DESIGNATED ORIGINAL Clinton

Certified By Marcia Pearson

ILLINOIS POWER COMPANY

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U-10046

CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727

Docket No. 50-461

April 8, 1983

PRINCIPAL STAFF			
RA		ENF	
D/RA		SCS	
A/RA		PAO	
D/RP		SLO	
DRMA		RC	
DRMSP			
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Mr. James G. Keppler
Regional Administrator
U. S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Subject: Recovery Plan for Electrical Equipment and Instrumentation Installation

Dear Mr. Keppler:

On June 23, 1982 Stop Work Orders were initiated on Electrical Equipment Installation (SWO #017) and Electrical Instrumentation Installation (SWO #018). These actions were taken because the procedures used to control travelers in these areas were considered to be inadequate. A recovery plan was developed to correct those deficiencies and is attached for your review.

Illinois Power Company has completed the portions of the recovery plan which are necessary to lift these Stop Work Orders. The appropriate procedures and instructions have been revised and training has been accomplished and documented. Illinois Power Quality Assurance has verified that corrective action has been completed and is adequate.

It is requested that you review Illinois Power Company's actions and concur in lifting the Stop Work Orders on Electrical Equipment and Instrumentation Installation.

Sincerely yours,

D. P. Hall

D. P. Hall
Vice President

REC/jf

Attachment

cc: NRC Resident Inspector
Manager - Quality Assurance
Director - Office of I&E, USNRC, Washington, D.C. 20555
Illinois Department of Nuclear Safety

APR 13 1983

8/9/82

ILLINOIS POWER COMPANY

RECOVERY PLAN

ELECTRICAL INSTALLATION

RECOMMENDED BY:

ILL. POWER ELECTRICAL RECOVERY PLAN COORD. W. L. Calhoun

ILL. POWER RECOVERY TEAM DIR. T. A. Woodley

APPROVED BY:

BA PROJECT MANAGER Neal B. Dillon for W. J. Harrington

ILL. POWER PROJECT MANAGER D. M. Wood

BA MANAGER OF QUALITY AND TECHNICAL SERVICES E. R. Bryant

ILL. POWER DIRECTOR-QUALITY ASSURANCE L. W. Bell for A. J. Budrick

8/9/82

ELECTRICAL RECOVERY PLAN

OBJECTIVE I. Resolve identified Quality problems with electrical installation in order to obtain approval for lifting Stop Work Orders 016, 017, 018. Resolve electrical hanger control and inspection backlog.

OBJECTIVE II. Describe how new/in-progress/modification work meets regulatory requirements.

OBJECTIVE III. Demonstrate that previously assembled electrical work meets regulatory requirements.

OBJECTIVE IV. Outline resources to support recovery effort.

8/9/82

IP RECOVERY PROGRAM

Objective II & III Requirements

OBJECTIVE II:

1. B.A. construction in all type of installations will perform a "walk down" of work to verify that installation and engineering requirements are completed before releasing work for quality inspection.

OBJECTIVE III:

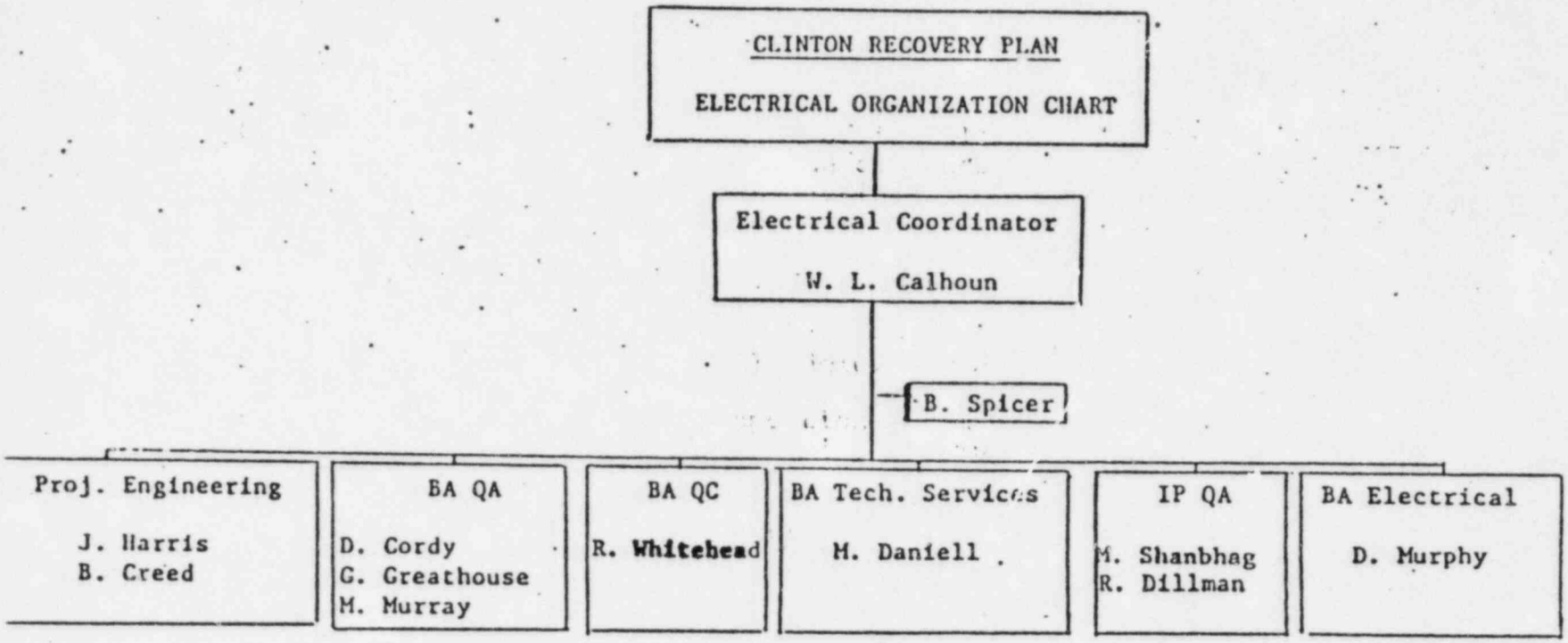
1. I.P. Quality Assurance will administer an over inspection of accepted work.

2. At completion of audit/inspection, team will issue final report to Management. Report will be reviewed to verify assembled structures meets regulatory requirements.

8/9/82

CLINTON RECOVERY PLAN

ELECTRICAL ORGANIZATION CHART



8/9/82

IP RECOVERY PROGRAM

Electrical Conduit

PROBLEM:

1. Present system of documenting completed work does not provide for timely inspections.

2. Inadequate system of resolving construction/engineering/inspection conflicts caused failure to complete documentation in a timely manner.

RECOVERY PLAN:

1. Revise documentation system (BAP 3.3.1) to utilize a traveler to perform and document the work.

2. Restrain new work until the backlog of work in progress is reduced to an acceptable level. This will be accomplished by the in-process Traveler Control Group (BAP 2.32).

3. Total of 124,727 feet issued for work. (as of 6/30/82)
   a. 28,355 feet with documentation in the vault.
   b. 86,884 feet in-progress work.
   c. 9,488 feet ready for inspection, to be issued under new traveler system.

4. Complete and inspect 3,000 feet per week.
   a. Inspection at a rate of 2 minutes per foot requires 100 manhours per week.
   b. Assign two inspectors to perform the work. (2 inspectors presently available).

PRELIMINARY REPORT

8/9/82

STOP WORK 016

Stop Work Definition:

TITLE PROBLEM	WORK AFFECTED	AREAS AFFECTED	RESOLUTION RESPONSIBILITY	WORK NOT AFFECTED
All new Conduit Installation Inspection Backlog	All "new" (No hours charged prior to June 28, 1982) conduit containing Class 1E, Aug D, and Fire Protection cables, EXCEPT in Containment. Issuance of Conduit Cards for above may NOT proceed.	All areas south of "S" line, pump rooms in Screenhouse and some areas of Main Steam Tunnel and Turbine Building, NOT Containment.	Work off Inspection Backlog	All non-safety (not 1E, Aug D, Fire Protection) and all conduit hangers may be worked. All conduit in Containment. All "old" (hours charged prior to June 28, 1982) conduit work started before June 28, 1982 may be worked. GENERAL NOTE: Change documents and drawing revisions requiring traveler revision may be worked if the scope of traveler is allowed to be worked under these guidelines. This is to ensure work in progress is completed.
Revision 1 No change	Containment is now included in the Stop Work.	All areas as described above INCLUDING Containment.	Same as above.	No changes except "new" conduit in Containment cannot be worked.
Revision 2 All Conduit	All conduit installation, old or new. All scheduled conduit installed per BAP 3.3.1.	Same as Revision 1.	Same as above.	All non-scheduled conduit including lighting and and communications.

Related Action:

Potential 10CRF50.55(e) Deficiency 82-07, Untimely Inspection
I-E Item 80-27-01, Untimely Inspection
Stop Work 007, Inadequate Construction Controls

Analysis:

An estimated 9,488 feet of conduit is in the inspection backlog.

In the conduct of the Stop Work 007 resolution, potential deficiencies were identified in the construction and verification controls regulating the conduit installation. These controls have been rewritten to correct the problems and are now in the review approval cycle.

Recovery Program and Recommendations:

Recovery Activities

1. Finalize the revision of construction and verification controls, i.e., BAP 3.3.1/E-012/QCI-405. The completion of this activity is now scheduled for July 21, 1982.

2. Conduct training in the implementation of the revised construction controls. The completion of this activity is now scheduled for August 18, 1982.

3. Submit to NRC for review and approval for partial lifting of Stop Work.

4. Partially lift the Stop Work, pending approval of NRC.

5. Work off the inspection backlog. This activity is expected to require 4 weeks for completion from the time it commences. Projected completion date is September 2[illegible], 1982.

6. Submit to NRC for review and approval for complete lifting of Stop Work.

7. Fully lift the Stop Work, pending the elimination of the inspection backlog and commence new conduit work.

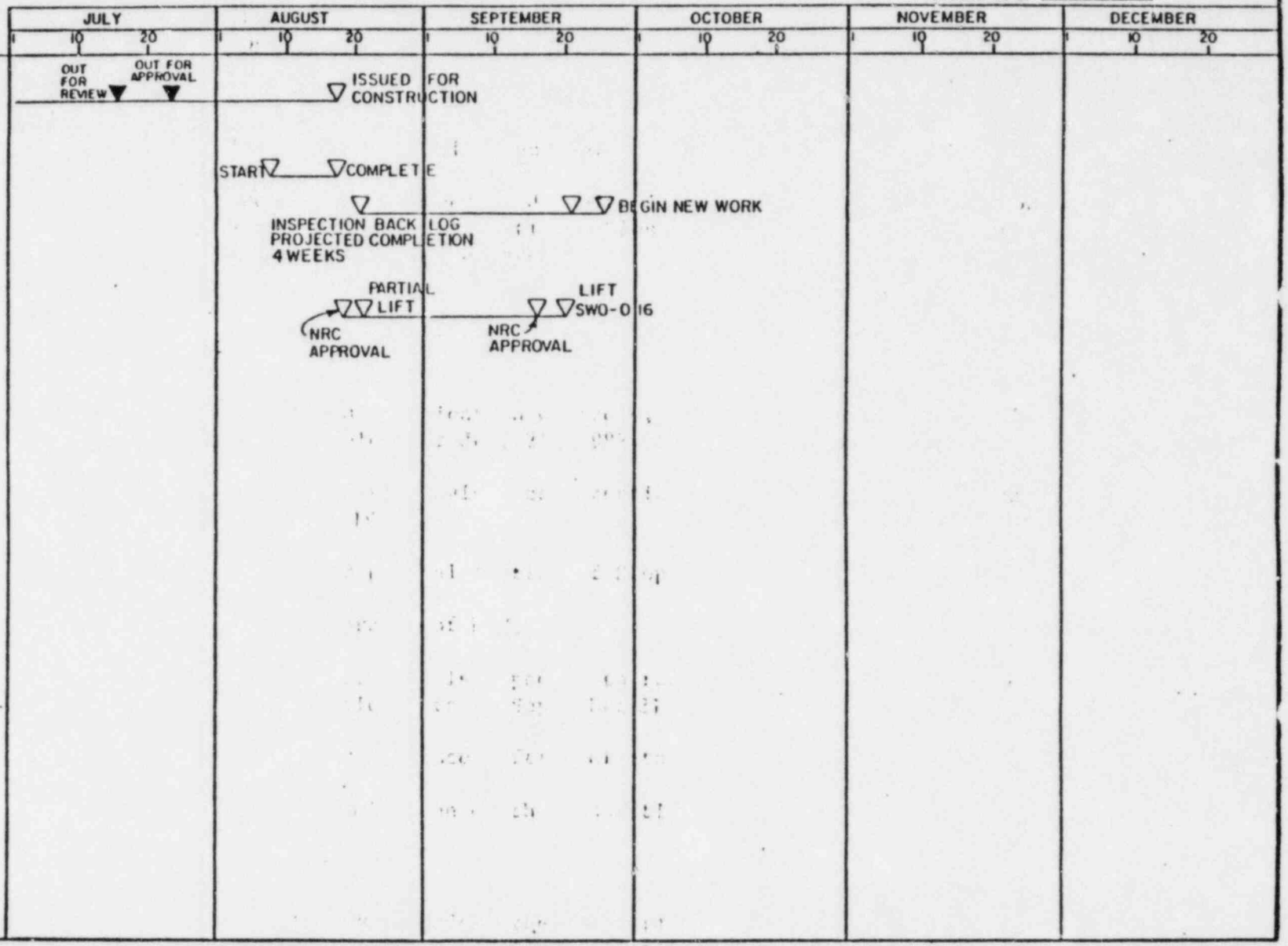
Recommendation:

Reaudit/surveillance the Electrical Conduit Installation program to identify any deficiencies in the controls instituted in the new procedures and to determine the timeliness of inspection activities.

ELECTRICAL STOPWORK PROGRESS-016

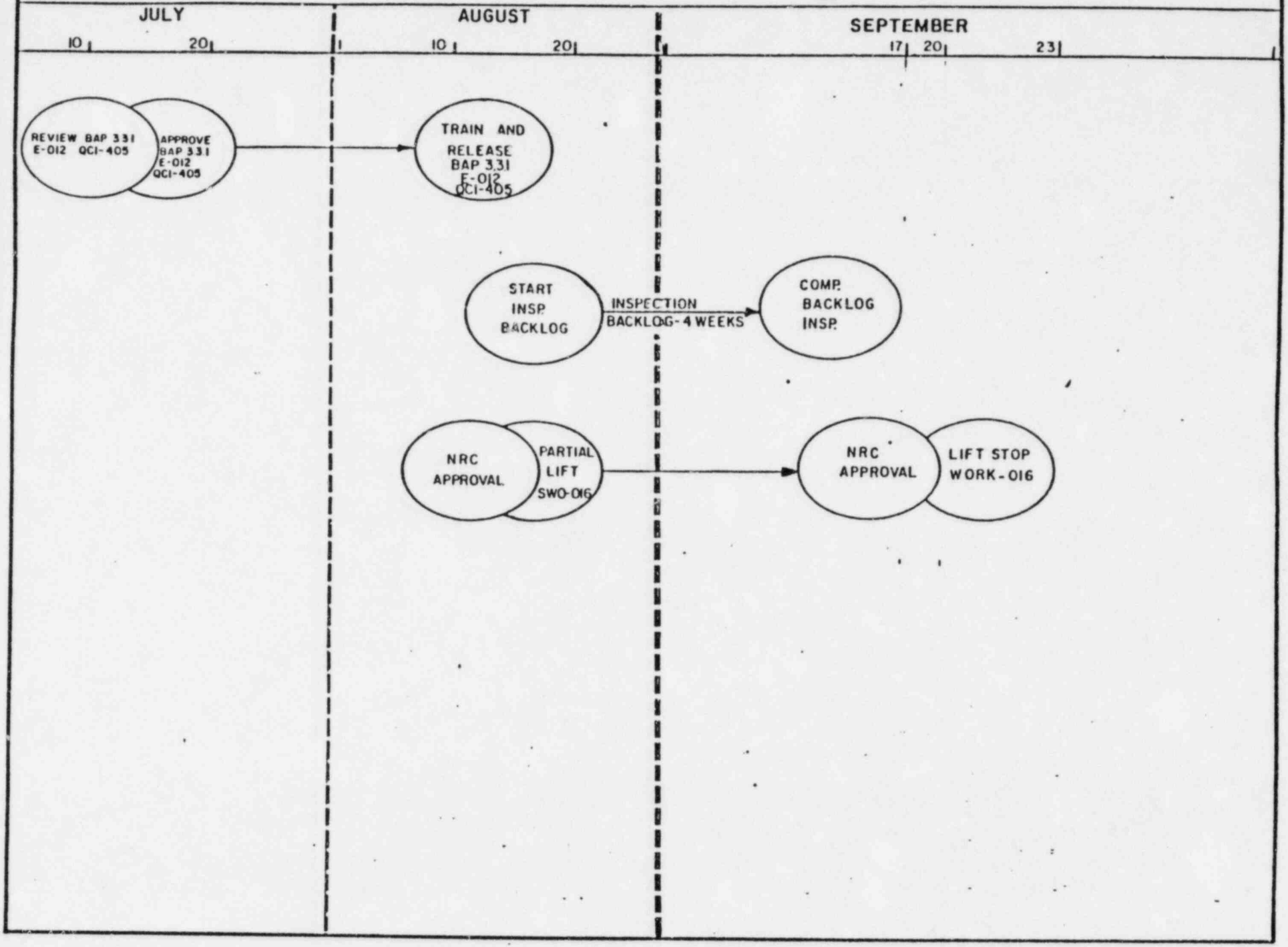
STATUS AS OF 8/9/82

▽ SCHEDULED ▽
▼ ACTUAL ▼



8/9/82

Stopwork-016 Progress



I.P. Management Controls Recovery Plan(s)

SWO No. 016
Conduit Installation

FINDING ID NO	AER ID NO	FINDING DESCRIPTION	REQUIRED CORRECTIVE COURSE OF ACTION TO LIFT SWO-	ACTION TAKEN TO SATISFY SWO COMMITMENT	CORRECTIVE ACTION SCHED COMPLETION	COMMENTS
STOP WORK 016	N/A	In the conduct of the Stop Work 007 resolution, potential deficiencies were identified in the construction and verification controls regulating conduit installation. Above control deficiencies, realized as untimely inspections, resulted in an inspection backlog. Affected work includes all "new" (no hours charged prior to June 28, 1982) conduit containing class 1E, Aug D, and Fire Protection cables, EXCEPT in Containment.	See Revision 2	See Revision 2	See Revision 2	WORK NOT AFFECTED All nonsafety (not 1E, Aug D, Fire Protection) and all conduit hangers may be worked. All conduit in Containment. All "old" (hours charged prior to June 28, 1982) conduit work started before June 28, 1982 may be worked.
Rev. 1	N/A	Containment included in the Stop Work.	See Revision 2	See Revision 2	See Revision 2	No changes except "new" conduit in Containment cannot be worked.
Rev. 2	N/A	All conduit installation, old or new. All scheduled conduit installed per BAP 3.3.1.	1. Revise construction and verification controls.	1. Finalize the revision of BAP 3.3.1/E-012/QCI-405 Conduct training in the implementation of the revised construction controls. NRC Review/Approval Partially lift the Stop Work, pending the completion of training and NRC approval.	7/21/82 8/18/82 8/20/82 8/23/82	All nonscheduled conduit including lighting and communications.

I.P. Management Controls Recovery Plan(s)

SWO No. 016
Conduit Installation

FINDING ID NO	ARR ID NO	FINDING DESCRIPTION	REQUIRED CORRECTIVE COURSE OF ACTION TO LIFT SWO-	ACTION TAKEN TO SATISFY SWO COMMITMENT	CORRECTIVE ACTION SCHED COMPLETION	COMMENTS
STOP WORK 016 Rev. 2	N/A	(See page 1. for Finding Description.)	2. Resolve inspection backlog of an estimated 9,488 feet of conduit.	2. Work off the inspection backlog. This activity is expected to require four (4) weeks for completion from the time it commences.	9/17/82	
				NRC Review/Approval	9/20/82	
				Fully lift Stop Work pending the elimination of the inspection backlog and NRC approval.	9/23/82	

8/9/82

IP RECOVERY PROGRAM

Electrical Equipment Installation

PROBLEM:

1. Inadequate traveler logging system for tracking Electrical Equipment Installation Travelers which failed to promote prompt completion of work and timely inspections.

2. Inadequate system of resolving construction/engineering/inspection conflicts caused failure to complete documentation in a timely manner.

RECOVERY PLAN:

1. Revise traveler logging system to provide a better flow of documentation and promote prompt completion of work.

2. Restrain new work until the backlog of work in progress is reduced to an acceptable level. This will be accomplished by the in-process Traveler Control Group.

3. Total of 286 travelers issued. (as of 6/28/82)
   a. 36 in the vault
   b. 150 in progress work
   c. 100 in final review process

4. Complete and inspect 5 travelers per week.
   a. Inspection rate of 4 hours per traveler requires 20 manhours per week.
   b. Assign one inspector to perform the work. (1 inspector presently available)

8/9/82

PRELIMINARY REPORT

STOP WORK 017

Stop Work Definition:

TITLE PROBLEM	WORK AFFECTED	AREAS AFFECTED	RESOLUTION RESPONSIBILITY	WORK NOT AFFECTED
Electrical Equipment Installation Traveler requirements and procedures not understood nor being followed.	All 1E, Aug D, Fire Protection Electrical Equipment. NO work to be performed!!! No traveler work to be performed.	All electricians, Quality Control and Technical Services Inspectors	Train personnel in need for quality approach to traveler details and requirements of BAP 2.10.	Non-safety work with no Quality/Technical Services involvement.

Related Action:

Internal Audit I-195, Electrical Equipment Installation

Corrective Action CAR 90, Bypassed DR Hold Tag

Corrective Action CAR 100, Inadequate Traveler Control

Analysis:

Internal Audit I-195 findings identified numerous procedural violations and are indicative of poorly trained personnel. In addition, unsubstantiated concerns have arisen regarding the adequacy of traveler instructions to construct and verify equipment installation and modifications, and the adequacy of the traveler log.

Recovery Program and Recommendations:

Recovery Activities

1. Finalize approval of the latest rev'sed procedure (QCI 404).

2. Expedite closure of DR's 1588, 1589 and 1590.

3. Finalize the I-195 corrective actions and close Baldwin Associates Internal Audit I-195.

4. Quality Assurance complete the review of CAR-90 responses and expedite closure.

5. Project Engineering initiate response to CAR-100, transmit to Quality Assurance for review and closure.

6. Conduct training to implement BAP 2.10 and revised QCI 404.

7. Submit to NRC for review and approval to lift Stop Work 017.

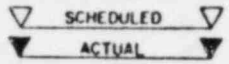
8. Fully lift the Stop Work pending NRC approval.

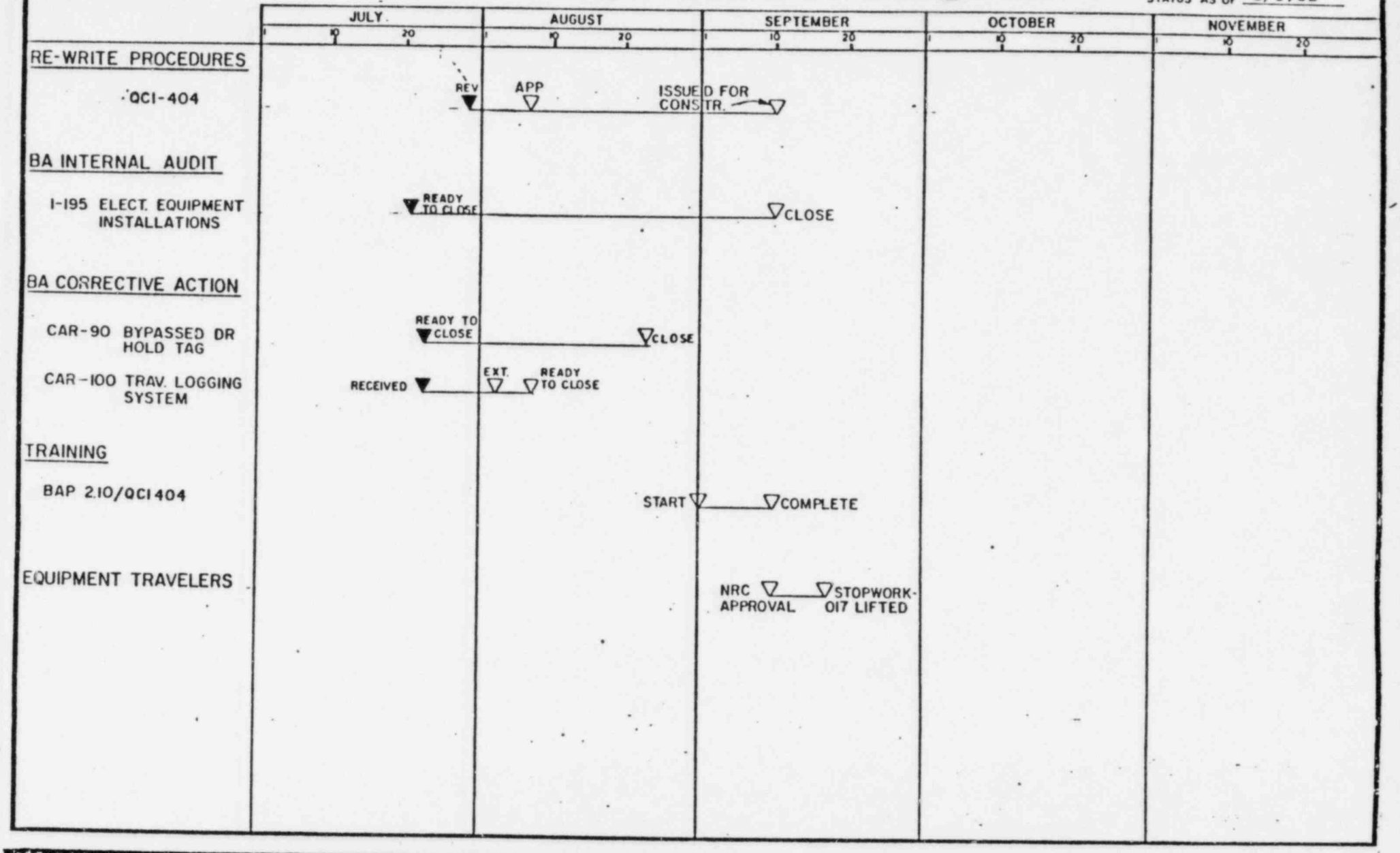
Recommendation

Reaudit/surveillance the Electrical Equipment Installation Program to identify any deficiencies regarding the adequacy of traveler instructions to construct and verify equipment installation and modifications, and the adequacy of the traveler log. Include corrective action in this recovery program as required.

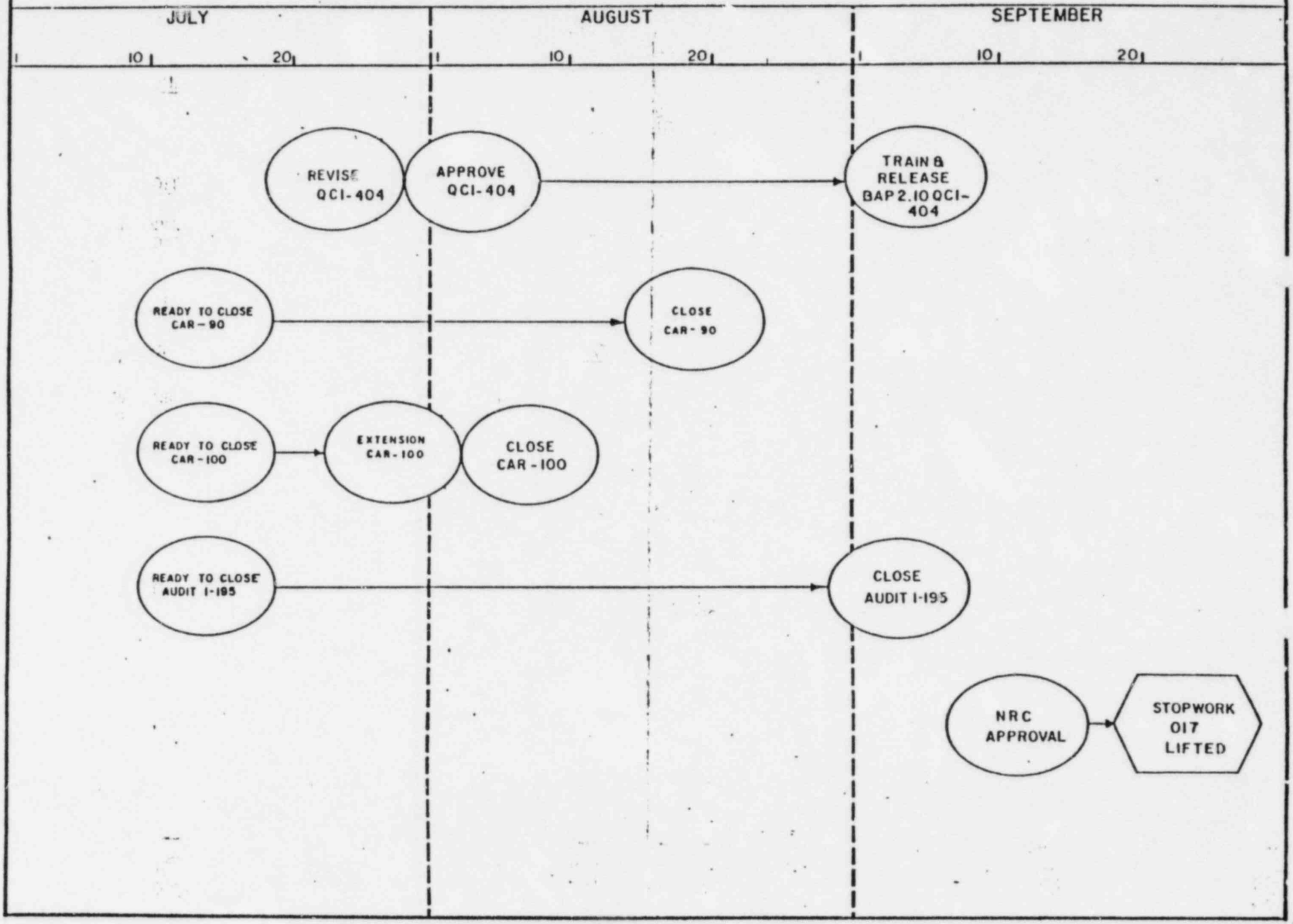
Electrical Stopwork-017 Progress

STATUS AS OF 8/9/82





Stopwork-017 Progress



I.E. Management Controls Recovery Plan(s)

SWO. No. 017
Electrical Equip. Install.

FINDING ID NO	ARR ID NO	FINDING DESCRIPTION	REQUIRED CORRECTIVE COURSE OF ACTION TO LIFT SWO-	ACTION TAKEN TO SATISFY SWO COMMITMENT	CORRECTIVE ACTION SCHED COMPLETION	COMMENTS
Internal Audit I-195	N/A	Internal Audit I-195 findings identified numerous procedural violations and are indicative of poorly trained personnel.	1. Answer findings identified on Internal Audit I-195.	1. Finalize approval of the latest revised Quality Control Instruction (QCI) 404.	8/13/82	
				Revise BAP 2.10 per Project Procedure Change Request PCR-28A-82.	5/25/82	
				Conduct training, given to all Supervisory, Quality, and Engineering Personnel as appropriate, to implement BAP 2.10, Equipment Installation, and the revised QCI 404.	9/10/82	
				Expedite closure of Deviation Reports (DR's) 1588, 1589, 1590.	(TBD)	

I.P. Management Controls Recovery Plan(s)

SWO. No. 017
Electrical Equip. Install.

FINDING ID NO	ARR ID NO	FINDING DESCRIPTION	REQUIRED CORRECTIVE COURSE OF ACTION TO LIFT SWO-	ACTION TAKEN TO SATISFY SWO COMMITMENT	CORRECTIVE ACTION SCHED COMPLETION	COMMENTS
CAR-090	N/A	During QA's trend analysis review of April NCR/DR's a significant increase over previous months was noted in bypassed QC and TS hold points.	1. Revise procedures to formalize Hold Points on travelers. Train personnel to revised procedures and in preparation of Deviation Report descriptions.	1. Revise QCI-404 to address annotation of Quality Control Hold Points.	8/13/82	
				ALL Supervisory, Quality, and Engineering personnel as appropriate shall attend training classes in BAP 2.10, Equipment Installation, QCI 404, Electrical Equipment Installation Inspection, upon approval of QCI 404.	9/10/82	
				ALL Supervisory, Quality, and Engineering personnel as appropriate shall attend training classes in BAP 1.0, Nonconformances and BAP 1.0.1, Deviation Reports, upon approval of the upcoming revisions to these procedures.	9/3/82	

T.P. Management Controls Recovery Plan(s)

SWO. No. 017
Electrical Equip. Install

FINDING ID NO	ARR ID NO.	FINDING DESCRIPTION	REQUIRED CORRECTIVE COURSE OF ACTION TO LIFT SWO-	ACTION TAKEN TO SATISFY SWO COMMITMENT	CORRECTIVE ACTION SCHED COMPLETION	COMMENTS
CAR-100	N/A	An adequate logging system has not been established for Electrical Travelers.	Project Engineering initiate response, transmit to Quality Assurance for review and closure.	1. To be determined by August 2, 1982. 2. Project Engineering to forward response to Quality Assurance for review.	8/2/82 8/13/82	On July 28, 1982 Project Engineering requested an extension (HRS-200-82) to August 2, 1982 to allow time to assemble final response.

8/9/82

IP RECOVERY PROGRAM

Electrical Instrumentation

PROBLEM:

1. Present system of documenting traveler logging locations was not being followed.
2. Traveler preparation did not have required detail for proper installation.

RECOVERY PLAN:

1. Review of procedure and installation requirements revealed personnel training deficiencies, require personnel be trained to project requirements.
2. There have only been 16 Electrical Instrumentation Travelers issued. Review all Instrumentation Travelers for procedural and installation requirements. Issue to Quality Department for their review and approval.
3. Issue Instrumentation Travelers to field for verification and work.

8/9/82

PRELIMINARY REPORT

STOP WORK 018

Stop Work Definition:

TITLE PROBLEM	WORK AFFECTED	AREAS AFFECTED	RESOLUTION RESPONSIBILITY	WORK NOT AFFECTED
Electrical Instrumentation Installation Traveler requirements not understood or being followed	All 1E, Aug D, Fire Protection instrumentation installations and traveler work.	All electricians, inspectors, Technical Services	Extensively train affected personnel in requirements of BAP 2.6 and BAP 2.10.	Non-safety work with no Quality involvement.

Related Action:

Internal Audit I-214, Instrumentation Installation

Corrective Action CAR 100, Inadequate Traveler Control (Tracked on Stop Work 017 Bar Chart)

Analysis:

Internal Audit I-214 findings identified numerous procedural violations and are indicative of poorly trained personnel. A response has been made to I-214; considerable personnel training and indoctrination will be required. The number of electrical instrument travelers to date is small.

Recovery Program and Recommendations:

Recovery Activities

1. Finalize approval of the latest revised procedure (QCI 404).

2. Conduct training and indoctrinate personnel in BAP 2.6. Training to be conducted concurrently with BAP 2.10 and QCI 404.

3. Develop, implement and finalize corrective action for Baldwin Associates Internal Audit I-214 and expedite closure of same.

4. Revise and rework all existing electrical instrumentation travelers and submit to QA for review.

5. Submit to NRC for review and approval to lift Stop Work 018.

6. Fully lift the Stop Work pending NRC approval.

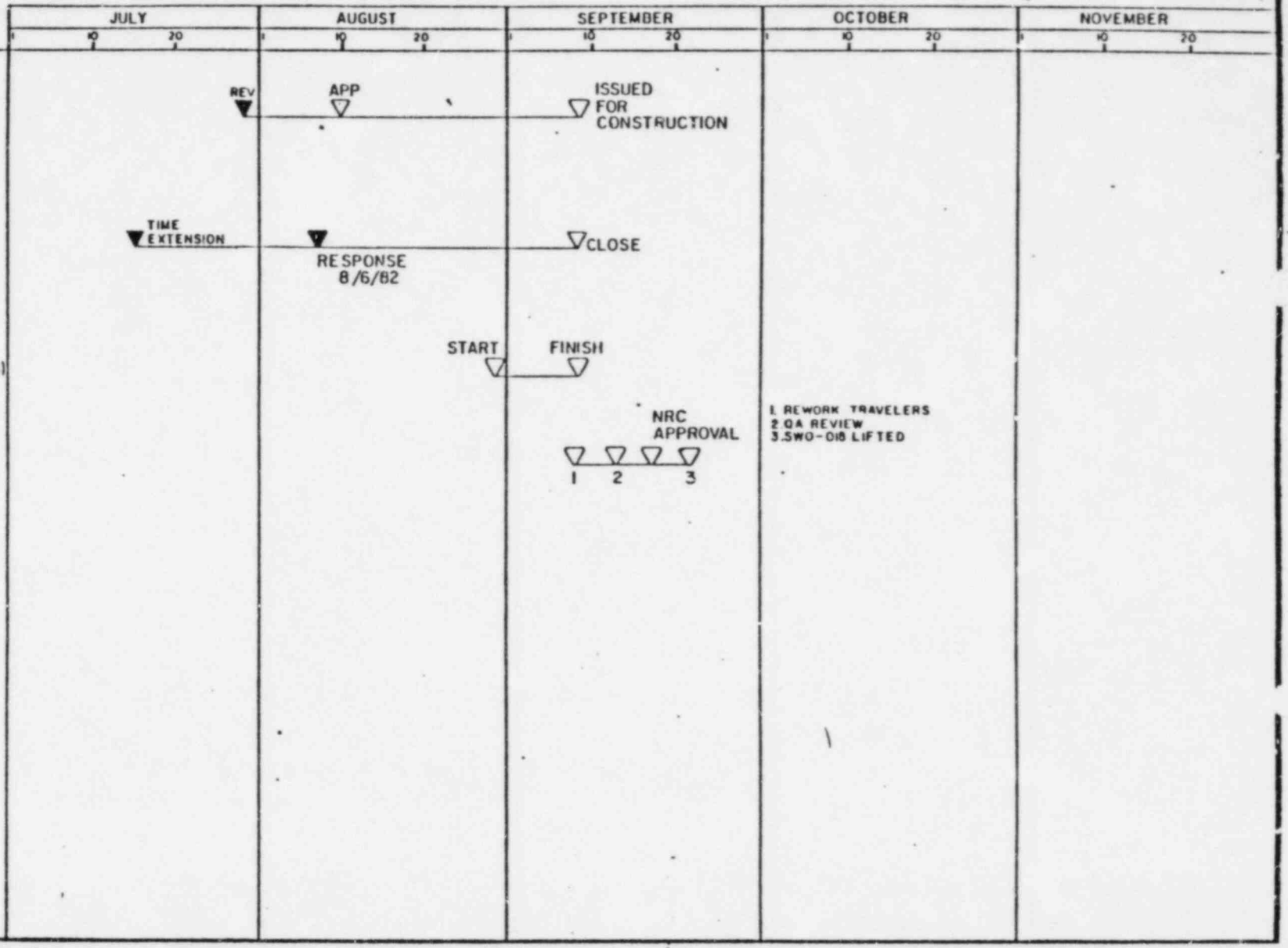
Recommendation

Reaudit/surveillance the Electrical Instrumentation Program to identify any deficiencies regarding the adequacy of traveler instructions to construct and verify instrument installation and modifications, and the adequacy of the traveler log.

Electrical Stopwork-018 Progress

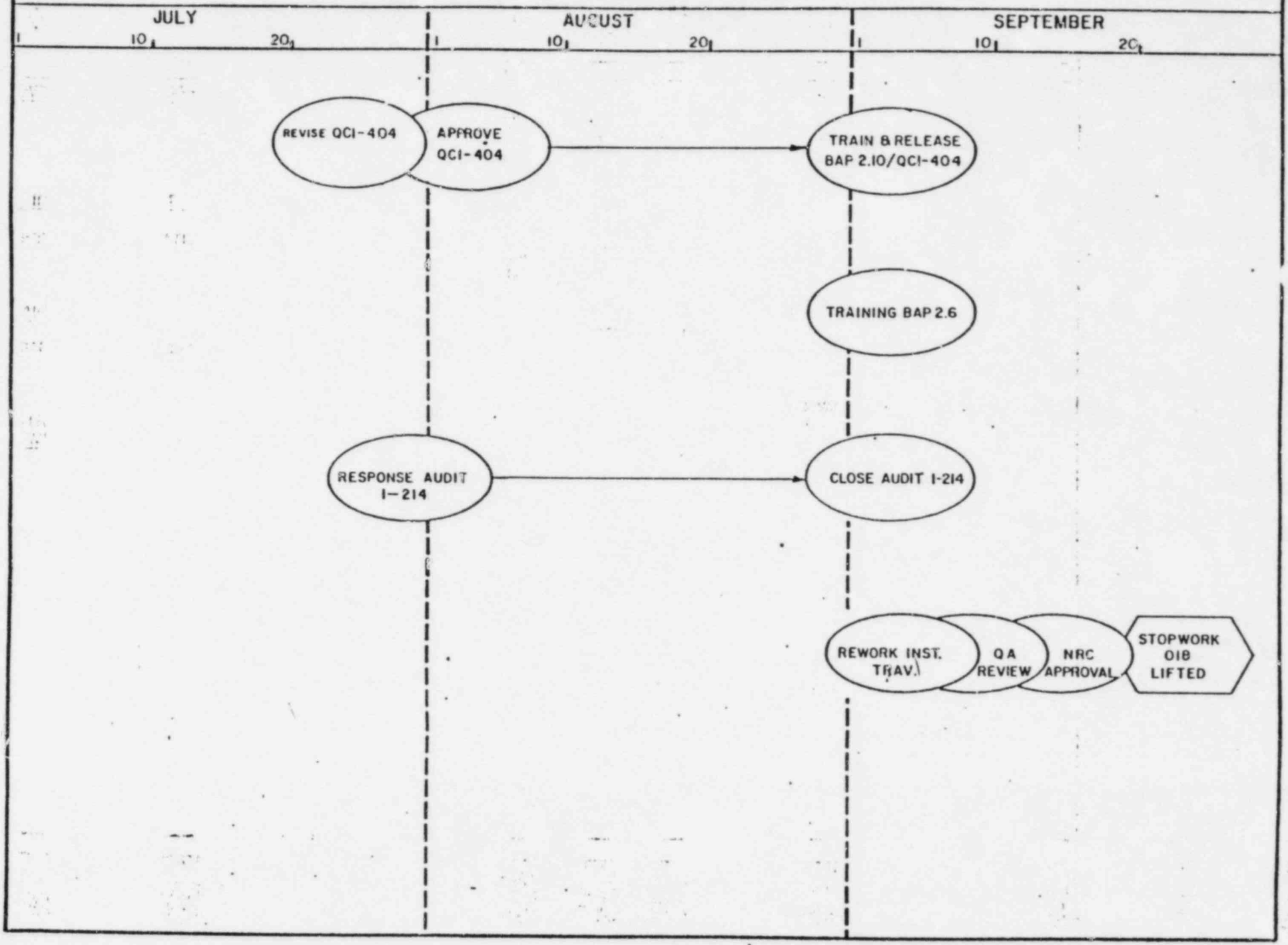
STATUS AS OF 8/9/82

▽ SCHEDULED ▽
▼ ACTUAL ▼



8/9/82

Stopwork-018 Progress



I.P. Management Controls Recovery Plan(s)

SWO No. 018
Instrumentation Install.

FINDING ID NO	ARR ID NO	FINDING DESCRIPTION	REQUIRED CORRECTIVE COURSE OF ACTION TO LIFT SWO-	ACTION TAKEN TO SATISFY SWO COMMITMENT	CORRECTIVE ACTION SCHED COMPLETION	COMMENTS
Internal Audit I-214	N/A	Internal Audit I-214 findings identified numerous procedural violation and are indicative of poorly trained personnel.	1. Senior Discipline Engineers to respond to Audit finding as they apply.	1. Project Engineering to develop, implement and finalize corrective action and close Baldwin Associates Internal Audit I-214.	8/6/82	Project Engineering forwarded response on electrical instrumentation to Quality Assurance on 8/6/82.
				2. Rewrite QCI 404 review and approve.	8/13/82	
				3. Train affected personnel in requirements of BAP 2.6, 2.10 and QCI 404.	9/10/82	
				4. Rework travelers and submit to BA QA for review.	9/13/82	

I.P. Management Controls Recovery Plan(s)

SWO No. 018
Instrumentation/Install.

FINDING ID NO	ARR ID NO	FINDING DESCRIPTION	REQUIRED CORRECTIVE COURSE OF ACTION TO LIFT SWO	ACTION TAKEN TO SATISFY SWO COMMITMENT	CORRECTIVE ACTION SCHED COMPLETION	COMMENTS
CAR -100	N/A	Tracked on Stop Work 017 Bar Chart.	See Finding Description	See Finding Description	See Finding Description	

8/9/82

RECOVERY PLAN

Inprocess Control of Travelers

1. Objective: Limit the number of hanger travelers available to the Electrical Construction Department for work in order that the backlog of uninspected work be reduced.

2. Analysis: Installation of hangers did not take into account available QC Staffing, thereby creating a backlog of uninspected work.

3. Solution: An "Inprocess Traveler Control Group" has been created to act as the limiter of traveler issuance to the field. A limit has been established which reduces the level of construction activity, bringing it into agreement with QC Staffing.

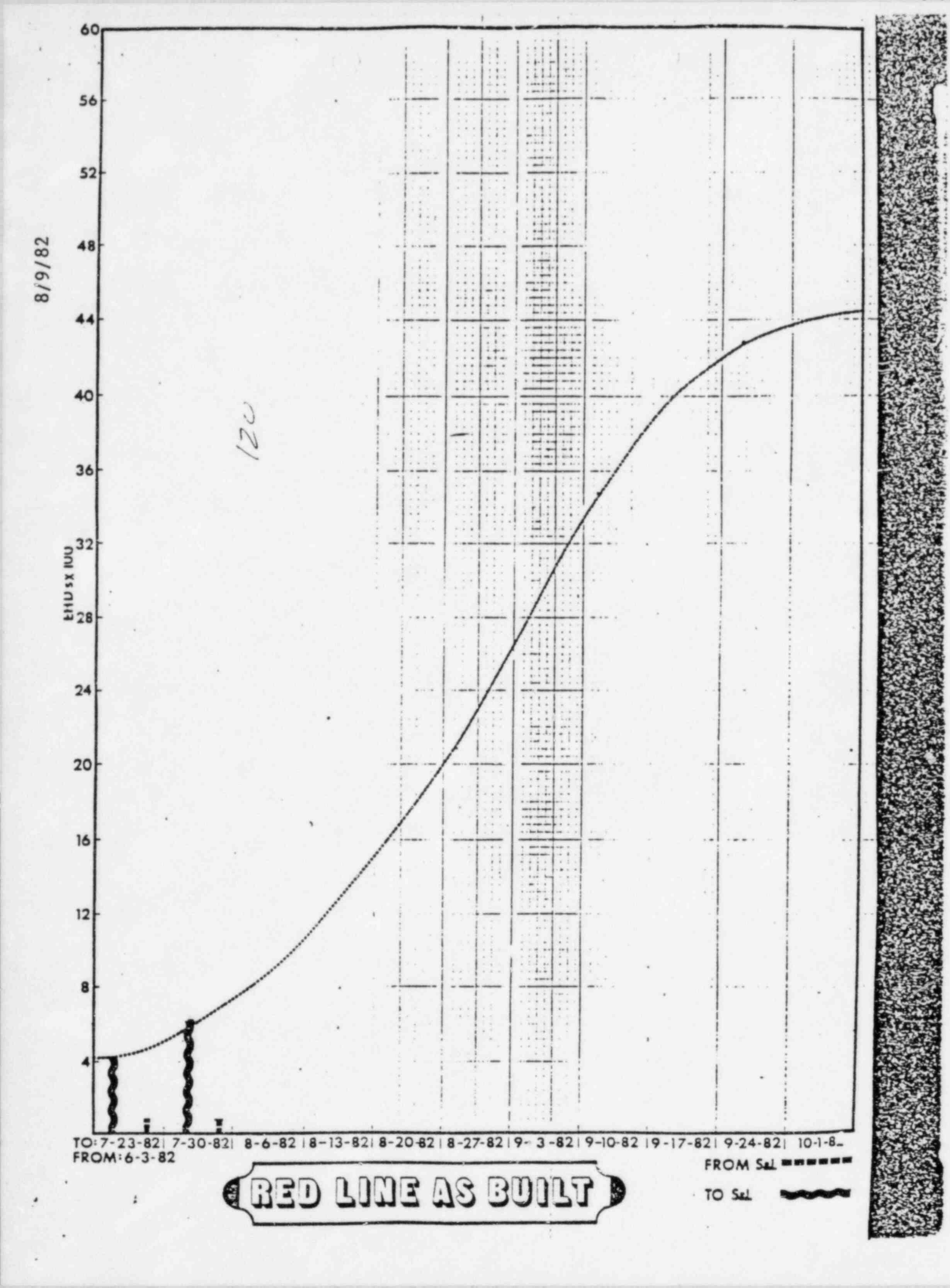
RECOVERY PLAN

BACKLOG OF HANGER TRAVELERS FOR FINAL REVIEW

1. Objective: Reduce the backlog of Electrical Hanger Travelers held in the Electrical Engineering Department pending Final Review.

2. Analysis: A large number, approximately 4500, Electrical Hanger Travelers are currently being held in Engineering pending Final Review. The largest contributing factor to this backlog is the necessity to prepare revisions to Electrical Hanger Drawings (EHD) to incorporate "Redline" changes. Drafting resources had been allocated to the development of new EHD's rather than the revision of existing ones.

3. Solution: The backlog will be eliminated by 1 October 1982. In order to accomplish this, five draftsmen have been hired. The Electrical Drafting Department has been placed on a six-ten hour day basis with all time beyond 40 hours devoted to reducing the backlog. The regular 40 hour week is devoted to normal work functions which includes processing revisions to EHD's which are a part of each weeks work. Attachment 1 depicts the estimated completion schedule.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FROM: 6-3-82
RED LINE AS BUILT
FROM Sal
TO Sal

8/9/82

IP RECOVERY PLAN

Electrical Hangers

PROBLEM:

1. Inadequate logging system for tracking travelers in order to complete work and perform timely inspections.

2. Inadequate system of resolving construction/engineering/inspection conflicts caused failure to complete documentation in a timely manner.

3. Travelers were issued to the field for construction in an uncontrolled manner which failed to promote prompt completion of the work and resolution of problems.

RECOVERY PLAN:

1. Revise the procedure (BAP 3.3.6) to provide a better flow of documentation and completion of work.

2. Restrain new work until the backlog of work in progress is reduced to an acceptable level. This will be accomplished by the in-process Traveler Control Group (BAP 2.32).

3. Total of 32,289 travelers issued. (as of 7/26/82) (5,918 have been deleted)
   a. 10,022 in the vault
   b. 10,956 in-progress work
   c. 1,441 ready for inspection
   d. 9,870 in final review process

4. Complete and inspect 350 per week.
   a. Inspection at a rate of 1.5 hours per hanger requires 525 manhours per week.
   b. Requires 13 inspectors to perform the work (10 inspectors presently available).
   c. Personnel requisitions have been issued to hire additional inspectors.
   d. Present personnel will work additional hours during peak loading to meet present schedule until additional staffing is accomplished.

8/9/82

IP RECOVERY PROGRAM

Electrical Cable Tray Attachments

PROBLEM:

1. Previous documentation system did not allow for incorporation of design changes, therefore, inspection documentation in the vault does not reflect actual installed configuration.

2. Previous documentation system did not provide adequate tracking of completed work and did not produce timely inspections.

3. Present documentation system does not provide for construction verification of completed work and incorporation of unique design changes for individual cable tray attachments.

RECOVERY PLAN:

1. Previous documentation system (BAP 3.3.11) was revised to provide a cable tray attachment traveler in order to provide unique inspection documentation for each cable tray attachment.

2. Restrain the release of new work until the backlog of in-process work can be issued under the new traveler system, completed, and inspected. This will be accomplished with the in-process Traveler Control Group (BAP 2.32).

3. Revise present documentation system (BAP 3.3.11) to allow for construction verification of completed work. Incorporate Electrical Hanger Drawings (EHD) to reflect unique design changes of individual cable tray attachments.

4. Initiate 3,378 cable tray attachment travelers.

5. Complete and inspect 50 attachment travelers per week.
   a. Inspection rate of 2 hours per traveler requires 100 manhours per week.
   b. Assign two inspectors to perform the work. (2 inspectors presently available)

8/9/82

IP RECOVERY PROGRAM

Electrical Cable Tray

PROBLEM:

1. Present system of documenting completed work does not allow for timely inspections.

2. Inadequate system of resolving construction/engineering/inspection conflicts caused failure to complete documentation in a timely manner.

RECOVERY PLAN:

1. Revise documentation system (BAP 3.3.10) to utilize a traveler to perform and document the work.

2. Restrain new work until in-process work is issued under the new traveler system, completed, and inspected. This will be accomplished with the in-process traveler control group (BAP 2.32).

3. Cable tray installation travelers to be issued for 45,000 feet of cable tray.

4. Complete and inspect 1,000 feet per week.

    a. Inspection rate of 2 minutes per foot requires 34 manhours per week.

    b. Assign one inspector to perform the work.

8/9/82

MANPOWER PROJECTION

CLASS 1E/SEISMIC CATEGORY I WORK

BAP	COMMODITY	Q.C. STAFFING	WEEKLY QUANTITY	ELECTRICIANS
3.3.1	Conduit	2	3,000 (ft)	83
3.3.2	Cable	6	18,000 (ft)	43
3.3.6	Cable Tray and Conduit Hanger	13	350 (ea)	338
3.3.10	Cable Tray	1	1,000 (ft)	23
3.3.11	Cable Tray Attachments	2	50 (ea)	55
	TOTAL	24		542

1. Quantity shown is based upon manning level of Q.C. inspectors.
2. Electrical manning includes supervision (e.g. Foremen and General Foremen).
3. Electrical manning does not include non-safety or support functions.