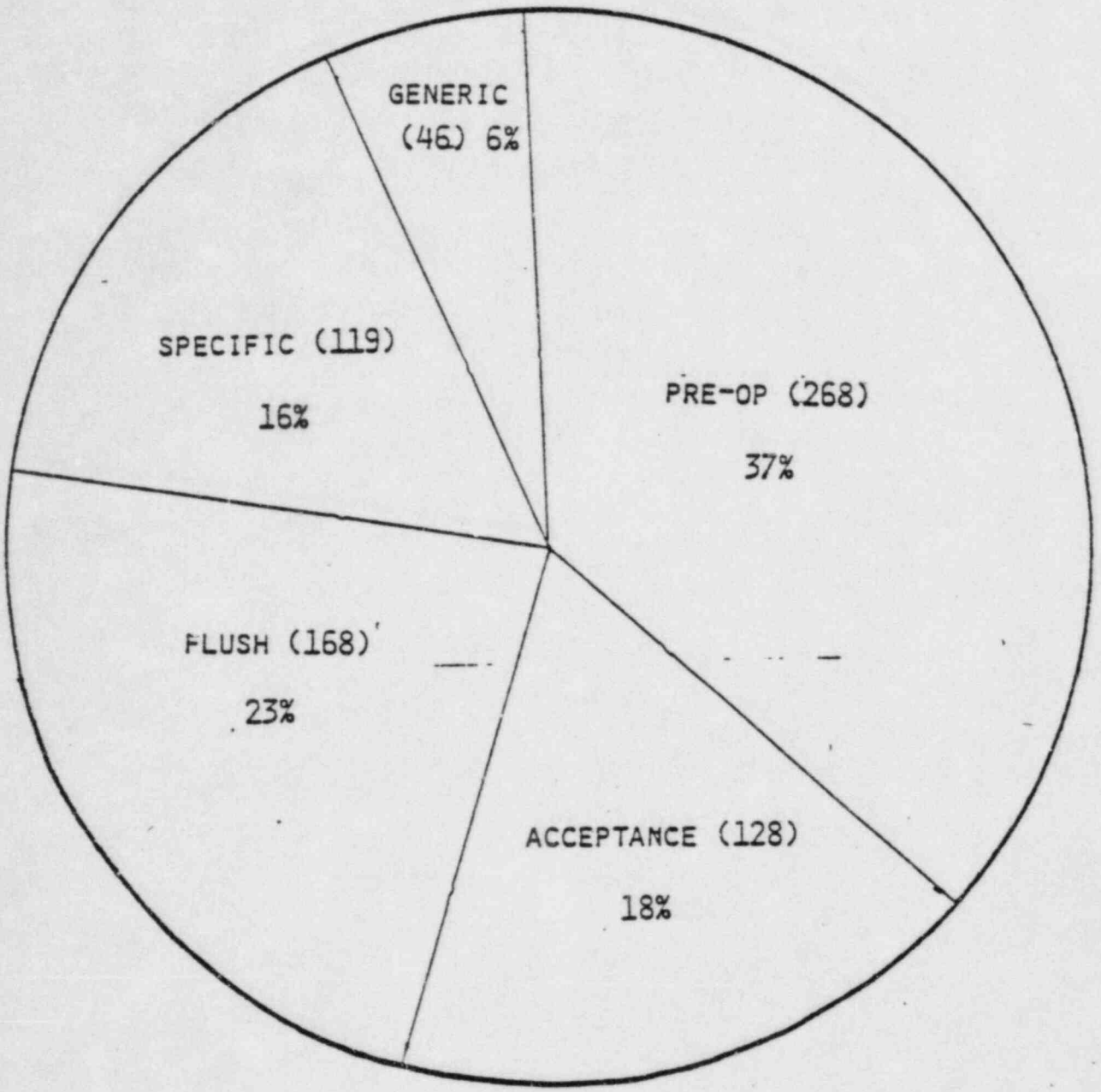
TEST STATUS

(REFER TO HANDOUT MATERIAL)

PROCEDURE DEVELOPMENT

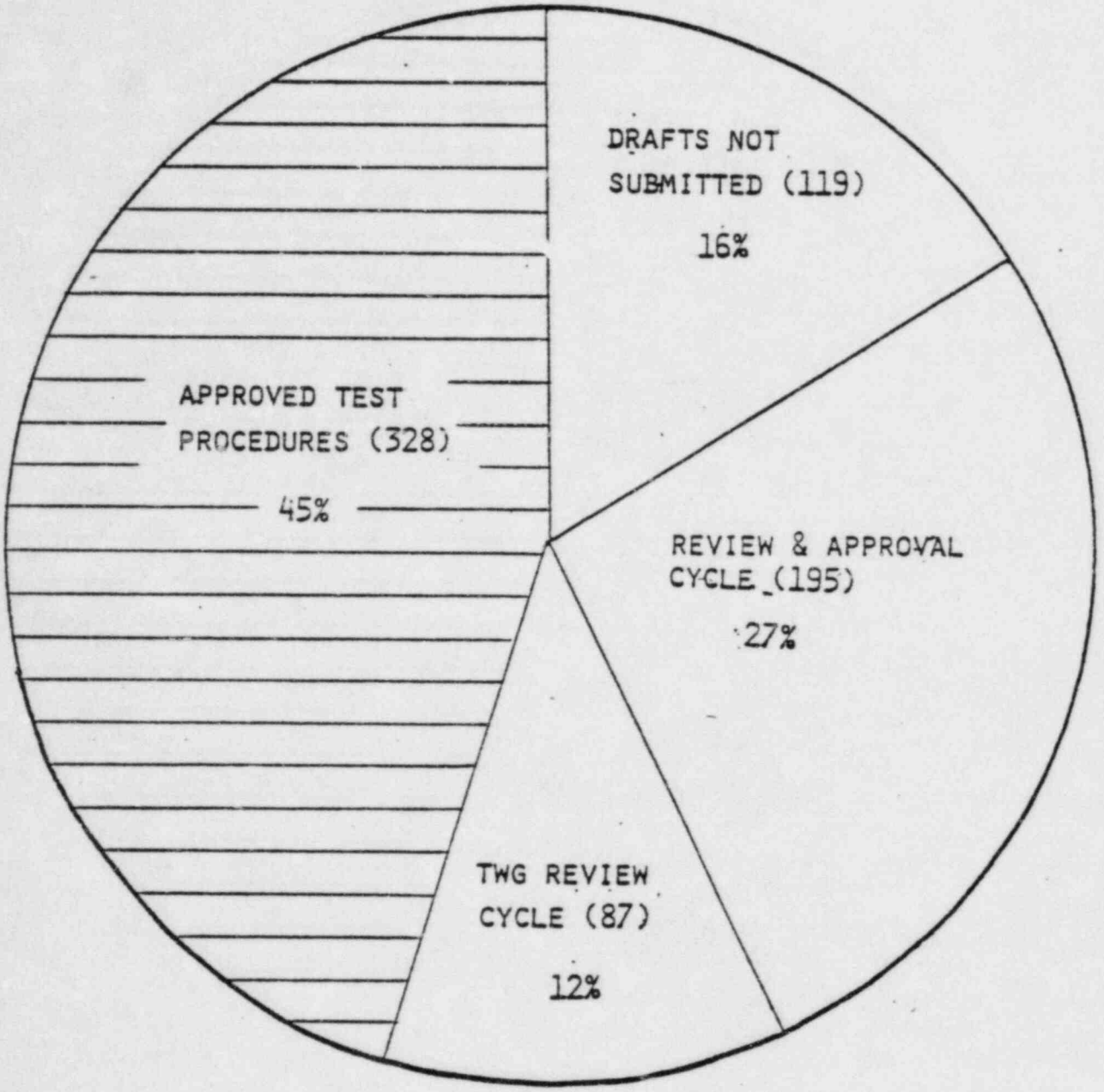
AND

PERFORMANCE STATUS

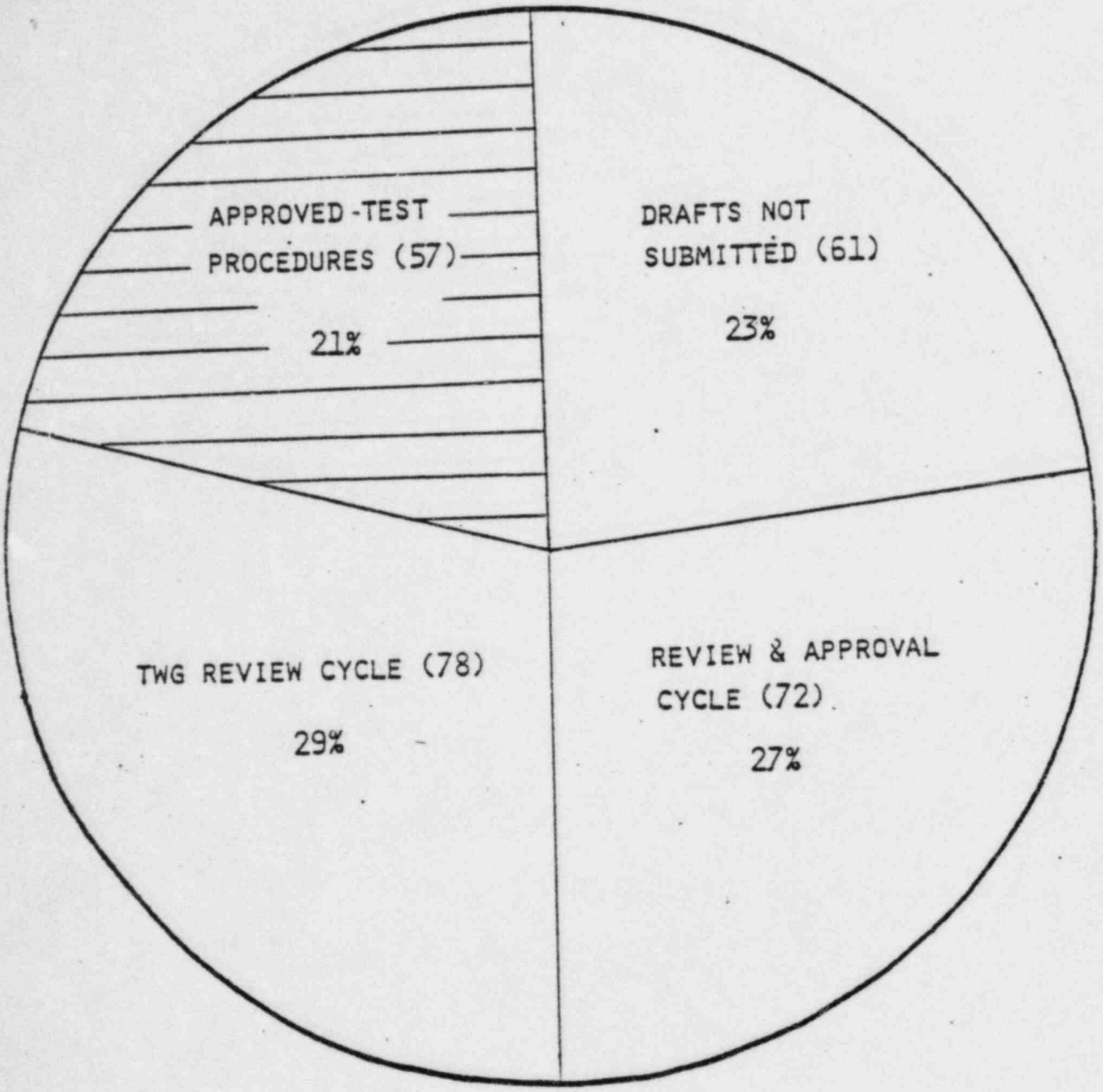


TEST PROCEDURES - PROCEDURE TYPES

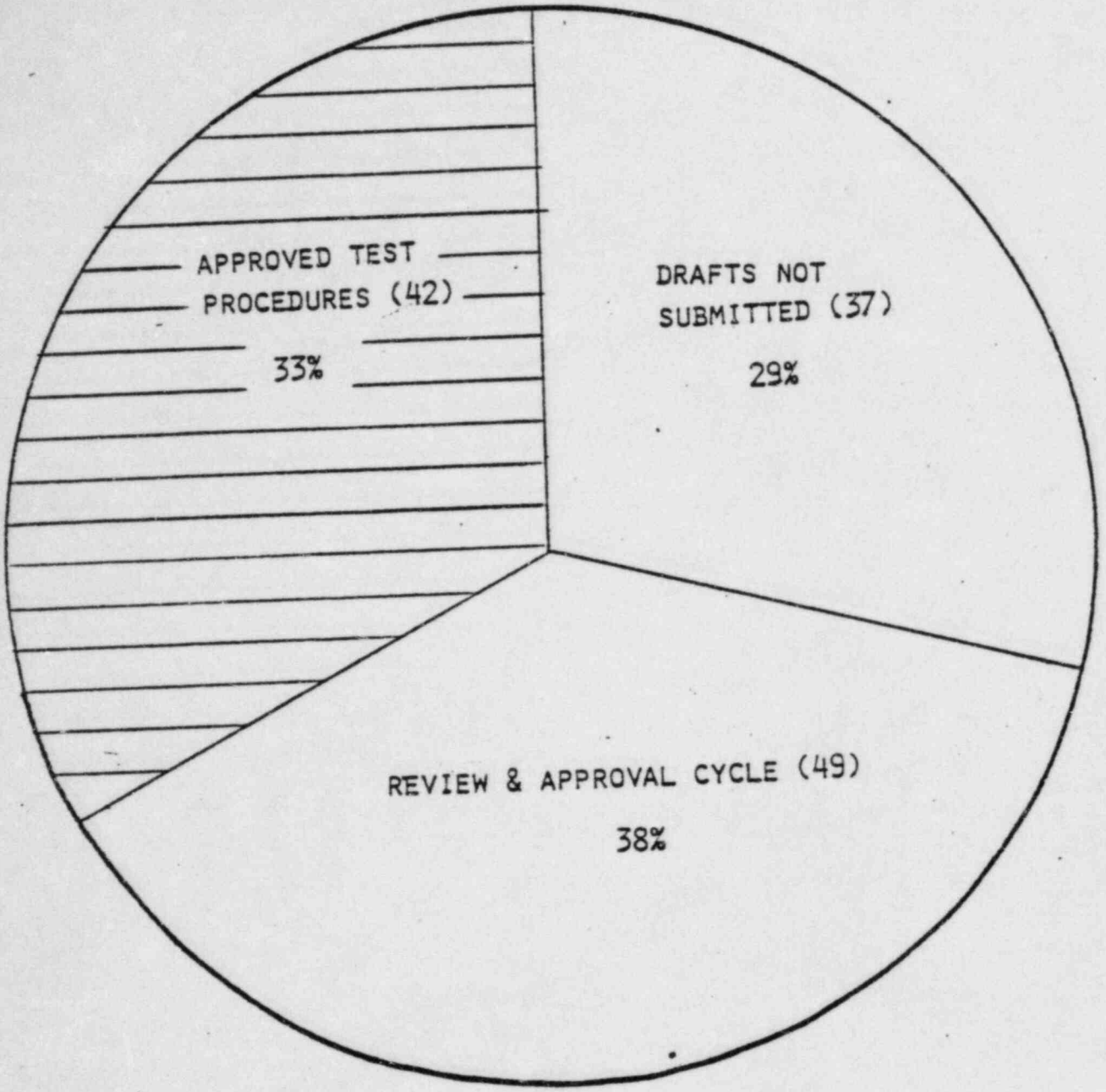
(729) (5)



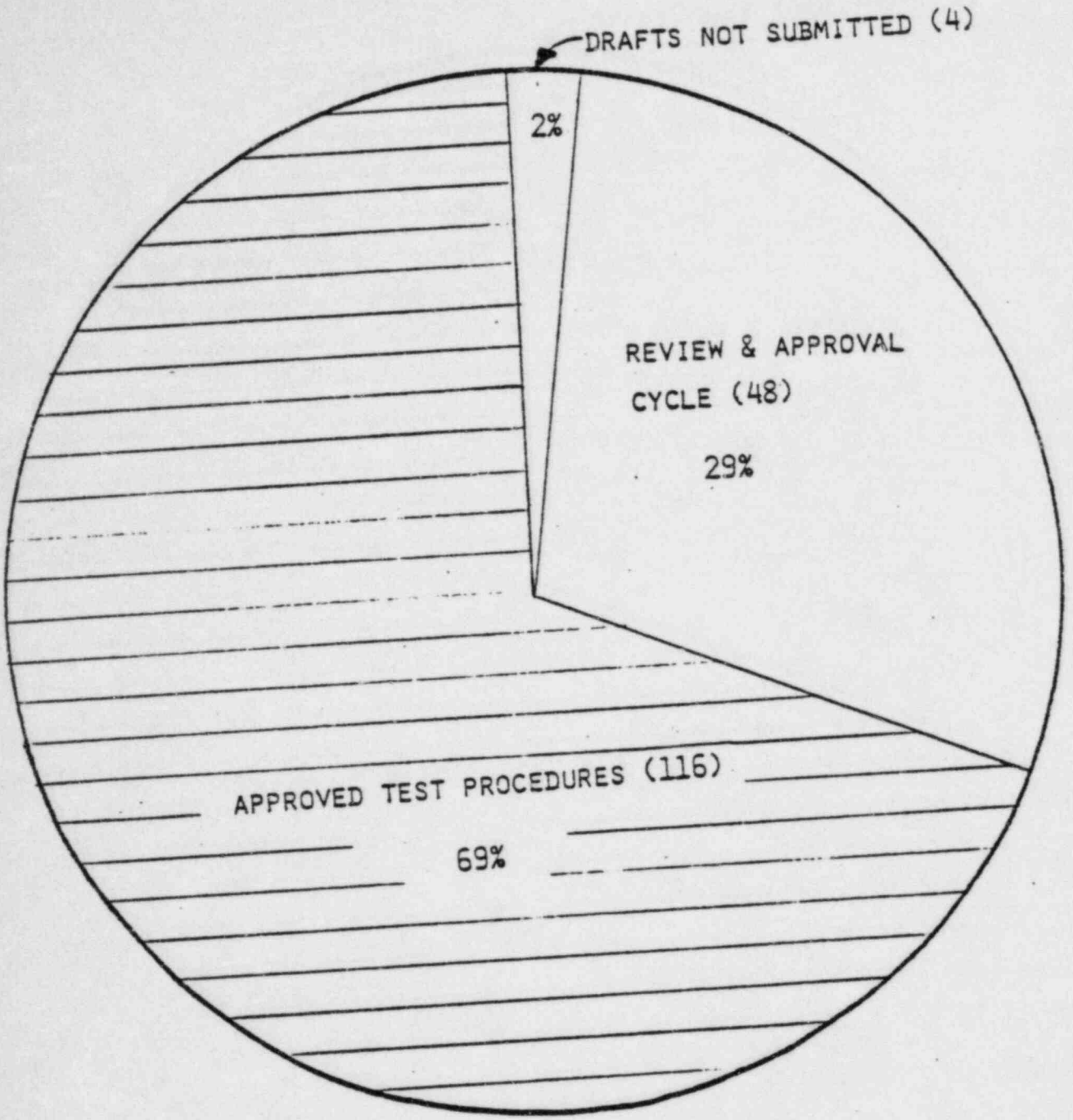
TEST PROCEDURE - STATUS 3-31-83 (729)



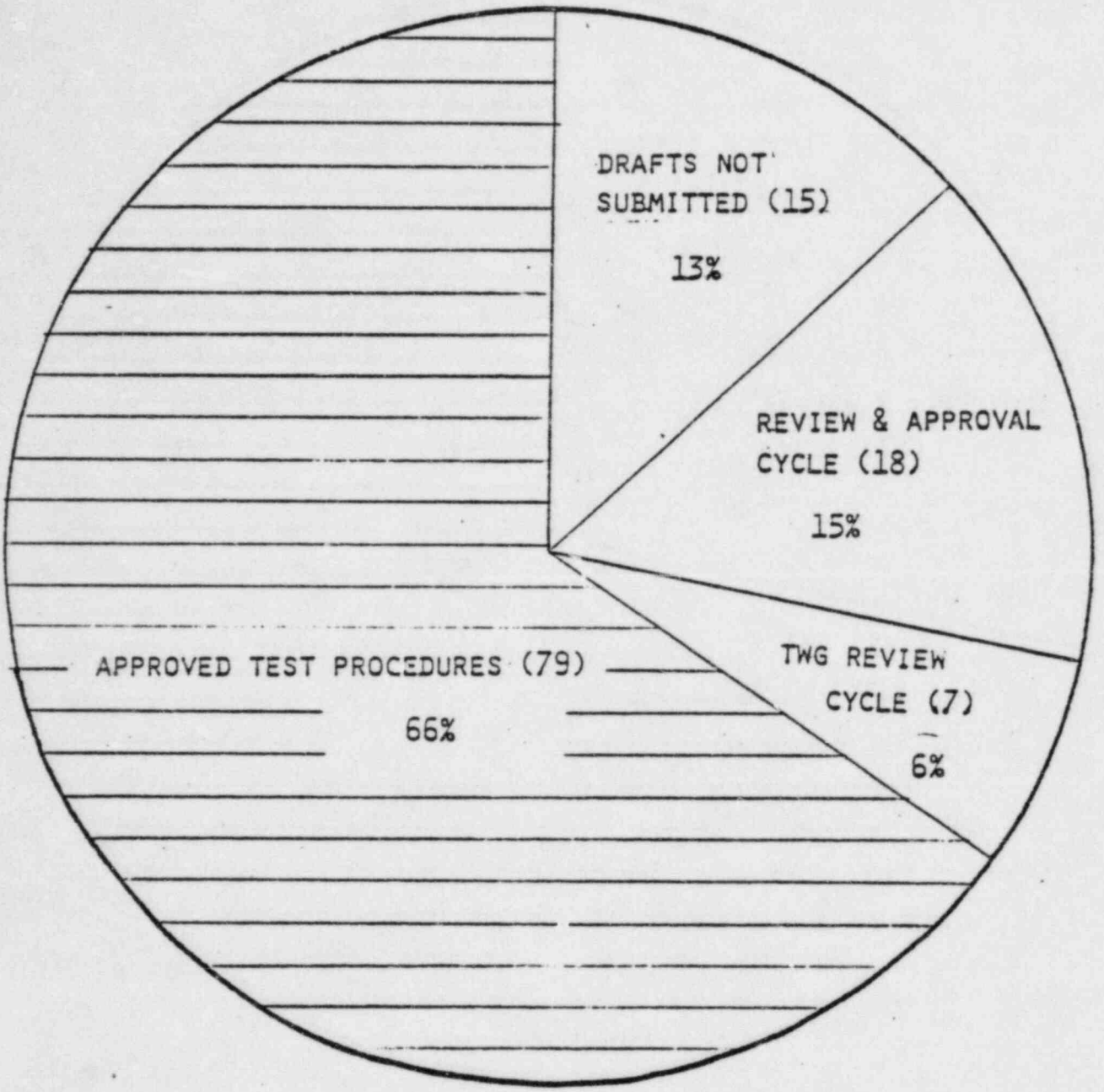
PREOPERATIONAL TEST PROCEDURES (268)



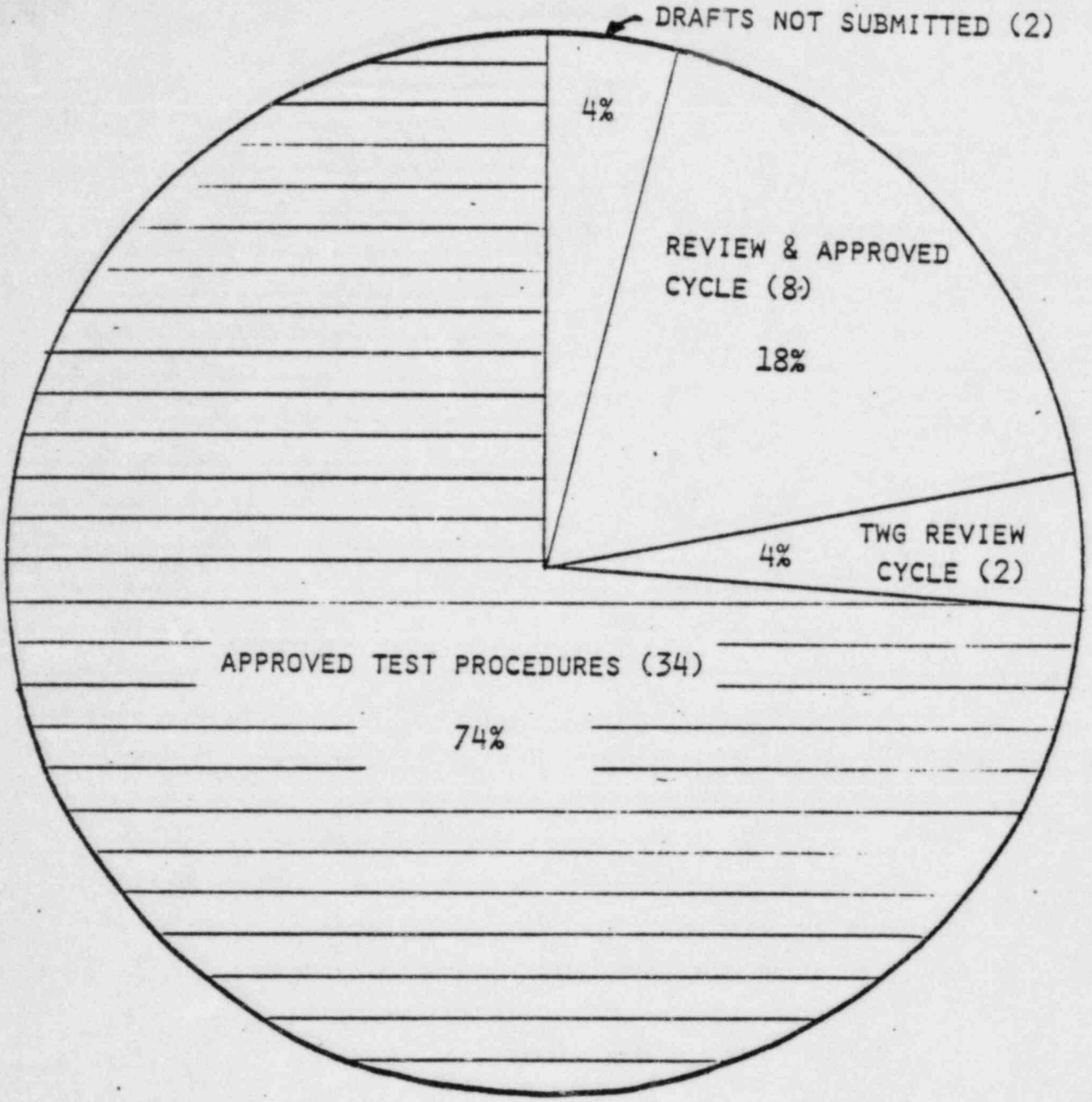
ACCEPTANCE PROCEDURES (128)



FLUSHING PROCEDURES (168)



SPECIFIC PROCEDURES (119)



GENERIC PROCEDURES (46)

	COMPLETED	STARTED/NOT COMPLETE
PRE-OPERATIONAL TESTS	0	2
ACCEPTANCE TESTS	1	0
SYSTEM FLUSHES	16	17
SPECIFIC TESTS	9	23
TOTAL	26	42

TOTAL TESTS REQUIRED

(EXCLUDING GENERIC TESTS) 683

% TEST COMPLETE = 4

TESTS COMPLETED - (3-31-83)

DISCIPLINE	GENERIC CHECKOUT PERCENT COMPLETE
ELECTRICAL	83
I & C	37
TURBINE/HVAC	24
FEEDWATER/CONDENSATE	25
NSSS	4
AUXILIARY SYSTEM	8
PROCESS STEAM	15
TOTAL SYSTEM CHECKOUT COMPLETE	45%

SYSTEM CHECKOUT STATUS - (3-31-83)

TEST SCHEDULE REV 12

(REFER TO BIG CHART - PLAN FOR TWO UNIT STARTUP OR FIGURE 4 OF HANDOUT)

POST TURNOVER EXCEPTION WORK

CONSTRUCTION GENERAL SERVICES ORGANIZATION MANPOWER

NON-MANUAL	55
MANUAL	
PIPEFITTERS & WELDERS	- 55
ELECTRICIANS	- 35
LABORERS	- 10
	100

MANPOWER CURVES

REFER TO HANDOUT MATERIAL, FIGURE 5

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

SEP 2 1981

R.J. COOK

MEMORANDUM FOR: Darrell G. Eisenhut, Director
Division of Licensing, NRR

THRU: Robert L. Tedesco, Assistant Director
for Licensing, DL

FROM: Darl Hood, Project Manager
Licensing Branch #4, DL

SUBJECT: NRR PERFORMANCE EVALUATION FOR SALP CYCLE 2 FOR MIDLAND PLANT, UNITS 1 AND 2

The enclosure provides NRR's performance evaluation as part of the Systematic Assessment of Licensee Performance, Cycle 2, for Midland Plant, Units 1 and 2. The evaluation was prepared by the Project Manager and covers the period July 1, 1980 to June 30, 1981. Since most of the interaction with Consumers Power Company during this assessment period regarded the soils settlement and seismic input for the site, concurrences from the Division of Engineering were obtained during the preparation of this assessment.

Darl Hood, Project Manager
Licensing Branch #4
Division of Licensing

Enclosure:
As stated

Dupe ~~8109150641XA~~

NRR PERFORMANCE EVALUATION

Facility: Midland Plant, Units 1 and 2 Project Manager: Darl Hood

Appraisal Period: July 1, 1980 - June 30, 1981

1. Performance Elements

a. Quality of Responses and Submittals

Responses and submittals during this review period have principally regarded the soils settlement issue, including seismic input, and responses to Post-TMI requirements (NUREG-0737). These matters involve significant design changes, extensive additional calculations, soils exploration and laboratory analyses. During the earlier part of this review period, replies to staff's request were not substantive and tended to argue the staff's need for that information; once the management appeal decision or staff position was taken, the replies tended to become responsive. Hence, the quality of the response tends to be acceptable once the need is firmly established. Following a long appeal to NRR management, recent responses providing soil borings and laboratory tests comply with the staff request and are of acceptable quality. Recent responses establishing new seismic design criteria for the site have been of high quality once the staff position letter (R. Tedesco, October 1, 1980) established the need. Like many other plants, the responses to post-TMI requirements at this point in time largely reflect plans and commitments with details left for a later stage. In summary, while early responses during the report period were below average in responsiveness, the more recent responses tend to be substantive and of acceptable quality. This recognizes, of course, that in several areas, design progress does not yet provide for substantive replies.

b. Efforts Required to Obtain an Acceptable Response or Submittal

(1) Timeliness

It generally takes more than the average time and effort to obtain acceptable and substantive responses from this applicant. The propensity of this applicant to utilize the hearing process and NRC management appeal process to resolve disagreements requires that additional time and effort be expended by the staff in satisfying the applicant that the staff's request or views are adequately based. Examples during this report period are discussed above for the staff request for soil borings and the need for seismic criteria resolution. Such factors make it difficult to maintain schedules for this application.

(2) Effort

Refer to item 1b (1) above.

(3) Responsiveness to staff requests

Refer to item 1a

(4) Anticipate or reacts to [illegible]

This is an average utility in this area. The utility's effort to anticipate post-TMI changes were quite favorable. However the utility's early reluctance to provide information needed by the staff with respect to soils issues denotes a lack of appreciation of or reaction to staff review needs. An improvement in this item has occurred during the latter phase of this review period as the potential of licensing delays impacting construction completion is realized by this utility.

c. Working Knowledge of Regulations, Guides, Standards and Generic Issues

This Utility has a good and current working knowledge of licensing matters. I would rate it above average in this respect.

d. Technical Competence

This is an experienced Utility with two operating nuclear plants (Palisades and Big Rock Point). The Utility is considered to be average to above average overall in technical competence. However, in the soils and foundation engineering areas, the Utility has relied heavily upon Bechtel, and Bechtel in turn, upon consultants. The effectiveness derived from employing expert consultants has, in the past, been deminished by the practice of Bechtel to utilize consultants' information as recommendations only and thus to modify or ignore their advice. Thus, the technical competence of the Midland project with respect to soils has depended upon the competence of Bechtel to recognize the significance of its decisions with respect to expert consultants' advice. Some improvements have been noted during this report period in a revised QA organization intended to provide more control to Consumer's over the project. Consumers has also tended recently to contract directly with recent consultants, rather than to contract through Bechtel.

e. Conduct of Meetings with NRR

A significant improvement in the conduct and followup of meetings with NRR has occurred since the utility reorganization which began in March 1980 and was completed in October 1980. The utility is now considered average in this area.

f. Long-standing Open Items

While there are many long-standing open items on this plant, it is recognized that the early plant design and interrupted staff review following the TMI-2 accident have also contributed. Timely closeout of these items under the circumstances are judged reasonable. An exception to this is the applicant's delay in providing soil borings, which has delayed the soils hearing completion and results in overlaps with the Staff's OL SER preparation effort. This area will be quite significant during the next report period.

g. Organization and Management Capabilities

As noted in paragraphs 1d and 1e above, the recent Utility reorganization reflects significant improvements and a tendency toward increased self-sufficiency on the part of the Utility. The new organization is judged to be average in effectiveness.

h. Results of Operator Licensing Examinations

Not applicable to this appraisal period.

i. Performance on Specific Issues

Consultants utilized by this Utility for advice on soils remediation, soils borings and laboratory evaluation, and for resolution of seismic issues are among the best available. This is a positive factor contributing to the Utility's performance on very complex and sweeping issues.

2. Observed Trends in Performance

As noted in several items above, several improving trends in licensing performance have been observed.

3. Notable Strengths and Weaknesses

Strengths

This is an experienced Utility with a good knowledge of NRC licensing requirements.

Weaknesses

Needs to be satisfied as to the reality of NRC staff information needs before responsive and substantive replies are offered. It is thus difficult to maintain licensing review schedules on this plant. The Project Manager also believes that a more assertive role by the Utility in screening input from others for responsiveness to staff information requests could significantly increase licensing completion.

4. Overall Summary

Overall, this is considered to be an average Utility. This Utility has the ability to be responsive to staff requests and licensing needs, if properly motivated. Absent this motivation, Applicant tends to be unresponsive. This trend, however, is improving as schedular pressures accruing from untimely staff review become more obvious. Compared to other Utilities, this Applicant tends to make more frequent use of staff management appeals and use of licensing boards to obtain resolution of issues, often at the expense to licensing review schedules. More recently, a significant trend toward increased cooperation and communication with the technical staff at the reviewer levels has been noticed, a trend which this Project Manager feels will prove to be in the Applicant's best interest.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
Resident Inspector Office
Rt 7
Midland, Michigan
48640

Docket No. 50-329
Docket No. 50-330

These two pages, Overall Licensee Performance Evaluation, are "flavoring" for the letter to the licensee from the SALP Board Chairman.

Overall Licensee Performance Evaluation

During the evaluation period, the licensee's performance is assessed to be Category 3 in the technical areas of resolving the soils settlement issues; installation of piping and pipe suspension systems - particularly small bore piping; and electrical installations.

In the past three years there has been an abundant amount of activity associated with soils settlement issues. In spite of this, the enforcement history in this area shows the licensee has demonstrated a lack of attention to detail. Therefore, the licensee is considered to be in performance Category 3 in this area. Continued enforcement in the soils area may cast dispersions on the licensee's ability to successfully perform proposed resolution to the soils settlement issues and envoke further escalated enforcement action in this area.

In the area of control of piping and pipe support systems, the licensee had received (during the evaluation period) escalated enforcement action. While in the process of attempting to correct these deficiencies, the licensee received additional items of noncompliance and escalated enforcement as a result of the NRC review into their resolution of the original items. This happened immediately after the end of the evaluation period. Since then, the licensee's performance appears to be improved. However, the test of time will ensure that the licensee has actually improved their performance in control of piping and pipe supports systems or whether their improvement was only as a result of responding to escalated enforcement action.

In the electrical area, the licensee had embarked on an ambitious "pulling schedule" commencing half way through the evaluation period. Prior to this, the NRC had verbally advised the licensee to have adequate number and quality of QC and QA personnel available when escalated electrical installation activities commenced. The enforcement history identified during the evaluation period indicates a lack of rigorous QC coverage. Since this enforcement, the licensee has increased the rigor and frequency of overview inspections, performed a detailed audit pertaining to material storage and brought upper management's attention to the findings, and is presently inquiring (at the insistance of the NRC) into the adequacy of electrical QC coverage. Similarly, to the installation of piping and pipe support systems, time will establish the sincerity of corrective actions.

In the less technical, but more managerial, areas of corrective action and reporting and design control, the licensee has demonstrated during the evaluation period that the Category 3 performance classification is warranted by not having a strong resolution to perpetually avoid the indicators discussed in the body of this report. The licensee's argumentative attitude toward responses to NRC enforcement issues has invoked management meetings with the licensee subsequent to the SALP evaluation period where the NRC has delineated what information constitutes an adequate response. Should the licensee offer strong responsible management conviction to resolving the reporting and design control issues, a turn-around in these areas could be expedited.

It is intuitively obvious from the above and the body of the report that the licensee's overall performance is considered to be Category 3.

DRAFT

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

CONSUMERS POWER COMPANY

MIDLAND NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NUMBERS 50-329 AND 50-330

FEBRUARY 1982

ASSESSMENT PERIOD

JULY 1, 1980 to JUNE 30, 1981

CONTENTS

I. INTRODUCTION

The NRC has established a program for Systematic Assessment of Licensee Performance (SALP). The SALP is an integrated NRC Staff effort to collect available observations and data on a periodic basis and evaluate licensee performance based upon these observations. SALP is supplemental to normal regulatory processes used to insure compliance to the rules and regulations. SALP is intended from a historical point to be sufficiently diagnostic to provide a rational basis: (1) for allocating future NRC regulatory resources, and (2) to provide meaningful guidance to licensee management to promote quality and safety of plant construction and operation.

A NRC SALP Board composed of managers and inspectors who are knowledgeable of the licensee activities, met on October 23, 1981 to review the collection of performance observations and data to assess the licensee performance in selected functional areas.

This SALP report is the Board's assessment of the licensee safety performance at the Consumer Power Company Midland Nuclear Power Plant for the period July 1, 1980 to June 30, 1981.

The results of the SALP Board assessments in the selected functional areas were presented to the licensee at a meeting held _____.

II. CRITERIA

The licensee performance is assessed in selected functional areas depending whether the facility is in a construction, pre-operational or operating phase. Each functional area normally represents areas significant to nuclear safety and the environment, and are normal programmatic areas. Some functional areas may not be assessed because of little or no licensee activities or lack of meaningful observations. Special areas may be added to highlite significant observation.

One or more of the following evaluation criteria were used to assess each functional area.

1. Management involvement in assuring quality
2. Approach to resolution of technical issues from safety standpoint
3. Responsiveness to NRC initiatives
4. Enforcement history
5. Reporting and analysis of reportable events
6. Staffing (including management)
7. Training effectiveness and qualification

However, the SALP Board is not limited to these criteria and others may have been used where appropriate.

Based upon the SALP Board assessment each functional area evaluated is classified into one of three performance categories. The definition of these performance categories is:

Category 1. A combination of attributes which demonstrates achievement of superior safety performance; i.e., licensee management attention and involvement are aggressive and oriented toward nuclear safety; licensee resources are ample and effectively used such that a high level of performance with respect to operational safety or construction is being achieved. Reduced NRC attention may be appropriate.

Category 2. A combination of attributes which demonstrates achievement of satisfactory safety performance; licensee management attention and involvement are evident and are concerned with nuclear safety; licensee resources are adequate and are reasonably effective such that satisfactory performance with respect to operational safety or construction is being achieved. NRC attention should be maintained at normal levels.

Category 3. A combination of attributes which demonstrates achievement of only minimally satisfactory safety performance; licensee management attention or involvement acceptable and considers nuclear safety, but weaknesses are evident; licensee resources appear to be strained or not effectively used such that minimally satisfactory performance with respect to operational safety or construction is being achieved. Both NRC and licensee attention should be increased.

III. SUMMARY OF RESULTS

Functional Areas	Performance Category		
	1	2	3
1. Soils and Foundations			X
2. Containment and other Safety-Related Structures		X	
3. Piping Systems and Supports			X
4. Safety-Related Components		X	
5. Heating, Ventilating, and Air Conditioning Systems	X		
6. Electrical Power Supply and Distribution			X
7. Instrumentation and Control Systems	NA	NA	NA
8. Licensing Activities		X	
9. Quality Assurance		X	
10. Fire Protection	X		
11. Preservice Inspection		X	
12. Design and Design Changes			X
13. Reporting Requirements and Corrective Action			X

IV. PERFORMANCE ANALYSES

1. Soils and Foundations

a. Analysis

During the evaluation period, inspections have been performed to examine the licensee's implementation of corrective actions regarding the 10 CFR 50.54(f) request for additional information pertaining to soils settlement; observation of soils work activities and to witness taking of soil borings requested by NRC reviewers and consultants.

Since 1978, the soils settlement issues have been paramount in the amount of attention given by the NRC to this licensee. This activity has resulted in an order issued in December 1979 which is the basis for a hearing on soils settlement issues. A multitude of effort has gone into soils testing and major re-review of the FSAR and design control. In spite of this attention, every inspection involving Regional based inspectors and addressing soils settlement issues has resulted in at least one significant item of noncompliance, and the following enforcement history for the soils settlement area has existed during the SALP evaluation period:

Two level IV violations were identified in NRC Inspection Report No. 50-329/80-32; 50-330/80-33.

1) Failure to initiate preventive action to preclude repetition of not identifying design documents as references to which the FSAR was to be reviewed against.

2) Three examples of failure to translate applicable regulatory requirements and design criteria into design documents.

   a) Failure to maintain a coordination log of specification change notices (SCN).

b) Failure to correctly translate Specification Change Notice No. SCN-9004 as a requirement into Rev. 20 of specification C-208.

c) Failure of Engineering Department Project Instruction No. EDPI 4.25.1, Rev. 8 to establish adequate measures for design interface requirements.

One level V violation and a deviation were identified in NRC Inspection Report No. 50-329/81-01; 50-330/81-01.

1) Failure to establish test procedures for soils work activities.

2) Failure to supply an onsite geotechnical engineer.

One level V violation was identified in NRC Inspection Report No. 50-329/81-09; 50-330/81-09 which is discussed under the Quality Assurance Section. However, the finding of lack of QA was a result of attempting to review the QA associated with procuring soil boring samples.

Failure to evaluate the technical capabilities of Woodward-Clyde (principal supplier of services for soil boring activities) prior to procurement of a drilling contractor.

b. Conclusion

Because of the above enforcement history, the licensee is considered to be in a performance Category 3 in the area of soils and foundations.

c. Board Recommendation

The Board recommended an NRC escalated inspection activity for each major evolution in the resolution of soils settlement issues. The Board also noted that there was an increased inspection frequency recommended in the SALP 1.

2. Containment and Other Safety Related Structures

a. Analysis

During the evaluation period, containment prestressing system procedures were reviewed; selected work activities associated with tendon insertion and buttonheading for Unit 1 were observed and prestressing system material records for Unit 1 and quality records for Units 1 and 2 were reviewed.

Also during the evaluation period, the Senior Resident Inspector witnessed portions of the atmospheric hydrostatic test placed on the borated water storage tanks (BWST). The Senior Resident Inspector observed Quality Control and the Authorized Nuclear Inspector examine the tanks. The hydrostatic test was done in an acceptable manner. Although the hydrostatic test was completed without complications, loading of the BWST with water resulted in cracks developing in the valve pit area associated with these tanks. This cracking in the valve pit support walls is subsequently related to soils issues.

b. Conclusions

During the previous reporting period the licensee experienced difficulty in installation of prestressing tendons. However, these difficulties did not exist during this evaluation period. Therefore, the licensee is considered to be in a performance Category 2 for containment and safety related structures.

c. Board Recommendations

None

3. Piping Systems and Supports

a. Analysis

During the evaluation period, installation of large and small bore piping and pipe hanger systems (including storage of piping components) was examined and noted in seven different inspection reports of regularly scheduled inspection activities. Three of these inspections resulted in seven items of noncompliance and an isolated instance of inadequate dunnage in a temporary storage area. The following items of noncompliance indicate weakness in the implementation of the QA program.

1) Bechtel Purchase Order did not specify applicable codes for purchase of 60,000 pounds of E7018 electrode.

2) Bypass of an inspection hold point for pressurizer surge piping. (Unit 2 only).

3) Failure to install large bore pipe restraints, supports, and anchors in accordance with design drawings and specifications.

4) Failure of QC inspector to reject large bore restraints, supports and anchors that were not installed in accordance with design drawings and specifications.

5) Failure to prepare, review and approve small bore pipe and piping suspension system designs performed onsite in accordance with design control procedures.

6) Failure to adequately control documents used in site small bore piping design activities.

7) Failure of audits to include a detailed review of system stress analysis and to follow up on previously identified hanger calculation inconsistancies.

Also during the evaluation period, an Immediate Action Letter (IAL) was issued on May 22, 1981, pertaining to the design control and issuance of drawings for the installation of small bore piping and support systems. The NRC inspection of July 16-17 and 23-24, 1981 (NRC Inspection Report No. 50-329/81-14; 50-330/81-14) determined that the licensee had "satisfactorily addressed" the provisions of the May 22, 1981 IAL. Also, subsequent to the evaluation period, on July 27, 1981, a Confirmatory Action Letter was submitted by the licensee stating the actions to be taken to control modification to small bore piping drawings which do not have Committed Preliminary Design Calculations (CPDC).

b. Conclusion

Considering the above escalated enforcement action plus the enforcement history, the licensee is considered to be in performance Category 3.

c. Board Recommendation

An escalated and intensified inspection effort is recommended for implementation in early 1982.

4. Safety Related Components

a. Analysis

During the evaluation period, NRC Inspectors observed alignment of reactor coolant pumps; installation of lower core support assembly guide blocks; installation of core support assembly vent valves and associated portions of quality documentation. The enforcement history consisted of two items of noncompliance and a Confirmatory Action Letter. All were issued as a result of NRC findings during the installation of the core support assembly vent valves.

The following is a summary of the items of noncompliance which culminated in a Confirmatory Action Letter issued by the licensee on January 22, 1981.

1) Failure to have an appropriate procedure for installation of vent valves.

2) Failure to follow access control procedures and account for items used in the assembly of the U/2 core support assembly vent valves on the equipment entry log.

The Confirmatory Action Letter stated that the Stop Work on assembly of core support assembly vent valves would remain in effect until procedures, personnel training and QA overview inspection plans are upgraded.

b. Conclusion

Because the above enforcement was aimed at an isolated instance and may have been directly related to changes in NSSS QC personnel changes and because the licensee had in the past and since this episode continues to maintain QA control for assembly of NSSS equipment (particularly reactor internals), the licensee is considered to be in performance Category 2 for this area.

c. Board Recommendation

None

5. Heating, Ventilating, and Air Conditioning Systems

a. Analysis

On January 7, 1981, a $38,000 Civil Penalty was levied against the licensee for QA deficiencies in the installation of heating, ventilating, and air conditioning (HVAC) systems which were noted during an investigation during the period of March 6, 1980 to July 31, 1980. Seventeen items of noncompliance were identified during this period and one additional item was identified in a later report (NRC Inspection Report No. 50-329/80-21; 50-330/80-22). The later item was not considered in the Civil Penalty.

Considering the above enforcement history would ordinarily force a Category 3 performance classification in this area. However, because of the overlap into the previous SALP (evaluation period of July 1, 1979 to June 30, 1980) for the investigation and subsequent escalated enforcement action and previous discussions in this area, this present SALP overall evaluation shall not be influenced by the enforcement history for installation of HVAC systems.

Since the investigation, Consumers Power Company has accepted complete responsibility for HVAC System QA/QC functions. This aggressive action of removing QA/QC responsibility from the subcontractor installing HVAC systems has resulted in marked improvement being noted in the control of HVAC system installation.

b. Conclusion

Because of the aggressiveness of Consumers Power Company to accept QA/QC responsibility for HVAC system installation and to staff this organization with an adequate number of skilled personnel, the licensee is considered to be in performance Category 1.

c. Board Recommendation

The Board recommends escalated inspection effort to cover all areas of HVAC system installation and the resolution of previous enforcement items.

6. Electrical Power Supply and Distribution

a. Analysis

During the evaluation period, two routine inspections and one team inspection were performed with a substantial portion of the inspection effort dedicated to the electrical area. Five other inspection periods addressed specific electrical items with one of these inspections addressing the in place storage condition of electrical equipments. As a result of the inspection effort dedicated to the electrical area, six items of noncompliance were identified. The inspection effort into the equipment storage conditions resulted in a single item of noncompliance with three examples - two of these examples were for electrical equipment.

It must be emphasized that there was essentially no electrical work being performed for more than six months into the evaluation period because of the need to perform re-engineering to permit routing of the cables without thermal and/or physical overload of the raceways. When electrical work resumed, it was done on a very ambitious schedule. However, it appears that not enough qualified QC personnel, rigorous QA audits and established procedural controls were invoked to avoid the following list of enforcement items.

1) Failure to establish procedures for temporary support of cable, cable coils --- and for routing cables.

2) Electrical contractors failed to verify conformance to paragraph 3.1 of Project Quality Control Instruction E-5.0, failure to perform adequate inspection.

3) Failure to identify and control nonconforming components.

4) Failure to translate design criteria into drawings and specifications.

5) Failure to identify during inspection that a nonconforming condition with regard to minimum installed cable bend radius existed.

6) Failure to take proper corrective action with regard to the lack of approved procedures for the rework of electrical raceways.

7) Failure to provide adequate storage conditions for

   a) Control Rod Drive Primary AC Breakers

   b) New and spent fuel storage racks

   c) Emergency battery chargers

b. Conclusion

Based on the above enforcement history, the licensee is considered to be in performance Category 3.

c. Board Recommendation

Comprehensive inspections at approximately two-month intervals are recommended for the electrical area. These inspections should place particular emphasis on those areas of heaviest activity for the month preceeding the inspection with particular emphasis on QC personnel.

7. Instrumentation and Control Systems

a. Analysis

The licensee is not rated in this area because a minimal amount of instrumentation installation and subsequent inspection effort has occurred during this evaluation period.

b. Conclusions

None

c. Board Recommendations

The Board recommends comprehensive inspections at two-month intervals commencing when the instrumentation installation activities start to dramatically increase, with particular emphasis on design control and QC coverage. These inspections could be coincident with the electrical inspections.

8. Licensing Activities

a. Analysis

Responses and submittals during this review period have principally regarded the soils settlement issue, including seismic input, and responses to Post-TMI requirements (NUREG-0737). During the earlier part of this review period, replies to staff's request were not substantive and tended to argue the staff's need for that information; once the management appeal decision or staff position was taken, the replies tended to become responsive. Hence, the quality of the response tends to be acceptable once the need is firmly established. Because of the time expended in establishing a need, more than the normal amount of time and effort are required to obtain acceptable and substantive responses. Recent responses establishing new seismic design criteria for the site have been of high quality once the staff's position letter established the need.

The licensee is considered to be technically competant and is an experienced utility with two operating nuclear plants. Timely close out of long-standing open items is reasonable when considering the many open items on this plant, the early plant design and interrupted staff review following the TMI-2 accident.

b. Conclusion

Early responses during the reporting period were lacking in responsiveness. However, the more recent responses tend to be substantive and of acceptable quality. Therefore, the licensee is considered to be in performance Category 2 for licensing activities.

c. Board Recommendation

None

9. Quality Assurance

a. Analysis

Effective August 15, 1980, Consumers Power Company reorganized the site QA functions by creating the Midland Plant Quality Assurance Department (MPQAD) which was composed of both Consumers Power Company and Bechtel Power Corporation personnel. This reorganization was instituted in the interest of more comprehensive coverage of QA and more timely resolution of noted discrepancies. Consumers Power Company retains the lead responsibility for QA.

Also during the reporting period, Consumers Power Company assumed responsibility for all on-site QA and QC functions for installation of HVAC systems. These functions and controls were previously handled by The Zack Company. The changes in responsibility were implemented to "establish more effective QA/QC interface; provide increased technical support; and provide a mechanism to improve inspection performance".

Because of changes in QA organization and changes in the Site QA Superintendent, the NRC regularly evaluated the impact of these changes on the overall QA aspects of the site and performed a Team Inspection in May 1981. A portion of this Team Inspection consisted of making a determination of the adequacy of QA and the influence of production considerations on the independance of QA/QC. This inspection revealed that the number and qualifications of personnel in the Consumers Power Company QA organization were above average. The QA programs and overview inspection and audit functions were also above average. However, a severity level IV item of noncompliance was written against management's failure to take prompt comprehensive corrective action in response to the identification of adverse quality trends (Inspection Report No. 50-329/81-12; 50-330/81-12). This item of noncompliance is indicative of Consumers Power Company QA Management exhibiting a hesitancy to determine the "root cause" of increases in deficiencies. This same weakness was identified during the previous SALP period.

A second item of noncompliance was identified which is indicative of questionable managerial QA control. This item pertained to the licensee's failure to evaluate the technical capability of the principal supplier of services for soil boring activities (Inspection Report No. 50-329/81-09; 50-330/81-09). During the inspections prior to taking soil borings, 15 items requiring QA resolution were identified by the NRC prior to any drilling activities but during the period when "setting up" for the drilling operations was being anticipated.

b. Conclusion

When considering an overall performance category for the licensee's Quality Assurance capability, a Category 2 performance is realized with two major infractions being identified in two confined areas.

c. Board Recommendation

None

10. Fire Protection

a. Analysis

During the evaluation period, the Senior Resident Inspector toured selected areas of the site each month to assess the cleanliness of the site and determine the potential for fire or other hazards which might have a deleterious effect on personnel and equipment. The site has maintained an adequate safety record during this SALP period. A substantial portion of the site safety program is devoted to fire protection. The licensee conducts weekly training and drills for the on site fire brigade. The fire brigade has consistantly passed the quarterly fire drills imposed by the licensee's insurance agency. Volatile chemicals are controlled and issued in small quantities in metal containers. Volatile chemicals, oils, conbustibles and trash are not tolerated in an unclean and uncontrolled state. Fire hazards were minimized during the evaluation period and the licensee has accrued a multi-million-hour safety record.

b. Conclusion

Because of the above mentioned actentiveness to fire protection, the licensee is considered to be in a performance Category 1 in this area.

c. Board Recommendation

None

11. Preservice Inspection

a. Analysis

During the evaluation period, three routine inspections were performed to evaluate the ultrasonic testing (UT) of the reactor pressure vessels by South West Research Institute (SWRI) and the preservice inspection being performed by Babcock & Wilcox (B&W). The inspection effort revealed that adequate management controls existed for the inservice inspection program, procedures, and material and equipment. The licensee responses to I&E Bulletins was determined to be complete in this area. The data reports demonstrated that QA/QC audits and requirements are met. The qualifications and training of SWRI and B&W personnel was in accordance with SNT-TC-1A, 1975.

b. Conclusion

Considering the above performance and the overall effectiveness and the cooperative attitude of the licensee and nondestructive evaluation personnel, the licensee is considered to be in performance Category 2 in the area of preservice inspection.

c. Board Recommendation

None

12. Design and Design Changes

a. Analysis

During the evaluation period, three items of noncompliance were identified against 10 CFR 50 Appendix B, Criterion III, Design Control and one item against Criteria XVI, Corrective Action which was closely related to deficiencies in design control. These items of noncompliance have been addressed in other sections of this SALP report. However, the common bond between these items of noncompliance is that each addresses inadequate design control.

The following is a reference list of these items of noncompliance:

1) Section 1, Soils and Foundations

(a) Failure to initiate preventive action to preclude repetition of not identifying design documents.

(b) Three examples of failure to translate applicable regulatory requirements and design criteria into design documents.

2) Section 3, Piping Systems and Supports

Failure to prepare, review and approve small bore pipe and piping suspension system designs performed onsite in accordance with design control procedures.

3) Section 6, Electrical Power Supply and Distribution

Failure to translate design criteria into drawings and specifications.

In addition to the enforcement items listed above, an Immediate Action Letter was issued by the NRC pertaining to design control and issuance of drawings for the installation of small bore piping. This item was previously iterated in Section 5, Piping and Hangers.

Also, the following five 10 CFR 50.55(e) summaries, which were among the twelve Construction Deficiency Reports submitted demonstrates there was lack of QA in design control and these instances should have been licensee controllable.

1) High Energy Line Break Analysis (HELBA), steady state thrust forces rather than transient peak thrust forces were used in the energy balance techniques for the design of HELBA pipe whip restraints.

2) Component Cooling Water (CCW) Design, CCW system susceptibility to Loss of Coolant Accident (LOCA) induced failures.

3) Seismic model of Auxiliary Building has incorrect assumption that control tower and main portion of Auxiliary Building are an integral unit between elevation 614 and 659.

4) Borated Water Storage Tank Foundation stress cracks.

5) Shear reinforcement at major containment penetrations.

The fact that the licensee is able to often times identify design deficiencies through their audit programs and take appropriate action is commendable. However, these design deficiencies would not occur if there were more stringent control at the source of these design errors and deficiencies.

b. Conclusion

Considering the above indicators which suggest questionable design control and the amount of re-engineering which has transpired in electrical, civil, and piping areas, the licensee's performance is considered to be Category 3.

c. Board Recommendation

None

13. Reporting Requirements and Corrective Action

a. Analysis

During the evaluation period, the licensee submitted twelve Construction Deviation Reports to the NRC with most of the information contained being a fair (but not necessarily an elaborate) description of the circumstances resulting in the 10 CFR 50.55(e) report. The following is an abbreviated summary of each 10 CFR 50.55(e) submitted to the NRC during the evaluation period.

1) High Energy Line Break Analysis (HELBA), steady state thrust forces rather than transient peak thrust forces were used in the energy balance techniques for the design of HELBA pipe whip restraints.

2) Sway Strut Rod Ends Deficiency, ITT Grinnell supplied sway struts, snubbers and shock suppressors have loose or totally disengaged rod end bushings.

3) Component Cooling Water (CCW) Design, CCW system susceptibility to Loss of Coolant Accident (LOCA) induced failures.

4) Nuclear Steam Supply System (NSSS) analysis, anomalies identified in the NSSS seismic and Loss of Coolant (LOCA) analysis of the primary system.

5) Emergency Core Cooling Actuation System (ECCAS) vendor wiring in the ECCAS cabinets 1C45 and 2C45 was inconsistent with redundant subsystem modules in the cabinets.

6) Low alloy quenched and tempered bolting 1½ inches and greater in support of safety related systems.

7) Underrated Terminal Strips on Limitorque Operators.

8) Seismic model of Auxiliary Building has incorrect assumption that control tower and main portion of Auxiliary Building are an integral unit between elevation 614 and 659.

9) Borated Water Storage Tank Foundation stress cracks.

10) ITE Gould Class 1E equipment, unqualified cable used to wire equipment and/or controls.

11) Shear reinforcement at major containment penetrations.

12) Operation of reactor cavity cooling system.

During the evaluation period, the licensee failed to make a timely determination for the need to submit a 10 CFR 50.55(e) report to the NRC based on a 10 CFR Part 21 report from Transamerica Delaval, Inc. pertaining to diesel engine link rod clearances and this was identified by the NRC as an item of noncompliance. The licensee has taken positive actions to ensure that any safety related information received pertinent to the Midland Site is evaluated with respect to the impact on overall safety.

With regard to responses to items of noncompliance, the licensee has contested 9 of the 22 items of noncompliance written against areas other than HVAC system installation. Of the nine items contested by the licensee, the NRC agreed in two instances and removed the items of noncompliance. Of the twenty total items of noncompliances against the installation of HVAC systems (19 items in NRC Inspection Report No. 50-329/80-10; 50-330/80-11 and one item in NRC Inspection Report No. 50-329/80-21; 50-330/80-22) the licensee contested five items and the NRC agreed in two instances and removed the items of noncompliance.

It is realized that the licensee does have appeal rights on items of noncompliance, but when the licensee appeals over 40% (excluding HVAC system citations) and realizes a less than 10% success rate, it becomes apparent that the licensee's rebuttal lacks substance a high percentage of the time. The licensee's inadequate responses delays an expedient

resolution to the items of noncompliance and conveys an uncooperative attitude and ultimately affects the efficient operation of both the licensee and NRC and becomes a detriment to construction of a quality plant. Subsequent to the evaluation period licensee management were invited to a meeting in the Regional Office so the NRC could explain their position on what constitutes an adequate response to noncompliances and subsequent corrective action.

b. Conclusion

Based on the questionable quality of the licensee's response to enforcement items, the licensee is considered to be in performance Category 3 for this area.

c. Board Recommendation

None

V. SUPPORTING DATA AND SUMMARIES

1. Noncompliance Data

Facility Name: Midland Nuclear Power Plant UNIT: 1 DOCKET NO: 50-329

Inspections No. 50-329/80-17 through No. 50-329/80-37

No. 50-329/81-04 through No. 50-329/81-12

Functional Areas	Noncompliances and Deviations[1]									
	Severity Levels						Categories			
	I	II	III	IV	V	VI	Viol.	Infr.	Def.	Dev.
1. Soils & Foundations				(2)	(1)					(1)
2. Containment & Other Safety Related Structures										
3. Piping System & Supports				(1)	(4)			(1)		
4. Safety Related Components										
5. HVAC Systems					(1)			(15)	(3)	
6. Electrical Power Supply/Dist					5					
7. Instrumentation & Control Sys.										
8. Licensing Activities										
9. Quality Assurance				(1)	(1)					
10. Fire Protection										
11. Preservice Inspection										
12. Design and Design Changes										
13. Reporting Requirements								(1)		
14.										
15.										
16.										
17.										
18.										
19.										
20.										
21.										
TOTALS				4	12			17	3	1

1/ Numbers in parenthesis indicate noncompliances common to both units.

V. SUPPORTING DATA AND SUMMARIES

1. Noncompliance Data

Facility Name: Midland Nuclear Power Plant UNIT: 2 DOCKET NO: 50-330

Inspections No. 50-330/80-18 through No. 50-330/80-38

No. 50-330/81-04 through No. 50-330/81-12

Functional Areas	Noncompliances and Deviations[1]									
	Severity Levels						Categories			
	I	II	III	IV	V	VI	Viol.	Infr.	Def.	Dev.
1. Soils & Foundations				(2)	(1)					(1)
2. Containment & Other Safety Related Structures										
3. Piping System & Supports				(1)	(4)			2		
4. Safety Related Components					2					
5. HVAC Systems					(1)			(15)	(3)	
6. Electrical Power Supply/Dist					(4)	1				
7. Instrumentation & Control Sys.										
8. Licensing Activities										
9. Quality Assurance				(1)	(1)					
10. Fire Protection										
11. Preservice Inspection										
12. Design and Design Changes										
13. Reporting Requirements								(1)		
14.										
15.										
16.										
17.										
18.										
19.										
20.										
21.										
TOTALS				4	13	1		18	3	1

1/ Numbers in parenthesis indicate noncompliances common to both units.

2. Licensee Report Data

a. Construction Deficiency Reports (CDR's)

Twelve (12) Construction Deficiency Reports (CDR's) reported pursuant to 10 CFR 50.55(e), were received by the regional office during the period of July 1, 1980 and June 30, 1981. The following list is a summary of each reportable item.

*1. High Energy Line Break Analysis (HELBA), steady state thrust forces rather than transient peak thrust forces were used in the energy balance techniques for the design of HELBA pipe whip restraints.

2. Sway Strut Rod Ends Deficiency, ITT Grinnell supplied sway struts, snubbers and shock suppressors have loose or totally disengaged rod end bushings.

*3. Component Cooling Water (CCW) Design, CCW system susceptibility to Loss of Coolant Accident (LOCA) induced failures.

4. Nuclear Steam Supply System (NSSS) analysis, anomalies identified in the NSSS seismic and Loss of Coolant (LOCA) analysis of the primary system.

5. Emergency Core Cooling Actuation System (ECCAS) vendor wiring in the ECCAS cabinets 1C45 and 2C45 was inconsistent with redundant subsystem modules in the cabinets.

6. Low alloy quenched and tempered bolting 1½ inches and greater in support of safety related systems.

7. Underrated Terminal Strips on Limitorque Operators.

*8. Seismic model of Auxiliary Building has incorrect assumption that control tower and main portion of Auxiliary Building are an integral unit between elevation 614 and 659.

Number and Nature of Deficiency Reports (cont)

*9. Borated Water Storage Tank Foundation stress cracks.

10. ITE Gould Class 1E equipment, unqualified cable used to wire equipment and/or controls.

*11. Shear reinforcement at major containment penetrations.

12. Operation of reactor cavity cooling system.

*Indicates may have been licensee controllable and are indicative of lack of QA in design control.

b. Part 21 Reports:

No Part 21 reports were initiated by the licensee during the reporting period.

3. Licensee Activities

The licensee continued to construct both units at the same rate and achieved approximately 70% completion during the reporting period. Safety related electrical installation was recommenced with vigor after a period of reduced activity while additional engineering was performed. Assembly of vessel internals, closure head and reactor coolant pumps aggressively continued during the period. As a portion of the resolution for soils settlement issues , extensive soil samples and borings were taken and work commenced on dewatering wells.

4. Inspection Activities

A major "team" inspection was accomplished on May 18-22, 1981, which resulted in an issue of an Immediate Action Letter pertaining to installation of small bore piping.

Heavy inspection effort was expended to follow the resolution of soils settlement issues and taking of soil samples. Inspections in the electrical area have increased to be commensurate with the increase in licensee efforts in this area.

5. Investigations and Allegations

None were pursued during the evaluation period.

6. Escalated Enforcement Actions

a. Civil Penalty

On January 7, 1981, a $38,000 civil penalty was issued by the NRC as a result of an investigation pertaining to the installation of heating, ventilating and air conditioning equipment and systems. Nineteen items of noncompliance were identified in 10 of the 18 Appendix B criteria (10 CFR 50 Appendix B). The investigation was completed in July 1980.

b. Orders

None

c. Immediate Action Letters

On May 22, 1981, an Immediate Action Letter was issued by the Region III Office of Inspection and Enforcement concerning the issuance of fabrication and construction drawings for the installation of the safety related small bore piping and piping suspension systems.

d. Confirmatory Action Letter

1. On January 22, 1981, Consumers Power Company issued a letter to the Director of Region III stating that their Stop Work Order of January 16, 1981 to B&W for installation of Core Support Assembly Vent Valves would remain in effect until the procedures were revised, training of personnel was completed, and the overview inspection plan was revised. This action was taken in lieu of Region III, Office of Inspection and Enforcement issuing an Immediate Action Letter.

2. On July 27, 1981, Consumers Power Company issued a letter to the Director, Region III delineating those actions to be taken to control modification to drawings which do not have the required Committed Preliminary Design Calculations (CPDC) and that the methodology for modifications to be fully documented and submitted to the Regional Office for review. This action was taken in lieu of Region III Office of Inspection and Enforcement issuing an Immediate Action Letter.

7. Management Conferences

Three meetings were held with Consumers Power Corporate Management during the appraisal period.

a. The first meeting was held on November 24, 1980 and continued on December 2nd and 17th, 1980. The purpose of the meeting was to discuss the Systematic Assessment of Licensee Performance (SALP) and to be present for the licensee's presentation of the recently reorganized QA organization. (Inspection Report No. 50-329/80-36 and 50-330/80-37)

b. The second meeting was held March 13, 1981 to discuss the Midland Project Organization, Midland QA Program evaluation and the new external quality consultation. (Inspection Reports No. 50-329/81-05 and 50-330/81-05)

c. The third meeting was held on May 22, 1981 to discuss the results of the team inspection of 5/18 to 5/22/81. (Inspection Report No. 50-329/81-12 and 50-330/81-12)

III. SUMMARY OF RESULTS

Functional Areas	Category 1	Category 2	Category 3
1. Soils and Foundations			X
2. Containment and other Safety-Related Structures		X	
3. Piping systems and supports			X
4. Safety-Related Components		X	
5. Support Systems ~~HVAC~~	X		
6. Electrical power supply and distribution			X
7. ~~Instrumentation and Control Systems~~ Instrumental Control Systems	N/A	N/A	N/A
8. Licensing Activities			
9. Others (list any other areas or delete. If in preop phase use appropriate areas from list under operating reactors.)			
9 Quality Assurance		X	
10 Fire Protection	X		
11 Previous Inspection		X	
~~HVAC~~	~~X~~		
12 Design + Design ~~Changes~~			X

11. NUMBER AND NATURE OF ENFORCEMENT ITEMS

Midland Unit 2

Functional Area	Noncompliances and Deviations									
	Severity Level						Classification			
	I	II	III	IV	V	VI	Vio	Inf	Def	Dev
1. Quality Assurance				1	1					
2. Site Preparation and Foundations				2	1					1
3. Containment Structures										
4. Safety-Related Structures										
5. Piping & Hangers				1	4			2		
6. Safety-related Components					2					
7. Electrical					4	1				
8. Instrumentation										
9. Fire Protection										
10. Preservice Inspection										
11. Corrective Actions and Reporting								1		
12. Procurement										
13. Design and Design Changes										
14. Training										
15. Modules Not Included In Any Functional Area					1			15	3	
TOTALS				4	13	1		18	3	1

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APPENDIX B

REGION III

Licensee Performance Evaluation (Construction)

Facility: Midland Units 1 and 2

Licensee: Consumers Power Company

Unit Identification:

Docket No.	CP No./Date of Issuance	Unit No.
50-329	CPPR-81, December 15, 1972	1
50-330	CPPR-82, December 15, 1972	2

Reactor Information:	Unit 1	Unit 2
NSSS	B&W	B&W
MWt	2452	2452

Appraisal Period: July 1, 1979 to June 30, 1980

Appraisal Completion Date: July 15, 1980

Review Board Members:

Draft

A. Number and Nature of Noncompliance Items

Noncompliance Category	Unit 1	Unit 2
Violations	-	-
Infractions	7	8
Deficiencies	2	2

Areas of Noncompliance	Unit 1 (Points)	Unit 2 (Points)
Criterion XIII	10	10
Criterion II	10	10
Criterion III	10	10
Criterion IX (2)	20	20
Criterion V (2/3)	20	30
Criterion XVII	2	2
Criterion V	2	2

B. Number and Nature of Deficiency Reports

Twelve Construction Deficiency Reports (CDR's) were received by the regional office during the period of July 1, 1979 through June 30, 1980. The nature of these reports covers a broad range of material and construction problems as listed below:

1. Containment coolers, water supply problem
2. Small break/RC Pump operation interaction
3. States sliding links, defective clip (Electrical)
4. Tendon wire length problem
5. Station batteries inadequate
* 6. Hilti drop-in anchors
* 7. RPV anchor bolt failures
8. Boration system inadequacies
9. Gould startes
*10. Epoxy coating o primary shielding walls
11. Letdown coolers supports over-stressed
*12. NSSS components wiring problem

*Indicates may have been licensee controllable

C. Escalated Enforcement Actions

Civil Penalties

None

Orders

December 6, 1979, an order modifying construction permits No. CPPR-81 and CPPR-82 was issued by the NRC prohibiting certain construction activities relating to soils problems.

Draft

Immediate Action Letters

March 21, 1980 an immediate action letter was issued by the Region III office of Inspection and Enforcement concerning stop work by the Zack Corporation of all safety related heating and ventilating equipment installations.

D. Management Conferences Held During Past Twelve Months

E. Justification of Evaluations of Functional Areas Categorized as Requiring an Increase in Inspection Frequency/Scope (See evaluation sheet)

Draft

FUNCTIONAL AREA	Inspection Frequency and/or Scope: Increase	No. Change	Decrease
1. Quality Assurance, Management & Training	X (Interim for new organization)		
2. Substructure & Foundations		X	
3. Concrete			X (Suggest Cease)
4. Liner (Containment & Others)			X (Ditto)
5. Safety-Related Structures		X (push for completion)	
6. Piping & Hangers (Reactor Coolant & Others)		X	
7. Safety-Related Components (Vessel, Internals & HVAC)	X (HVAC)	X (Push for completion)	
8. Electrical Equipment		X	
9. Electrical (Tray & Wire)		X	
10. Instrumentation		X	
11. Fire Protection		X	
12. Preservice Inspection		X	
13. Reporting (It is unknown as to what the author had in mind here)			

Several inspections should have effort applied to review of the organization changes in the QA/QC function on site. At this time it appears that additional inspection coverage will be necessary for the HVAC activity until the function stablizes.

(Designated Regional Manager)

Date

Cook

FUNCTIONAL AREA	Inspection Frequency and/or Scope: Increase	No. Change	Decrease
1. Quality Assurance, Management & Training	✓		
2. Substructure & Foundations	✓		
3. Concrete		✓	
4. Liner (Containment & Others)		✓	
5. Safety-Related Structures		✓	
6. Piping & Hangers (Reactor Coolant & Others)		✓	
7. Safety-Related Components (Vessel, Internals & HVAC)	✓		
8. Electrical Equipment		✓	
9. Electrical (Tray & Wire)		✓	
10. Instrumentation		✓	
11. Fire Protection		✓	
12. Preservice Inspection		✓	
13. Reporting	✓		

(Designated Regional Manager)

Date

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(1)

Management + C

1) QA, Management & Training - Management Control
There has been several management changes and an influx of new employees plus an integration of CPCo and Bechtel QA personnel within the past 4-8 weeks. There are also plans to add additional QA personnel including personnel in the management ranks. CPCo Site QA management has not completely settled out, ie, J. Corley has gone to CPCo corporate and a permanent replacement has not been announced. Therefore increased inspection effort would be warranted to
   1) Insure the qualifications of the "rank and file" QA personnel (including Bechtel QA personnel) is adequate.
   2) Insure, when all the management slots are filled, that strong QA control can be maintained
   3) To insure that the CPCo - Bechtel QA Dept. integration does not hamper free flow of QA information in the interest of protecting commerciality aspects which exist between CPCo and Bechtel. (Refer attachment A)

attachment A

Reporting - Communications

a recent episode occurred where there was a hesitancy of Bechtel to supply CPCo QA personnel with a Part 21 letter from Delaval without the Bechtel QA person getting authorization to release the letter. This temporary hesitancy of Bechtel to release the Part 21 letter resulted in some strained dialogue between CPCo and Bechtel QA with strong undertones of protecting Bechtel commerciality. Although this is only one "explicit" indicator, it may be symptomatic that congeniality might not exist between CPCo and Bechtel QA departments as applied to the integration of the two factions.

Bechtel got Delaval ltr on Sept 26, 1980
Oct 24, 1980 - I probed Part 21 Delaval - Conversation above was that day

Adequacy of Management Controls

(2, 3 & 5) Substructures and Foundations and Safety Related Structures and Concrete

Because of the Soils Settlement Issues and subsequent Hearing activities, an increased inspection activity is recommended to allow I+E to be responsive to quality related questions pertinent to these issues.

Essentially all the concrete is poured. However, related to the above, in response to NRR requirements pertaining to concrete placement and the fact that the Batch Plant has been dismantled I+E should perform limited scope inspections of concrete placement to insure the above referenced requirements are met.

Because of Soils Hearing and NRR Regirement involvement, the above inspections should be completed from the Regional Office.

4) Liner (Containment and Others)

The only activity which should require I&E involvement is in the area of penetrations. Some work is presently transpiring in the termination of piping at fluid heads / penetrations. An area which appears to have received limited I&E attention is the penetration leak detection system and associated instrumentation

7.) Safety-Related Components (Vessel, Internals and HVAC)

Because of the investigation and preponderance of negative results pertaining to The Zack Co installation of HVAC Systems - increased inspection effort is warranted in this area. Particular emphasis should be placed on CPCo's and Bechtel QC ability to monitor and assess the QC programs invoked by Zack prior to starting work.

There has been increased activity pertaining to assembly of the vessel internals, closure head and reactor coolant pumps and has required much hand fitting. Although there has been no apparent major QC deficiency at the site - this is attributed to the perseverance of a single CPCo - QA individual and the attention of the NRC.

13) Reporting

The entire aspect of reporting Part 50.55(e) needs more attention in that there is a reluctance of CPCo to not report a 50.55(e) until a 50.55(e) exists beyond a shadow of doubt. The mechanism by which reporting requirements are triggered also requires more scrutiny. These points have been brought about by the Part 21 - Delaval letter and the failure of the "system" to pick up this information and trigger a review for 50.55(e) aspects. also, there was a hesitancy to report the Zack HVAC situation as a 50.55(e) until it could be demonstrated that the inferior welds would fail and cause safety concerns.

Whether the trend of hesitancy to report 50.55(e) is due to Corporate QA management changes is not completely known - but Corporate QA Management changes were made at about the time this trend was "sensed" by the NRC.

General Organizatrin

There are changes occurring in the site QA Organizatrin - these changes are not complete. However, the Site QA Superintendent was removed from his positrin and placed in a removed capacity (from QA) at the Corporate office and no replacement has been picked. Therefore, until a new Site QA Superintendent has been picked and indoctronated - it might be appropriate for the Corporate QA Manager to fill this vacancy.

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V. SUPPORTING DATA AND SUMMARIES

1. Noncompliance Data

Facility Name: Midland Nuclear Power Plant UNIT: 2 DOCKET NO: 50-330

Inspections No. 50-330/80-18 through No. 50-330/80-38

No. 50-330/81-04 through No. 50-330/81-12

	Noncompliances and Deviations[1]									
	Severity Levels						Categories			
Functional Areas	I	II	III	IV	V	VI	Viol.	Infr.	Def.	Dev.
Soils & Foundations				(2)	(1)					(1)
Containment & Other Safety Related Structures										
Piping System & Supports				(1)	(4)			2		
Safety Related Components					2					
HVAC Systems					(1)			(15)	(3)	
Electrical Power Supply/Dist					(4)	1				
Instrumentation & Control Sys.										
Licensing Activities										
Quality Assurance				(1)	(1)					
Fire Protection										
Preservice Inspection										
Design and Design Changes										
Reporting Requirements								(1)		
TOTALS				4	13	1		18	3	1

[1] Numbers in parenthesis indicate noncompliances common to both units.

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V. SUPPORTING DATA AND SUMMARIES

1. Noncompliance Data

Facility Name: Midland Nuclear Power Plant UNIT: 1 DOCKET NO: 50-329

Inspections No. 50-329/80-17 through No. 50-329/80-37

No. 50-329/81-04 through No. 50-329/81-12

	Noncompliances and Deviations[1]									
	Severity Levels						Categories			
Functional Areas	I	II	III	IV	V	VI	Viol.	Infr.	Def.	Dev.
1. Soils & Foundations				(2)	(1)					(1)
2. Containment & Other Safety Related Structures										
3. Piping System & Supports				(1)	(4)			(1)		
4. Safety Related Components										
5. HVAC Systems					(1)			(15)	(3)	
6. Electrical Power Supply/Dist					5					
7. Instrumentation & Control Sys.										
8. Licensing Activities										
9. Quality Assurance				(1)	(1)					
10. Fire Protection										
11. Preservice Inspection										
12. Design and Design Changes										
13. Reporting Requirements								(1)		
14.										
15.										
16.										
17.										
18.										
19.										
20.										
21.										
TOTALS				4	12			17	3	1

1/ Numbers in parenthesis indicate noncompliances common to both units.

Note: Unit II only for Items 3 through 5

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SUMMARY OF ITEMS OF NONCOMPLIANCE

-329 50-330 Report No.	Area of Noncompliance	Subject of Noncompliance	Unit 1 Points	Unit 2 Points	
30-10 80-11	Criterion V	Activities affecting quality were not accomplished in accordance with documented instructions and procedures for fabrication.	10	10	Infraction
	Criterion V	Welders identification was not recorded on travelers.	2	2	Deficiency
	Criterion V	Unapproved marking material, Eberhard Faber Marquette was used to mark sheet steel stock and fabricated items installed in seismic Class 1 duct work without a change approved by the contractor.	2	2	Deficiency
	Criterion XII	Documentary evidence did not exist that material and equipment conform to procurement requirements prior to installation or use.	10	10	Infraction
	Criterion VIII	Failure to assure the identification of safety related HVAC components throughout fabrication, erection and installation.	10	10	Infraction
	Criterion IX	Established welding procedures were not used as specified or in the manner used to qualify the procedure.	10	10	Infraction
	Criterion IX	Procedures to control weld filler metal at the Midland construction site were not followed	10	10	Infraction

SUMMARY OF ITEMS OF NONCOMPLIANCE

-329 50-330 Report No.	Area of Noncompliance	Subject of Noncompliance	Unit 1 Points	Unit 2 Points	Type
(cont)(cont) 80-10 80-11	Criterion IX	Welding was not performed in accordance with prequalified welding procedures.	10	10	Infraction
	Criterion IX	Individual welds were not identified by welder ID numbers.	10	10	Infraction
	Criterion IX	Two welders were assigned the same welder's ID stamp	10	10	Infraction
	Criterion X	Instructions and procedures for inspections were not prescribed for activities affecting quality.	10	10	Infraction
	Criterion X	The program for inspection was not adequate to assure compliance with applicable specifications.	2	2	Deficiency
	Criterion XV	Measures which would prevent the inadvertent use or installation of nonconforming materials had not been established.	10	10	Infraction
	Criterion XV	Nonconformance tags had been applied to fire dampers without explicitly identifying the item.	10	10	Infraction
	Criterion XVI	None of the seven nonconformance reports generated by CPCo during 5/23 - 10/2/79 had been promptly corrected.	10	10	Infraction

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SUMMARY OF ITEMS OF NONCOMPLIANCE

-329 50-330 Report No.	Area of Noncompliance	Subject of Noncompliance	Unit 1 Points	Unit 2 Points	Type
cont) (cont) 0-10 80-11	Criterion XVI	Measures were not adequate to assure that conditions adverse to quality were promptly identified.	10	10	Infraction
	Criterion XVII	Sufficient records to furnish evidence of activities affecting quality were not maintained.	10	10	Infraction

SUMMARY OF ITEMS OF NONCOMPLIANCE

50-329 50-330 IE Report No.	Area of Noncompliance	Subject of Noncompliance	Unit 1 Points	Unit 2 Points	
80-20 80-21	Criterion IV	Bechtel Purchase Order did not specify applicable codes.	10	10	Infraction
80-21 80-22	Criterion XVIII	Failure to perform audit of Photon Testing, Inc. prior to welder training and qualification. (Zack)	10	10	Infraction
80-28 80-29	Criterion X	Bypass of an inspection hold point. (Unit 2 only)		10	Infraction
80-31 80-32	Criterion II	Delay in making 10 CFR 50.55(e) reportability determinations and information was not immediately disseminated to the client.	10	10	Infraction
80-32 80-33	Criterion XVI	Failure to initiate preventive action to preclude repetition of not identifying design documents. Reviewers were not reviewing the FSAR against references.	10	10	IV.

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SUMMARY OF ITEMS OF NONCOMPLIANCE

50-329 50-330 Report No.	Area of Noncompliance	Subject of Noncompliance	Unit 1 Points	Unit 2 Points	Severity Level
80-32 80-33	Criterion III	Three examples of failure to translate applicable regulatory requirements and design criteria into design documents. a) Failure to maintain a coordination log of specification change notices. b) Failure to correctly translate SCM-9004 as a requirement into Rev. 20 of specification C-208. c) Failure of EDPI 4.25.1, Rev. 8 to establish adequate measures to waive design interface requirements.	10	10	IV

SUMMARY OF ITEMS OF NONCOMPLIANCE

0-329 50-330 E Report No.	Area of Noncompliance	Subject of Noncompliance	Unit 1 Points	Unit 2 Points	Severity Level
81-01 81-01	Criterion V	Failure to establish test procedures for soils work activities.	10	10	V
	Criterion VI	Failure to control test results forms for soils work activities.			
	Criterion XVII	Failure to initial and date test report sheets or to control the use of signature stamps.			
	50.54f Question 23 response	Failure to supply an onsite geotechnical engineer			Deviation
81-04 81-04	Criterion V	Failure to have an appropriate procedure for installation of vent valves.		10	V
	Criterion V	Failure to follow access control and ~~seventy level IV~~ procedures and document for items used in the assembly of the U/2 Core ie., ~~U/2 core support assembly vent valves without being accounted for on equipment log.~~ subpart assembly valves on the equipment log.		10	V
81-08 81-08	Criterion XIII	Failure to provide adequate storage conditions for			
		1) Control Rod Drive Primary AC Breakers			
		2) New and spent fuel storage racks			
		3) Emergency battery chargers	10	10	V

SUMMARY OF ITEMS OF NONCOMPLIANCE

50-329 50-330 IE Report No.	Area of Noncompliance	Subject of Noncompliance	Unit 1 Points	Unit 2 Points	Severity Categories
81-09 81-09	Criterion V	Failure to evaluate the technical capabilities of Woodward Clyde prior to commencement of drilling operations.	10	10	V
81-11 81-11	Criterion V	Failure to establish procedures for temporary support of cable, cable coils --- and for routing cables.	10	10	V
Question whether really against only Unit 1	Criterion X	Electrical contractors failed to verify conformance to paragraph 3.1, failure to perform adequate inspection.	10	—	V
	Criterion XV	Failure to identify and control nonconforming components.	10	10	V
	Criterion III	Failure to translate design criteria into drawings and specifications.	10	10	V

SUMMARY OF ITEMS OF NONCOMPLIANCE

50-329 50-330 IE Report No.	Area of Noncompliance	Subject of Noncompliance	Unit 1 Points	Unit 2 Points	Severity Categorie
81-12 81-12	Criterion XVI	Routine analysis of report revealed that appropriate site managers have not routinely established comprehensive corrective actions in response to the identification of adverse quality trends.	10	10	IV
Question whether Unit 2 or common	Criterion X	Failure to identify during inspection that a nonconforming condition with regard to minimum installed cable bend radius existed.	N/A	2	VI
	Criterion XVI	Failure to take proper corrective action with regard to the lack of approved procedures for the rework ~~items~~ of electrical raceways.	10	10	V
	Criterion V	Failure to install large bore pipe restraints, supports, and anchors in accordance with design drawings and specifications.	10	10	V

SUMMARY OF ITEMS OF NONCOMPLIANCE

50-329 50-330 IE Report No.	Area of Noncompliance	Subject of Noncompliance	Unit 1 Points	Unit 2 Points	Severity Categories
(cont) (cont) 81-12 81-12	Criterion X	Failure of QC inspector to reject large bore restraints, supports and anchors that were not installed in accordance with design drawings and specifications.	10	10	V
	Criterion III	Failure to prepare, review and approve small bore pipe and piping suspension system designs performed onsite in accordance with design control procedures.	10	10	IV
	Criterion VI	Failure to adequately control documents used in site small bore piping design activities.	10	10	V
	Criterion XVIII	Failure of audits to include a detailed review of system stress analysis and to follow up on previously identified hanger calculation problems.	10	10	V

IC ASSESSMENT OF LICENSEE PERFORMANCE

7/2/01

U-1

NUMBER AND NATURE OF ENFORCEMENT ITEMS - Plants under Construction

Facility Name MIDLAND Docket No. 329 Unit 1

Functional Areas	Investigation & Inspection Manhours	Noncompliances and Deviations									
		Severity Levels						Categories			
		I	II	III	IV	V	VI	Viol.	Infr.	Def.	Dev
1. Quality Assurance	73					4					
2. Site Preparation and Foundations	18										
3. Containment Structures	26										
4. Safety-Related Structures	2										
5. Piping and Hangers	33				1	4			1		
6. Safety-Related Components	14										
7. Electrical	107					3					
8. Instrumentation											
9. Fire Protection	25										
10. Preservice Inspection	32										
11. Corrective Action and Reporting	1										
12. Procurement	0										
13. Design and Design Changes	2										
14. Training	0										
15. Plant Operations Preparation	0										
16. Fuel Loading Preparation	0										
17. Maintenance	0										
18. Security & Safeguards	NONE										
19. Surveillance and Pre-OPERATIONAL TESTING	0										
20. Emergency Planning	0										
21. Audits, Reviews, and Committee activities	0										
22. Modules Not included in Any Functional Area	927				1	1			20	3	
TOTALS	1260				2	12			21	3	

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3. NUMBER AND NATURE OF ENFORCEMENT ITEMS - Plants under Construction

Facility Name MIDLAND Docket No. 330 Unit 2

Functional Areas	Investigation & Inspection Manhours	Noncompliances and Deviations									
		Severity Levels						Categories			
		I	II	III	IV	V	VI	Viol.	Infr.	Def.	Dev
1. Quality Assurance	71					4					
2. Site Preparation and Foundations	17										
3. Containment Structures	5										
4. Safety-Related Structures	2										
5. Piping and Hangers	40				1	4			2		
6. Safety-Related Components	17					2					
7. Electrical	104					2	1				
8. Instrumentation	0										
9. Fire Protection	26										
10. Preservice Inspection	34										
11. Corrective Action and Reporting	1										
12. Procurement	0										
13. Design and Design Changes	2										
14. Training	0										
15. Plant Operations Preparation	0										
16. Fuel Loading Preparation	0										
17. Maintenance	0										
18. Security & Safeguards	0										
19. Surveillance and Pre OPERATIONAL TESTING	0										
20. Emergency Planning	0										
21. Audits, Reviews, and Committee activities	0										
22. Modules Not included in Any Functional Area	921				1	1		20	3		
TOTALS	1240				2	13		20	5		

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Number and Nature of Noncompliance Items

Noncompliance Category	Unit 1 Points	Unit 2 Points
Violations	-	-
Infractions	21	21
Deficiencies	3	3
Severity Levels		
I	0	0
II	0	0
III	0	0
IV	2	2
V	12	13
VI	0	1

II. NUMBER AND NATURE OF ENFORCEMENT ITEMS

UKAP 1

Midland Unit 1

Docket No. 50-329

Functional Area	Investigation & Inspection Manhours	Noncompliances and Deviations								
		Severity Level						Classification*		
		I	II	III	IV	V	VI	Vio.	Infr.	Dev.
1. Quality Assurance	73					4				
2. Site Preparation & Foundations	18									
3. Containment Structures	26									
4. Safety-Related Structures	2									
5. Piping & Hangers	33				1	4			1	
6. Safety-related Components	14									
7. Electrical	107					3				
8. Instrumentation										
9. Fire Protection	25									
10. Preservice Inspection	32									
11. Corrective Actions & Reporting	1									
12. Procurement	0									
13. Design and Design Changes	2									
14. Training	0									
15. Modules Not Included In Any Functional Area	927				1	1			20	3
TOTALS	1260				2	12			21	3

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II. NUMBER AND NATURE OF ENFORCEMENT ITEMS

Midland Unit 2 Docket No. 50-330

Functional Area	Investigation & Inspection Manhours	Noncompliances and Deviations								
		Severity Level						Classification*		
		I	II	III	IV	V	VI	Vio.	Infr.	Def.
1. Quality Assurance	71					4				
2. Site Preparation & Foundations	17									
3. Containment Structures	5									
4. Safety-Related Structures	2									
5. Piping & Hangers	40				1	4			2	
6. Safety-Related Components	17					2				
7. Electrical	104					2	1			
8. Instrumentation	0									
9. Fire Protection	26									
10. Preservice Inspection	34									
11. Corrective Actions & Reporting	1									
12. Procurement	0									
13. Design and Design Changes	2									
14. Training	0									
15. Modules Not Included In Any Functional Area	921				1	1		20	3	
TOTALS	1240				2	13	1	20	5	

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Number and Nature of Noncompliance Items

Noncompliance Category	Unit 1 Points	Unit 2 Points
Violations	-	-
Infractions	21	21
Deficiencies	3	3
Severity Levels		
I	0	0
II	0	0
III	0	0
IV	2	2
V	12	13
VI	0	1

II. NUMBER AND NATURE OF ENFORCEMENT ITEMS

Midland Unit 1

Functional Area	Noncompliances and Deviations									
	Severity Level						Classification			
	I	II	III	IV	V	VI	Vio	Inf	Def	Dev
1. Quality Assurance				1	1					
2. Site Preparation and Foundations				2	2	1				1
3. Containment Structures										
4. Safety-Related Structures										
5. Piping & Hangers				1	4			1		
6. Safety-related Components										
7. Electrical					5					
8. Instrumentation										
9. Fire Protection										
10. Preservice Inspection										
11. Corrective Actions and Reporting								1		
12. Procurement										
13. Design and Design Changes										
14. Training										
15. Modules Not Included In Any Functional Area	278				1			15 ~~14~~	3	
TOTALS	517			4	13	1		16	3	1

II. NUMBER AND NATURE OF ENFORCEMENT ITEMS

Midland Unit 2

Functional Area	Noncompliances and Deviations									
	Severity Level						Classification			
	I	II	III	IV	V	VI	Vio	Inf	Def	Dev
1. Quality Assurance				1	1					
2. Site Preparation and Foundations				2	2	1				1
3. Containment Structures										
4. Safety-Related Structures										
5. Piping & Hangers				1	4			2		
6. Safety-related Components					2					
7. Electrical					5	1				
8. Instrumentation										
9. Fire Protection										
10. Preservice Inspection										
11. Corrective Actions and Reporting								1		
12. Procurement										
13. Design and Design Changes										
14. Training										
15. Modules Not Included In Any Functional Area	277				1			15	3	
TOTALS	492			4	15	2		18	3	1

SUMMARY OF ITEMS OF NONCOMPLIANCE

0-329 50-330 E Report No.	Area of Noncompliance	Subject of Noncompliance	Unit 1 Points	Unit 2 Points	
80-10 80-11	Criterion V	Activities affecting quality were not accomplished in accordance with documented instructions and procedures for fabrication.	10	10	Infractic
	Criterion V	Welders identification was not recorded on travelers.	2	2	Deficienc
	Criterion V	Unapproved marking material, Eberhard Faber Marquette was used to mark sheet steel stock and fabricated items installed in seismic Class 1 duct work without a change approved by the contractor.	2	2	Deficienc
	Criterion VII	Documentary evidence did not exist that material and equipment conform to procurement requirements prior to installation or use.	10	10	Infractio
	Criterion VIII	Failure to assure the identification of safety related HVAC components throughout fabrication, erection and installation.	10	10	Infractio
	Criterion IX	Established welding procedures were not used as specified or in the manner used to qualify the procedure.	10	10	Infractio
	Criterion IX	Procedures to control weld filler metal at the Midland			

SUMMARY OF ITEMS OF NONCOMPLIANCE

0-329 50-330 E Report No.	Area of Noncompliance	Subject of Noncompliance	Unit 1 Points	Unit 2 Points	Type
(cont)(cont) 80-10 80-11	Criterion IX	Welding was not performed in accordance with prequalified welding procedures.	10	10	Infractio
	Criterion IX	Individual welds were not identified by welder ID numbers.	10	10	Infractio
	Criterion IX	Two welders were assigned the same welder's ID stamp	10	10	Infractio
	Criterion X	Instructions and procedures for inspections were not prescribed for activities affecting quality.	10	10	Infractio
	Criterion X	The program for inspection was not adequate to assure compliance with applicable specifications.	2	2	Deficienc
	Criterion XV	Measures which would prevent the inadvertent use or installation of nonconforming materials had not been established.	10	10	Infractio
	Criterion XV	Nonconformance tags had been applied to fire dampers without explicitly identifying the item.	10	10	Infractio
	Criterion XVI	None of the seven nonconformance reports generated by CPCo during 5/23 - 10/2/79 had been promptly corrected.	10	10	Infractio

SUMMARY OF ITEMS OF NONCOMPLIANCE

0-329 50-330 E Report No.	Area of Noncompliance	Subject of Noncompliance	Unit 1 Points	Unit 2 Points	Type
(cont) (cont) 80-10 80-11	Criterion XVI	Measures were not adequate to assure that conditions adverse to quality were promptly identified.	10	10	Infractio
	Criterion XVII	Sufficient records to furnish evidence of activities affecting quality were not maintained.	10	10	Infractio

ASSESSMENT OF LICENSEE PERFORMANCE

U-1

I. NUMBER AND NATURE OF ENFORCEMENT ITEMS - Plants under Construction

Facility Name MIDLAND Docket No. 329 Unit 1

Functional Areas	Investigation & Inspection Manhours	Noncompliances and Deviations: Severity Levels I	II	III	IV	V	VI	Categories: Viol.	Infr.	Def.	Dev
1. Quality Assurance	73					4					
2. Site Preparation and Foundations	18										
3. Containment Structures	26										
4. Safety-Related Structures	2										
5. Piping and Hangers	33				1	4			1		
6. Safety-Related Components	14										
7. Electrical	107					3					
8. Instrumentation											
9. Fire Protection	25										
10. Preservice Inspection	32										
11. Corrective Action and Reporting	1										
12. Procurement	0										
13. Design and Design Changes	2										
14. Training	0										
15. Plant Operations Preparation	0										
16. Fuel Loading Preparation	0										
17. Maintenance	0										
18. Security & Safeguards	NONE										
19. Surveillance and Pre-OPERATIONAL TESTING	0										
20. Emergency Planning	0										
21. Audits, Reviews, and Committee activities	0 at										
22. Modules Not included in Any Functional Area	927				1	1			20	3	
TOTALS	1260				2	12			21	3	

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I. NUMBER AND NATURE OF ENFORCEMENT ITEMS - Plants under Construction

Facility Name MIDLAND Docket No. 330 Unit 2

Functional Areas	Investigation & Inspection Manhours	Noncompliances and Deviations: Severity Levels I	II	III	IV	V	VI	Categories: Viol.	Infr.	Def.	Dev
1. Quality Assurance	71					4					
2. Site Preparation and Foundations	17										
3. Containment Structures	5										
4. Safety-Related Structures	2										
5. Piping and Hangers	40				1	4			2		
6. Safety-Related Components	17					2					
7. Electrical	104					2	1				
8. Instrumentation	0										
9. Fire Protection	24										
10. Preservice Inspection	34										
11. Corrective Action and Reporting	1										
12. Procurement	0										
13. Design and Design Changes	2										
14. Training	0										
15. Plant Operations Preparation	0										
16. Fuel Loading Preparation	0										
17. Maintenance	0										
18. Security & Safeguards	0										
19. Surveillance and Pre OPERATIONAL TESTING	0										
20. Emergency Planning	0										
21. Audits, Reviews, and Committee activities	0										
22. Modules Not included in Any Functional Area	921				1	1		20	3		
TOTALS	1240				2	13		20	5		

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ASSESSMENT OF LICENSEE PERFORMANCE

U-1

I. NUMBER AND NATURE OF ENFORCEMENT ITEMS - Plants under Construction

Facility Name MIDLAND Docket No. 329 Unit 1

Functional Areas	Investigation & Inspection Manhours	Noncompliances and Deviations									
		Severity Levels						Categories			
		I	II	III	IV	V	VI	Viol.	Infr.	Def.	Dev.
1. Quality Assurance	~~53~~ 73					4					
2. Site Preparation and Foundations	~~158~~ 77										
3. Containment Structures	26										
4. Safety-Related Structures	2										
5. Piping and Hangers	~~33~~ 17				1	4			1		
6. Safety-Related Components	14										
7. Electrical	107					3					
8. Instrumentation											
9. Fire Protection	25										
10. Preservice Inspection	32										
11. Corrective Action and Reporting	1										
12. Procurement	0										
13. Design and Design Changes	2										
14. Training	0										
15. Plant Operations Preparation	0										
16. Fuel Loading Preparation	0										
17. Maintenance	0										
18. Security & Safeguards	NONE										
19. Surveillance and Pre-OPERATIONAL TESTING	0										
20. Emergency Planning	0										
21. Audits, Reviews, and Committee activities	0										
22. Modules Not included in Any Functional Area	~~927~~ 278				1	1			20	3	
TOTALS	1260 517				2	12 13	1		21 16	3	1

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1. NUMBER AND NATURE OF ENFORCEMENT ITEMS - Plants under Construction

Facility Name MIDLAND Docket No. 330 Unit 2

Functional Areas	Investigation & Inspection Manhours	Noncompliances and Deviations									
		Severity Levels						Categories			
		I	II	III	IV	V	VI	Viol.	Infr.	Def.	Dev
1. Quality Assurance	71					4					
2. Site Preparation and Foundations	~~79~~ 34				2	2	1				1
3. Containment Structures	5										
4. Safety-Related Structures	2										
5. Piping and Hangers	~~40~~ 19				1	4			2		
6. Safety-Related Components	17					2					
7. Electrical	104					2	1				
8. Instrumentation	0										
9. Fire Protection	24										
10. Preservice Inspection	34										
11. Corrective Action and Reporting	1								1		
12. Procurement	0										
13. Design and Design Changes	2										
14. Training	0										
15. Plant Operations Preparation	0										
16. Fuel Loading Preparation	0										
17. Maintenance	0										
18. Security & Safeguards	0										
19. Surveillance and Pre OPERATIONAL TESTING	0										
20. Emergency Planning	0										
21. Audits, Reviews, and Committee activities	0										
22. Modules Not included in Any Functional Area	~~92~~ 277				1	1		20	3	3	
TOTALS	1240 ~~992~~				2 ~~5~~		2	20	5	3	1

13 1
15

WESTERN ELECTRIC COMPANY
NRC LIC. #1 24-06015-06
777 NORTH BLUE PARKWAY
LEE'S SUMMIT MO 64063

WESTERN ELECTRIC COMPANY INC
NRC LIC. #1 24-06015-01
KANSAS CITY WORKS
777 NORTH BLUE PARKWAY
LEES SUMMIT MO 64063

WHITING CORPORATION
NRC LIC. #1 12-04921-01
QUALITY CONTROL DEPARTMENT
157TH STREET AND LATHROPE AVEN
HARVEY IL 60426

WILLIAM BEAUMONT HOSPITAL
NRC LIC. #1 21-01333-01
3601 WEST 13 MILE ROAD
ROYAL OAK MI 48072

WILLIAM BEAUMONT HOSPITAL
NRC LIC. #1 21-01333-03-0
ROYAL OAK MI 48072

WILLIAM POWELL COMPANY (THE)
NRC LIC. #1 34-02963-01
2503-51 SPRING GROVE AVENUE
CINCINNATI OH 45214

WISCONSIN CENTRIFUGAL INCORPORATED
NRC LIC. #1 48-11641-01
905 EAST ST. PAUL AVENUE
WAUKESHA WI 53186

WISCONSIN DEPARTMENT OF NATURAL RES
NRC LIC. #1 48-18887-01
SOUTHERN DISTRICT HEADQUARTERS
3911 FISH HATCHERY ROAD
MADISON WI 53711

WISCONSIN INDUSTRIAL TESTING INC.
NRC LIC. #1 48-17480-01
5600 WEST HEMLOCK STREET
MILWAUKEE WI 53223

WISCONSIN, UNIVERSITY OF
NRC LIC. #1 48-09843-18
SAFETY DEPARTMENT
317 N. RANDALL AVENUE
MADISON WI 53706

WYANDOTTE GENERAL HOSPITAL
NRC LIC. #1 21-12930-02-0
2333 BIDDLE AVENUE
WYANDOTTE MI 48192

X-RAY INDUSTRIES INCORPORATED
NRC LIC. #1 21-05472-01
18711 JOHN R. STREET
DETROIT MI 48203

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Not able to stand staff when NRC attempts to close 50-55e when you say they are ready
Rpt 81-12 penetrations - looked at 2 of the 23 & found that good.

CPCo had change in site management
Insp Rpt 80-31/32 dtd 10/1-31/80

---

citation - Part 21 on diesels
Insp Rpt 80-31/32 - CPCo/Bechtel twice has had a poor system for getting Part 21 info into 50-55e evaluation system.

QA Engrg/above average ≡ Programs OK Staff OK Qual/No-
If wasn't for adequacy of staff in trenches - would have a high probability of failure - biggest cap is in management corrective action
Soils lack of QA.

DRAFT 205

REGION: III

LICENSEE PERFORMANCE EVALUATION (CONSTRUCTION)

Facility: Midland Units 1 and 2

Licensee: Consumers Power Company

Unit Identification:

Docket No.	CP No./Date of Issuance	Unit No.
50-329	CPPR-81, December 15, 1972	1
50-330	CPPR-82, December 15, 1972	2

Reactor Information:	Unit 1	Unit 2
NSSS	B&W	B&W
MWt	2452	2452

Appraisal Period: July 1, 1980 to June 30, 1981

Appraisal Completion Date:

Review Board Members:

C. Escalated Enforcement Actions

DRAFT

Civil Penalty

On January 7, 1981, a $38,000 civil penalty was issued by the NRC as a result of an investigation pertaining to the installation of heating, ventilating and air conditioning equipment and systems. Nineteen items of noncompliance were identified in 10 of the 18 Appendix B criteria (10 CFR 50 Appendix B). The investigation was completed in July 1980.

Orders

None

Immediate Action Letters

On May 22, 1981, an Immediate Action Letter was issued by the Region III Office of Inspection and Enforcement concerning the issuance of fabrication and construction drawings for the installation of the safety related small bore piping and piping suspension systems.

Letters of Understanding

1. On January 22, 1981, Consumers Power Company issued a letter to the Director of Region III stating that their Stop Work Order of January 16, 1981 to B&W for installation of Core Support Assembly Vent Valves would remain in effect

DRAFT

2. Site Preparation and Foundation

The licensee is rated below average. During the evaluation period, inspections have been performed to examine the licensee's implementation of corrective actions regarding the 10 CFR 50.54(f) request for additional information pertaining to soils settlement; observation of soils work activities and to witness taking of soil borings requested by ~~NRR~~ NRC Reviewers and Consultants.

~~Since 1978 the soils~~ ...inspectors and addressing

Since 1978, the soils settlement issues have been paramount in the amount of attention given by the NRC ~~and the~~ to the licensee. This activity has resulted in an order issued in December 1979 which is the basis for a hearing on soils settlement issues. A multitude of effort ~~which~~ has gone into soils testing and major re-review of the FSAR and design control. In spite of this attention, and the following enforcement history for the soils settlement area has existed during the SALP valuation period:

One level V violation and a deviation were identified in NRC Inspection Report No. 50-329/81-01; 50-330/81-01.

1) Failure to establish test procedures for soils work activities.

2) Failure to supply an onsite geotechnical engineer.

One level V violation was identified in NRC Inspection Report No. 50-329/81-09; 50-330/81-09 which was previously discussed under the Quality Assurance Section. However, the finding of lack of QA was as a result of attempting to review the QA associated with procuring soil boring samples.

Failure to evaluate the technical capabilities of Woodward-Clyde (principal supplier of services for soil boring activities) prior to ~~commencement of drilling operations~~ procurement of a drilling contractor.

Considering the above enforcement history and the fact that an order was issued in December 1979 which ~~has culminated in a~~ is the basis for the hearing on soils settlement issues and the multitude of effort which has gone into soils testing, major re-review of the FSAR and design control; the rating is below average.

add more history of this Soils Order - High activity
Repetative and ~~timely~~ because of
Therefore ~~from~~ the above ~~Restriction~~ enforcement history
history, the rating is considered to be low-average.

DRAFT

4. Safety Related Structures

The licensee is rated average.

During the evaluation period, the Senior Resident Inspector witnessed portions of the atmospheric hydrostatic test placed on the borated water storage tanks (BAST). The Senior Resident Inspector observed Quality Control and the Authorized Nuclear Inspector examine the tanks. The hydrostatic test was ~~acceptable and without complications~~ done in an acceptable manner. Although the hydrostatic test was completed without complications, loading of the BAST with ~~loaded with~~ water resulted in cracks developing in the valve pit area associated with these tanks. [illegible] the licensee's ability to [illegible] related to Seismic [illegible].

5. Piping and Hangers

The licensee is rated below average.

During the evaluation period, installation of large and small bore piping and pipe hanger systems (including storage of piping components) was examined and noted in seven different inspection reports of regularly scheduled inspection activities. Three of these inspections resulted in seven items of noncompliance and an isolated instance of inadequate dunnage in a temporary storage area. The following items of noncompliance indicate weakness in the implementation of the QA program.

1) Bechtel Purchase Order did not specify applicable codes for purchase of 60,000 pounds of E7018 electrode.

2) Bypass of an inspection hold point for pressurizer surge piping. (Unit 2 only).

3) Failure to install large bore pipe restraints, supports, and anchors in accordance with design drawings and specifications.

4) Failure of QC inspector to reject large bore restraints, supports and anchors that were not installed in accordance with design drawings and specifications.

5) Failure to prepare, review and approve small bore pipe and piping suspension system designs performed onsite in accordance with design control procedures.

6) Failure to adequately control documents used in site small bore piping design activities.

7) Failure of audits to include a detailed review of system stress analysis and to follow up on previously identified hanger calculation problems.

Also during the evaluation period, an Immediate Action Letter was issued on May 22, 1981, pertaining to the design control and issuance of drawings for the installation of small bore piping and support systems. Subsequent to the evaluation period, on July 27, 1981, a ~~Reverse Immediate Action Letter~~ was submitted by the licensee stating the actions to be taken to control modification to small bore piping drawings which do not have Committed Preliminary Design Calculations (CPDC).

Considering the above escalated enforcement action plus the enforcement history; the rating is below average.

6. Safety Related Components

The licensee is rated average.

During the evaluation period, NRC Inspectors observed alignment of reactor coolant pumps; installation of lower core support assembly guide blocks; installation of core support assembly vent valves and associated portions of quality documentation. The enforcement history consisted of two items of noncompliance and a Reverse Immediate Action Letter. All were issued as a result of NRC findings during the installation of the core support assembly vent valves.

The following is a summary of the items of noncompliance which culminated in ~~the Reverse Immediate Action Letter~~ a letter of understanding issued by the licensee on January 22, 1981. The ~~Reverse Immediate Action~~ letter of understanding stated that the Stop Work on assembly of core support assembly vent valves would remain in effect until procedures, personnel training and QA overview inspection plans are upgraded.

1) Failure to have an appropriate procedure for installation of vent valves.

2) Failure to follow access control procedures and account for items used in the assembly of the U/2 core support assembly vent valves on the equipment entry log.

Because the above enforcement ~~appeared to be~~ was aimed at an isolated instance and may have been directly related to changes in NSSS QC personnel changes ~~had on the part of the licensee~~ and because the licensee ~~had (and has)~~ maintained QA control for assembly of NSSS equipment (particularly reactor internals), the overall rating in this area is considered to be average.

7. Electrical

The licensee is rated below average.

During the evaluation period, two routine inspections and one team inspection were performed with a substantial portion of the inspection effort dedicated to the electrical area. Five other inspection periods addressed specific electrical items with one of these inspections addressing the in place storage condition of electrical equipments. As a result of the inspection effort dedicated to the electrical area, six items of noncompliance were identified. The inspection effort into the equipment storage conditions resulted in a single item of noncompliance with three examples --- two of these examples were electrical equipment.

It must be emphasized that there was essentially no electrical work being performed for more than six months into the evaluation period because of the need to perform more re-engineering. When electrical work resumed, it was done on a very ambitious schedule. However, it appears that not enough qualified QC personnel, rigorous QA audits and established procedural controls were invoked to avoid the following list of enforcement items.

1) Failure to establish procedures for temporary support of cable, cable coils --- and for routing cables.

2) Electrical contractors failed to verify conformance to paragraph 3.1, failure to perform adequate inspection.

3) Failure to identify and control nonconforming components.

4) Failure to translate design criteria into drawings and specifications.

8. Instrumentation

The licensee is not rated in this area. because

Minimal amount of instrumentation installation and subsequent inspection effort has occurred during this reporting period. ~~Those findings which have pertained to instrumentation are included in the electrical~~ section (Section 7). The NRC's most substantial finding pertained to the licensee's failure to translate design criteria into drawing and specifications by not identifying impulse instrument lines per IEEE-279-1971, Section 4.22.

To evaluate the licensee's performance in this area based on this one finding and considering the lack of effort in this explicit area would tend to unduly bias the overall evaluation of the licensee's performance. Therefore, no rating of the licensee is attempted in this area.

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9. Fire Protection

The licensee is rated above average.

During the evaluation period, the Senior Resident Inspector toured selected areas of the site each month to assess the cleanliness of the site and determine the potential for fire or other hazards which might have a deleterious effect on personnel and equipment. ~~The site has maintained an excellent safety record of which fire protection is a substantial portion of their overall program. Their multi-million man-hour safety records have been recognized by the safety departments of Bechtel and Consumers Power Company.~~

adequate during this SALP period.

because

Words to indicate no fires and has been attentive

The site has maintained an adequate safety record during this SALP period. A substantial portion of the site safety program is devoted to fire protection. The licensee ~~participates in~~ conducts weekly training and drills for the on site fire brigade and the fire brigade has consistently passed the ~~annual~~ quarterly drills imposed by the licensees insurance agency. Volatile chemicals are controlled and issued in small quantities in metal containers. ~~Waste~~ Uncontrolled Volatile chemicals oils, combustables and trash are not tolerated in an unclean and uncontrolled state. Fire hazards ~~were~~ were minimized during the evaluation period and the licensee has ~~developed~~ accrued a ~~one~~ million ~~Man~~ hour safety record.

10. Preservice Inspection

The licensee is rated average.

During the evaluation period, three routine inspections were performed to evaluate the ultrasonic testing (UT) of the reactor pressure vessels by South West Research Institute (SWRI) and the preservice inspection being performed by Babcock & Wilcox (B&W). The inspection effort revealed that adequate management controls existed for the inservice inspection program, procedures, and material and equipment. The licensee responses to I&E Bulletins was determined to be complete in this area. The data reports demonstrated that QA/QC audits and requirements are met. The qualifications and training of SWRI and B&W personnel was in accordance with SNT-TC-1A, 1975.

Considering the above performance and the overall effectiveness and the cooperative attitude of the licensee and NDE personnel, the licensee is considered average in the preservice inspection area.

DRAFT

7) Underrated Terminal Strips on Limitorque Operators.

8) Seismic model of Auxiliary Building has incorrect assumption that control tower and main portion of Auxiliary Building are an integral unit between elevation 614 and 659.

9) Borated Water Storage Tank Foundation stress cracks.

10) ITE Gould Class 1E equipment, unqualified cable used to wire equipment and/or controls.

11) Shear reinforcement at major containment penetrations.

12) Reactor Cavity cooling system.

During the evaluation period, the licensee failed to make a timely determination for the need to submit a 10 CFR 50.55(e) report to the NRC based on a 10 CFR Part 21 report from Transamerica Delaval, Inc. pertaining to diesel engine link rod clearances and this was identified by the NRC as an item of noncompliance. The licensee has taken positive actions to ensure that any safety related information received pertinent to the Midland Site is evaluated with respect to the impact on overall safety.

With regard to responses to items of noncompliance, the licensee has contested 9 of the 22 items of noncompliance written against areas other than HVAC system installation. Of the nine items contested by the licensee, the NRC agreed in two instances and removed the items of noncompliance. Of the twenty total items of noncompliances against the installation of HVAC systems (19 items in NRC Inspection Report No. 50-329/80-10; 50-330/80-11 and one item in NRC Inspection Report No. 50-329/80-21; 50-330/80-22) the licensee contested five items and the NRC agreed in two instances and removed the items of noncompliance.

It is realized that the licensee does have appeal rights on items of noncompliance, but when the licensee appeals over 40% (excluding HVAC system citations) and realizes a less than 10% success rate, it becomes apparent that the licensee's rebuttal lacks substance on a high percentage of the time. The licensee's inadequate responses delays an expedient resolution to the items of noncompliance and conveys a ~~vindictive~~ uncooperative attitude and ultimately affects the efficient operation of both the licensee and NRC and becomes a detriment to construction of a quality plant. Subsequent to the evaluation period, licensee management were invited to a meeting in the Regional Office ~~for~~ so the NRC could ~~to~~ explain their position on what constitutes an adequate response to noncompliances and subsequent corrective action.

Based on the questionable quality of the licensee's response to enforcement items, this area of corrective action and reporting is considered below average.

The following is a reference list of these items of non-compliance:

Section 2, Site Preparation and Foundations

a)

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12. Design and Design Changes

The licensee is rated below average.

During the evaluation period, three items of noncompliance were identified against 10 CFR 50 Appendix B, Criterion III, Design Control and one item against Criteria XVI, Corrective Action which was closely related to deficiencies in design control. ~~However,~~ These items of noncompliance have been addressed in other sections of this SALP Report. ~~The following is a summary of this enforcement action.~~ However, the common bond between these items of noncompliance is that each addresses inadequate design control.

1) ~~Discussed in~~ Section 2, Site Preparation and Foundations

(a) Failure to initiate preventive action to preclude repetition of not identifying design documents. ~~Reviewers were not reviewing the FSAR against references.~~

(b) Three examples of failure to translate applicable regulatory requirements and design criteria into design documents.

~~1. Failure to maintain a coordination log of specification change notices.~~

~~2. Failure to correctly translate SCM-9004 as a requirement into Rev. 20 of specification G-208.~~

~~3. Failure of EDPI 4.25.1, Rev. 8 to establish adequate measures to waive design interface requirements.~~

2) ~~Discussed~~ in Section 5, Piping and Hangers

Failure to prepare, review and approve small bore pipe and piping suspension system designs performed onsite in accordance with design control procedures.

3) ~~Discussed~~ in Section 7, Electrical

Failure to translate design criteria into drawings and specifications.

In addition to the enforcement items listed ~~discussed~~ above, an Immediate Action Letter was issued by the NRC pertaining to design control and issuance of drawings for the installation of small bore piping. This item was previously iterated in Section 5, Piping and Hangers.

Although the above items have been discussed in three other functional areas of this SALP report, the common bond between them is that each address inadequate design control.

Also, the following five 10 CFR 50.55(e) summaries, which were among the twelve Construction Deficiency Reports submitted, demonstrate ~~strongly suggest that~~ there ~~may~~ was a ~~blatant~~ lack of QA in design control and these instances ~~may~~ would have been licensee controllable.

1) High Energy Line Break Analysis (HELBA), steady state thrust forces rather than transient peak thrust forces were used in the energy balance techniques for the design of HELBA pipe whip restraints.

2) Component Cooling Water (CCW) Design, CCW system susceptibility to Loss of Coolant Accident (LOCA) induced failures.

3) Seismic model of Auxiliary Building has incorrect assumption that control tower and main portion of Auxiliary Building are an integral unit between elevation 614 and 659.

4) Borated Water Storage Tank Foundation stress cracks.

5) Shear reinforcement at major containment penetrations.

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Considering the above indicators which suggest questionable design control and the amount of re-engineering which has transpired in electrical, civil, and piping areas, the licensee's performance is rated as below average.

The fact that the licensee is able to often times identify design deficiencies through their audit programs and take appropriate action is commendable. However, these design deficiencies would not occur if there were more stringent control at the source of these design errors and deficiencies. ~~Therefore, the licensee is rated as below average in this area~~.

Therefore the below average rating may be attributed to ~~the inability of~~ allowing design deficiencies ~~at the~~ to ~~source during the~~ to leave the source of design.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

October 18, 1979

MEMORANDUM FOR:

R. C. Knop	R. Cook
D. W. Hayes	T. Vandel
D. H. Danielson	F. Jablonski
K. Naidu	E. Lee
G. Maxwell	G. Gallagher
W. Hansen	K. Ward
P. Barrett	I. Yin

FROM: G. Fiorelli, Chief, Reactor Construction and Engineering Support Branch

SUBJECT: MIDLAND CONSTRUCTION STATUS REPORT AS OF OCTOBER 1, 1979

The attached report was finalized based on your feedback requested in my memo of October 5, 1979. If you still feel adjustments are necessary please contact me. If you consider the report characterizes your current assessment of the Midland project, please concur and pass it along promptly.

G. Fiorelli, Chief
Reactor Construction and
Engineering Support Branch

Enclosure: As stated

cc: J. G. Keppler

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~~8406230075~~ 16pp.

MIDLAND SUMMARY REPORT UPDATE

Facility Data

Docket Number	- 50-329 and 50-330
Construction Permits	- CPPR-81 and CPPR-82
Permits Issued	- December 14, 1972
Type Reactor	- PWR; Unit 1, 492 MWe*; Unit 2, 818 MWe
NSSS	- Babcock and Wilcox
Design/Constructor	- Bechtel Power Corporation
Fuel Load Dates	- Unit 1, 4/82; Unit 2, 11/81
Status of Construction	- Unit 1, 54%; Unit 2, 61%; Engineering 82%

*Approximately one-half the steam production for Unit 1 is dedicated, by contract, to be supplied to Dow Chemical Corporation, through appropriate isolation heat exchangers.

Chronological Listing of Major Events

July 1970	Start of construction under exemption
9/29-30 & 10/1/70	Site inspection, four items of noncompliance identified, extensive review during CP hearings
1971 - 1972	Plant in mothballs pending CP
12/14/72	CP issued
9/73	Inspection at Bechtel Ann Arbor offices, five items of noncompliance identified
11/73	Inspection at site, four items of noncompliance identified (cadweld problem) precipitated the Show Cause Order
12/29/73	Licensee answers Show Cause Order commits to improvements on QA program and QA/QC staff
12/3/73	Show Cause Order issued suspending cadwelding operation
12/6-7/73	Special inspection conducted by RIII and HQ personnel
12/17/73	Show Cause Order modified to allow cadwelding based on inspection findings of 12/6-7/73

12/5/75	CP reported that rebar spacing out of specification 50 locations in Unit 2 containment
3/5 & 10/75	CP reported that 63 #6 rebar were either missing or misplaced in Auxiliary Building
3/12/75	RIII held management meeting with CP

8/21/75	CP reported that 42 sets of #6 tie bars were missing in Auxiliary Building
3/22/76	CP reported that 32 #8 rebar were omitted in Auxiliary Building. A stop-work order was issued by CP
3/26/76	RIII inspector requested CP to inform RIII when stop-work order to be lifted and to investigate the cause and the extent of the problem. Additional rebar problems identified during site inspection by NRC
3/31/76	CP lifted the stop-work order
4/19 thru 5/14/76	RIII performed in-depth QA inspection at Midland
5/14/76	RIII management discussed inspection findings with site personnel
5/20/76	RIII management meeting with CP President, Vice President, and others.
6/7 & 8/76	RIII follow up meeting with CP management and discussed the CP 21 correction commitments
6/1-7/1/76	Overall rebar omission reviewed by R. E. Shewmaker
7/28/76	CP stops concrete placement work when further rebar placement errors found by their overview program. PN-III-76-52 issued by RIII
8/2/76	RIII recommends HQ notice of violation be issued
8/9 - 9/9/76	Five week full-time RIII inspection conducted
8/13/76	Notice issued
10/29/76	CP responded to HQ Notice of Violations
12/10/76	CP revised Midland QA program accepted by NRR
2/28/77	Unit 2 bulge of containment liner discovered by licensee
4/19/77	Tendon sheath omissions of Unit 1 reported
4/29/77	IAL issued relative to tendon sheath placement errors
5/5/77	Management meeting at CP Corporate Office relative to IAL regarding tendon sheath problem

5/24/77	Special inspection by RIII, RI and HQ personnel to determine adequacy of QA program implementation at Midland site.
6/75 - 7/77	Series of meetings and letters between CP and NRR on applicability of Regulatory Guides to Midland. Commitments by CP to the guides was responsive.
7/24/78	Construction resident inspection assigned.
8/21/78	Measurements by Bechtel indicate excessive settlement of Diesel Generator Building. Officially reported to RIII on September 7, 1978.
12/78 - 1/79	Special investigation/inspection conducted at Midland sites, Bechtel Ann Arbor Engineering offices and at CP corporate offices relative to Midland plant fill and Diesel Generator building settlement problem.
2/7/79	Corporate meeting between RIII and CPC to discuss project status and future inspection activities. CPC informed construction performance on track with exception of diesel/fill problem.
2/23/79	Meeting held in RIII with Consumers Power to discuss diesel generator building and plant area fill problems.
3/5/79	Meeting held with CPC to discuss diesel generator building and plant area fill problems.
3/21/79	10 CFR 50.54 request for information regarding plant fill sent to CPC by NRR.
5/5/79	Congressman Albosta and aides visited Midland site to discuss TMI effect on Midland.
5/8-11/79	Mid-QA inspection conducted.

Significant Major Events

Past Problems

1. Cadweld Splicing Problem and Show Cause Order

A routine inspection, conducted on November 6-8, 1973, as a result of intervenor information, identified eleven examples of four noncompliance items relative to rebar Cadwelding operations. These items were summarized as: (1) untrained Cadweld inspectors; (2) rejectable Cadwelds accepted by QC inspectors; (3) records inadequate to establish cadwelds met requirements; and (4) inadequate procedures.

As a result, the licensee stopped work on cadweld operations on November 9, 1973 which in turn stopped rebar installation and concrete placement work. The licensee agreed not to resume work until the NRC reviewed and accepted their corrective action. However, Show Cause Order was issued on December 3, 1973, suspending Cadwelding operations. On December 6-7, 1973, RIII and HQ personnel conducted a special inspection and determined that construction activity could be resumed in a manner consistent with quality criteria. The Show Cause Order was modified on December 17, 1973, allowing resumption of Cadwelding operations based on the inspection results.

The licensee answered the Show Cause Order on December 29, 1973, committing to revise and improve the QA manuals and procedures and make QA/QC personnel changes.

Prehearing conferences were held on March 28 and May 30, 1974, and the hearing began on July 16, 1974. On September 25, 1974, the Hearing Board found that the licensee was implementing its QA program in compliance with regulations and that construction should not be stopped.

2. Rebar Omission/Placements Errors Leading to IAL

Initial identification and report of rebar nonconformances occurred during an NRC inspection conducted on December 11-13, 1974. The licensee informed the inspector that an audit, had identified rebar spacing problems at elevations 642' - 7" to 652' - 9" of Unit 2 containment. This item was subsequently reported per 10 CFR 50.55(e) and was identified as a item of noncompliance in reports Nos. 50-329/74-11 and 50-330/74-11.

Additional rebar deviations and omissions were identified in March and August 1975 and in April, May and June 1976. Inspection report Nos. 50-329/76-04 and 50-330/76-04 identified five noncompliance items regarding reinforcement steel deficiencies.

Licensee response dated June 18, 1976, listed 21 separate items (commitments) for corrective action. A June 24, 1976 letter provided a plan of action schedule for implementing the 21 items. The licensee suspended concrete placement work until the items addressed in licensee's June 24 letter were resolved or implemented. This commitment was documented in a RIII letter to the licensee dated June 25, 1976. Although not stamped as an IAL, in-house memos referred to it as such.

Rebar installation and concrete placement activities were satisfactorily resumed in early July 1976, following completion of the items and verification by RIII.

Additional action taken is as follows:

a. By the NRC

(1) Assignment of an inspector full-time onsite for five weeks to observe civil work in progress.

(2) IE management meetings with the licensee at their corporate offices

(3) Inspection and evaluation by Headquarters personnel

b. By the Licensee

(1) June 18, 1976 letter committing to 21 items of corrective action.

(2) Establishment of an overview inspection program to provide 100% reinspection of embedments by the licensee following acceptance by the contractor QC personnel.

c. By the Contractor

(1) Personnel changes and retraining of personnel.

(2) Prepared technical evaluation for acceptability of each identified construction deficiency.

(3) Improvement in their QA/QC program coverage of civil work (this was imposed by the licensee).

3. Tendon Sheath Placement Errors and Resulting Immediate Action Letter (IAL)

On April 19, 1977, the licensee reported, as a Part 50, Section 50.55(e) item, the inadvertent omission of two hoop tendon sheaths

from a Unit 1 containment concrete placement at elevation 703' - 7" due to having already poured concrete in an area where the tendons were to be directed under a steam line. The tendons were subsequently rerouted in the next higher concrete lift.

An IAL was issued to the licensee on April 29, 1977, which spelled out six licensee commitments for correction which included: (1) repairs and cause corrective action; (2) expansion of the licensee's QC overview program; (3) revisions to procedures and training of construction and inspection personnel.

A special QA program inspection was conducted in early May 1977. The inspection team was made up of personnel from RI, RIII and HQ. Although five items of noncompliance were identified, it was the concensus of the inspectors that the licensee's program was an acceptable program.

The licensee issued it's final report on August 12, 1977. Final review onsite was conducted and documented in report No. 50-329/77-08.

Current Problems

1. The licensee informed the RIII office on September 8, 1978, per requirements of 10 CFR 50.55(e) that settlement of the diesel generator foundations and structures were greater than expected.

   Fill material in this area was placed between 1975 and 1977, with construction starting on the diesel generator building in mid-1977. Review of the results of the RIII investigation/inspection into the plant fill/Diesel Generator Building settlement problem indicate many events occurred between late 1973 and early 1978 which should have alerted Bechtel and the licensee to the pending problem. These events included nonconformance reports, audit findings, field memos to engineering and problems with the administration building fill which caused modification and replacement of the already poured footing and replacement of the fill material with lean concrete.

   Causes of the excessive settlement include: (1) inadequate placement method - unqualified compaction equipment and excessive lift thickness; (2) inadequate testing of the soil material; (3) inadequate QC inspection procedures; (4) unqualified quality control inspectors and field engineers; (5) over reliance on inadequate test results.

The proposed remedial work and corrective action are as follows:

(1) Diesel Generator Building - apply surcharge load in and around building to preconsolidate the foundation material. Continue to monitor soil response to predict long-term settlement.

(2) Service Water Pump Structure - Install piles to hard glacial till to support that portion of the structure founded on plant fill material.

(3) Tank Farm - Fill has been determined to be suitable for the support of Borated Water Storage Tanks. Tanks are to be constructed and hydro tested while monitoring soil response to confirm support of structures.

(4) Diesel Oil Tanks - No remedial measure; backfill is considered adequate.

(5) Underground Facilities - No remedial work is anticipated with regards to buried piping.

(6) Auxiliary Building and F. W. Isolation Valve Pits - Installed a number of caissons to glacial till material and replace soil material with concrete material under valve pits.

(7) Dewatering System - Installed site dewatering system to provide assurance against soil liquidification during a seismic even

The above remedial measures were proposed to the NRC staff on July 18, 1979. No endorsement of the proposed actions have been issued to the licensee to date. The licensee is proceeding with the above plans.

The NRC activities, to date, include:

a. Lead technical responsibility and program review was transferred to NRR from IE by memo dated November 17, 1978.

b. Site meeting on December 3-4, 1978, between NRR, IE, Consumers Power and Bechtel to discuss the plant fill problem and proposed corrective action related to the Diesel Generator Building settlement.

c. RIII conducted an investigation/inspection relative to the plant fill and Diesel Generator Building settlement. Findings are contained in Report 50-329/78-20; 330/78-20 dated March 1979.

d. NRC/Consumers Power Company/Bechtel meetings held in RIII office to discuss finding of investigation/inspection of site settlement (February 23, 1979 and March 5, 1979).

e. NRC issue of 10 CFR 50.54(f) regarding plant fill dated March 21, 1979.

f. Several inspections of Midland site settlement have been performed.

The Constructor/Designer activities include:

a. Issued NCR-1482 (August 21, 1978)

b. Issued Management Corrective Action Report (MCAR) No. 24 (September 7, 1978)

c. Prepared a proposed corrective action option regarding placement of sand overburden surcharge to accelerate and achieve proper compaction of diesel generator building sub-soils.

d. Issued 10 CFR 50.55(e) interim report number 1 dated September 29, 1978.

e. Issued interim report No. 2 dated November 7, 1978.

f. Issued interim report No. 3 dated June 5, 1979.

g. Issued interim report No. 4 dated February 23, 1979

h. Issued interim report No. 5 dated April 30, 1979

i. Responded to NRC 10 CFR 50.54(f) request for information onsite settlement dated April 24, 1979. Subsequent revision 1 dated May 31, 1979, revision 2 dated July 9, 1979 and revision 3 dated September 13, 1979.

j. Meeting with NRC to discuss site settlement causes and proposed resolution and corrective action taken dated July 18, 1979. Information discussed at this meeting is documented in letter from CPCo to NRC dated August 10, 1979.

k. Issued interim report No. 6 dated August 10, 1979

l. Issued interim report No. 7 dated September 5, 1979

2. Review of Quality Documentation to Establish Acceptability of Equipment

The adequacy of engineering evaluation of quality documentation (test reports, etc.) to determine if the documentation establishes that the equipment meets specification and environmental requirements is of concern. The licensee, on November 13, 1978, issued a construction deficiency report (10 CFR 50.55(e)) relative to this matter. An interim report dated November 18, 1978 was received

and stated Consumers Power was pursuing this matter not only for Bechtel procured equipment but also for NSS supplied equipment.

3. Source Inspection to Confirm Conformance to Specifications

The adequacy of equipment acceptance inspection by Bechtel shop inspectors has been the subject of several noncompliance/nonconformance repor Consumers Power has put heavy reliance on the creditability of the Bechtel vendor inspection program to insure that only quality equipment has been sent to the site. However, the referenced nonconformance reports raise questions that the Bechtel vendor inspection program may not be effectively working in all disciplines for supplied equipment. Some significant examples are as follows:

(1) Decay heat removal pump being received with inadequate radiography. The pumps were returned to the vendor for re-radiography and repair. The pumps were returned to the site with one pump assembled backwards. This pump was again shipped to the vendor for reassembly. CPCo witnessed a portion of this reassembly and noted in their audit that some questionable techniques for establishing reference geometry were employed by the vendor. The pumps had been shop inspected by Bechtel.

(2) Containment personnel air lock hatches were received and installed with vendor supplied structural weld geometry which does not agree with manufacturing drawings. The personnel air lock doors had been vendor inspected.

(3) Containment electrical penetrations were received and installed with approximately 25% of the vendor installed terminations showing blatant signs of inadequate crimping. These penetrations were shop inspected by 3 or 4 Bechtel supplier quality representatives (vendor inspectors).

(4) 350 MCM, 3 phase power cable was received and installed in some safety related circuits with water being emitted from one phase.

(5) A primary coolant pump casing was received and installed without all the threads in one casing stud hole being intact. The casings were vendor inspected by both Bechtel and B&W.

Additional IE inspections will be conducted to determine if CP has thoroughly completed an overview of the Bechtel shop inspector's function and that equipment already purchased has been reviewed to confirm it meets requirements.

4. "Q" List Equipment

There have been instances wherein safety related construction components and their installation activities have not ~~been~~ identified on the "Q" list.

This shortcoming could have affected the quality of work performed during fabrication due to the absence of quality controls identified with "Q" list items. Examples of non-"Q" list activities identified which should be "Q" listed include:

Cable Trays
Components of Heating and Ventilation System

The licensee will be advised to review past as well as future construction activities to confirm that they were properly defined as "Q" list work or components.

5. Management Controls

a. Throughout the construction period CPCo has identified some of the problems that have occurred and reported them under the requirements of 10 CFR 50.55(e). Management has demonstrated an openness by promptly identifying these problems. However, CPCo has on repeated occasions not reviewed problems to the depth required for full and timely resolution. Examples are:

Rebar omissions (1974)
Tendon sheath location error (1977)
Diesel generator building settlement (1978)
Containment personnel access hatches (1978)

In each of the cases listed above the NRC in it's investigation has determined that the problem was of greater significance than first reported or the problem was more generic than identified by CPCo.

This incomplete wringing out of problems identified has been discussed with CPCo on numerous occasions in connection with CPCo's management of the Midland project.

b. There have been many cases wherein nonconformances have been identified, reviewed and accepted "as is." The extent of review given by the licensee prior to resolving problems is currently in progress. In one case dealing with the repair of airlock hatches, a determination was made that an incomplete engineering review was given the matter.

Inspection History

The construction inspection program for Midland Units 1 and 2 is approximately 60% complete. This is consistent with status of construction of the two units. (Unit 1 - 54%; Unit 2 - 61%). The licensee's QA program has repeatedly been subject to in-depth review by IE inspectors. The following highlight these inspections.

1. July 23-26, and August 8-10, 1973, inspection report Nos. 50-329/73-06 and 50-330/73-06: A detailed review was conducted relative to the implementation of the Consumers Power Company's QA manual and Bechtel Corporation's QA program for design activities at the Bechtel Ann Arbor office. The identified concerns were reported as discrepancies relative to the Part 50, Appendix B, criteria requirements.

2. September 10-11, 1973 report Nos. 50-329/73-08 and 50-330/73-08: A detailed review of the Bechtel Power Corporation QA program for Midland was performed. Noncompliances involving three separate Appendix B criteria with five different examples, were identified.

3. February 6-7, 1974, report Nos. 50-329/74-03 and 50-330/74-03: A followup inspection at the licensee's corporate office, relative to the items identified during the September 1973 inspection (above) along with other followup.

4. June 16-17, 1975, report Nos. 50-329/75-05 and 50-330/75-05: Special inspection conducted at the licensee's corporate office to review the new corporate QA program manual.

5. August 9 through September 9, 1976, report Nos. 50-329/76-08 and 50-330/76-08: Special five-week inspection regarding QA program implementation onsite primarily for rebar installation and other civil engineering work.

6. May 24-27, 1977, report Nos. 50-329/77-05 and 50-330/77-08: Special inspection conducted at the site by RIII, IE AND RI personnel to examine the QA program implementation onsite by Consumers Power Company and by Bechtel Corporation. Although five examples of noncompliance to Appendix B, Criterion V, were identified, the consensus of the inspectors involved was that the program and its implementation for Midland was considered to be adequate.

7. May 8-11, 1979, a mid-construction QA inspection covering purchase control and inspection of received materials design control and site auditing and surveillance activities was conducted by a team of inspectors. While some items will require resolution, it was concluded the program was adequate.

The licensee's Quality Assurance program has undergone a number of revisions to strengthen it's provisions. The company has expanded it's QA/QC auditing and surveillance coverage to provide extensive overview inspection coverage. This was done in 1975 with a commitment early in their experience with rebar installation problems and was further committed by the licensee in his letter of June 18, 1976, responding to report Nos. 50-329/76-04 and 50-330/76-04. This overview inspection activity by the licensee has been a positive supplement to the constructor's own program, however, currently our inspectors perceive the overview activities cover a small percentage of the work in some disciplines. This has been brought to the licensee's attention who has responded with a revised overview plan. RIII inspectors are reviewing the plan as well as determining it's effectiveness through observation of construction work. A specific area brought to the attention of the licensee was the lack of overview in the instrumentation installation area. The licensee has responded to this matter with increased staff and this item is under review by RIII inspectors.

The RIII office of inspection and enforcement instituted an augmented onsite inspection coverage program during 1974, this program has continued in effect until the installation of the resident inspector in July 1978.

Enforcement History

a. Noncompliance Statistics

Year	Number of Noncompliances	Number of Inspections	Inspector Hours Onsite
1976	14	9	646
1977	5	12	648
1978	18	23	1180
*1979 to date	7	18	429

A resident inspector was assigned to the Midland site in July 1978. The onsite inspection hours shown above does not include his inspection time.

*Through August 1979

b. An investigation of the current soils placement/diesel generator building settlement problem has revealed the existence of a material false statement. Issuance of a Civil Penalty is currently being contemplated.

Summary and Conclusions

Since the start of construction Midland has experienced some significant problems resulting in enforcement action. These actions are related (1) to improper placement, sampling and testing of concrete and failure of QA/QC to act on identified deficiencies in September 1970; (2) to drawing control and lack of or inadequate procedures for control of design and procurement activities at the Bechtel Engineering offices in September 1973; (3) to inadequate training, procedures and inspection of cadweld activities in November 1973; (4) to a series of RIII in-depth QA inspections and meetings which identified underlying causes of weakness in the Midland QA program implementation relative to embedments in April, May and June 1976. (The noncompliance items identified involved inadequate quality inspection, corrective action, procedures and documentation, all primarily concerned with installation of reinforcement steel); (5) to tendon sheath omissions in April 1977; and (6) to plant soil foundations and excessive settlement of the Diesel Generator Building relative to inadequate compacted soil and inspection activities in August 1978 through 1979.

Following each of these problem periods, the licensee has taken action to correct the problems and to upgrade his QA program and QA/QC staff. The most prominent action has been an overview program which has been steadly expanded to cover safety related activities.

The evaluation both by the licensee and IE of the structures and equipment affected by these problems (again except the last) has established that they fully meet design requirements.

Looking at the underlying causes of these problems two common threads emerge: (1) utilities historically have tended to over rely on A-E's (in this case, Bechtel) and (2) insensitivity on the part of both Bechtel and Consumers Power to recognize the significance of isolated events or failure to adequately evaluate possible generic application of these events either of which would have led to early identification and avoidance of the problem.

Admittedly construction deficiencies have occurred which should have been identified earlier but the licensee's QA program has ultimately identified and subsequently, corrected or in process of correcting these deficien

The RIII inspectors believe that continuation of (1) resident site coverage, (2) the licensee overview program, (3) the licensee's attention and resolution of identified problems in this report, (4) ceasing to permit work to continue when quality related problems are identified with construction activities and (5) a continuing inspection program by regional inspectors will provide adequate assurance that construction will be performed in accordance with requirements and that any significant errors and deficiencies will be identified and corrected.

Concurrence:					
	Knop	Hayes	Danielson	Naidu	Maxwell
	Hansen	Barrett	Cook	Vandel	Jablonski
	Lee #2.	Ward	Yin	Gallagher	Fiorelli

MIDLAND REPORT

The Midland Units 1 and 2 Status report for: (1) the manual chapter inspection program and enforcement history; (2) open items both unresolved and noncompliance items; (3) reportable deficiencies; and (4) significant events and problems; are included herein.

Manual Chapter Inspection Program

The module inspection program for the B program is considered to be approximately 50% complete for both units. The summary status is as follows:

Unit	Modules Complete	Modules Open	Modules to be Opened
1	24	33	36
2	27	30	36

The routine inspection modules program has not produced any significant number of enforcement items. In fact, comparison to other facilities, in a comparable construction and inspection status, indicates that most other facilities have experienced more noncompliance items (1976 thru 1978). The total number of noncompliances by years since the beginning of the project is tabulated as follows:

		Noncompliance Items		
Year	No. Reports	Both Units	Unit 1	Unit 2
1970	6	4		
1971[2/]	2	0		
1972[1/]	1	0		
1973[4/]	11	9		

1/ CP issued 12/14/72
2/ Mothball or stretchout status
4/ Show cause order December 1973

Year	No. Reports	Noncompliance Items Item ~~Both Units~~	Unit 1	Unit 2
1974	11	3		
1975[2/]	7	0		
1976[6/]	9	~~14~~ 14	~~14~~	~~14~~
1977[5/]	12 - 15	~~4~~ 4	~~4~~	~~5~~ 1
1978[3/]	16	~~10~~ 10	~~5~~	~~7~~

Status of Open Items

A deliberate effort has been undertaken, during 1978, to identify and complete the close out of all previously identified unresolved and noncompliance items. This was considered necessary because a number of old unresolved items were hidden within the text of old reports and even in one instance in the letter to the licensee, (primarily during a period 1972 - 1975) that had never been closed. It is noted that this was also a concern of the licensee. Presently the open status of unresolved and noncompliance items is as follows:

Unit	Unresolved	Noncompliance
1	2	5
2	3	6

Reportable Deficiencies

A listing of the more recent 50.55(e) reportable items and its current status appears below.

1. Decay heat removal pumps castings (radiography) Licensee followup regarding inadequate radiography was good, these pumps are now being reinstalled at the site . NRC considers this item closed.

3/ As of mid November
5/ Immediate Action Letter April 1977 regarding Tendon Sheaths
6/ Immediate Action Letter Re: Report 76-04

2. Reactor vessel surveillance capsule holder tube. This item is a generic item regarding B&W designed specimen holders located inside of the RPV. This item is considered closed with the understanding that the licensee will stay informed of the experiences of Davis-Besse (who also had the same change) for possible future problems.

3. Containment building personnel airlocks weld cracking. A final report had been received by RIII regarding the repairs to the cracked welds. Followup by RIII disclosed that the welding performed failed to follow the prescribed instructions of the controlling NRC. This was identified as a noncompliance item in a recent inspection report. The licensee indicated that a supplemental report will probably be issued in addition to the letter of response for the noncompliance item.

4. Unit 2 containment liner bulge. The design report, intended to be the final report, was issued at a meeting held in Ann Arbor the last of June 1977 attended by R. F. Heishman and R. E. Shewmaker. This report is still under review by Mr. Shewmaker. No response has everbeen sent to the licensee acknowledging the final report. The repair work was completed about the end of May 1978, however no review has been done by RIII pending response from Mr. Shewmaker.

5. Seismic cable tray supports welding. A final report has been received. Final review by RIII is yet to be done.

6. Undersized fillet welds on ITT-Grinnell safety related pipe hangers. Some of the final report has been done by the assigned Hangers and Snubbers Engineering inspectors, however, more review is planned.

7. Other reportable deficiencies in various stages of corrective action status by the licensee are as follows:

a. Reactor coolant pump motor flanges B&W and GE

b. Reactor building spray piping supports ITT Grinnell Bechtel

c. Design deficiency of the NI/RPS grounding B&W

d. Piping small break analysis not conservative B&W

e. Class 1E station battery racks Exide

f. Settlement of diesel generator building Bechtel

g. Components lack of qualification Bechtel

NRC Created Problems

Unanswered inquiries addressed to IE:HQ regarding components and material relative to a safety/nonsafety status as follows:

a. Failure to identify certain class 1E system components to be covered by Consumers Power's QA manual letter Spessard to Reinmuth April 28, 1978. Bechtel
Two ltrs. to NRR. Branching Concept

b. Classification of spent fuel pool liner plate presently classed as nonsafety related by Bechtel. Letter Danielson to Reinmuth June 1, 1978. Ltr. stating Non-Q coming from Reinmuth.

c. Apparent noncompliance with 50.55 a (h) regarding identification of components (color coding of electrical equipment and cables). Letter Spessard to Reinmuth dated May 3, 1978. Unresolved item

2. In ability to deal effectively with licensee regarding 50.55(e) items due to lack of support from IE:HQ. Examples:

   a. Unit 2 containment liner bulge design report and completion of repair. Headquarters personnel have been reviewing the report for 18 months now with no response.

   b. AWS D1.1 question regarding voltage/current requirements for welding. IE:HQ provided a position which appears questionable, then remains adamant without interest in resolving the problem.

Midland Facility Items

1. Significant Events

   a. Installation of the NSSS major components for both units was completed.

   b. The cooling pond was filled from spring run off water from the Tittabawassee river

   c. Both units passed the 50% completion mark during the year, as reported in the yellow book. This figure is considered to be conservative and the fuel load dates are considered to be obtainable.

   d. Consumers has added substantially to their QA/QC staff for the Midland project. This as allowed them appreciably to expand their own areas of coverage and details of review.

   e. RIII inspection coverage was expended by the assignment of a resident inspector.

2. Significant Problems

2. Significant Problems

A. Acceptability of equipment qualification tests and/or discrepancies in qualification test data review touches different kinds of equipment (mechanical & electrical) supplied by different vendors. This has been addressed by Electrical Support Inspectors and the licensee's recent 50.55(e) reportable item. The electrical inspectors believe it should rightfully cover all specification requirements. The involvement of the licensee expanding on this issue may have a limiting effect on the effectiveness of the mid QA inspection scheduled for January, 1979. This is considered the most urgent problem at Midland to date.

B. There is (and has been) a continued reliance on the credability of information on a Bechtel G321-D form which states that equipment has been shipped from the vendor in an acceptable manner. This reduces the depth of receipt inspection at the site. However, there are questions which pertain to the adequacy of the inspections performed at the vendor shops which result in materials being received at the site which do not necessarily meet all the requirements. This item may be tied to item 1 above.

C. Warehousing: Items are periodically being released from the warehouse without trackability and are stored in place without the preventative maintenance and equipment protection programs being triggered. There may be other problems in the warehousing and dissemination of material. An adequate mid-QA inspection is needed to identify weaknesses in the licensee warehousing programs and/or implementation of these programs.

D. CPCo management review of licensee QA inspector findings may not be as in depth as desired. Particularly on those items which may have a sedatory or long lead time affect on the plant integrity.

E. Settlement of the diesel generator building and all the ramifications associated with procuring and analyzing information which will ensure an adequate structure.

Distant Shear Wall

F. Bechtel's repeated failure to inspect adequately, without tunnel vision, in a timely manner results in failure to promptly identify (if at all) unacceptable areas.

G. Build then design syndrome Occassionally structures cannot be fitted to existing structures. The structure being placed is then altered from the original blue print with a change to the blue print made later. Rather than, the necessary engineering analyses being performed, the blue prints changed and then the structure being installed. Without assurance of a timely engineering review, proper placement (from a loading stand point) of structures and/or snubbers cannot be guaranteed.

Ron Cook

MIDLAND REPORT

The Midland Units 1 and 2 Status report for: (1) the manual chapter inspection program and enforcement history; (2) open items both unresolved and noncompliance items; (3) reportable deficiencies; and (4) significant events and problems, are included herein.

Manual Chapter Inspection Program

The module inspection program for the B program is considered to be approximately 50% complete for both units. The summary completing status is as follows:

Unit	Modules Complete	Modules Open	Modules to be Opened
1	28	28	36
2	25	32	35

The routine inspection module program has not produced any significant number of enforcement items. In fact, comparison to other facilities, in a comparable construction and inspection status, indicates that most other facilities have experienced more noncompliance items. The total number of noncompliances by years since the beginning of the project is tabulated as follows:

Year	No. Reports	Both Units	Unit 1	Unit 2
1970	6	4		
1971 2/	2	0		
1972 1/	1	0		
1973 4/	11	9		
1974	11	3		
1975 2/	7	0		

1/ CP issued 12/14/72.

2/ Mothball status or stretchout status

4/ Show cause order December 1973

Year	No. Reports	Both Units	Unit 1	Unit 2
1975[2/]	7	0		
1976[6/]	9		14	14
1977[5/]	12 - 15		~~18~~ 4	~~19~~ 5
1978[3/]	16		~~25~~ 7/5	~~28~~ 7/7

Status of Open Items

A deliberate effort has been undertaken during 1978 to identify and complete close out of all previously identified unresolved and noncompliance items. This was considered necessary because a lot of old unresolved items were hidden within the text of old reporting, and even in one instance in the letter to the licensee, (primarily 1972 - 1975) that had neither been treated as unresolved nor followed up. It is noted that this was also a concern of the licensee. Presently the open status of unresolved and noncompliance items is as follows:

Unit	Unresolved	Noncompliance
1	2	6
2	3	7

Reportable Deficiencies

A listing of the more recent 50.55(e) reportable items and its current status appears below.

1. Decay heat removal pumps castings (radiography) Licensee followup regarding inadequate radiography was good, these pumps are now being reinstalled at the site. NRC considers this item closed.

3/ As of Mid November

5/ Immediate Action Letter April 1977 regarding Tendon Sheaths

6/ Immediate Action Letter RE: report 76-04

7/ Two recent noncompliances identified by the C program.

2. Reactor vessel surveillance capsule holder tube. This item is a generic item regarding B&W designed specimen holders located inside of the RPV. This item is considered closed with the understanding that the licensee will stay informed of the experiences of Davis-Besse (who also has the same change) for possible future problems.

3. Containment building personnel airlocks weld cracking. A final report had been received by RIII regarding the repairs to the cracked welds. Followup by RIII disclosed that the welding performed failed to follow the prescribed instructions of the controlling NRC. This was identified as a noncompliance item in a recent inspection report. The licensee has indicated that a supplemental report will probably be issued in addition to the letter of response of the noncompliance item.

4. Unit 2 containment liner bulge. The design report intended to be the final report, was issued at a meeting held in Ann Arbor the last of June 1977 attended by R. F. Heishman and R. E. Shewmaker. This report is still under review by Mr. Shewmaker. No response has everbeen sent to the licensee acknowledging the final report. The repair work was completed about the end of May 1978, however no review has been done by RIII pending response from Mr. Shewmaker.

5. Seismic cable tray supports welding. A final report is pending which will provide the analysis and acceptance of welds by the designer.

6. Undersized fillet welds on ITT-Grinnell safety related pipe hangers. Some review of the final report has been done by the assigned Hangers and Snubbers assigned Engineering inspector, however more review is planned.

7. Other reportable deficiencies in various stages of corrective action status are as follows:

   a. Reactor coolant pump motor flanges

   b. Reactor building spray piping supports

   c. Design deficiency of the NI/RPS grounding

   d. Piping small break analysis not conservative

   e. Class 1E station battery racks

   f. Settlement of diesel generator building

   g. Components lack of qualification

Significant Events and Problems — Bechtel

1. Electrical components qualification question raised by the Engineering Support Inspectors as expanded by the licensee's reportable deficiency to include mechanical and electrical components. The problem as envisioned by the licensee covers the seismic and environmental qualification. The electrical inspectors believe it should rightfully cover all specification requirements. This broad area of concern would be a limitation to the effectiveness of the mid-QA inspection presently scheduled for mid January '79.

2. Unanswered inquiries addressed to IE:HQ regarding components and material relative to a safety/nonsafety status as follows:

   a. Failure to identify certain class IE system components to be covered by Consumers Power's QA manual letter Spessard to Reinmuth April 28, 1978.

   b. Classification of spent fuel pool liner plate presently classed as nonsafety related by Bechtel. Letter Danielson to Reinmuth June 1, 1978.

c. Apparent noncompliance with 50.55 a (h) identification of components. (Color coding of electrical equipment & cables) Letter Spessard to Reinmuth dated May 3, '78. regarding

3. In ability to deal effectively with licensee regarding 50.55(e) items due to lack of support from IE:HQ. Examples:

a. Unit 2 containment liner bulge design report and completion of repair. Headquarters personnel have been reviewing the report for 18 months now with no response.

b. AWS D1.1 question regarding voltage/current requirements. IE:HQ provided a position which appears questionable, then remains adamant without interest in resolving the problem.

4. Significant events for the past year include.

a. Installation of the NSSS components for both units was completed.

b. The cooling pond was filled from spring run off water

c. Both units % completion figures passed the 50% mark during the year

d. Consumers has added substantially to their QA/QC staff for the Midland project. This has allowed them appreciably to expand their own areas of coverage and details of review.

e. RIII coverage expended by the assigned resident inspector

5. The current problem areas include:

a. settlement of diesel generator building area

b. Components qualification

c. Bechtel repeatedly failing to inspect adequately and/or failing to identify unacceptable areas

50.55e: Status of

Laundry list of problem areas:

Electrical - wire ways need painting

Not after wire pulls.

Qualification on B+W pumps - decay ht. others

B+W random machining of RCS.

B+W fit of Rx internals

B+W never did a job this big.

E21 D form: Decay pumps.

Qualification on electrical cables and equipment - Fort Burnon -

Warehousing: Aux fd motor drivers

Building as built for structures

Reference lines for elevation off.

Procedures for handling equipment.

Testing of equipment.

Welding of structures around.

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Meeting at Midland to explain to CPCo/Bechtel QA the results of 1979-1980 SALP review by NRC

Bird, Cook, Keeley, Selby 12/22/80

- SALP -

CPCo - Average - middle of group without Zack

Significant events: Soils, bolts, coating, Zack

NRC sensative to Bechtel taking to much lead.

To much time arguing if the problems identified is a problem

Lack of timely stop work when bad things identified

Investigation of root cause of problems - Bolts } indicate
Soils } improve

NRC claims CPCo has not done enough doc. to convince NRC of things done.

CPCo unhappy some SALP meeting comments got into local news.

Lack of timely response.

Supply NRC with info Con - in timely manner

CPCo being evaluated by how personnel interface with NRC personnel.

" Cook stress do it right the first time.

When find problem either fix or stop

Going to bring SALP evaluation up next time.

LaSalle
Braidwood
Byron
Zimmer
} Comparative construction & inspection sites.

Qual test decay pump
Assembly decay pump
Radiograph decay ht pump
Info for technical manual
Cables
Foxboro

In City can believe. admit prob.

Selby: CPCo committed to build a quality plant
CPCo is responsable party
Midland is differente type plant - one of kind - process Sim.

// CPCo Cook & Selby presented the results of the NRC - SALP to QA personnel in a matter-of-fact Positive manner - Mr. Cook indicated to RIC after meeting that CPCo may not fully agree with all the NRC findings. However, CPCo disagreement with NRC findings did not come out during the Cook/Selby presentation to the QA personnel.

BWM
7/2/79

CP Co - Midland
QA Overview Program

The QA-PE&C overview activities started in June 1976 for rebar and in April 1977 for embeds. For all other civil, mechanical, welding, NDE, electrical, and instrumentation and controls, the overview program started at the end of June 1978 and was fully implemented by the end of March 1979 for activities then in progress. The overview program implemented between June 1978 and March 1979 was improved over that which was utilized in 1976 and 1977. The improvement consisted of review of Bechtel drawings, specifications, field procedures and quality control instructions for specificity, and of QA-PE&C's utilization of specific overinspection plans.

With regard to mechanical activities, from November 1978 to date, Bechtel closed 936 Quality Control Inspection Records (QCIRs), whereas in the same time period QA-PE&C performed 40 overinspections. Work in the mechanical area was well underway when the QA-PE&C overview program was started. Mechanical QCIRs had remained open for a long time and QA-PE&C had expressed concern about this because in some cases there were only minor inspections yet to be accomplished and in other cases the scopes of the QCIRs were too large. In response, during late 1978 and early 1979, Bechtel closed a large number of QCIRs for which almost all of the inspection was accomplished much earlier and for which there was little opportunity for a corresponding QA-PE&C overinspection. Thus, there is not a direct correlation between the 936 QCIRs closed from November 1978 to date and the 40 QA-PE&C overinspections performed during the same period. Furthermore, the most significant aspects of the mechanical work are the hydrostatic and pneumatic tests. Since October 1977,

all of the hydrostatic and pneumatic tests have been witnessed by QA-PE&C. The majority of this effort is not reflected in the QA-PE&C overinspection figure of 40 because hydrostatic and pneumatic tests are accomplished as a witness point in the Bechtel procedures.

With regard to welding, from November 1978 to date, Bechtel closed 2,690 QCIRs, whereas in the same period QA-PE&C performed 50 overinspections. The discussion about Bechtel QCIR closures, or lack thereof, in the preceding paragraph equally applies to the welding area. Furthermore, for all of Class 1 and Class 2 component and piping welds, radiographic examination is required with minor exceptions and the QA-PE&C review of the radiographs has been extensive as indicated below.

From June 1978 to the present, Bechtel originated 4,119 field radiographs and QA-PE&C has reviewed 704. For the same period, B&W originated slightly over 700 field radiographs and QA-PE&C has reviewed 700. B&W radiographs for primary systems are reviewed 100%, although not always in the same time frame as they originated. For other than the primary system, the QA-PE&C review is on a sampling basis. All 1,560 vendor radiographs received since December 1978 have been reviewed by QA-PE&C.

The electrical area can be further categorized as indicated in the following paragraphs.

For cable tray supports, Bechtel has closed approximately 200 QCIRs, whereas QA-PE&C has performed 13 overinspections.

For cable tray installations, Bechtel has closed 201 QCIRs, whereas QA-PE&C has performed 26 overinspections.

For conduit, junction boxes and their supports, Bechtel has closed approximately 500 QCIRs, whereas QA-PE&C has performed 26 overinspections.

For electrical penetration assemblies, Bechtel has closed 5 QCIRs, whereas QA-PE&C has performed 1 overinspection.

For the pulling of power cables, control cables and instrumentation cables, Bechtel has closed 331 QCIRs, whereas QA-PE&C has performed 75 corresponding overinspections (including 20 overinspections which were accomplished as part of audits). Of the 75 QA-PE&C cable pulling overinspections, 14 were for instrumentation cables.

For cable terminations, Bechtel has closed 853 QCIRs, whereas QA-PE&C has performed 63 corresponding overinspections.

The higher QA-PE&C emphasis on cable pulling in comparison to cable termination is attributable to the recognition that the cables essentially become inaccessible after the pulling, whereas the cable terminations are accessible and any defects are more detectable during checkout and preoperational testing.

For equipment installations, Bechtel has closed 10 QCIRs, whereas QA-PE&C has performed 15 overinspections. The reason for the excess of QA-PE&C over-inspections is that we have performed some in-process overinspections.

Q & The ratio of QA/C overinspections to work done.

Neither Bechtel QC nor QA-PE&C cover the instrumentation and controls activities utilizing a separate group-level organization. Both mechanical and electrical disciplines are necessary for adequate coverage. Furthermore, Bechtel's responsibility is to install the instrumentation, to run cable and tubing to the instrumentation, to terminate the cable, and to hook up the tubing. Consumers' personnel will perform calibration, loop checks, component tests, and system tests as part of our formal checkout and preoperational test program. These organizational arrangements are different from those previously experienced by Mr Ron Cook which included an I&C group within the inspection organization and the architect-engineer performed all of the precalibration through system testing activities.

Work is just beginning on I&C. For the electrical aspects of I&C, Bechtel has not closed any QCIRs. Nevertheless, QA-PE&C has performed 14 overinspections--the same 14 cable pulling overinspections mentioned above. For the mechanical aspects of I&C, none of the Bechtel QCIRs are closed. Nevertheless, QA-PE&C has completed 1 overinspection since the scope of this QA-PE&C overinspection plan is different from the scope of the Bechtel QCIR.

Overview:

1. What reviews are done
   percentage of closed QCIR's

2. What predicted parameters are
   going to be looked at

3. What is the advanced planning
   for overview

4. Do the ~~per~~ percentage of confidence
   predicted

5. Is the percent overview acceptable
   what is statistical confidence
   Do you even know
   More problems more overview

Areas: Mechanical Piping - address
surveillance points and numbers

I & C.