

*CPC*

CRA	<i>ha</i>	PRP	
D/RA		DE	
A/RA		DRMSP	
RC		DRMA	
PAO		SCS	<i>orig + 3</i>
SGA		ML	
ENF		File	<i>to</i>

## DOCUMENTATION TRANSMITTAL

To: Stone & Webster - CIO  
PO Box 1963  
Midland, MI 48640

Transmittal No: CIO-0014  
Date: 3/20/84

329/330

Attention:

The documentation listed below X is provided herewith, was previously provided on \_\_\_\_\_; as requested by Jack Wicks.

## Documentation Description:

Minutes of Management Review for Construction Completion Plan Quality Verification Program, April 29, 1983, with attachments..

CIO    has X has not been placed on routine transmittal for the described documentation.

*B. Palmer*  
Signature

CC RJCook, NRC Site (w/a, unless voluminous)  
JJHarrison, NRC Region III (w/a, unless voluminous)  
DDJohnson, SMO (w/o)  
JGKeppler, NRC Region III (w/a, unless voluminous)  
BHPeck, SMO (w/o)  
NIReichel, SMO (w/o)  
RAWells, MPQAD (w/o)  
CMThompson - File 24.2 (w/a, unless voluminous)

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MINUTES OF MANAGEMENT REVIEW FOR  
CONSTRUCTION COMPLETION PLAN  
QUALITY VERIFICATION PROGRAM

April 29, 1983

Purpose and Agenda

The purpose of the meeting was to determine whether the Quality Verification Program (QVP) was ready for implementation as required by the principles of the Construction Completion Plan (CCP).

Information was presented and discussed according to the attached agenda.

Attendees

The CCP Management Team was present: J W Cook - Chairman  
J A Rutgers  
D B Miller  
R A Wells

Other attendees, including the third party COD staff, were as indicated on the attached attendance list.  
CIO

Discussion

A. Agenda Item II - Description of QVP: The details of the QVP were presented according to the information in Attachment 1. Significant discussion items were:

- 1) QVP needs to contain an approved project level definition of "Inaccessible Attribute" before implementation.
- 2) The list of PQCI/IRs needs to be verified.
- 3) Scheduling of initial qualification efforts needs to be coordinated with project schedule priorities.
- 4) Paragraph 5.9 of Appendix F, treatment of nonconforming conditions, needs to be fully discussed and clarified with project engineering.

- 5) The quality verification phase results need to be carefully analyzed and documented with full justification for treatment of any observed nonconforming conditions.
- 6) QVP findings should be appropriately trended and an adequate program in place prior to implementation of QVP. (Commitments made in response to INPO Construction Evaluation should be reviewed in this regard).
- 7) Issues associated with IPIN, DR and Attachment 10 should be resolved prior to implementation of QVP.
- 8) A determination needs to be made that drawings are current and acceptable prior to implementing the QVP, particularly noting redlines and attachments.

B. Agenda Item III - Implementation

Procedures required to support the QVP were discussed per Attachment 2. Significant discussion items were:

- 1) All QVP requirements, as well as other related project commitments, must be identified and procedures written as necessary.
- 2) QVP implementing procedures must be in place prior to QVP implementation.

C. Agenda Item IV: PQCI Review, Revision and Training

The process was explained per the information in Attachment 3 and 4. Significant discussion items were:

- 1) Need to verify method for establishing effectivity dates for PQCI including changes prior to QVP implementation.
- 2) Need to review Project Engineering's role in PQCI revision process prior to QVP implementation. (Note Ed Hughes letter 4/15/83).

- 3) Need to insure that PQCI signature process is clearly identified by procedure. (Note PQCI 4.10 issue noted in BHP 4/25/83 memo regarding NRC exit) prior to QVP implementation.
- 4) Verify requirement and accomplishment of Project Engineering sign-off on PQCI prior to training.
- 5) The ability to complete recertification of inspectors to new PQCI's by June 1 was questioned. Appropriate schedule status information will be provided to the CCP management team to track this activity.

D. Agenda Items I and VI - Organization and Manpower

These items were discussed per information in Attachments 5 and 6.

There were no open discussion items.

E. Agenda Item VII - Program Reviews

No attachment for this item

Significant discussion items were:

- 1) Determine whether a PQCI is needed for equipment in storage that has been receipt inspected prior to QVP implementation.
- 2) Need to determine if equipment previously received and installed requires verification in addition to ongoing programs. Determine if this needs to be included in QVP before implementation.
- 3) Ongoing programmatic reviews in design change control, design documentation control, receipt inspection, Q-ness and material traceability need not delay QVP implementation although the project should strive to resolve its position on material traceability before implementation.
- 4) Process inspection control should be established as appropriate prior to QVP implementation.



F. Agenda Item VIII - Project Coordination

No attachment for this item

Discussion indicated that although it was essential to coordinate QVP activities with project schedules that this coordination was not a part of the QVP itself. This coordination will be handled through other mechanisms.

G. Agenda Item X - Management Team Review

G. Slade and his team presented a detailed report which will be prepared and submitted to the CCP Management Team separate from these minutes. The general conclusion of the teams, however, was that the QVP was not ready for implementation at this time but that it should be presented to the NRC for their review.

H. Agenda Item XI - Project Management Conclusions

After consideration of the above information, the CCP Management Team concluded that:

- 1) The QVP should be finalized for presentation to the NRC.
- 2) QVP implementation should not occur at this time.
- 3) Action items need to be pursued per Attachment 7.

*Fay Alls*  
5/2/83

QVP MANAGEMENT REVIEW  
ACTION ITEMS

Attach 7

<u>ITEM</u>	<u>RESPONSIBLE INDIVIDUAL / (SUPPORT)</u>	<u>FORECAST COMPLETION DATE</u>
✓ 1. Define inaccessible attribute (A1)	B. Palmer (J. Norris or D. Harris)	5/04/83
✓ 2. Discuss nonconforming conditions with proj eng (A4)	R. Wells/J. Rutgers (Staff)	5/20/83
3. Set up trending program (A6)	B. Palmer (M. Curland)	5/13/83
✓ 4. Resolve IPIN, DR and Attachment 10 (A7)	R. Wells (B. Palmer, M. Curland)	5/06/83
✓ 5. Verify adequacy of drawings (A8)	B. Palmer	5/13/83
✓ 6. Identify QVP related commitments (B1)	B. Palmer (SMO)	5/13/83
✓ 7. Issue procedure (B2)	K. Gill	5/13/83
✓ 8. PQCI effectivity dates (C1)	H. Leonard	5/06/83
✓ 9. Review proj eng role in PQCI review (C2)	H. Leonard	5/06/83
10. Clarify PQCI approval process (C3 and C4)	H. Leonard	5/06/83
11. Provide schedule status to management (C5)	R. Wells	5/05/83
12. Determine need for PQCI for review of equipment in storage (E1)	B. Palmer (J. Norris or D. Harris)	5/13/83
✓ 13. Determine need for additional verifica- tion of equipment received and installed (E2)	B. Palmer (J. Norris or D. Harris)	5/13/83
14. Try to resolve material traceability (E3)	R. Wells (J. Rutgers)	5/20/83
15. Establish process inspection control (E4)	B. Palmer (M. Curland)	5/13/83
✓ 16. Finalize QVP (H1)	J. Norris (B. Palmer)	5/03/83
✓ 17. Initiate NRC discussions on QVP (H1)	R. Wells	5/04/83

① [Inspector Performance]

# AGENDA FOR MANAGEMENT REVIEW OF QUALITY VERIFICATION PLAN

- 4/29/83

- |     |  |                           |
|-----|--|---------------------------|
| I   | Introduction   | Wells                     |
| II  | Description of Plan  | Norris                    |
|     | <ul style="list-style-type: none"> <li>A. Scope</li> <li>B. Exceptions</li> <li>C. 100% Inspection</li> <li>D. Potential Exemptions from Plan</li> <li>E. Accessible/Inaccessible Attributes</li> <li>F. Initial Inspection Plan</li> <li>G. Sampling Concepts</li> <li>H. NRC Role</li> <li>I. Potential NRC Concerns</li> <li>J. Potential CP Co Concerns</li> </ul> |                           |
| III | Implementation   | Taggart                   |
|     | <ul style="list-style-type: none"> <li>A. Procedures                             <ul style="list-style-type: none"> <li>1. Status</li> <li>2. Schedule</li> </ul> </li> </ul>  |                           |
| IV  | PQCI Review and Revision   | Verderosa                 |
|     | <ul style="list-style-type: none"> <li>A. Process                             <ul style="list-style-type: none"> <li>1. QAE/QCE Roles</li> <li>2. Project Engineering</li> <li>3. Process Flow Chart</li> </ul> </li> <li>B. Training and Recertifying Process</li> <li>C. Schedule</li> </ul>   | <p>Ewert</p> <p>Ewert</p> |
| V   | Organization   | Wells                     |
|     | <ul style="list-style-type: none"> <li>A. QC Integration</li> <li>B. BCP-QA Realignment</li> <li>C. Verification Plan Responsibilities</li> </ul>  |                           |
| VI  | Manpower Needs and Plans   | Wells                     |
|     | <ul style="list-style-type: none"> <li>A. Manpower Curves</li> <li>B. Status</li> <li>C. Forecast</li> </ul>   |                           |
| VII | Programmatic Reviews   | Wells                     |
|     | <ul style="list-style-type: none"> <li>A. Impact on Quality Verification Plan</li> <li>B. Status</li> </ul>  |                           |

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## VIII Coordination with Project Schedules

Wells

- A. Priorities - SMO
- B. Impact of Sampling
- C. Option - 100% Inspection by Modules, to "Start".
- D. MPQAD Input
  - 1. Qualification Sample
  - 2. Verification Sample
  - 3. Coordination
    - Construction
    - Teams

## IX Recommendations

Wells

- A. Management Approval of Quality Verification Plan
- B. Submit QVP to NRC
- C. Continue Preparation for Implementation, considering findings from Management Audit

Write In Items

X Report of Management Review Group Activities

SLADE  
and Team

XI Project Management Conclusions

EXHIBITS

Procedures

Taggart

Training

Ewert

- Lesson Plan
- Class Review Form
- Policy
- Failure Evaluation(Example)
- Process Flow Chart

PQCI

Norris

- Old, with support documents
- New

Organization Chart

Wells

Manpower/Budget/Schedule

Wells

Quality Verification Plan

Norris

# Attendance List Management Review of QUP

4/29/83

DB Miller Jr  
C.D. Lundin  
Lew Zwissler  
Don Harris  
RA Wells

SMO  
SWEC  
MPQAD - MAC  
MPQAD - MAC  
MPQAD

HP LEONARD  
~~John Rutledge~~  
Juni Cook  
John Milandini  
DAVID F. ROKK  
GERARD SMOE

MPQAD  
~~Bentel~~  
CPL  
~~Bentel~~  
CPCO.  
CPCO.

David Jones  
David A. Tappert  
Gary F Ewert  
JOHN WOOD  
BRIEN PALMER  
FRED BEARHAN  
CARL RICHARDSON  
S.W. BARANOW  
RR Lee

A&MS - CPL  
MPQAD  
MPQAD  
MPQAD  
MPQAD  
SEW  
SWEC  
SWEC  
SMO - MAC

————— Raw



# QUALITY VERIFICATION PROGRAM

## PURPOSE:

TO CONFIRM THE ACCEPTABLE  
QUALITY STATUS OF SAFETY RELATED  
PROCUREMENT AND CONSTRUCTION ACTIVITIES  
COMPLETED PRIOR TO DECEMBER 2, 1982.

CPO QUALITY VERIFICATION PROGRAM

## SCOPE:

PRIOR COMPLETED INSPECTIONS OF  
SAFETY RELATED PROCUREMENT AND  
CONSTRUCTION

APPROXIMATELY 102,000 INSPECTIONS  
COVERED BY 84 PROJECT QUALITY  
CONTROL INSTRUCTIONS (PQCI's)

CPCO QUALITY VERIFICATION PROGRAM

EXCEPTIONS COVERED BY OTHER ACTIVITIES,

PIPE HANGERS AND SUPPORTS

CABLE ROUTING AND IDENTIFICATION

REMEDIAL SOILS

HEATING, VENTILATION, AIR CONDITIONING

BUILDING CONSTRUCTION ACTIVITIES.

## CPCo Quality Verification Program

### INSPECTION PLAN SUMMARY

INSPECT TO REVIEWED/REMOVED PQR'S

CLARITY OF ACCEPTANCE CRITERIA

UNIFORMITY OF RESULTS

INSPECT 100 PERCENT OF ITEMS WHERE

IR QUANTITIES ARE 100 OR LESS

INSPECT 100 PERCENT ONE OR MORE LOTS

WHERE IR QUANTITIES ARE IN EXCESS OF

100. ESTABLISH THAT INSPECTABLE ELE-

MENTS ARE AT LEAST 95 PERCENT ACCEPTABLE.

NOTIFY NRC OF ACTION TO BE

TAKEN ON BALANCE OF POPULATION

# CRPQ QUALITY VERIFICATION PROGRAM

## METHODOLOGY:

APPLIES TO ACCESSIBLE ATTRIBUTES  
AND TO DOCUMENTATION:

35 PQCL'S COVER ACTIVITIES

DEEMED INACCESSIBLE/NON VERI-

FIAOLE, E.G.

EMBEDDED REBAR

EXPANSION ANCHORS

SURVEILLANCE AND INPROCESS RECORDS

INACCESSIBLE ATTRIBUTES AS A MINIMUM WILL  
HAVE DOCUMENTATION REVIEWED.

CPCO QUALITY VERIFICATION PROGRAM

CPCO WILL 100 PERCENT REINSPECT CLOSED ILS  
WHERE QUANTITY PER POB/1 IS 100 OR LESS.

21 POB/1S ARE AFFECTED

9 POB/1S TOTALING 297 ILS  
HAVE HARDWARE DAMAGED  
ACCESSIBLE FOR INSPECTION

12 POB/1S TOTALING 454 ILS  
ARE DAMAGED TO HAVE INACCESSIBLE  
HARDWARE ATTRIBUTES AND WORK  
HAVE DOCUMENTATION ONLY REVIEWED.



## CPCO QUALITY VERIFICATION PROGRAM

PQCIS EACH HAVING MORE THAN 100 CLOSED  
IRS WILL HAVE PERFORMED SUFFICIENT REINSPECTIONS  
TO PROVIDE 95 PERCENT CONFIDENCE THAT 95 PERCENT  
OF INSPECTABLE ATTRIBUTES HAVE NO DEFICIENCIES.

27 PQCIS COVERING 99/96 IRS  
ARE INSPECTABLE FOR SOME PORTION  
OF HARDWARE ATTRIBUTES

27 PQCIS COVERING 10350 IRS  
ARE FOR DOCUMENTATION REVIEW ONLY

IN ADDITION DOCUMENTATION FOR E-4.0  
COVERING 7954 IRS WILL BE INCLUDED  
ACCESSIBLE HARDWARE ATTRIBUTES INSPECTED  
UNDER ANOTHER PROGRAM.

NOTE: SOME OF THE ABOVE MAY BE COVERED BY

IPN/DR REINSPECTION.

## CPCO QUALITY VERIFICATION PROGRAM

### SAMPLING QUALIFICATION

QUALIFICATION LOT AT LEAST EQUAL  
TO NORMAL SAMPLE SIZE FOR THE SPECIFIC

PVCI - IR POPULATION

INITIAL LOT TO PROVIDE CHRONOLOGICAL  
CROSS SECTION OF ENTIRE POPULATION

ANY SUBSEQUENT LOTS TO BE  
SEQUENCED BY TIME INTERVAL

LOTS AND SAMPLES SELECTED BY CLOSED  
IR SEQUENCE. INSPECTION AND ACCEPT-  
ANCE/REJECTION WILL BE BY ATTRIBUTE.

CPCO QUALITY VERIFICATION PROGRAM

## STATISTICAL SAMPLING PROGRAM.

APPLIES TO PQCL'S HAVING MORE THAN 100  
CLOSED IRLS

QUALIFICATION FOR SAMPLING BASED  
UPON 100 PERCENT INSPECTION OR ONE  
OR MORE LOTS DEMONSTRATING 95  
PERCENT ACCEPTABLE ATTRIBUTES WITH 95  
PERCENT CONFIDENCE.

SAMPLING BASED ON MIL-STD-105D

MOST WIDELY USED SAMPLING STANDARD  
SUGGESTED BY NRC TO ILLINOIS POWER.

## CPCO Quality Verification Program

STATISTICAL SAMPLING PROVIDES THE CAPABILITY TO PREDICT WITH A HIGH DEGREE OF CONFIDENCE THE OVERALL QUALITY OF AN ENTIRE POPULATION OR OF SUBDIVISIONS OF THAT POPULATION.

STATISTICAL SAMPLING DOES NOT HAVE THE CAPABILITY OF PREDICTING ZERO DEFECTS.

## CPCO QUALITY VERIFICATION PROGRAM

IDENTIFICATION OF LOTS - SELECTION OF SAMPLES

By CLOSED / R

FACILITATES IDENTIFYING POPULATION.

FACILITATES SELECTING SAMPLE.

PROVIDES INSPECTION OF A DISCRETE UNIT

PROVIDES ACCEPTANCE BY ATTRIBUTES

REQUIRES MORE INSPECTION THAN ATTRIBUTE POPULATION.

IDENTIFICATION OF LOTS - SELECTION OF SAMPLES

By INSPECTED ATTRIBUTES

INCREASES POPULATION SIZE.

REDUCES TOTAL INSPECTION

DIFFICULT TO ADMINISTER

# CPCO QUALITY VERIFICATION PROGRAM

## INSPECTION BY ATTRIBUTES

GO- NO GO INSPECTION OF SPECIFIC

CHARACTERISTICS.

FAILURE OF A SAMPLE REQUIRES 100%.

INSPECTION FOR DEFICIENT ATTRIBUTES.

ONLY.



90214486

## CPCo QUALITY VERIFICATION PROGRAM

41 PDCIS COVERING 99433 CLOSED  
INSPECTION RECORDS ARE DEEMED ACCESSIBLE.  
FOR SOME DEGREE OF HARDWARE VERIFICATION

SOME ATTRIBUTES MAY BE INACCESSIBLE  
WELD PREPS ON INSTALLED VALVES  
AND SPOOC PIECES.

CONCRETE PREPLACEMENT INSPECTIONS  
ON COMPLETED PLACEMENTS.

ACCESSIBILITY OF ATTRIBUTES DOES NOT INCLUDE  
REMOVAL OF PAINT OR INSULATION OR SUBSURFACE  
EXPLORATION OF PLACED CONCRETE.

## CPCO QUALITY VERIFICATION PROGRAM

### POTENTIAL NRC CONCERNS

PERCEPTION THAT CPCO 100 PERCENT INSPECTION OF LOTS IS IN FACT MERELY THE INITIATION OF SAMPLING.

QUESTIONS AS TO WHETHER MIL-STD-105D IS APPROPRIATE TO CPCO USE.

NRC HAS RECOMMENDED MIL-STD-105D FOR SIMILAR APPLICATION.

CPCO DEFINITION OF INACCESSIBLE DOES NOT INCLUDE REMOVAL OF PAINT FROM WELDS OR INSULATION FROM PIPE. IT DOES NOT INCLUDE ANY EXOTIC INSPECTION METHODS SUCH AS SONIC / ULTRASONIC LOCATION OF EMBEDDED REBAR, NOR DISASSEMBLY OF INSTALLED TENTS

## CPCO QUALITY VERIFICATION PROGRAM

### POTENTIAL CPCO CONCERNS.

#### QUANTITY OF REINSPECTION

INSPECTION BY LOTS  
PROVIDES SOME PROTECTION AGAINST  
INSPECTING ENTIRE POPULATION

REQUIRES MORE INSPECTION THAN  
SAMPLING ENTIRE POPULATION - BY  
A FACTOR OF 5.

95-95 REQUIREMENT OR NCR  
REQUIRES VERY HIGH QUALITY OR  
SAMPLED LOT/POPULATION OF 100%  
INSPECTION WILL RESULT.

STRINGENT SPECIFICATION REQUIREMENTS  
WILL FORCE 100% INSPECTION.

NCR DISPOSITIONS MUST CONSIDER AFFECT  
ON SAMPLING.

ACCEPT AS IS VS REWORK/REPAIR

REINSPECTING THE INACCESSIBLE

# INSPECTION POPULATION ANALYSIS

CLOSED IRS 12/2/82	149042
REINSPECTION IRS	- 14708
FIRST INSPECTION IRS	<u>134,334</u>
SOILS IRS	- 1202
CABLE REINSP IRS	- 7954
HANGER REINSP IRS	- 13517
IPIN/DR ASSOCIATED IRS	<u>- 9221</u>
IRS SUBJECT TO QVP	102,440
IRS QUANTITY < 100	751
	<u>101689</u>
QUALIFICATION INSPECTIONS	4077
OPTIMAL SAMPLING INSP. ALL LOTS	20434
PROJECTED INSP. ASSUMING 35% REJECT RATE	43123
PROJECTED INSP/IRS SUBJECT TO QVP	42.4%

POTENTIAL FOR ELIMINATING PIPE  
WELD REINSP. BASED UPON NO  
NOE REJECTS - CPCO OVERINSPECTION 31014

BASED ON SAMPLING THIS WOULD  
REDUCE PROJECTED INSP. 6.7%.

New Procedures to Support Verification

- N-1 Control of the Quality Verification Program Document
- N-2 Quality Verification Program Exceptions
- N-3 Quality Verification Organization Charter
- N-5 Verification Program - Purchased Items
- N-6 Processing of Third Party Identified Deficiencies
- ✓ N-11 Verification Program Sampling
- ✓ N-12 Inspection Verification
- N-13 Requests for Construction Services Support
- N-16 Reporting of Verification Results
- N-19 Construction Completion Monitoring Program

Summary of New MPQAD Procedures for Verification

<u>Procedure No.</u>	<u>Title &amp; Purpose</u>
N-1	<p>Control of the Quality Verification Program Document</p> <p>To establish the requirements and responsibilities for preparing, reviewing, approving, revising and distributing the Quality Verification Program Document.</p>
N-2	<p>Quality Verification Program Exceptions</p> <p>To establish the requirements and responsibilities for Midland Project Quality Assurance Department documenting and reporting exceptions to the Midland Quality Verification Program.</p>
N-3	<p>Quality Verification Organization Charter</p> <p>To define the charter of and the responsibilities for the Midland Project Quality Assurance Department Quality Verification Organization during Phase I Quality Verification activities.</p>
N-5	<p>Verification Program - Purchased Items</p> <p>To establish the requirements and responsibilities for the Midland Project Quality Assurance Department verification of the quality of purchased safety-related material and components.</p>
N-6	<p>Processing of Third Party Identified Deficiencies</p> <p>To establish the requirements and responsibilities for Midland Project Quality Assurance Department processing of corrective actions resulting from third party identified deficiencies.</p>
N-11	<p>Verification Program Sampling</p> <p>To establish the requirements and responsibilities for Midland Project Quality Assurance Department sampling of previously accepted items for verification by reinspection.</p>
N-12	<p>Inspection Verification</p> <p>To establish the requirements and responsibilities for Midland Project Quality Assurance Department verification of the acceptability of previously accepted items by reinspecting the items or reevaluating the Inspection Records of the selected items.</p>



Procedure No.

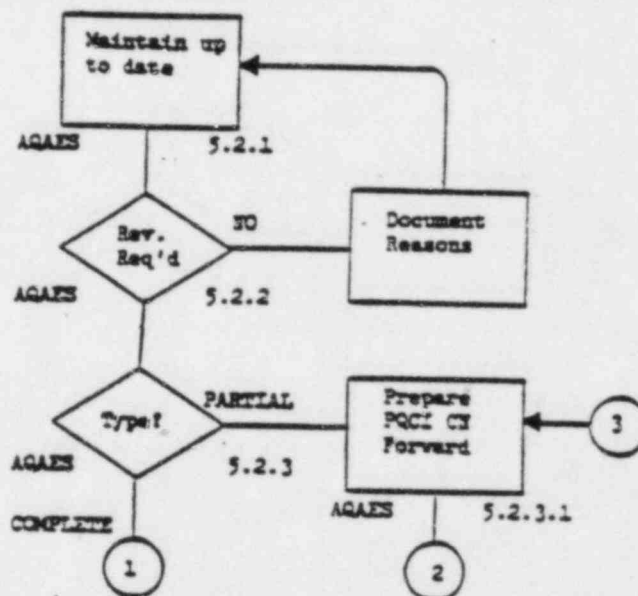
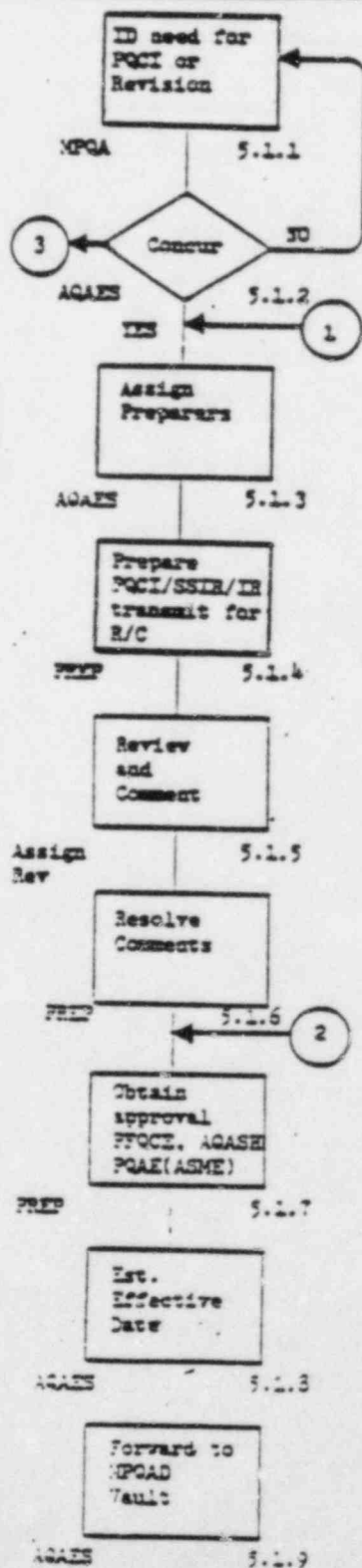
Title & Purpose

N-13	Requests for Construction Services Support  To establish the requirements and responsibilities for requesting Construction Services support.
N-16	Reporting of Verification Results  To establish the requirements and responsibilities for providing verification reports on the Midland Project Quality Assurance Department Quality Verification Program.
N-19	Construction Completion Monitoring Program  To establish the requirements and responsibilities for Midland Project Quality Assurance Department monitoring of the CP Co Construction Completion Program.

Basis to Evaluate and Update Verification Procedures  
(2nd Phase Development)

- Finalized Quality Verification Program Document  
(Assume final 4/29/83)
- CP Co Serial Letter 22027 dated April 22, 1983
- Results & Recommendations from Management Review  
Conducted April 27-29, 1983
- Recent Organizational Changes to Support Verification

PREPARATION AND APPROVAL OF  
PROJECT QUALITY CONTROL INSTRUCTIONS



LEGEND

- MPOAD - MPOAD REPRESENTATIVES
- PFOCE - PROJECT FIELD QC ENGINEER
- AGASH - GAE GROUP SUPERVISOR
- PREP - DESIGNER PREPARER(S)
- PQAE - PROJECT QUALITY ASSURANCE ENGINEER
- AGASH - APPROPRIATE QA SECTION HEAD
- ASSIGN REV - ASSIGNED REVIEWER

# PQCI REVISION OBJECTIVES

- A) All attributes important to the safety and reliability of specific components, systems, and structures are identified for verification.
- B) Accept/reject criteria are clearly identified.
- C) Appropriate controls, methods, inspection and/or testing equipment are specified.
- D) Requisite skill levels are required per ANSI N45.2.6 or SNT-TC-1A.

# PQCI REVISION TEAM MAKE UP

Quality Assurance Engineering (QAE),  
Quality Control Engineering (QCE), and  
Training

# PQCI REVISION

## TEAM MEMBER RESPONSIBILITIES

QAE - overall technical/programmatic responsibility - "Project Manager" for the effort.

QCE - verification of the "workability" of the PQCI from an inspection viewpoint.

- overall inspection expertise input.

Training - verification of the "trainability" of the PQCI.

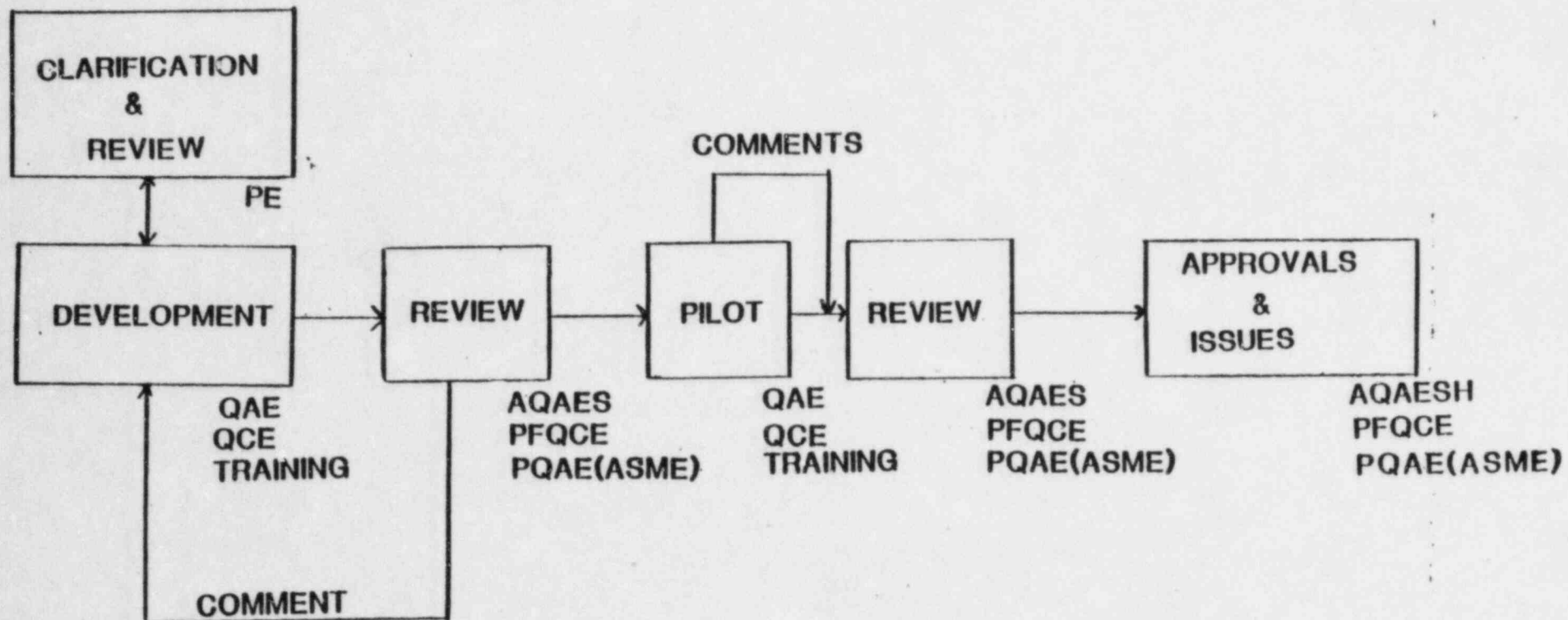


# PROJECT ENGINEERING EVALUATION

- A) Resolving any problems with inspection criteria identified during the PQCI generation process - including the generation of inspection criteria document changes, as required.
- B) Verification that the PQCI does, in fact, include all attributes important to the safety and reliability of the subject inspection area.
- C) Verification that the PQCI does not contain extraneous criteria not important to the safety and reliability of the subject inspection area.

# PQCI FLOW CHART

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# PQCI E-6.6

## INSPECTION ACTIVITY 2.5<sub>a,i</sub>

### BEFORE

2.5 Inspect flanged installation connections for:

- a. Correct orientation
- b. Correct bolting material
- c. Correct O-rings
- d. Proper matching of bolt holes
- e. Gasket surfaces free of damage
- f. Bolt threads and nut washer faces are not lubricated
- g. Uniform contact over entire flange area
- h. Threads fully engaged and nut face, facing the flange
- i. Bolts have been properly tightened (torqued or elongated to the correct values in accordance with the required sequence).

NOTE: Record torque, torque wrench identity number and calibration due date on the Flange Bolting Record.

E-20-102  
para. 3.6

1(V)  
1(V)  
1(V)  
1(V)  
1(V)  
1(V)  
1(V)  
1(V)  
1(M)

Flange  
Bolt Inq  
Record  
QCI-2B

# PQCI E-6.6

## ACTIVITY 2.14

### NOW

- 2.14 Assure that the bolts/nuts have been torqued to the values listed below. Through bolts must be torqued in a diametrically opposite sequence.

NOTE: Record torque, torque wrench identity number and calibration due date on the Flange Bolting Record.

7/8" Bolt/Nut - 500 inch-pounds minimum/42 foot-pounds  
 1 1/4" Bolt/Nut - 2,800 inch-pounds minimum/235 foot-pounds  
 Cap Screw - 1,200 inch-pounds/100 foot-pounds  
 Cap Screw Nut - 600 inch-pounds/50 foot-pounds

Hold Point: QCE must be present during the torquing of bolts.

E 20-102

3.6.4.3.4

3.6.3.3.4

Appendix "D"

W

Hold

Point

Flange Bolting

Record

7220/100 18

# PQCI E-6.6

## INSPECTION ACTIVITY 2.12

### NOW

- 2.12 Verify that the following bolting material was used connecting the header plate to the flange. Location of lock and flat washers shall be as shown in attachment "A". Bolts may be oriented in either direction.

E 20-102 1(V)  
 3.6.3.3.4 (H)  
 3.6.4.3.4  
 FIG 3-3  
 FIG 3-13

Medium Voltage: Bolt - 1 1/4" (coarse thread)x6.25" long  
 Nut - 1 1/4"  
 Flat & Lock Washer  
 12 Bolts Required

Low Voltage: Bolt - 7/8" (coarse thread)x4.5" long  
 Nut - 7/8"  
 Flat & Lock washer  
 9 Bolts Required

PQCI NO. E2.0 REV. 12

PQCI TITLE: INSTALLATION OF CABLE TRAY AND WIREWAY

A) REF. DESIGN DOC. NO. 1 E-42 REV. 58  
B) REF. DESIGN DOC. NO. 1 REV.  
C) REF. DESIGN DOC. NO. 1 REV.

TO: Project Engineer, P.A. DEPT.

RESPONSE DUE DATE: 5/12/83

TENTATIVE MEETING DATE: 4/12/83

NOTE: RDD NO. = REF. DESIGN DOC. NO. = A or B or C

ITEM NO.	RDD NO.	COMMENT	ITEM NO.	RDD NO.	RESPONSE
2	A	SHEET BA NOTE 1B SPECIFIES THE SPACING FOR SCREWS FOR CABLE TRAY SEPARATORS. THE TOLERANCES GIVEN ARE VERY RESTRICTIVE AND DO NOT ALLOW CLOSER SCREW SPACING. IF A SEPARATOR IS 7'-5" LONG IT CAN NOT BE INSTALLED AND MEET THIS CRITERIA	2	A	REVISE SH. BA NOTE 1B AS FOLLOWS: SPACING OF SCREWS SHALL BE A MAXIMUM OF 3'-0" ± 2" WITH A SCREW LOCATED NOT MORE THAN TWO RUNGS FROM EACH END OF THE SEPARATOR. DCN WILL BE ISSUED BY 4-29-83

ORIGINATOR: Eric R. Bachman DATE: 4/18/83

RESPONDANT:

DATE: / /

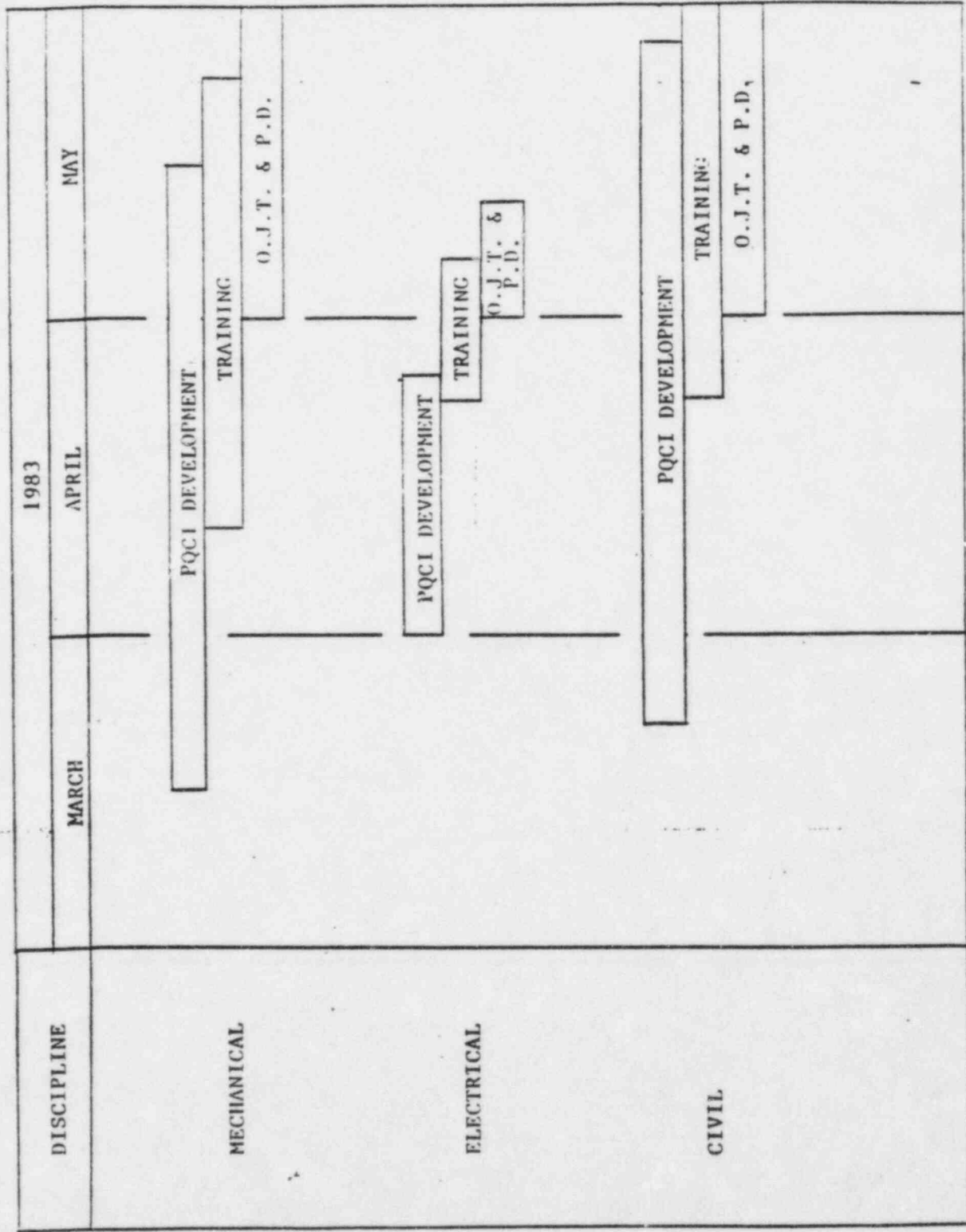


EXHIBITS  
TRAINING AND RECERTIFICATION  
PROCESS

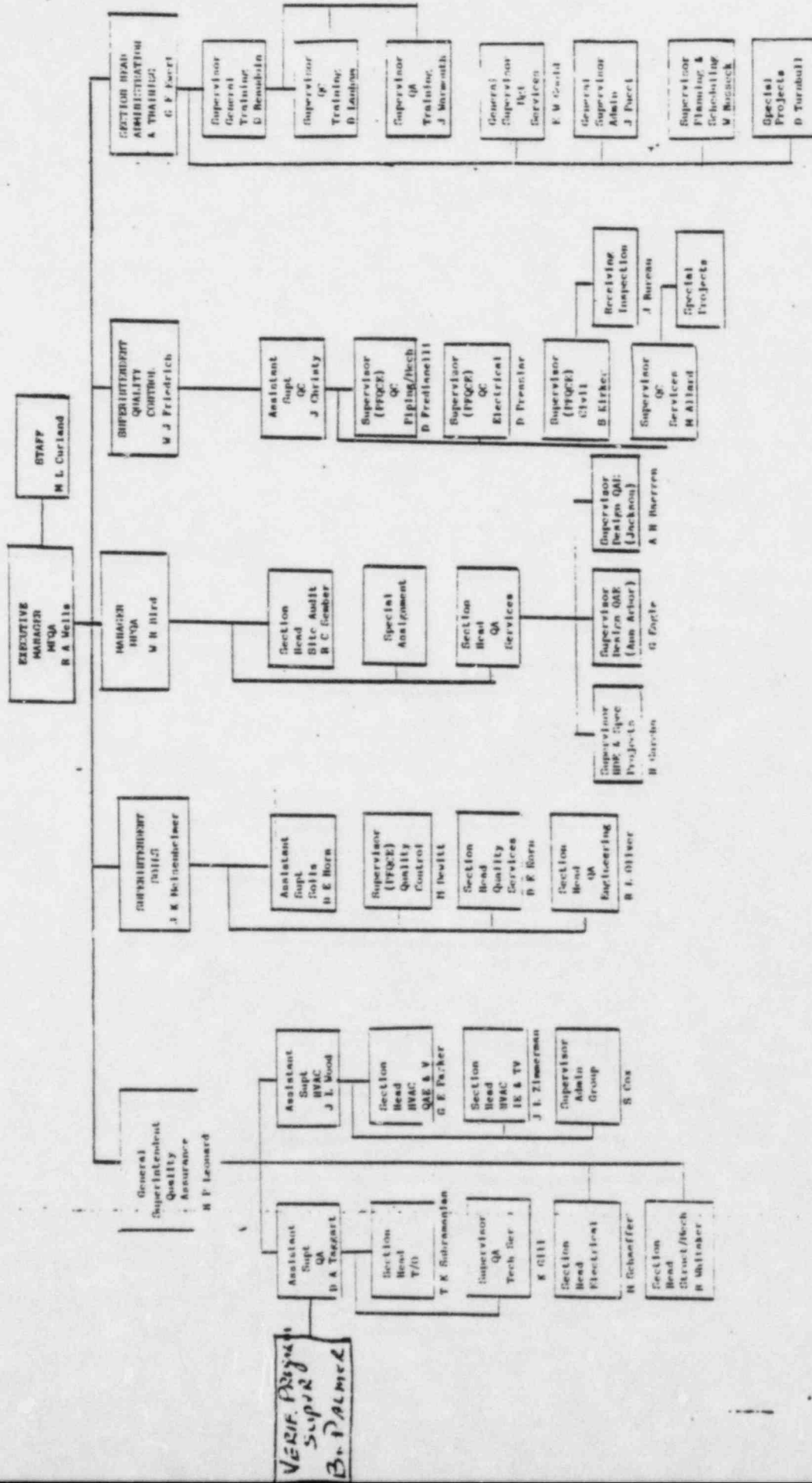
<u>EXHIBIT #</u>	<u>DESCRIPTION</u>
1	Flow chart
2	Policy
3	Course Evaluation
4	Exam Evaluation
5	Evaluation Summary
6	Failure Review
7	Unresolved Questions
8	E-3M Lesson Plan
9	Completed Evaluation Sheets
a	PQCI P-2.30 Training
b	B-3M-1 & PSP G-1.1 Revision Training
10	Status of Training

BALANCE OF PLANT  
PROJECT QUALITY CONTROL INSTRUCTION  
DEVELOPMENT AND TRAINING SCHEDULE

BASE LINE SCHEDULE  
APRIL, 1983



4/29/63  
GPA



VERIF. Prgm  
SUPER  
B. PALMER

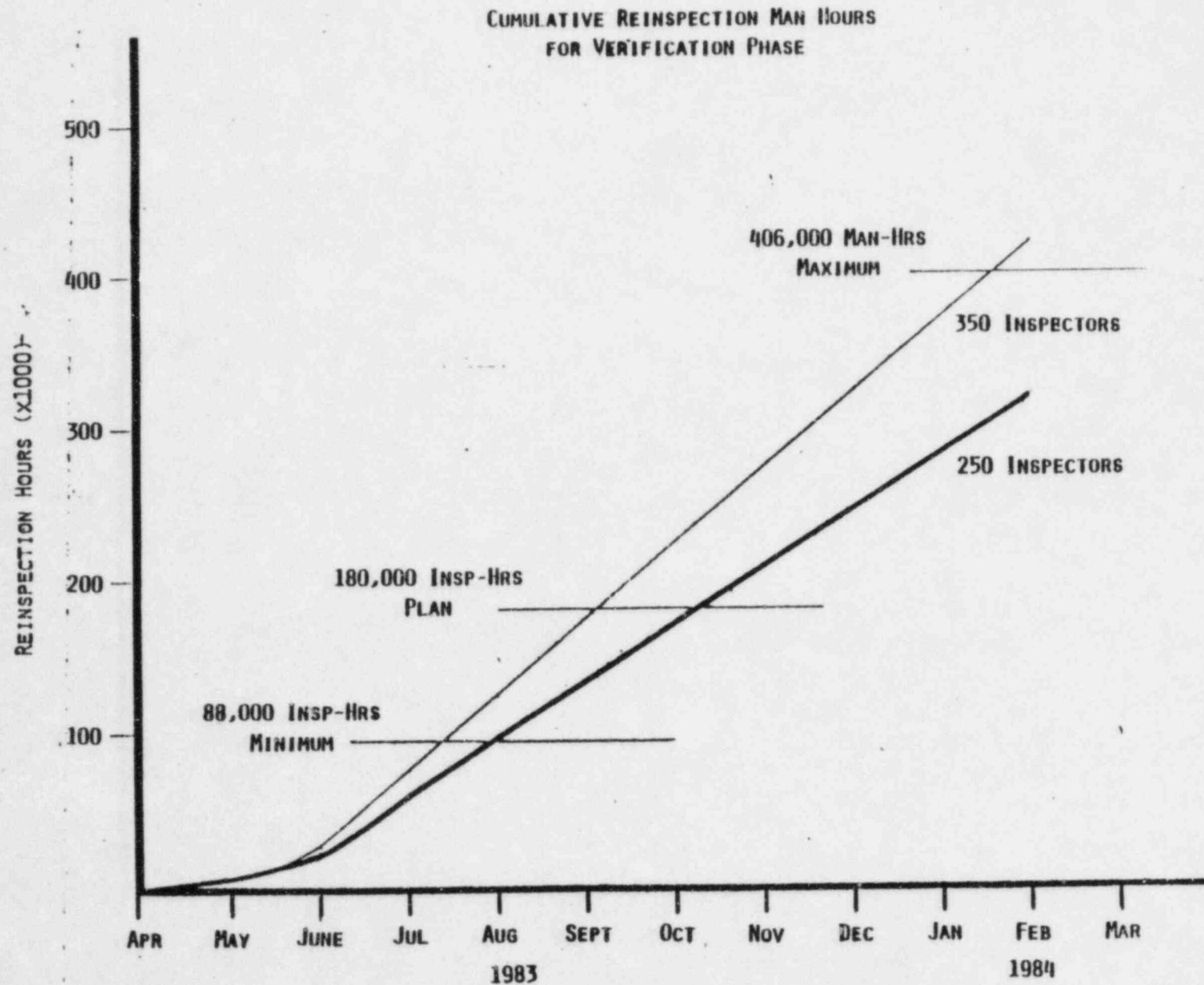
## REINSPECTION SCOPE AND ASSUMPTIONS

### SCOPE

- 139,000 CLOSED IR'S REPRESENT POPULATION
  - COMBINED PQCI'S
  - RECEIPT INSPECTION
  - DOCUMENT REVIEW
  - OVERINSPECTIONS PREVIOUSLY DONE
- 101,500 CLOSED IR'S SUBJECT TO VERIFICATION (EST)
  - 79,500 HARDWARE REINSPECTION
  - 22,000 PRIMARILY DOCUMENTATION REVIEW

### ASSUMPTIONS

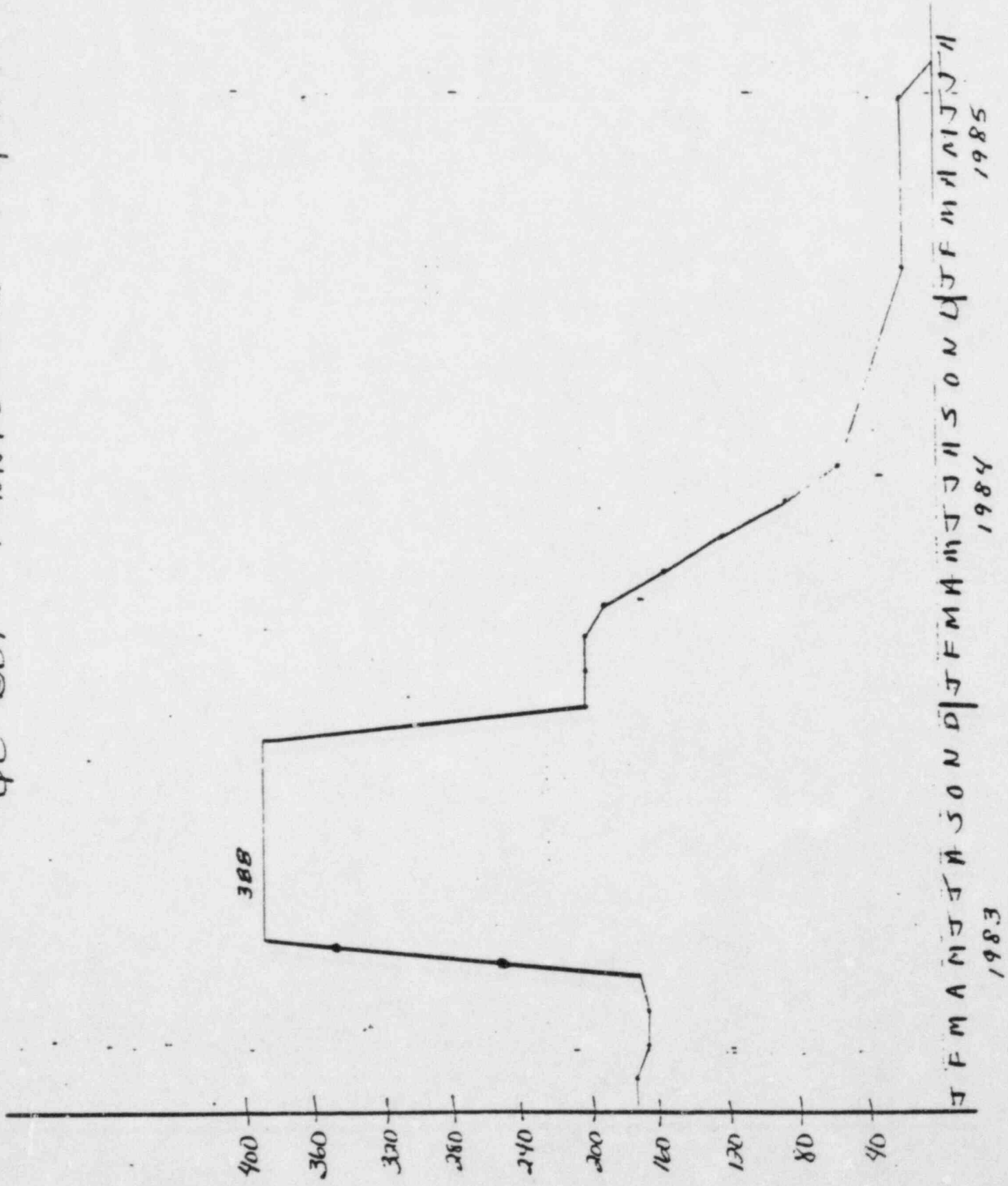
- PLANNING BASED UPON 45,000 UNITS OF REINSPECTION
- 4 INSPECTION HOURS PER UNIT (AVG) REQUIRED FOR REINSPECTION
- WORK FORCE OF 250 TO 350 INSPECTORS
- SCHEDULE BASED UPON 7 DAY WEEK AND 5 INSP-HOURS PER DAY
- NRC APPROVAL OF CCP IN MAY



QC-BOP MANPOWER, REQUIREMENTS

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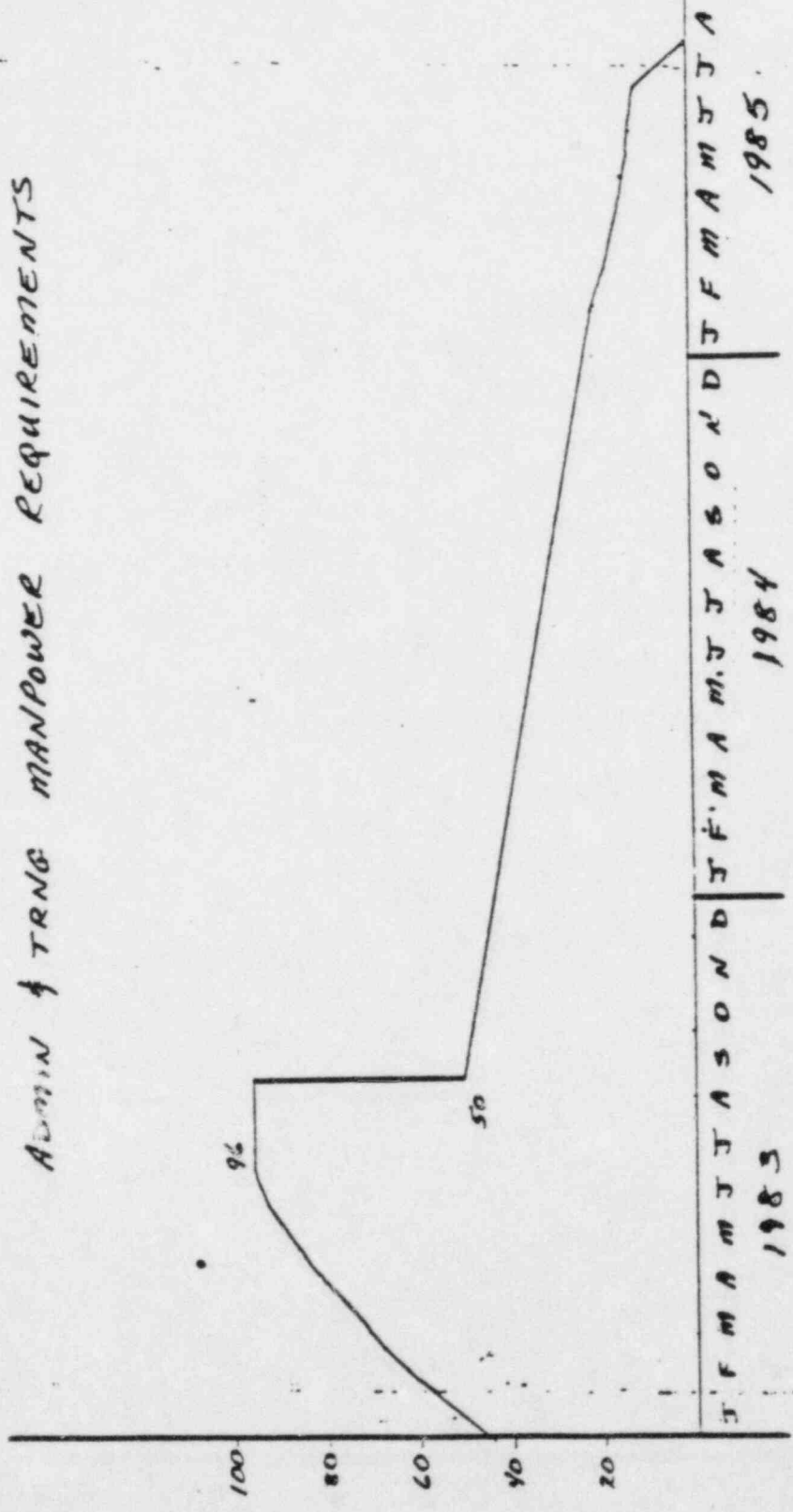
PHS  
4-1-83



1983 1984 1985



# ADMIN & TRNG MANPOWER REQUIREMENTS



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PM3  
4/1/84