



**Consumers  
Power  
Company**

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Midland Project

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May 7, 1984

Mr. John J. Harrison, Chief  
Midland Project Section  
U.S. Nuclear Regulatory Commission  
Region III  
799 Roosevelt Road  
Glen Ellyn, IL 60137

MIDLAND ENERGY CENTER GWO 7020  
MIDLAND DOCKET NOS. 50-329, 50-330  
NOTES AND PRESENTATION MATERIAL FROM  
THE MARCH 22, 1984 MEETING  
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Attached are copies of the notes and presentation materials from the March 22, 1984 meeting held in Midland to discuss regulatory considerations relating to the Midland Nuclear Plant completion.

*Dean L. Quamme*

DLQ/BHP/dmh

cc: RJCook, Midland Resident Inspector  
DSHood, USNRC  
JGKepler, Regional Administrator, Region III

Dmb

PRINCIPAL STAFF			
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## MIDLAND ENERGY CENTER

## MEETING NOTES

Subject: Midland Nuclear Plant Completion Plan - Regulatory Considerations

Meeting Date: March 22, 1984

Location: Conference Room A & B - Bechtel Building

Attendees:

<u>CPCo</u>	<u>BPCo</u>	<u>NRC</u>
S H Howell	Sid Bernsen	Jim Keppler
J W Cook	J A Rutgers	Bob Warnick
D L Quamme	Bill Henry	J J Harrison
B H Peck	T Valenzano	Herb Livermore
D Taggart	J T Minor	Pat Hiland
B Palmer		Bruce Burgess
R J Landon		

Discussion:

- 1) J W Cook introduced the discussions and indicated that the purpose of the meeting was to provide a description of the status of the Construction Completion Program (CCP), discuss the lessons learned to date and describe the status of current studies underway to explore ways to complete the project in a more efficient and effective fashion. He noted that a number of changes have occurred in the project status since the CCP was formulated and initiated. As a result, CPCo management has concluded that some alternative approaches to the current CCP implementation procedures should be explored. A basic ground rule for these alternatives has been continuing compliance to the basic principles of the CCP.

- 2) Tim Minor and B. Palmer summarized the current status of Phase 1 activities and the experience to date. In general, program implementation and effectiveness is good - only small changes have been made as a result of experience feedback.
- 3) D L Quamme described the three issues that have identified through feedback and planning studies as:
  - There is a significantly greater work load for MPQAD quality control personnel during Phase 1 than that of the Bechtel engineering status assessment teams. This results in Bechtel teams completing their work in a specific plant area (or module) well in advance of the MPQAD quality verification and inspection status assessment completion in the same area. This will inhibit efficient use of the status assessment teams and delay resumption of the safety-related construction completion.
  - There is a lack of Q-related work in 1984. This issue results from the present planning which emphasizes completion of the reinspection of all Q-related work in plant areas prior to resuming Q-related construction in the specific area.
  - The release of Phase 2 work by module does not totally support the system turnover logic.

He then described potential solutions that are being considered by Consumers Power to deal with the preceeding issues. They were as follows:

1. Concerning the work imbalance between MPQAD and status assessment, solutions under consideration include:
  - a. Destatusing of inspection records for commodities which need to be reworked, replaced or deleted due to design changes. This would avoid duplicate reinspections or rework and inspections on items that will not remain as-is in the completed plan.
  - b. Decouple area-related commodities from system-related commodities and permit system release for Phase 2 work prior to verification of area-based commodities.
  - c. Perform quality verification on turned-over systems at a later date but prior to completion of functional testing.
2. Concerning the initiatives to perform more Q-related work in 1984, the following are being considered:
  - a. Perform pipe hanger completion following the hanger reinspection effort but prior to completion of Phase 1 within the module or area.
  - b. Similarly initiate installation of water-tight doors after reinspection of the adjacent area.  
  
(Note: Both a and b would require some correction and completion of interfacing commodities such as the associated piping and interfacing structures.)
  - c. Completion of electrical panels and terminations following the panel reinspection. Each panel could be thought of as a uniquely controlled area.



- d. Completion of electrical raceway and supports.
- e. Completion of instrument tubing.
- f. Repair, rework or replace as necessary items relating to disposition of nonconformance reports.

Solutions being considered to provide better support of the system turn-over logic include:

1. Utilization of special procedures, provided for in CCP, in system releases to support near term milestones prior to the completion of Phase 1.
2. Ultimately move to a total system release approach wherein systems or subsystems may be released for construction completion as soon as the status of the items to be released has been assessed, and quality of past work verified.

Quamme noted that some of the above items are already specifically addressed in the CCP. He further observed that all of the solutions identified conformed to the basic principles of the CCP and that process controls are in place to accomplish these additional work items in accordance with the provisions of the CCP.

- 4) T. Valenzano then proceeded to describe the process used to conduct the CCP Phase 1 activities and release of work for Phase 2. He also described the basic processes being applied to control ongoing construction does not make uninspected Q items inaccessible. He noted that the control processes and procedures currently in place appear adequate to accomplish the proposed activities within the framework of CCP. Only minor adjustments may be desirable to provide more efficient controls.

- 5) Following Valenzano's presentation, J W Cook summarized CP Company's short term program for conduct of the CCP which requires carrying out all activities under the present programs, training and procedures. After Consumers Power has completed the evaluations and reached conclusions from the Project Planning Review, selected initiatives would be reviewed as necessary with NRC prior to implementation.

He reiterated that all changes to existing procedures will be subject to a careful transition including management review, updated training and suitable process controls. Necessary changes to be recommended will meet the basic principles of CCP and also permit running the project with maximum effectiveness.

- 6) During the ensuing discussion, the following points were noted:

- The Commission's basic objective is to obtain confidence that the completed plant is built to the required quality standards. CCP should not be viewed as a "technical specification", in which each clarification requires revision and approval. The CCP recognizes that improvements would be identified and incorporated as experience was obtained.
- In discussing the large number of nonconformance reports anticipated from the reverification effort, Mr. Warnick noted that it should not be necessary to identify each specific example of a discrepancy if a single document can be used to identify and correct the condition. For example, if it is determined that a group of items are not longer conforming because of design changes, a single document identifying the items affected should be sufficient.

- Although there seems to be general agreement that the potential solutions discussed satisfy the basic principles of the CCP, some degree of clarification was considered necessary to assure a common interpretation.
- NRC expressed an interest in obtaining additional detail on the nature and significance of NCRs identified to date.

**MIDLAND NUCLEAR PLANT COMPLETION PLAN**  
**REGULATORY CONSIDERATIONS**

**CONSUMERS POWER COMPANY**

**MARCH 22, 1984**

**MIDLAND ENERGY CENTER COMPLETION PLAN**  
**REGULATORY CONSIDERATIONS**

**AGENDA**

- I. INTRODUCTION (J.W. COOK)**
- II. STATUS ASSESSMENT/QUALITY VERIFICATION PROGRAM (QVP)  
UPDATE (J.T. MINOR AND B. PALMER)**
- III. ISSUES (D.L. QUAMME)**
- IV. POTENTIAL SOLUTIONS (D.L. QUAMME)**
- V. PROCESS CONTROLS (T. VALENZANO)**
- VI. CONCLUSIONS (J.W. COOK)**



# **SECTION I**

## **INTRODUCTION**

# **MIDLAND NUCLEAR PLANT COMPLETION PLAN**

## **BACKGROUND**

- NEW SCHEDULE REQ'D -FALL '83
- PROJECT STATUS CHANGED:
  - CCP PROCEDURES
  - UNIT 1 DECOUPLING
- PROJECT PLANNING TEAM FORMED

- DATA BASE EXTENSIVE
  - TO-GO QUANTITIES
  - REWORK ASSUMPTIONS
  - UNIT RATES
- PROJECT SCHEDULE
  - BOTTOMS UP
  - INTEGRATED
- MAJOR UNCERTAINTIES
  - CCP ASSUMPTION VERIFICATION
  - FINANCIAL LIMITATIONS

## **CONSTRUCTION COMPLETION PROGRAM**

### **BASIC PRINCIPLES:**

- A. MANAGEMENT REVIEWS ARE SCHEDULED AND HELD OF (1) ACTIVITY PLANNING FOR VERIFICATION AND STATUS ASSESSMENT AND (2) RESULTS OF STATUS ASSESSMENT AND PLANNING PRIOR TO NEW WORK ACTIVITY.**
- B. A PROCESS IS IN PLACE TO ENSURE THAT NO EXISTING NON CONFORMANCES WILL BE COVERED UP BY NEW WORK ACTIVITIES.**
- C. PROCEDURES TO CONTROL WORK DEFINITION AND RELEASE INCLUDING DEFINITION OF INSPECTION REQUIREMENTS AND INSPECTION HOLD POINTS ARE IN PLACE.**
- D. INSPECTION AND CONSTRUCTION PERSONNEL INVOLVED MUST HAVE RECEIVED ALL REQUIRED TRAINING.**

# **SECTION II**

## **STATUS ASSESSMENT / QUALITY VERIFICATION PROGRAM (QVP) UPDATE**



**ACTUAL START OF**  
**PHASE 1**  
**STATUS ASSESSMENT ACTIVITIES**

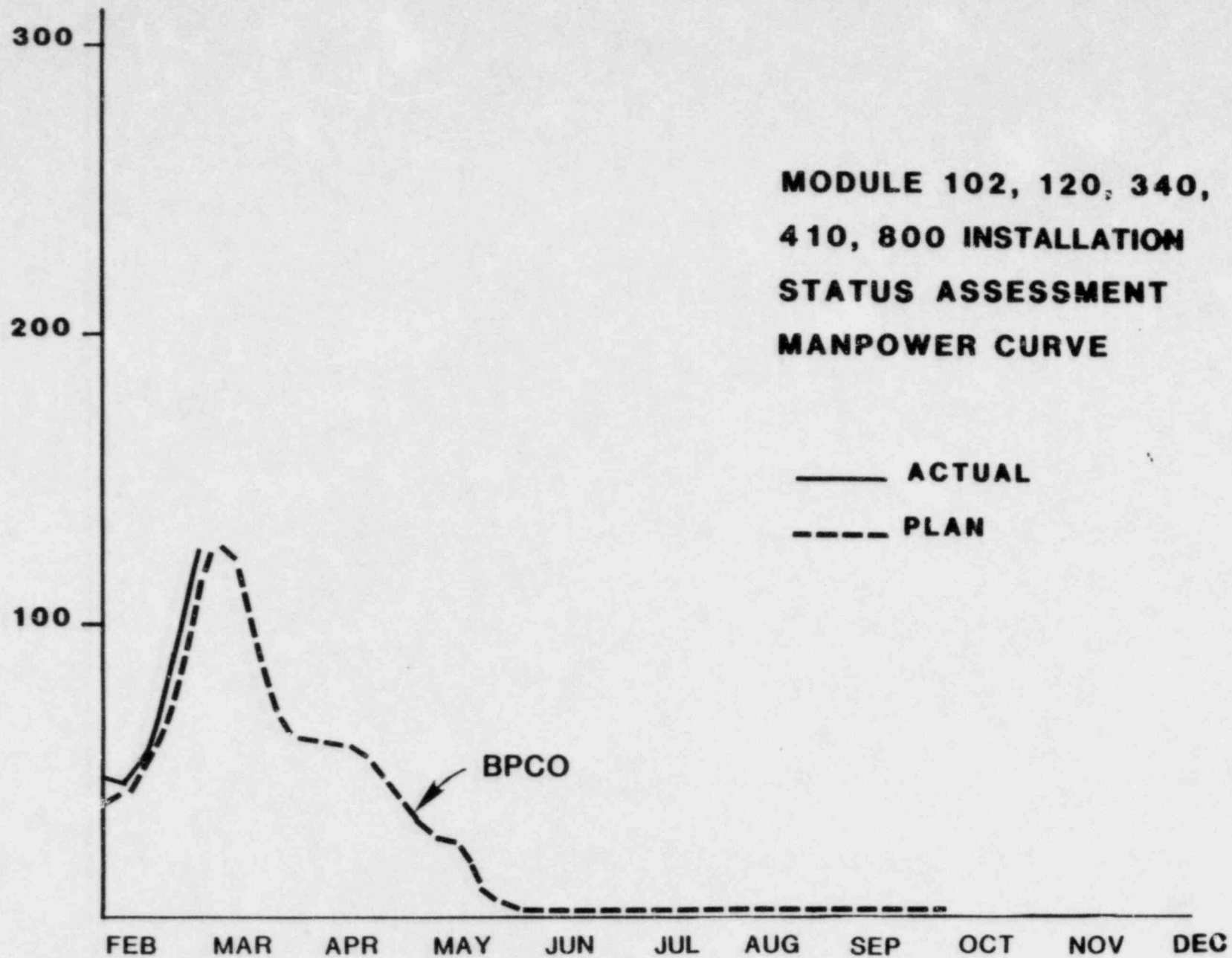
**DECEMBER 13, 1983**

**ARCHITECTURAL S/A MODULE 340**

# **INSTALLATION STATUS ASSESSMENT MANHOURS \*** **1ST FIVE MODULES**

<u>MODULE</u>	<u>CIVIL</u>	<u>MECH</u>	<u>ELECT</u>	<u>INSTR</u>	<u>TOTAL</u>
102	1080	5480	1800	180	8540
120	4090	5980	4080	710	14,860
340	11,490	4730	2470	990	19,680
410	20	0	0	0	20
800	750	30	1710	0	2490
<b>TOTAL</b>	<b>17,430</b>	<b>16,220</b>	<b>10,060</b>	<b>1880</b>	<b>45,590</b>
<b>EXPENDED THRU 3/9</b>					<b>15,000</b>

\* ROUNDED



INSPECTIONS INITIATED  
(BY COMMODITY)

<u>COMMODITY</u>	<u>FE STATUS ASSESSMENT</u>
Mechanical Instrumentation	X
Electrical Instrumentation	X
Mechanical Equipment (M-485)	X
Electrical Equipment (E-62)	X
Pipe Supports	X
Valves (Welded)	X
Valves (Mechanical)	-
Flued Heads	-
Pipe Welds	X
Pipe	X
Concrete Pipe	-
Cable Terminations	X
Electrical Containment	X
Penetration Assemblies	
Feed-Thru Adapter Modules	-
Batteries/Racks	-
Structural Steel & Framing	X
Platform	X
Equipment Supports	X
Shield Plates	X
Whip Restraints	X
Jet Impingement Barriers	X
Fuel Racks	-
Liner Plate	X
Liner Plate Attachments	X
Special Doors	X
Block Walls	X
Air Locks	-
Concrete	X

INSPECTIONS INITIATED (CONT.)  
(BY COMMODITY)

<u>COMMODITY</u>	<u>FE STATUS ASSESSMENT</u>
Concrete & Masonry Openings	X
Decontaminable Coatings on Concrete	X
Miscellaneous Q Coatings	X
Cable Tray	X
Conduit	X
Conduit Supports	X
Wireways & Supports	-
Trenches for Cable	-
Boxes & Supports	X
Cable Tray Supports	X
Slots	-

THRU 3/9

NCR'S IDENTIFIED 184



**TRAINING**  
**PHASE I**

	<b>APPROX. NO. OF PEOPLE</b>	<b>APPROX. NO. OF PROC., DWG. &amp; SPECS</b>
MECHANICAL	100	80
INSTRUMENTATION	10	60
ELECTRICAL	90	70
CIVIL	70	70
WELDING	40	40
	<hr/> 310	

TOOL BOX REVIEW SESSIONS FOR THE CRAFTS ..... 6

## **BECHTEL SELF-APPRAISAL TEAM (SAT)**

- **CONCEPT INITIATED OCTOBER 1983**

- **PURPOSE:**

**TO PROVIDE ADDITIONAL ASSURANCE TO BECHTEL MANAGEMENT  
THAT BECHTEL RESPONSIBILITIES ARE BEING PROPERLY CARRIED  
OUT**

- **SAT OPERATIONS:**

- **PROJECT FIELD ENGINEER (PFE) SELECTS/DIRECTS SAT**
- **MONITOR STATUS ASSESSMENT TEAMS PROGRESS**
- **PRIMARILY MODULE 340**
- **ADDITIONAL AREAS AS DETERMINED BY PFE OR HIGHER AUTHORITY**

# **SAT AREAS REVIEWED**

**(AS OF 3/5/84)**

- 1. CIVIL/ARCHITECTURAL (COATINGS)**
- 2. CIVIL (PIPE WHIP RESTRAINTS)**
- 3. ELECTRICAL (TERMINATIONS)**
- 4. ELECTRICAL (RACEWAY)**
- 5. INSTRUMENTATION**
- 6. MECHANICAL (HANGERS)**
- 7. MECHANICAL (PIPING)**
- 8. WELDING (PIPING AND HANGERS)**

# **SAT OBSERVATIONS**

**FIELD ENGINEERING/MPQAD INTERFACE**

**4**

**FORM COMPLETION**

**2**

**PROCEDURAL RE-EMPHASIS /CLARIFICATIONS**

**15**

**PROCESS EFFICIENCY/RECORD RETENTION**

**3**

## **SAT CONCLUSIONS**

- 1. STATUS ASSESSMENT PROCEEDING  
SATISFACTORILY**
- 2. SITE MANAGEMENT WILL CONTINUE  
SAT MONITORING OF STATUS  
ASSESSMENT TEAM ACTIVITIES**

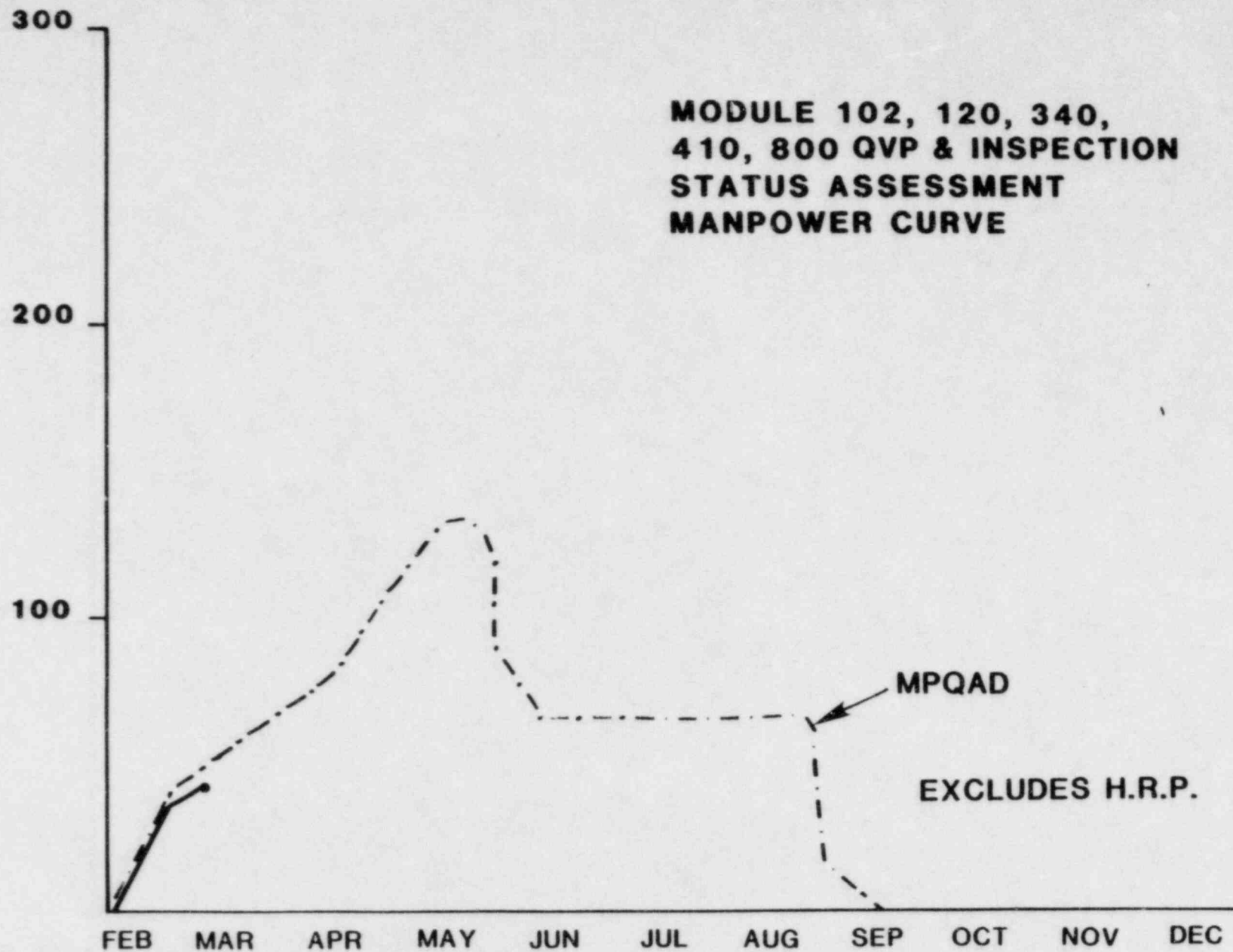


**QVP/SA MANHOURS \***  
**1ST FIVE MODULES**

<u>MODULE</u>	<u>CIVIL</u>	<u>MECH.</u>	<u>ELECT.</u>	<u>TOTAL</u>
102	5270	8930	7800	22,000
120	5270	9730	7770	22,770
340	31,170	30,430	7170	68,770
410	3550	2120	8200	10,930
800	880	2270	3930	7080
<b>TOTAL</b>	<b>46,140</b>	<b>53,480</b>	<b>31,930</b>	<b>131,550</b>
EXPENDED THRU 3/9				5300

\* ROUNDED

**MODULE 102, 120, 340,  
410, 800 QVP & INSPECTION  
STATUS ASSESSMENT  
MANPOWER CURVE**



INSPECTIONS INITIATED  
(BY COMMODITY)

<u>COMMODITY</u>	<u>QVP</u>
Mechanical Instrumentation	-
Electrical Instrumentation	X
Mechanical Equipment (M-485)	-
Electrical Equipment (E-62)	X
Pipe Supports	-
Valves (Welded)	X
Valves (Mechanical)	X
Flued Heads	X
Pipe Welds	X
Pipe	X
Concrete Pipe	-
Cable Terminations	X
Electrical Containment	-
Penetration Assemblies	-
Feed-Thru Adapter Modules	-
Batteries/Racks	-
Structural Steel & Framing	X
Platform	X
Equipment Supports	X
Shield Plates	-
Whip Restraints	X
Jet Impingement Barriers	X
Fuel Racks	-
Liner Plate	-
Liner Plate Attachments	-
Special Doors	X
Block Walls	X
Air Locks	-
Concrete	X

<u>COMMODITY</u>	<u>QVP</u>
Concrete & Masonry Openings	X
Decontaminable Coatings on Concrete	X
Miscellaneous Q Coatings	X
Cable Tray	X
Conduit	X
Conduit Supports	X
Wireways & Supports	X
Trenches for Cable	-
Boxes & Supports	X
Cable Tray Supports	-
Slots	-

THRU 3/9

NCR'S IDENTIFIED

133

MPQAD

INSPECTOR CERTIFICATION STATUS

CERTIFICATION GOAL (ALL WORK):

1,239 (ESTIMATE AS OF 2/22/84)

TOTAL NO. CERTIFICATIONS ACCOMPLISHED:

688 (AS OF 2/22/84)

$$\% \text{ GOAL ACCOMPLISHED} = \frac{688}{1239} \times 100 = 55.5\%$$

## **QVP ASSESSMENT TEAM**

- INITIATED DECEMBER 1983
- ESTABLISHED TO ASSESS ADEQUACY OF QVP CONTROLS
- TEAM COMPOSITION
  - QUALITY CONTROL
  - VERIFICATION PROGRAM MGMT GROUP
  - INSPECTION EVALUATION
  - QUALITY ADVISORS STAFF
  - PROJECT ASSURANCE ENGINEERING



## **AREAS REVIEWED**

- INSPECTION METHODS AND PROCEDURES
- USE AND CONTROL OF FORMS
- PROGRAM PROCEDURES
- COMPLIANCE WITH QVP DOCUMENT.
- REPORTS
- COMMUNICATION AND INTERFACES
- CONTROL OF ACTION ITEMS

## **QVP ASSESSMENT TEAM CONCLUSIONS**

1. QVP PROCESS IS PROCEEDING IN A  
SATISFACTORY MANNER
2. QVP ASSESSMENT TEAM REVIEWS  
WILL CONTINUE

# **SECTION III**

## **ISSUES**

## ISSUES

1. MPQAD PHASE I WORKLOAD MUCH GREATER THAN COMPLETION TEAM PHASE I SCOPE
2. LACK OF Q-RELATED WORK IN 1984
3. RELEASE BY MODULE DOES NOT TOTALLY SUPPORT SYSTEM TURNOVER LOGIC

# **SCHEDULE BASES** **PHASE I QUANTITIES/MANHOURS**

## **STATUS ASSESSMENT (BECHTEL SCOPE)**

## **QUANTITIES**

## **HOURS**

### **MECHANICAL**

LARGE PIPE

26,000 L.F.

6,500

LARGE PIPE HANGERS

3,500 EA.

23,000

SMALL PIPE

39,800 L.F.

9,500

SMALL PIPE HANGERS

6,200 EA.

27,000

MISC

4,000

S/T

70,000

### **ELECTRICAL**

TERMINATIONS

44,200 EA.

12,200

EQUIPMENT

300 EA.

3,800

S/T

16,000

### **INSTRUMENTATION**

TUBING

35,200 L.F.

7,000

### **RACEWAY**

SUPPORTS

6,700 EA.

40,000

COMMODITY LISTS DEVELOPMENT

-

11,000

51,000

### **AREA**

STRUCTURAL STEEL

1,340 TONS

20,100

PLATFORMS

460 TONS

18,300

WHIP RESTRAINTS & JET BARRIERS

320 EA.

6,500

BLOCKWALLS

290 EA.

6,900

MISC.

27,400

79,200

TOTAL 223,200

**SCHEDULE BASES  
PHASE I QUANTITIES/MANHOURS**

**STATUS ASSESSMENT (MPQAD SCOPE)**

ELECTRICAL  
MECHANICAL  
CIVIL  
HANGERS

SUBTOTAL

<u>TOTAL IR'S</u>	<u>TOTAL HOURS</u>
4,500	44,000
2,800	80,600
2,500	110,600
<u>1,500</u>	<u>14,500</u>
8,500	249,700

**QUALITY VERIFICATION PROGRAM (MPQAD SCOPE)**

ELECTRICAL  
MECHANICAL  
CIVIL

SUBTOTAL

39,750	211,500
64,000	147,000
<u>26,500</u>	<u>84,300</u>
128,250	442,800

**HANGER REINSPECTION PROGRAM (MPQAD SCOPE)**

HANGERS

	<u>5,800</u>	<u>110,600</u>
GRAND TOTAL	142,550	803,100



# **SECTION IV**

## **POTENTIAL SOLUTIONS**

## **POTENTIAL SOLUTIONS**

### **1. MPQAD PHASE I WORKLOAD MUCH GREATER THAN COMPLETION TEAM SCOPE**

- **DESTATUS INSPECTION RECORDS DUE TO DESIGN CHANGES TO AVOID DUPLICATE REINSPECTIONS**
- **DECOUPLE AREA COMMODITIES AND VERIFY INDEPENDENTLY FROM PHASE II SYSTEM RELEASE TO LEVELIZE WORK LOAD**
- **QVP ON TURNED-OVER SYSTEMS DONE PRIOR TO FUNCTIONAL TESTING**

# **POTENTIAL SOLUTIONS**

**(CONTINUED)**

## **2. LACK OF Q-RELATED WORK IN 1984**

- **PIPE HANGER COMPLETION FOLLOWING THE HANGER REINSPECTION EFFORT**
- **INSTALLATION OF WATER TIGHT DOORS**
- **COMPLETION OF ELECTRICAL PANELS AND TERMINATIONS**
- **COMPLETION OF ELECTRICAL RACEWAY AND SUPPORTS**
- **COMPLETION OF INSTRUMENT TUBING**
- **REPAIR/REWORK/REPLACE ITEMS RELATING TO DISPOSITION OF NCR'S**

## **POTENTIAL SOLUTIONS**

**(CONTINUED)**

### **3. RELEASE BY MODULE DOES NOT SUPPORT SYSTEM TURNOVER LOGIC**

- **UTILIZE SPECIAL PROCEDURES OF CCP FOR SYSTEM RELEASES  
TO SUPPORT NEAR-TERM MILESTONES**
- **TOTAL SYSTEM APPROACH**

# **POTENTIAL SOLUTIONS**

## **SUMMARY**

- **SOME ITEMS ARE ALREADY ADDRESSED IN THE CCP**
- **SOLUTIONS IDENTIFIED CONFORM TO THE BASIC PRINCIPLES OF THE CONSTRUCTION COMPLETION PROGRAM (CCP)**
- **PROCESS CONTROLS ARE IN PLACE TO ACCOMPLISH THESE ADDITIONAL WORK ITEMS IN ACCORDANCE WITH THE CCP**

# **SECTION V**

## **PROCESS CONTROLS**



# **PROCESS CONTROLS**

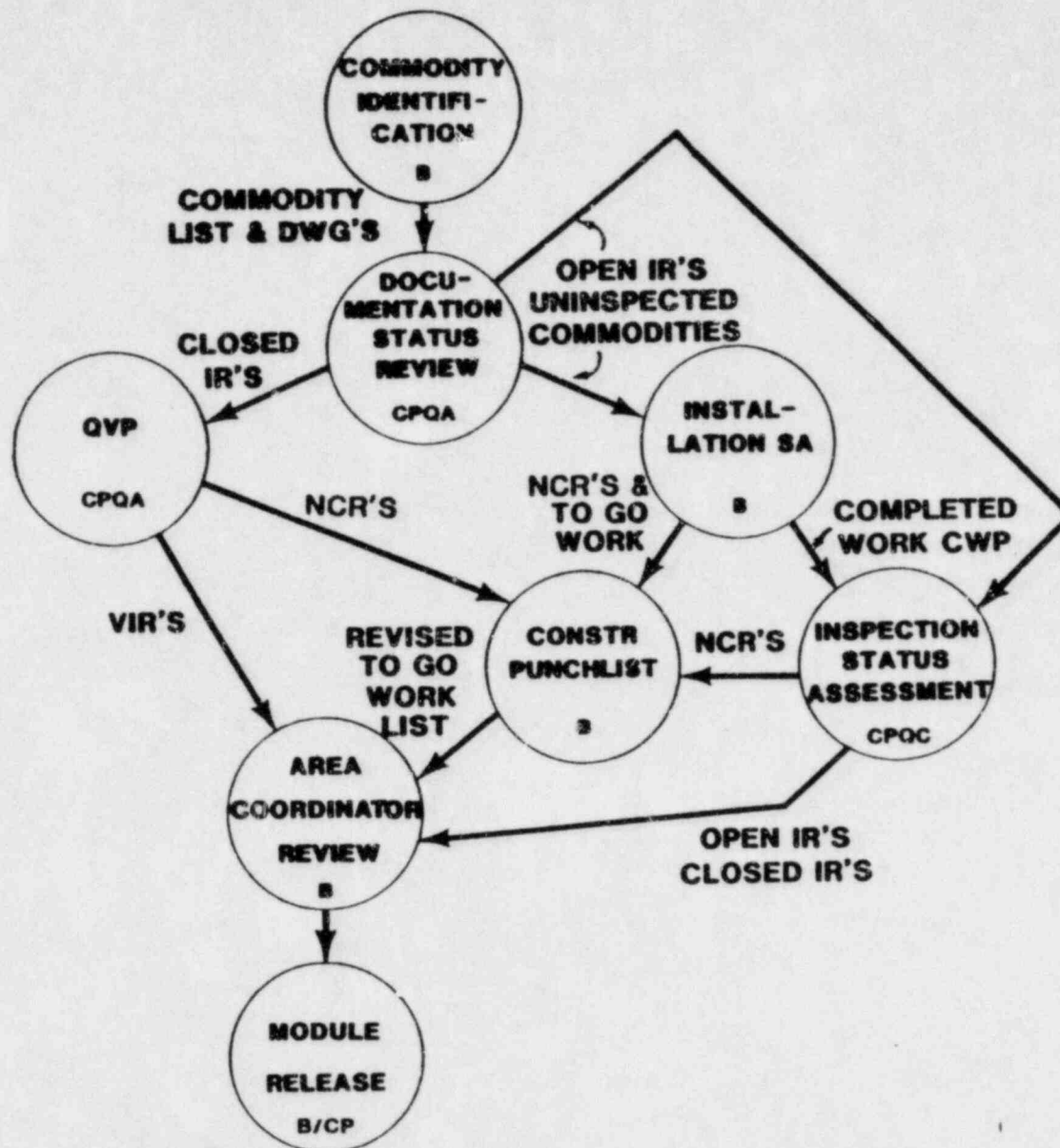
## **PHASE I PROCESS**

- **SCOPE**
- **STATUS**
- **PRODUCT**

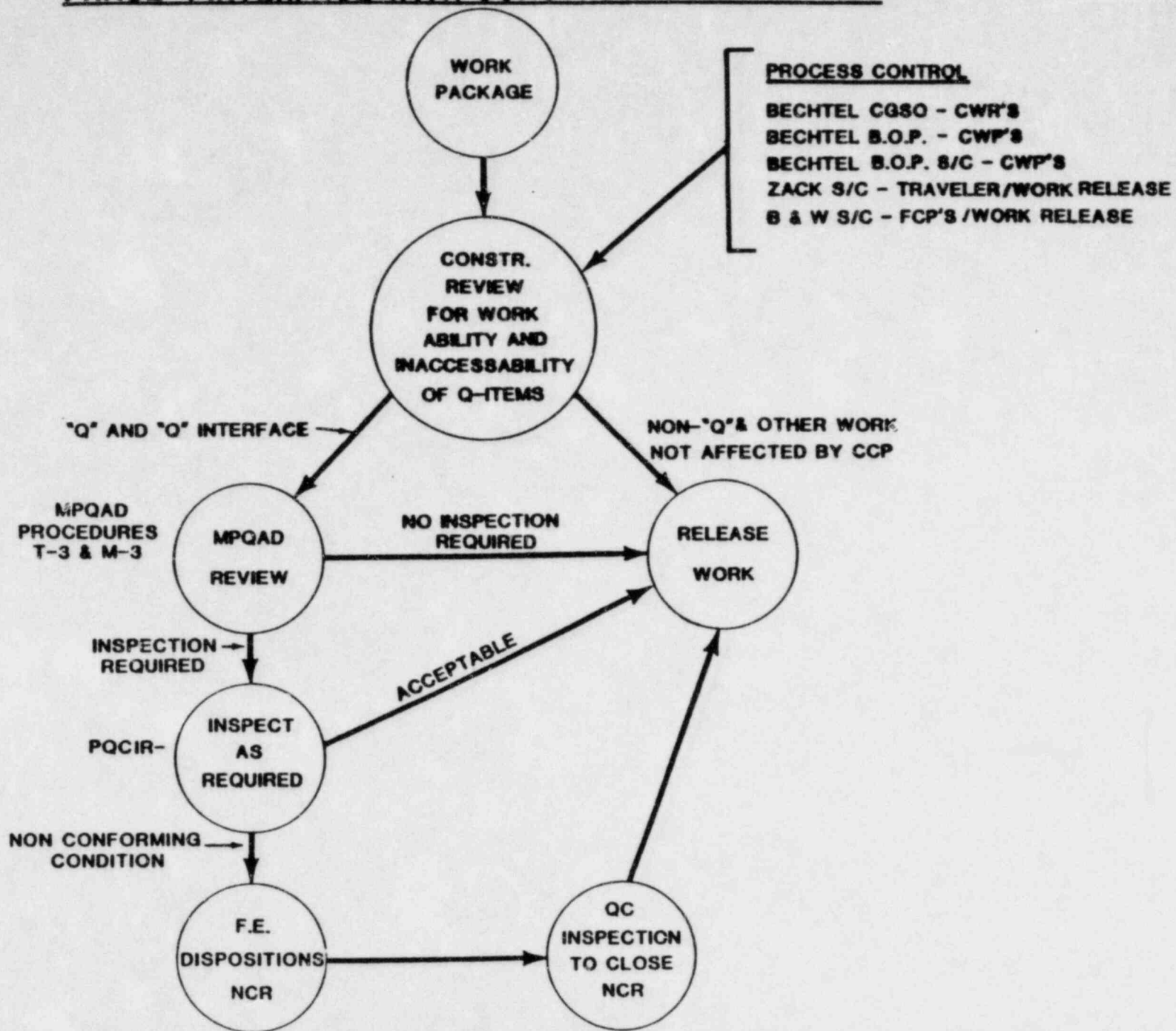
## **PHASE I INTERFACE WITH CONSTRUCTION ACTIVITIES**

- **IN ACCESSABILITY REVIEW**
- **NON CONFORMANCE INSPECTION**

## CCP PHASE I PROCESS



## PHASE I INTERFACE WITH CONSTRUCTION ACTIVITIES



## **CONCLUSIONS**

**THE CONTROL PROCESS AND PROCEDURES AS THEY CURRENTLY EXIST  
WITH MINOR ADJUSTMENTS ARE ADEQUATE TO ACCOMPLISH THE  
PROPOSED ACTIVITIES WITHIN THE FRAMEWORK OF CCP**

# **SECTION VI**

## **CONCLUSIONS**

## **CONCLUSIONS**

### **SHORT TERM PROGRAM :**

- **CARRY OUT ALL ACTIVITIES UNDER PRESENT PROGRAMS, TRAINING & PROCEDURES**
- **DEVELOP BASIS OF NRC, 3RD PARTY CONFIDENCE BY PROJECT PERFORMANCE**
- **COMPLETE EVALUATION & DEVELOP CONCLUSIONS FROM PROJECT PLANNING REVIEW**
- **CONTINUE TO REVIEW INITIATIVES INDIVIDUALLY IN DETAIL WITH NRC**



## **CONCLUSIONS**

ALL CHANGES TO EXISTING PROCEDURES WILL BE SUBJECT TO:

### **CAREFUL TRANSITION:**

- MANAGEMENT REVIEW
- PROCEDURE REVISION
- TRAINING
- PROCESS CONTROLS

CHANGES WILL BE RECOMMENDED AS NECESSARY - TWO CRITERIA:

- MEET CCP BASIC PRINCIPLES
- RUN PROJECT WITH MAXIMUM EFFECTIVENESS

## **CONCLUSIONS**

### **SHORT TERM MILESTONES:**

- **APRIL 10, 1984 BOARD OF DIRECTORS MEETING:  
SCHEDULE & COST CONCLUSIONS**
- **COST DETAILS MID-JUNE 1984:**
- **CASE LOAD FORECAST PANEL REVIEW**