

FOR INFORMATION ONLY

CONSTRUCTION OF WORKER MANUAL SERIES

WORK PROCEDURE DESCRIPTION: INSTALLATION OF SEISMIC PIPE HANGERS AND SUPPORTS FOR SEISMICALLY ANALYZED PIPE

PROCEDURE NO. WP-110 AS ADDED

REVISION 9

PAGE 1 OF

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CAROLINA POWER & LIGHT COMPANY
 SHEARON HARRIS NUCLEAR POWER PLANT

WORK PROCEDURE
 WP-110

NOV 28 1983 Rev. 9
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* REVIEWED AND APPROVED BY EBASCO SERVICES, INC., FOR CONFORMANCE TO THE REQUIREMENTS OF PARAGRAPH CA-3310 OF ARTICLE CA-3300 OF AGREEMENT 339, SECTION III, DIV. 2, WINTER 1975 ADDENDA.

REV.	DESCRIPTION	APPROVALS		DATE
		APPROVALS	DATE	
0	Issued for Use.	ORIGINATOR	<i>Edward M. Miller</i>	12-1-77
		CONSTRUCTOR	<i>W. E. Goodman</i>	3-1-77
		EBC Q.A.	<i>N/A</i>	
		CP&L	<i>W. E. Goodman</i>	3-1-77
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1	Revised as Noted.	ORIGINATOR	<i>Edward M. Miller</i>	3-20-77
		CONSTRUCTOR	<i>W. E. Goodman</i>	5-20-77
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		CP&L	<i>W. E. Goodman</i>	3-20-77
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2	Revised as Noted. Added Exhibit 1.	ORIGINATOR	<i>Edward M. Miller</i>	5-15-77
		CONSTRUCTOR	<i>W. E. Goodman</i>	5-15-77
		EBC Q.A.	<i>N/A</i>	
		CP&L	<i>W. E. Goodman</i>	
		DES. ENG. *	<i>N/A</i>	

1-1-3

WORK PROCEDURE

INSTALLATION OF SEISMIC PIPE BRACKETS
AND SUPPORTS FOR SEISMICALLY ANALYZED
PIPE

REVISION

9

DESCRIPTION

PAGE

2

OF

14

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT

WORK PROCEDURE

WP-110

* REVIEWED AND APPROVED BY EBASCO SERVICES, INC., FOR CONFORMANCE TO THE REQUIREMENTS OF PARAGRAPH CA-3310 OF ARTICLE CA-3300 OF ASME/ACI 359, SECTION III, DIV. 2, MONTED 1975 ADDENDA.

REV.	DESCRIPTION	APPROVALS	DATE
3	Revised as Noted. Added Exhibits 1 and 3. Incorporated Procedure Deviation Notice #1.	ORIGINATOR	8-21-
		CONSTRUCTOR	8-21-
		EBC Q.A.	
		CP&L	
		DES. ENG. *	
4	Revised as Noted. Revised Exhibit 3. Incorporated. Deviation Notices 1 and 2.	ORIGINATOR	1-14-
		CONSTRUCTOR	1-15-
		EBC Q.A.	
		CP&L	1-17-
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5	Revised as Noted. Incorporated Deviation Notices 1 and 2. Revised Exhibit 1. Added Appendix A.	ORIGINATOR	6-3-
		CONSTRUCTOR	6-5-
		EBC Q.A.	
		CP&L	6-7-
		DES. ENG. *	

WORK PROCEDURE DESCRIPTION: INSTALLATION OF SEISMIC BASE RANGES AND SUPPORTS FOR SEISMICALLY SENSITIVE EQUIPMENT

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT NOV 28 1983 Rev. 9

WORK PROCEDURE WP-110

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* REVIEWED AND APPROVED BY EBASCO SERVICES, INC., FOR CONFORMANCE TO THE REQUIREMENTS OF PARAGRAPH CA-3310 OF ARTICLE CA-3300 OF ASME B31.3, SECTION III, DIV. 3, EDITION 1975 ADDENDA.

REV.	DESCRIPTION	APPROVALS	DATE
6	Revised As Noted. Incorporated Deviation Notices 2 and 3. Revised Exhibit 1 and Appendix A. Added Exhibit 4.	ORIGINATOR	12/1/83
		CONSTRUCTOR	1/20
		EBC Q.A.	
		CP&L	12/4
		DES. ENG. *	
7	Revised As Noted. Incorporated Deviation Notices As Applicable. Added Exhibit 5-8 and Appendices 3 through J.	ORIGINATOR	11-11-83
		CONSTRUCTOR	
		EBC Q.A.	
		CP&L	11-4-83
		DES. ENG. *	
8	Revised As Noted. Incorporated Deviation Notices As Applicable. Revised Exhibits and Appendices as Noted.	ORIGINATOR	4-21-83
		CONSTRUCTOR	4-2
		EBC Q.A.	
		CP&L	4-21-83
		DES. ENG. *	

CAROLINA POWER & LIGHT COMPANY
 SHEARON HARRIS NUCLEAR POWER PLANT

WORK PROCEDURE
 WP-110

- * REVIEWED BY QA/QC FOR COMPLIANCE WITH THE APPLICABLE QA AND CODE REQUIREMENTS
- * REVIEWED AND APPROVED BY EBASCO SERVICES, INC., FOR CONFORMANCE TO THE REQUIREMENTS OF PARAGRAPH CA-3310 OF ARTICLE CA-3100 OF ASME/ACI 359, SECTION III, DIV. 2, WINTER 1975 ADDENDA.

REV.	DESCRIPTION	APPROVALS		DATE
9	Revised As Noted. Incorporated Deviation Notices As Applicable. Revised Exhibits And Appendices. Added New Exhibits Entirely For Exhibits 1, 2, and 4.	ORIGINATOR	<i>[Signature]</i>	11/22
		CONSTRUCTOR	<i>[Signature]</i>	11-2
		QA/QC REVIEW * *	<i>[Signature]</i>	11/22
		CPBL	<i>[Signature]</i>	11/22
		DES. ENG. *	<i>[Signature]</i>	11/22
		ORIGINATOR		
		CONSTRUCTOR		
		QA/QC REVIEW * *		
		CPBL		
		DES. ENG. *		
		ORIGINATOR		
		CONSTRUCTOR		
		QA/QC REVIEW * *		
		CPBL		
		DES. ENG. *		

1.0 SCOPE

- 1.1 This procedure describes the steps to be followed for the installation of seismic pipe supports and spring hangers on seismically analyzed pipe.
- 1.2 For construction purposes, a pipe hanger can be identified to be in accordance with this procedure if it supports a Safety Class I, II, or III pipe or MS or FW pipe by means of a spring canister except hangers east of the seismic break as defined by FCR-H-1145, or if the hanger sketch is stamped seismic, or if the format of the load sheet is in accordance with Exhibit 6 or if it is a Bergen-Paterson fire protection pipe hanger.

2.0 REFERENCES

- 2.1 MP-03, General Welding Procedure for Structural Steel and Hangers
- 2.2 TP-34, Inspection of the Installation of Safety Related (Seismic Class I) Hangers
- 2.3 WP-112, Control of Materials and Equipment That May Be Harmful to Stainless Steel
- 2.4 WP-48, Temporary Construction Loads Supported From Permanent Plant Equipment
- 2.5 WP-102, Installation of Piping
- 2.6 MP-03, General Welding Procedure for Carbon Steel Weldments
- 2.7 MP-07, General Welding Procedure for Stainless Steel Weldments
- 2.8 CAR 2165-G-801 Flow Diagram - Reactor Coolant System
- 2.9 TP-04 Calibration of Controlled Tools
- 2.10 WP-108, Protective Coatings - Service Level I Embedded Steel Plate, Service Level II Steel Surfaces and Balance-of-Plant Steel Surfaces
- 2.11 SD/C-A-1018, Identification of Bergen Paterson Hanger Parts
- 2.12 SD/C-A-1019, Neutral Axis of Odd-Shaped Structural Members
- 2.13 WP-25, Field Engineering
- 2.14 MP-05, Permanent Marking of Site Material and Components
- 2.15 WP-139, Pipe Hanger Work Package Preparation
- 2.16 WP-140, QA Records Review (Seismic Pipe Hangers and Supports for Seismically Analyzed Pipe)
- 2.17 CAR 2165-G-107501, Field Installation Tolerances for Pipe Hangers

3.0 GENERAL

3.1 Introduction

Unless otherwise noted, the tolerances in the following sections may be used for construction of a pipe hanger. However, to exceed these tolerances, a Field Mod (Exhibit 1) must be obtained from the Hanger Engineer. These Mods will allow work and inspections to proceed to completion. The tolerances described herein may also be applied to the Mod requirements.

3.2 Location Tolerances

1. Hangers shall be installed within $\pm 1/2"$ of the design location (elevation and column line offsets). However, if the pipe is not installed, the box frame hanger should be left tacked to the end of the pipe is in. (Tack welds should be large enough to ensure safety).
2. Hanger members should not be installed within 4" of an adjacent pipe or structure.
3. Hangers should not be located within 15" of a pipe (butt) weld if the hanger supports Class 1 or 2 pipe.
4. Hangers shall not be installed on a pipe elbow, fitting, butt weld, or ID tag.

3.3 Geometry Tolerances

1. Geometry may vary $\pm 1/2"$ from design. However, this tolerance shall not be used to reduce the clearance requirements around the pipe.
2. Slopes and angles may vary from design provided the location and geometry dimensions are maintained.
3. Sway supports must be within $\pm 3^\circ$ of the design requirements.
4. The neutral axis of structural members shall be used as reference lines for geometric configurations (see SD/C-A-1019).
5. Strut lengths must be within $1/2"$ of design.
6. Filler plate sizes shall be $\pm 1/2"$, $-0"$ from the Bill of Material requirements.

3.4 Steel Attachment Tolerances

1. Hangers are to be attached within $\pm 1/2"$ of the embed centerline(s).
2. Hangers are to be attached within $\pm 1/2"$ of a base plate scribed work point.
3. Hangers should attach to the correct embed type which is detailed on the hanger sketch. If the embed in the field is designated as a Dubose plate, reduced tolerances will be necessary and should be provided via a Hanger Mod.
4. Hangers must attach within $\pm 1/2"$ of the centerline of a structural steel member (existing steel) and may move $\pm 1/2"$ along the axis of the structural steel member. In the containment building the centerline of the structural steel member shall be assumed to be on the azimuth required by design.
5. Attachments to strip plates with threaded studs must be surrounded by acceptable studs. See Figures 1 and 2. A threaded stud is not acceptable if it is disengaged by more than $1/8"$ or if there is a weld within $1/2"$ of the stud.

29

If otherwise obtain a Hanger Mod from the Hanger Engineer if possible.

Figure 1:
All four must be acceptable.

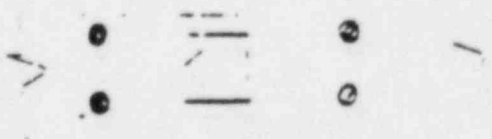
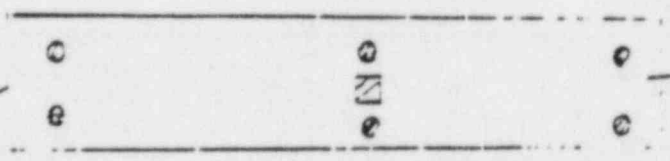


Figure 2:
All six must be acceptable.



3.5 Box Frame Hangers

1. Clearances

Clearances around the pipe in a box frame hanger must be achieved. However, the pipe can not be cold pulled (forced out of its relaxed position) in order to do so. If the clearance is specified as 1/16" by design, then the clearances must meet the criteria laid out in Appendix I. For one-way restraints, the Hanger Engineer must issue a Mod to detail the clearance requirements. The pipe and the hanger shall be visually square with respect to the other; however, shims used to obtain acceptable clearances shall meet the skewness requirements of Appendix I.

2. Shims

1. Shims shall be installed in accordance with the Field Mod around the pipe if clearances are not acceptable.
2. Shims called for by the design sketch may be deleted by a Field Mod if the pipe clearances are acceptable.
3. Shim material must be A-36 or A-569 carbon steel. If otherwise, a Field Mod must be obtained from the Hanger Engineer.
4. Shim plates and hanger members must be in contact and free of lubricant. Shim surfaces shall not be sandblasted.
5. The shim should overhang the hanger member approximately 1" on both sides in order to protect the pipe from arc strikes. A maximum overhang of 2" is permitted on either or both sides. If a weld, valve, branch line, or other projection will not allow 1" clearance from the end of the shim, contact the Discipline Mechanical Engineer for resolution via a Field Mod.
6. The centerlines of the shim and pipe shall be aligned within the $\pm 1/2"$ of each other.

CONSTRUCTION PROCEDURE MANUAL	SEI/PP	Procedure No. WP-110	Date As Approved
WORK PROCEDURE DESCRIPTION	INSTALLATION OF SEISMIC PIPE HANGERS AND SUPPORTS FOR SEISMICALLY ANALYZED PIPE	Revision 9	
		Page 9	of 19

- 7. The shim and shim weld details shall be provided on a Field Mod.
- 8. Weld length shall not exceed the length specified on the Mod.

3.6 Catalog Parts

- 1. Combinations of WBA, sway supports and/or pipe clamps must conform with the requirements of Appendix A unless noted otherwise.
- 2. All combinations must be aligned, in order to ensure the support does not bind and lock up. Part numbers 1000 and 1001 should be fitted to other items using the load pin as the neutral axis.
- 3. Catalog parts may be identified by a check against the dimensions provided in the Site Drawing (SD, C-A-10.3). Also see Appendix B.
- 4. Care should be exercised to ensure load pins, bolts, nuts, washers, and pipe clamp halves for different hangers or parts are not indiscriminately exchanged. An inspector shall verify material grades for load pins, bolts and nuts prior to Final Acceptance. (See Appendix C).
- 5. If the load pin must be removed from the end attachment, a light lubricant and punch should be used to facilitate removal. Care must be taken to prevent the lubricant from contacting stainless steel pipe.
- 6. The holes in the ears of the WBA or pipe clamps shall not be ground in order to reinsert the load pin. However, the ends of the load pins may be lightly filed to remove mushrooming caused by forced installation. The shank of the load pin shall not be ground for any reason. Also, light tapping may be used to remove or install the load pins. If the end attachment ears are damaged in the process, the end attachment must be replaced. Cotter pins must be spread in opposite directions to prevent the load pin from slipping out.

7. Bearings should be tightly engaged between the ears of the WBA or pipe clamp. Any gaps should not exceed the clearances specified in Appendix B. Contact the Hanger Engineer if the clearance cannot be reduced with spacer washers per Appendix G.
8. When installing the struts, care must be taken to ensure that the pipe is not forced out of its relaxed position (this is called cold pull).
9. Tightening of bolts, studs, threaded rod, and U-bolts shall be in accordance with Appendix F. Nuts should be fully engaged on the threads and should not bear against the bolt shanks.
10. Instructions for tightening bolts and nuts in applications other than pipe clamps, U-bolts, threaded rod supports, and springs should be obtained from the Hanger Engineer.
11. To shorten or lengthen strut assemblies (outside built in adjustment), the Hanger Engineer must provide detailed instructions to the craft via a Field Mod.
12. For telescoping struts, there must be 1/4" minimum engagement between the strut and the shank prior to welding. (A 1/4" hole may have to be drilled 1/4" minimum from the end of the barrel to verify shank engagement.) The shank and pipe strut must be aligned. The weld size between the shank and tubing shall be provided on a Mod even if noted otherwise on the Bergen Paterson sketch.

29

3.7 General Guidelines

1. Lift Points

Installed pipe hangers shall not be used as lift points for loads other than the ones approved by WP-43. The welding of temporary attachments to hangers shall be in accordance with MP-08. All welded temporary attachments will be removed from the hanger prior to any inspections.

2. Pipe Cleanliness

The external surface of all stainless steel piping shall be cleaned of all contaminants (Reference WP-112) prior to the placing of a pipe clamp around the pipe or surrounding the pipe with a window hanger. Contact the Piping Superintendent or his designee if cleanliness has not been attained.

3. Hangers Near Penetrations, Sleeves or Equipment

Pipes are usually designed to run through the center of the sleeves in the walls and floors. Box frame hangers adjacent to these sleeves, penetrations, or equipment shall not be erected until the pipe is installed hard-point to hard-point.

4. Temporary Pipe Supports

1. Temporary hangers shall be erected to support the pipe in accordance with WP-102 Section 4.2.5.7. These supports should not be removed nor should permanent supports be reworked if the work would compromise the required spacings for the pipe supports.
2. Temporary hangers shall also be erected in lieu of permanent hangers when necessary to support RFTs. They shall not be erected (insofar as practicable) in the same location as the permanent support. These temporary hangers will be tagged and may only be removed after the permanent supports have been installed. A Work Directive is necessary for this effort.

5. Coating Requirements

Per WP-108, all steel going into the containment building shall be coated to Service Level I requirements; all stock steel going into areas outside the containment building shall be coated to Service Level II requirements. Prior to coating, hangers shall be hard marked for hanger and material identifications; stock steel shall be hard marked for material identification.

6. Material Marking

All steel for future installations shall be hand marked in accordance with MP-03 for material identification. This shall be witnessed by a QC Inspector. If markings will be removed or covered by a construction activity prior to a final QC signoff, the marking shall be transferred and witnessed by the QC Inspector. There shall be no unmarked steel in the field surplus room.

7. Snubber Substitutes

Since snubbers can't be installed until just prior to Hot Functional testing, a snubber substitute such as non-Q angle should be installed to preserve the space between the hanger structure and the pipe. The spacer should be painted red to identify it as a temporary structure.

8. Access Interferences

If the hanger creates an access interference in a doorway, aisle, or stairwell, etc., or if an interference prevents the hanger from performing its design function, the hanger should not be installed and the Hanger Engineer should be contacted.

9. Stainless Steel Straps

Stainless steel straps shall not be installed with the pipe hangers even if specified by design. Mods or design revisions are necessary to delete this item from the Bill of Materials.

10. Stiffener Plates

Stiffener plates may be coped or trimmed as necessary in order for the item to be fitted between the flanges of W-shapes.

11. Welded Pipe Attachments (WPA)

Although the installation of WPA's is in accordance with other procedures, it should be verified that all parts of the WPA are installed as designed. Box frame hangers that interface with the WPA should not be installed until the WPA is welded out.

12. Valve Hangers

Valve hangers should not be installed until after the valve has been welded out.

13. Voided Hangers

A Work Directive shall be issued with voided hangers to have them removed from the field. CI and QC must verify the work was accomplished and sign the Work Directive.

14. Spring Hangers and Fire Protection Hangers

All spring hangers and nonseismic fire protection hangers were within the scope of WP-109 (Installation of Nonseismic Hangers). As a result, fitup gaps were not recorded, hanger geometry and locations were not checked, and structural welds were not inspected by QC. Spring hangers on seismically analyzed pipe per Revision 7 and Bergen-Paterson fire protection hangers per Revision 8 are within the scope of WP-10. Although the inspector cannot go back and check fitup gaps or other in-process inspections, the inspectors can verify geometry and location and perform a final visual inspection of the welds. For hold points which cannot be met due to installation prior to this procedure, the inspector can so note on the Traveler and/or SWDR.

15. Material Requisitioning

1. Hangers may be requisitioned from the warehouse using the hanger numbers found on the hanger sketches. The material shall consist of all pieces received for the current drawing revision and, if necessary, those items taken from seismic surplus stock. For hangers utilizing snubbers, the warehouse will withhold the snubber and snubber extension if a separate requisition is made for specific parts needed. The parts being withheld can be requisitioned at a later date. At the time of requisitioning, the requisitioner should use the hanger sketch to inventory the materials for the hanger.
2. Hanger material shall be placed in a clean, dry area designated by the area superintendent and/or hanger supt.
3. All material superseded by later drawing revisions shall be removed from the field. Usable surplus material should be

returned to the warehouse in a timely manner. This should avoid work-area congestion and misuse of material.

4. Scrap material shall be sent to the designated scrap location.

3.8 Exhibit Instructions

Changes to the content of Work Directives, Travelers, and Hanger Mods must be initialed and dated. Signoff blocks on a Work Directive or the Traveler for a Hanger Mod should be dated on or after the change date.

1. Field Mods (Exhibit 1)

1. Field Mods shall be written and issued by the Resident Hanger Engineer or his designee.
2. Modifications to hangers on Class 1 lines must be limited to corrections in drafting errors, drawing clarifications, weld symbols, and dimensional changes within the tolerances of Reference 2.17.
3. The field mod is comprised of two copies, one of which remains in the field for hanger installation, and the original which is routed to the work package group for assignment of FM# and routing to Document Control. (The FM# is a sequential tracking number).
4. If NDE requirement holdpoints or welding procedures are affected by the issuance of a Mod, the hanger package should be routed to Welding Engineering and QC Welding for the required changes to the SWDR.
5. The field copy of the Mod shall be considered active for ten calendar days. If a controlled (blue) copy has not been inserted in the hanger package within ten calendar days, all work on the hanger shall stop until a controlled copy is received.
6. Each Mod shall also have a unique number which shall consist of the Hanger Design revision, M for Mod, and an ascending number starting with 1 (Ex. 2/A M1). This numerical sequence starts over when a new design revision is received.
7. New design revisions shall supersede the previous design revisions and all Mods written against that revision.

CONSTRUCTION PROCEDURES MANUAL

SNPP

Procedure No.

17-110

Date

3-8-Approved

WORK PROCEDURE INSTALLATION OF SEISMIC PIPE HANGERS AND
SUPPORTS FOR SEISMICALLY ANALYZED PIPE

DESCRIPTION

Revision

3

Page

15

of

18

8. Mods which affect an already active Mod shall not be issued until the active Mod has been voided. Voiding of Mods shall be accomplished as follows. The voided Mod shall be removed from the hanger package and routed to document control for distribution after the drawing has been stamped void, initialed, and dated by the Hanger Engineer.
2. HIC Sticker (Exhibit 2)
The HIC sticker shall be located and completed by the Field Engineers.
3. Traveler (Exhibit 3)
 1. The Traveler shall be initiated by the Hanger Engineer in order to control the in-process installation and inspections of the pipe hanger.
 2. Work Directives, DCN's, PW's, FCR's, and Hanger Mods should be referenced in the applicable blocks at the top of the Traveler. Mod numbers (i.e., 2SI M1) are listed under the RCI heading. If any of these documents are voided, the entry should be lined through, initialed and dated by the Hanger Engineer. Superseded documents do not need to be crossed out.
 3. Engineered plate thickness determinations should be listed after 7/22/81 by the Hanger or Area Engineer.
 4. The phase of construction - Preliminary or Final should be appropriately denoted. Completion of either phase shall be to the latest design revision and/or Mod (Examples 2/A M1 or 1S1.M4).
 5. For the PRELIMINARY phase of construction, the FIT-UP and WELDOUT signoff blocks shall be initialed and dated by the foreman, the CI block initialed and dated by the Hanger Engineer, and the QC block initialed and dated by the Welding Engineer. The QC block may be marked N/A initialed and dated by the Hanger Engineer.

CONSTRUCTION PROCEDURES MANUAL	SRNPP	Procedure No.	Date
WORK PROCEDURE	INSTALLATION OF SEISMIC PIPE HANGERS AND	TP-110	As Approved
DESCRIPTION	SUPPORTS FOR SEISMICALLY ANALYZED PIPE	Revision	3
		Page	15 of 18

6. For the Final phase of construction and inspection, the FIT-UP AND WELDOUT blocks may be initialed and dated by the foreman. The CI and QC blocks shall be initialed and dated by CI and QC inspectors respectively. The CI and QC signoffs are for final acceptance of the hanger, however the actual inspection records are on TP-34 and the SWDR respectively.
7. Upon receipt of a new design which does not affect the as-built configuration and location of the hanger, signoff blocks shall be N/A'd, initialed and dated and the Hanger Engineer shall make an entry for that revision and note "as-built" on the traveler.
8. If the new revision does affect work, the work package is re-issued to the field for completion to that later revision.
4. Material Verification (Exhibit 4)
The Material Verification sheet shall be completed by the Hanger Engineer per the instructions provided in Appendix J.
5. Work Directives (Exhibit 5)
 1. Work Directives shall be issued to detail construction activities. This includes any work which will void out a previous inspection.
 2. Work Directives shall be initiated, signed and dated by the Hanger Engineer.
 3. Work Directive Numbers shall be sequential starting with one. The number shall be assigned by the Hanger Work Package Group.
 4. Signoff blocks shall be completed by the appropriate persons unless N/A'd by the Hanger Engineer.

4.0 PROCEDURE

1. The Field Engineers shall identify interferences and provide control points for hanger installation and inspection as requested. The control points are laid out in accordance with Reference 2.13 and are easily

CONSTRUCTION PROCEDURES MANUAL

SHNPP

Procedure No.

SE-110

Date

As Approved

WORK PROCEDURE INSTALLATION OF SEISMIC PIPE HANGERS AND

Revision

9

DESCRIPTION SUPPORTS FOR SEISMICALLY ANALYZED PIPE

Page

17

of

18

identified by the orange sticker (Exhibit 2). These activities are referred to as the HIC -Hanger Installation Checkout - Program in WP-139.

2. The Hanger Engineer should establish that the hanger is not on hold for construction, engineering or quality reasons prior to generating the work package. The work package should consist of but not be limited to the Hanger Design drawing, SWDR, and Traveler (Exhibit 3). In addition a Work Directive (Exhibit 5) detailing work instructions to the craft and inspectors shall be included. After the work package is made up in accordance with Reference 2.13 and its established that the hanger is ready for construction, it is issued to the Hanger Superintendent for installation.
3. The Hanger Engineer or Superintendent shall requisition the material from the warehouse. The material shall be tacked up per Reference 2.1 and the Hanger Engineer called for a preliminary examination.
4. The Resident Hanger Engineer or his designee shall issue Mods (Exhibit 1) for any problems encountered.
5. The Hanger Engineer shall then examine the hanger for completeness (including trunnion material where applicable) and correctness, and list the gap measurements (See Appendix K for criteria) on the SWDR.
6. The Craft Superintendent shall weld the hanger out per Reference 2.1 and call for a preliminary examination by Welding Engineering.
7. The Welding Engineer shall examine welds for quality and size as requested.
8. The Hanger Engineer shall verify material and complete Exhibit 4 prior to the final inspections.
9. CI and QC shall inspect following the weldout of the hanger.
10. The Craft Superintendent shall return the work package to the Hanger Engineer following the installation and inspection of the hanger.
11. The Hanger Engineer shall review the Q documents per Reference 2.16 and transmit them to QA Records Review Group after the hanger has been completed and inspected and an as-built of the hanger has been incorporated into the design drawing.

12. The Hanger Engineer shall put a CWRA in the work package when required.

R9

5.0 EXHIBITS AND APPENDICES

- 5.1 Exhibit 1 - Field Modification (Rev. 0-11/83)
- 5.2 Exhibit 2 - HIC Sticker (Rev. 0-11/83)
- 5.3 Exhibit 3 - Seismic Hanger Installation and Inspection Traveler (Rev. 2-4/83)
- 5.4 Exhibit 4 - Material Verification Form (Rev. 0-11/83)
- 5.5 Exhibit 5 - Work Directive (Rev. 1-11/82)
- 5.6 Exhibit 6 - Seismic Load Sheet (Rev. 0-11/83)
- 5.7 Appendix A - Catalog Part Combinations (Rev. 2-11/83)
- 5.8 Appendix B - Gap Tolerances at Load Pins (Rev. 2-11/83)
- 5.9 Appendix C - Fastener Types (Rev. 2-11/83)
- 5.10 Appendix D - Flow Chart (Rev. 0-11/83)
- 5.11 Appendix E - Strut Identifications (Rev. 1-11/83)
- 5.12 Appendix F - Tightening Criteria (Rev. 1-11/83)
- 5.13 Appendix G - Flat and Tapered Washer Reference Table (Rev. 1-11/83)
- 5.14 Appendix H - Installation Procedure For Main Steam B-Wall Supports (Rev. 1-11/83)
- 5.15 Appendix I - Clearance Tolerances (Rev. 0-11/83)
- 5.16 Appendix J - Material Verification Program (Rev. 0-11/83)
- 5.17 Appendix K - Gap Measurement Criteria (Rev. 0-11/83)

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R9

MATERIAL VERIFICATION PROGRAM

The following instructions are to be used by the Hanger Engineer to complete Parts 1-7 on Exhibit 4.

Part 1

All material which was issued prior to 9-6-83 maintained identification via material control. To ensure the controls were implemented, the Hanger Engineer shall need to know what material was received and issued for construction. The Warehouse Engineer shall provide that information in Part 1 of Exhibit 4. He shall research receipt records and list items and the drawing revision for which the material was supplied. He shall sign and date the entry.

	<u>Items</u>	<u>Rev.</u>
<u>Example:</u>	<u>1</u> <u>2</u> <u>7</u>	<u>3</u>

Part 2

The Hanger Engineer shall verify the as-built steel is the as-received as-issued material for the pipe hanger. He must perform a field check on the items listed in Part 1 and compare the physical parameters, except length, of the as-built steel to the Bill of Materials of the drawing revision for which the material was supplied. In addition, the hanger material must:

1. Be coated with red oxide primer (except in the Containment Building) or,
2. Be coated with flat white primer (only in the Containment Building) or,
3. Be coated with gloss white paint and stamped with the hanger number or,
4. Be an uncoated structural shape less than 6" long or,
5. Be an uncoated plate which has an exposed area less than 3" from a weld
6. Not be marked with another hanger number or PO number
7. Not have documentation in the package to indicate the material was supplied from surplus or stock.

MATERIAL VERIFICATION PROGRAM

If the material has been determined to be the original issue, the Hanger Engineer shall list the item numbers in Part 2 of Exhibit 4.

Part 3

The Hanger Engineer shall list those items in Part 3 of Exhibit 4 whose source of material can be determined from Work Package documentation (i.e., Speed Letter, RCI or CMR). However the source must be legitimate with a Certificate of Conformance from a qualified vendor. This is evidenced by a stamp - "Source Accepted" - on the CMR, Speed Letter, or RCI.

Part 4 & 5

All material issued after 9/8/83 will be stamped or etched for positive identification. The following will be the acceptance criteria for this material.

- . A-36 plate, channel, wide flange, and angle shall be stamped with the 36 symbol unless it is less than 3/16" thick.
- . A-500 Grade B tube steel shall be stamped the 36 symbol.
- . 10-gauge and 16-gauge shim stock will be stamped or etched with the material grade. (A-369 is acceptable.) FCR-H-1263 allows shim stock to be stamped (but not with the 36 symbol) even though it may be less than 3/16" thick.
- . U bolts and threaded rod will be stamped or etched with the material grade.
- . Stock pipe tubing for struts shall be etched with the material grade.
- . Steel other than A-36 or A-500 Grade B shall be stamped with the purchase order number.

If the material is marked and is acceptable, the Hanger Engineer shall list the item numbers under Part 4 or 5 as appropriate.

MATERIAL VERIFICATION PROGRAM

Part 6

Catalog parts shall be identified by the physical characteristics of the item or by the stamped catalog part number. The catalog part identity must be in accordance with The Bill of Materials. The Hanger Engineer shall list these item numbers in Part 6 of Exhibit 4 and not under Parts 2, 3, 4, 5, or 7.

Part 7

A sampling program is set up for structural shapes, plates, and shims which cannot be identified under part 2, 3, 4, or 5. The Hanger Engineer shall list these items in Part 7 of Exhibit 4.

General Notes:

If more than one of an item is to be considered, each piece shall be listed in the appropriate section. For example, if there are two piece 7's and both pieces are stamped, Item 7 should be listed twice in Part 4. After the form is completed, the Hanger Engineer shall sign, date, and enter the drawing revision the items were checked against. A copy of the form shall be removed from the Work Package and returned to the office to determine the scope of the sampling program and to initiate any material testing. Welded pipe attachments (trunnions, lugs, etc.), anchor bolts and cinch anchored plates shall not be listed on Exhibit 4.

**CAROLINA POWER & LIGHT COMPANY /
SHEARON HARRIS NUCLEAR POWER PLANT
PROCEDURE CHANGE NOTICE**

Procedure WP-110 Revision No. 12 Change No. 2

Procedure Title INSTALLATION OF O AND NON-O PIPE HANGER AND SUPPORTS

Applicable - FCR's _____ DCN's _____

Uncontrolled Copy

Affected Paragraphs	Description of Change
6.7	Revise to read: ... with spacer washers per Appendix B.
7.4	Revise to read: 1. Temporary hangers shall be erected to support the pipe in accordance with WP-102 during the installation stage of the pipe and hangers. These supports should not be removed nor should permanent supports be reworked if the work would compromise this spacing. 2. Temporary hangers shall be erected in lieu of permanent hangers when necessary to support RPT's. These hangers shall be erected in accordance with SS/C-A-1039. They shall not be erected (insofar as practicable) in the same location as the permanent support. The temporary hangers will be tagged and may only be removed after adjacent permanent supports have been installed. A Work Directive is necessary for this effort.

The approval of this Procedure Change Notice authorizes deviation from the named procedure to the extent described above.

The holder of the affected procedure shall retain this notice with the procedure until the next procedure revision is in effect.

APPROVALS		DATE
ORIGINATOR	<i>[Signature]</i>	1-18-85
QA/QC REVIEW	<i>[Signature]</i>	1/22/85
CP&L	<i>[Signature]</i> for RMP	1/24/85

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT Page 2 of 2
PROCEDURE CHANGE NOTICE CONTINUATION SHEET

Procedure No. WP-110 Revision No. 12 Change No. 2

Affected Paragraphs

Description of Change

3.8.5.1.2

Add:

However, work can proceed to correct an unacceptable condition which is detailed on CI checklist, PD form, or the SWDR provided acceptable attributes are not affected by the rework.

The approval of this Procedure Change Notice authorizes deviation from the named procedure to the extent described above.

The holder of the affected procedure shall retain this notice with the procedure until the next procedure revision is in effect.

A96

CONSTRUCTION PROCEDURES MANUAL <u>SHNPP</u>	Procedure No.	Date
	<u>WP-110</u>	<u>As Approved</u>
	Revision	12
WORK PROCEDURE <u>INSTALLATION OF Q AND NON-Q PIPE</u>	Page	14 of 27
DESCRIPTION <u>PIPE AND SUPPORTS</u>		

Temporary Pipe Supports

1. Temporary hangers shall be erected to support the pipe in accordance with SS/C-A-1039 during the installation stage of the pipe and hangers. These supports should not be removed nor should permanent supports be reworked if the work would compromise this spacing.
2. Temporary hangers shall also be erected in lieu of permanent hangers when necessary to support RFTs. They shall not be erected (insofar as practicable) in the same location as the permanent support. These temporary hangers will be tagged and may only be removed after adjacent permanent supports have been installed. A Work Directive is necessary for this effort.

R12

3.7.

5. Coating Requirements

Prior to coating, hangers going into the containment building shall be hard marked for hanger and material identification; stock steel shall be hard marked for material identification. The installation of pipe hangers shall not make an area (steel or concrete) which requires protective coatings inaccessible for application of coating or required inspection of coatings. If installation of an item would cause an area to be inaccessible, then prior to the installation, the Pipe Hanger Superintendent or designee shall contact the Paint Superintendent and/or CI Coatings Inspector to verify that required coatings and inspections have been performed and accepted. All Hanger material designated for the containment building (except shim material with thicknesses of 1/8" and less) shall be surface prepared per Service Level I requirements prior to installation.

R12

B:11

THIS IS WHAT THE PROCEDURE USED TO SAY WITH REGARD TO TEMPORARY SUPPORTS BEFORE IT WAS REVISED.

A97

A97

PHX

CAROLINA POWER & LIGHT COMPANY
CORPORATE QUALITY ASSURANCE DEPARTMENT
DEFICIENCY AND DISPOSITION REPORT
(Procedure CQC-2)

DDR No. 1775
Page 1 of 2
RPT No. 1-4000

Item Activity Name or Description <u>PIPE HANGER INSTALLATION</u>	Shop Order <u>NA</u>	See CQC-2 <u>SEE DETAIL</u>	Quantity <u>DEF. 1</u>	Unit <u>1x2</u>	Quality Assurance No. (PC & Item No.) <u>QA- NA</u>
Material, Part or Other Identification No.	Supplier or Manufacturer <u>NA</u>	Type of Procurement <input type="checkbox"/> CQCL PC <input type="checkbox"/> Transfer <input type="checkbox"/> QA-E PO <u>NA</u> <input type="checkbox"/> NSSS PC			
Location (Specification, Drawing, Procedure or Other) <u>WP-110</u>	NCR No. <u>NA</u>	Reporting Inspector <u>JAT VINCENT</u>			

Deficiency Details: A QA SURVEILLANCE OF TWELVE (12) PIPE HANGERS THAT HAVE BEEN INSPECTED AND ACCEPTED BY CI FOR PHASE II REVEALED THE FOLLOWING MATERIAL SUBSTITUTION/CONTROL PROBLEMS ON FIVE (5) OF THE HANGERS. ONE ADDITIONAL PROBLEM WAS NOTED DURING THE SURVEILLANCE PERTAINING TO MATERIAL CONTROL. THE PROBLEMS ARE LISTED BELOW.

1. A SEMI-MATERIAL WAS ISSUED FOR A SEMI-MATERIAL HANGER (1-5L-H-1570) ON CONSTRUCTION MATERIAL DIVISION (CMR) = CE757; ITEM #3 AND #9

2. A SPEED LETTER DATED 4-25-80 ISSUED ITEM #6 (1/2" x 7/8" x 9/16") FOR PIPE HANGER 1-CC-H-105 FROM RELEASE ORDER (RO) # 21022, ALTHOUGH RO # 21022 WAS VOIDED AND NO DOCUMENTATION EXISTS THAT MATERIAL WAS RECEIVED.

DDR Evaluation

<input checked="" type="checkbox"/>	Construction Phase
<input type="checkbox"/>	Engineering Phase
<input type="checkbox"/>	QA Program Violation
<input type="checkbox"/>	Specification Deviation
<input checked="" type="checkbox"/>	Procedural Deviation
<input type="checkbox"/>	Unacceptable Workmanship
<input type="checkbox"/>	Damage/Defect
<input type="checkbox"/>	Other
<input type="checkbox"/>	Not Reportable #

Eval. By - _____ Date _____

UNDER EVALUATION BY NPLD

[Signature]
QA/QC Specialist/Engineer

Final Disposition: Verified Hold Tags Removed

Remarks:

Accepted by: _____ Date _____

QA/QC Inspector _____ Date _____

QA/QC Specialist/Engineer _____ Date _____

Distribution:

Original: Director - QA/QC - SENTP

CC: V.P., Gen. Mgt./Sr. Res. Engt.
Gen. Mgt. - Construction
V.P. Comp. Syst. & Information
Responsible QA/QC Specialist
Accounting
Mgt. - ESC QA/QC
Mgt. - HSES
State-Op Ed WILLETTE (CAR)
NSSS Site Rep.

ANSI Concurrence (ASME Code Section III Items Only):

Projects Closed:

Director - QA/QC - SENTP _____ Date _____

A98

A98

QA-12
2/81
Rev. 0

CAROLINA POWER & LIGHT COMPANY
CORPORATE QUALITY ASSURANCE DEPARTMENT

QA/QC REPORT CONTINUATION SHEET

Report No. DDR-175
Page 2 of 2

- 3) A FURTHER INVESTIGATION OF P.O. # 21022 REVEALED THAT MATERIAL FROM THIS P.O. WAS USED ON PIPE HANGER 1-CC-H-1242, 1-RH-H-183 AND NUMEROUS OTHER PIPE HANGERS NOT LISTED HERE, ALTHOUGH P.O. # 21022 WAS VOIDED AS PREVIOUSLY STATED IN (2) ABOVE.
- 4) CMR # 105087 INDICATED THAT ITEM #3 (END ATTACHMENTS) WERE ISSUED FROM SURPLUS PIPE HANGER 2-WG-H-1264 AND USED ON PIPE HANGER 1-SW-H-2335. HOWEVER, 2-WG-H-1264 HAS NO END ATTACHMENTS.
- 5) CMR # 66234 AND CMR # 66126 BOTH ISSUED $\frac{1}{8}$ " P. FOR PIPE HANGER 1-SW-H-410. HOWEVER, NO $\frac{1}{8}$ " P. WAS ORDERED OR RECEIVED ON THE P.O. #1556 REFERENCED ON THE CMR.
- 6) CMR # 53789 ISSUED ITEM # 2 (R $\frac{1}{2}$ " X 6" X 6") FROM P.O. # 435076 FOR PIPE HANGER 1-SW-H-625. HOWEVER THERE IS NO $\frac{1}{2}$ " P. ON P.O. # 435076.
- 7) CMR # 53833 ISSUED ITEM # 2 (R $\frac{1}{2}$ " X 6" X 6") AGAIN FROM P.O. # 435076 FOR PIPE HANGER 1-SW-H-625. WHICH MATERIAL WAS USED ON PIPE HANGER 1-SW-H-625 COULD NOT BE DETERMINED.
- 8) CMR # 106839 AND CMR # 089571 BOTH ISSUED ITEMS #1, 2 AND 3, CONSTITUTING 2 TWO SETS OF MATERIAL FOR PIPE HANGER 1-SW-H-1570 WHICH ITEMS WERE USED ON PIPE HANGER 1-SW-H-1570 IS INDETERMINATE.
- 9) CMR # 089571 ISSUED ITEM # 9 (R $\frac{3}{4}$ " X 4" X 5") FOR PIPE HANGER 1-SW-H-1570 FROM PIPE HANGER 1-CE-H-166. HOWEVER, THE ONLY $\frac{3}{4}$ " P. AVAILABLE FROM PIPE HANGER 1-CE-H-166 IS $\frac{3}{4}$ " X 3" X 5" WHICH IS TOO SMALL.
- 10) CMR # 50574 ISSUED ITEM # 3 (2100-12 RIGID TELESCOPING STRUT ASSEMBLY) FOR PIPE HANGER 1-SW-H-625 FROM PIPE HANGER 1-CC-H-99. HOWEVER, THE ITEM # 3 INSTALLED ON HANGER 1-CC-H-99 AND 1-CC-H-910.
- 11) CMR # 596726 ISSUED 16 GAUGE S&W MATERIAL FOR PIPE HANGER 2-SW-H-915. HOWEVER MATERIAL WAS MEASURED AT .105" WHICH IS APPROXIMATELY 10 GAUGE.
- ALL SW PIPE HANGERS ARE IN CAT 4065.
ALL CC PIPE HANGERS ARE IN CAT 4061.
- NTE: EXCEPT ITEM THE MATERIAL IS COMPATIBLE WITH THE ORIGINAL REQUIREMENTS.

A98

QA-1
 7/30/82
 Rev. 10

CAROLINA POWER & LIGHT COMPANY
 CORPORATE QUALITY ASSURANCE DEPARTMENT
 DEFICIENCY AND DISPOSITION REPORT

DDR No. 1795
 Page 1 of 1
 RFT. No. 1-4065

Activity Name or Description PIPE HANGER INSTALLATION	Shop Order NA	Quantity NA	Unit 1-2	Quality Assurance No. (PO & Item No.) QA- NA
Material, Heat or Other Identification No.	Supplier or Manufacturer NA	Type of Procurement <input type="checkbox"/> CP&L PO <input type="checkbox"/> Transfer <input type="checkbox"/> A-E PO NA <input type="checkbox"/> NSSS PO		
Location (Specification, Drawing, Procedure or Other) WP-110		NCR No. NA	Reporting Inspector JAY A VINCENT & HARRELL	

Deficiency Details: DURING A QA ASSESSMENT OF THE PIPE HANGER PROGRAM THE FOLLOWING DEFICIENCIES WAS NOTED:

1) PIPE HANGER SKETCH 142-SW-N-3050 INCORRECTLY IDENTIFIED FIELD WEADS AS SHOP WEADS; CONSEQUENTLY DURING PHASE II INSPECTION QC DID NOT INSPECT THE FIELD WEADS INCORRECTLY IDENTIFIED AS SHOP WEADS IN THE HANGER DRAWING. A REVIEW OF THE SITE FABRICATION HISTORY INDICATED THAT THE SUBJECT PIPE HANGER WAS FABRICATED ON SITE;

2) EBASCO REVISIONS TO DRAWINGS CHANGE WELD SYMBOLS AND QC SIZES WITHOUT REFERENCE TO PREVIOUS REVISIONS (IE. FIELD WEADS TO SHOP WEADS, ALL AROUND FILLET WEADS TO FLARE BEVEL, ALL AROUND FILLET TO ALL AROUND FILLET WITH A FLARE BEVEL ON TWO SIDES).

3) ALL CHANGES TO THE DRAWINGS ARE NOT BEING CLEARLY INDICATED (CLOUDED) COMPOUNDING THE ABOVE PROBLEMS.

DDR Evaluation

<input checked="" type="checkbox"/> Construction Phase
<input type="checkbox"/> Engineering Phase
<input type="checkbox"/> QA Program Violation
<input type="checkbox"/> Specification Deviation
<input checked="" type="checkbox"/> Procedural Deviation
<input type="checkbox"/> Unacceptable Workmanship
<input type="checkbox"/> Damage/Defect
<input type="checkbox"/> Other
<input type="checkbox"/> Not Reportable *

Eval. By -	Site QA/QC Engt.	QA Engt.	EPSS	NPSS
Date				

* UNDER EVALUATION BY NPSD

Final Disposition: Verified Hold Tags Removed

Remarks:

QA/QC Inspector _____ Date _____

Accepted by: _____

QA/QC Specialist/Engineer _____ Date _____

- Distribution:**
- Orig: Director - QA/QC - SENPP
 - CC: Proj. Gen. Mgr. / Sr. Res. Engr.
 - Gen. Mgr. ST Operations
 - Eng. Comp. Trng. ST Operations
 - Installing QA/QC Specialist
 - Accounting
 - Mgt. - E&C QA/QC
 - Mgt. - EPSS
 - Start-Up Ed VILLET-LAC
 - NSSS Site Rep.
 - ARI

ANI Concurrence (ASME Code Section III Items Only):

Authorized Nuclear Inspector _____ Date _____

Reports Closed:

Director - QA/QC - SENPP _____ Date _____

A99

A99

QA-2 *Approved for Close*
6/10/83
 Rev. 1

CAROLINA POWER & LIGHT COMPANY
 CORPORATE QUALITY ASSURANCE DEPARTMENT

NCR No. QA-255
 Page 1 of 1
 RFT No. 2-4065

NONCONFORMANCE REPORT
 (Procedure CQC-1)

Item/Activity Name or Description	Shop Order	Quantity	Unit	Quality Assurance Number (Purchase Order & Item No.)
PIPE HANGER INSTALLATION	NA	1	2	QA-NA
Serial, Heat or Other Identification No. (Specify)	Supplier or Manufacturer	Type of Procurement		
2-SW-H-915	NA	<input type="checkbox"/> OP&L PO <input type="checkbox"/> Transfer <input type="checkbox"/> A-E PO NA <input type="checkbox"/> NSSS PO		
Violation (Specification, Drawing, Procedure or Other)	Reporting QA/QC Inspector (Signature)			
WP-110	<i>RETAIN VINCENT</i> <i>6/28/83</i>			

Nonconformance Details: THE FOLLOWING PIPE HANGER NONCONFORMANCE WAS OBSERVED:
 ON THE ECH 3 TO WP-110 ON PIPE HANGER 2-SW-H-915 THE PREHEAT BACK WAS NOT SIGNED, BUT THE SWER WAS SIGNED TO REFLECT THE PREHEAT BEING ACCOMPLISHED

QA/QC Specialist _____ Date _____

Corrective Action & Disposition Details (Attach supporting documentation)

DISTRIBUTION:

Original: MICKEY VERNOI
 Discipline Engineer
 Director QA/QC - BENTON
 Senior Resident Engineer
 Issuing QA/QC Specialist
 Other: M.E. WILLIAMS SR
DICK PEEVATIE - NRC

A100

(Signature) _____ Date _____
Disposition Verified:

 QA/QC Inspector
Disposition Accepted:

 QA/QC Specialist _____ Date _____
 A100

CA-1
30/82
10

CAROLINA POWER & LIGHT COMPANY
CORPORATE QUALITY ASSURANCE DEPARTMENT
DEFICIENCY AND DISPOSITION REPORT

DDR No. 1776
Page 1 of 1
RPT No. 1-4665

Item Activity Name or Description	Shop Order	Code	Quantity	Unit	Quality Assurance No. (PC & Item No.)
PIPE HANGER INSTALLATION	NA	20-25-83 SE/SA/IC I	SEE DETAILS	1	QA- NA
Serial, Head or Other Identification No.	Supplier or Manufacturer		Type of Procurement		
SEE DETAILS	NA		<input type="checkbox"/> Local PC <input type="checkbox"/> Transfer <input type="checkbox"/> CA-E PC NA <input type="checkbox"/> NSSS PC		
Location (Specification, Drawing, Procedure or Other)	NCR No.	Reporting Inspector			
WA-110	NA	JAYD VINCENT 7-25-83			

Deficiency Details: THE FOLLOWING FASTENER DEFICIENCIES WERE OBSERVED ON THE FOLLOWING PIPE HANGERS. THESE HANGERS HAVE BEEN ACCEPTED BY CI FOR THEIR PHASE II INSPECTION. THE NOTED PROBLEMS ON THE FOUR (4) HANGERS WERE FOUND OUT OF A TOTAL SAMPLE OF FIVE (5) HANGERS THAT HAD FASTENERS.

1-SW-H-250 - THE MARKING ON THE FASTENERS INDICATE THAT THEY HAVE BEEN MOVED SUBSEQUENT TO THE PHASE II INSPECTION, WITHOUT AUTHORIZATION.

1-SW-H-625 AND 1-SW-H-1567 - THE FASTENERS ARE UNMARKED CONTRARY TO THE REQUIREMENTS OF P-110 PARA. 4.4.4.19, MARKINGS ARE USED TO INDICATE ANY TAMPERING WITH THE FASTENERS.

1-SW-H-2339 - THESE FASTENERS ARE UNMARKED AND WERE LOOSEND AFTER PHASE II WITHOUT PER AUTHORIZATION.

DDR Evaluation				
<input checked="" type="checkbox"/>	Construction Phase			
<input type="checkbox"/>	Engineering Phase			
<input type="checkbox"/>	QA Program Violation			
<input type="checkbox"/>	Specification Deviation			
<input checked="" type="checkbox"/>	Procedural Deviation			
<input type="checkbox"/>	Unacceptable Workmanship			
<input type="checkbox"/>	Damage/Defect			
<input type="checkbox"/>	Other			
<input type="checkbox"/>	Not Reportable			
	QA	CA	EPES	Other
	QA/QC Ingt.			
Eval. By -				
Date				

* UNDER EVALUATION BY NACD.

[Signature]
QA/QC Specialist/Engineer

Final Disposition: Verified Hold Tags Removed

Remarks:

QA/QC Inspector _____ Date _____

Accepted by: _____

QA/QC Specialist/Engineer _____ Date _____

- Distribution:**
- CC: Director - QA/QC - SENPP
 - CC: Proj. Gen. Mgr./Sr. Res. Engr.
 - Gen. Mgr. Operations
 - Reg. Engr. Tech. & Operations
 - Initiating: QA/QC Specialist
 - Accounting: [unclear]
 - Mgt. - ESS QA/QC
 - Mgt. - EPES
 - Start-Up: RED WILET - CAE
 - NSSS Site Rep.
- A101

ANI Concurrence (ASME Code Section III Items Only):

Approved/Rejected: _____ Date _____

Reports Closed:

Director - QA/QC - SENPP _____ Date _____

A101

QA-1
 1/20/82
 p. 10

CAROLINA POWER & LIGHT COMPANY
 CORPORATE QUALITY ASSURANCE DEPARTMENT
 DEFICIENCY AND DISPOSITION REPORT

DDR No. 1784
 Page 1 of 1
 RFT No. 1-4065
2-4065

(Procedure CQC-2)

Item/Activity Name or Description PIPE HANGER INSTALLATION	Shop Order NA	Quantity NA	Unit 1-2	Quality Assurance No. (PC & Item No.) QA- NA
Serial, Heat or Other Identification No. SEE DETAILS	Supplier or Manufacturer NA	Type of Procurement <input type="checkbox"/> CP&L PO <input type="checkbox"/> Transfer <input type="checkbox"/> A-E PO NA <input type="checkbox"/> NSSS PO		
Location (Specification, Drawing, Procedure or Other) WP-110	NCE No. NA	Reporting Inspector JAY A. VINCENT & HARRELL		

Deficiency Details: DURING A QA ASSESSMENT OF THE PIPE HANGER PROGRAM THE FOLLOWING DEFICIENCY WAS NOTED:

NO DOCUMENTED PROGRAM TO PROVIDE SUFFICIENT ENGINEERING INSTRUCTIONS TO THE CRAFT AND QC SPECIFYING THE CHANGES DELINEATED BY A DRAWING REVISION IS IN EFFECT.

IE PIPE HANGER 2-SW-H-915 WAS PHASE II ACCEPTED WHEN A DRAWING REVISION CHANGED WELD SIZES AND TYPES. NO ENGINEERING ACTION HAD OCCURRED (NEW TRAVELER, NEWSWAP)

DDR Evaluation				
<input checked="" type="checkbox"/>	Construction Phase			
<input type="checkbox"/>	Engineering Phase			
<input type="checkbox"/>	QA Program Violation			
<input type="checkbox"/>	Specification Deviation			
<input checked="" type="checkbox"/>	Procedural Deviation			
<input type="checkbox"/>	Unacceptable Workmanship			
<input type="checkbox"/>	Damage/Defect			
<input type="checkbox"/>	Other			
<input type="checkbox"/>	Not Reportable *			
	Site QA/QC	QA Engr.	EPES	NPCD
Eval. By -				
Date				
* UNDER EVALUATION BY NPCD				

Final Disposition: Verified Hold Tags Removed

QA/QC Specialist/Engineer _____ Date _____

Remarks:

Accepted by: _____ Date _____

QA/QC Inspector _____ Date _____

QA/QC Specialist/Engineer _____ Date _____

- Distribution:**
- Director - QA/QC - SENPP
 - Prof. Gen. Mgr./Sr. Res. Engr.
 - Gen. Mgr. ST/Operations
 - Reg. Comp. Unit (ST/Operations)
 - Initiating QA/QC Specialist
 - Accounting
 - Mgr. - EIC QA/QC
 - Mgr. - EPES
 - Start-Up **ED WILLET - CAR**
 - NSSS Site Rep
 - ANI

ANI Concurrence (ASME Code Section III Items Only):

Report Closed: _____ Date _____

Director - QA/QC - SENPP _____ Date _____

A102

A102

CAROLINA POWER & LIGHT COMPANY
CORPORATE QUALITY ASSURANCE DEPARTMENT
DEFICIENCY AND DISPOSITION REPORT
(Procedure CQC-2)

DDR No. 1795
Page 1 of 1
RFT No. ALL HANGER RFT'S

Item/Activity Name or Description PIPE HANGER INSTALLATION	Shop Order N/A	Code Class SEISMIC I	Quantity N/A	Unit 1#2	Quality Assurance No. (PO & Item No.) OA- N/A
Serial, Heat or Other Identification No. SEE DETAILS	Supplier or Manufacturer N/A		Type of Procurement <input type="checkbox"/> CP&L PO <input type="checkbox"/> Transfer <input type="checkbox"/> A-E PO N/A <input type="checkbox"/> NSSS PO		
Violation (Specification, Drawing, Procedure or Other) WP-110	NCR No. N/A	Reporting Inspector DAVID WILLET			

Deficiency Details: DURING A QA ASSESSMENT OF THE PIPE HANGER PROGRAM, THE FOLLOWING HANGER SKETCH DEFICIENCIES WERE NOTED:

- 1) PIPE HANGER SKETCH 1#2-SW-H-3050 INCORRECTLY IDENTIFIED FIELD WELDS AS SHOP WELDS, CONSEQUENTLY, DURING PHASE II INSPECTION QC DID NOT INSPECT THE FIELD WELDS INCORRECTLY INDICATED AS SHOP WELDS ON THE HANGER DRAWING. A REVIEW OF THE SITE FABRIKATION HISTORY INDICATED THAT THE SUBJECT PIPE HANGER WAS FABRICATED ON SITE.
- 2) ALL CHANGES TO THE DRAWINGS ARE NOT BEING CLEARLY INDICATED (EXAMPLE: 2-SW-H-915) BY REVISION MARKINGS.
- 3) HANGER SKETCHES SHOW INCORRECT AND/OR CONTRADICTIONARY WELD SYMBOLS. (EXAMPLE: 2-SW-H-915)

DDR Evaluation

<input checked="" type="checkbox"/>	Construction Phase
<input type="checkbox"/>	Engineering Phase
<input type="checkbox"/>	QA Program Violation
<input type="checkbox"/>	Specification Deviation
<input checked="" type="checkbox"/>	Procedural Deviation
<input type="checkbox"/>	Unacceptable Workmanship
<input type="checkbox"/>	Damage/Defect
<input type="checkbox"/>	Other
<input type="checkbox"/>	Not Reportable*

Site QA/RC	QA Engr.	HPES	NPCD
Eval. By - GEF	KVH	GOW	EEW
Date 2-7-84			

3-29-84
* UNDER EVALUATION BY NACD.
Determined not reportable under 10CFR 21 and 10CFR 50.55(c)

DAVID WILLET
QA/QC Specialist/Engineer
Date **7-29-83**

Final Disposition: Verified Hold Tags Removed N/A

Remarks:

CLOSED

DAVID WILLET
QA/QC Inspector
Date **3-26-84**

Accepted by:
DAVID WILLET
QA/QC Specialist/Engineer
Date **3-26-84**

- Distribution:**
- Orig: Director - QA/QC - SHNPP
 - CC: Proj. Gen. Mgr./Sr. Res. Engr. Gen. Mgr. (SU/Operations) Reg. Comp. Unit (SU/Operations) Initiating QA/QC Specialist Accounting Mgr. - ESC QA/QC
 - Mgr. - HPES
 - Start-Up **DAVID WILLET (CAR)**
 - NSSS Site Rep.
 - ANI

ANI Concurrence (ASME Code Section III Items Only):

N/A

Authorized Nuclear Inspector _____ Date _____

Report Closed:

DAVID WILLET
Director - QA/QC - SHNPP
Date **3-28-84**

A103

CORRECTIVE ACTION REPORT
(Procedure CQC-2)

DDR No. 1751
Issue Date 7/24/83
Page 1 of 1

Proposed Disposition:

- Repair
- Rework
- Reject (Return to Vendor)
- Reject (Scrap)
- Permanent Waiver (Accept-as-is)
- Upgrade Code Certification
- Downgrade Item
- Other (describe below)

Details:

MODIFY THE DEFICIENT HANGERS, TO REFLECT THE CORRECT INFORMATION AS CONSTRUCTED.

Recommended By:

MHF Shabir *PA Howard* 3/19/84
 Discipline Engineer / Responsible Supervisor Date

Approved By: *[Signature]* 3/20/84
 Proj. Gen'l Mgr./Sr. Res. Engr./ Mgr. APES/ General Mgr. Date

Corrective Action and Final Disposition:

Documented Cause & Preventive Measures required:

Yes
 No *[Signature]* 8-2-83
 Signature Date

Details:

THE FOLLOWING HANGERS WERE MODIFIED TO SHOW THE CORRECT INFORMATION AS CONSTRUCTED.

1 1/2-SW-H-3050 1B M1, 2-SW-H-915 3S1 M1

Cause:

SHOP/FIELD WELD DESIGNATIONS WERE NOT REQUIRED TO BE CORRECT ON THE DESIGN DRAWINGS AS PER FLR-H-341. THIS CAUSED CONFUSION WHEN INSPECTIONS WERE PERFORMED.

Preventive Measures:

ALL HANGERS MUST BE EXACTLY CORRECT PRIOR TO CALLING FOR FINAL CI AND QA INSPECTIONS. WELD SYMBOLS WILL BE MODIFIED TO SHOW CORRECT SIZES AND DESIGNATIONS OF SHOP/FIELD. ALL NEW REVISION WILL BE REVIEWED FOR CHANGES AND NEW CRAFT INSTRUCTIONS WILL BE ISSUED IF DESIGN CHANGES ARE FOUND TO

MHF Shabir *PA Howard* 3/19/84
 Discipline Engineer / Responsible Supervisor Date

Approved By: *[Signature]* 3/20/84
 Proj. Gen'l Mgr./Sr. Res. Engineer/ Mgr. APES/ General Mgr. Date

CA RECORD CORRECTION FORM

File No. DDR-1795

Record No. 5.1

RFT No. n/a

Item/Activity, Name or Description ^{KAD} ~~Chart~~ ²⁻⁵⁻⁸⁵ DDR-1795

Type of Correction:

- Enhancement
- Reconstruction
- Addition to Document
- Deletion to Document
- Change

FOR INFORMATION ONLY

Need for Correction or Clarification:

To clarify the corrective action report to DDR-1795

Action Taken:

Add page 2 to the Corrective Action Report.

K. H. ... ^{2/8/85}
Originator Date

[Signature] ²⁻⁸⁻⁸⁵
Reviewed

A104

n/a
ANI (if applicable) Date

CA Records

A104

CAROLINA POWER & LIGHT COMPANY
CORPORATE QUALITY ASSURANCE DEPARTMENT
DEFICIENCY AND DISPOSITION REPORT
(Procedure CQC-2)

DDR No. 179.
Page 1 of 1
RFT No. ALL HANGER RFI'S

Item/Activity Name or Description PIPE HANGER INSTALLATION	Shop Order N/A	Code Class SEISMIC I	Quantity N/A	Unit 1#2	Quality Assurance No (PO & Item No.) QA- N/A
Serial, Heat or Other Identification No. SEE DETAILS	Supplier or Manufacturer N/A		Type of Procurement <input type="checkbox"/> CP&L PO <input type="checkbox"/> Transfer <input type="checkbox"/> A-E PO <input type="checkbox"/> NSSS PO		
Violation (Specification, Drawing, Procedure or Other) WP-110	NCR No. N/A	Reporting Inspector PAUL VINCENT			

Deficiency Details:

DURING A QA ASSESSMENT OF THE PIPE HANGER PROGRAM, THE FOLLOWING HANGER SKETCH DEFICIENCIES WERE NOTED:

1) PIPE HANGER SKETCH 1#2-SW-H-3050 INCORRECTLY IDENTIFIED FIELD WELDS AS SHOP WELDS, CONSEQUENTLY, DURING PHASE II INSPECTION QC DID NOT INSPECT THE FIELD WELDS INCORRECTLY INDICATED AS SHOP WELDS ON THE HANGER DRAWING. A REVIEW OF THE SITE FABRICATION HISTORY INDICATED THAT THE SUBJECT PIPE HANGER WAS FABRICATED ON SITE.

2) ALL CHANGES TO THE DRAWINGS ARE NOT BEING CLEARLY INDICATED (EXAMPLE: 2-SW-H-915) BY REVISION MARKINGS.

3) HANGER SKETCHES SHOW INCORRECT AND/OR CONTRADICTIONARY WELD SYMBOLS. (EXAMPLE: 2-SW-H-915)

DDR Evaluation

<input checked="" type="checkbox"/>	Construction Phase
<input type="checkbox"/>	Engineering Phase
<input type="checkbox"/>	QA Program Violation
<input type="checkbox"/>	Specification Deviation
<input checked="" type="checkbox"/>	Procedural Deviation
<input type="checkbox"/>	Unacceptable Workmanship
<input type="checkbox"/>	Damage/Defect
<input type="checkbox"/>	Other
<input type="checkbox"/>	Not Reportable*

Site	QA	HPES	NPCD
QA/QC	Engr.		
Eval. By - GEF	KVH	GOW	EEW
Date	2-7-84		

90 3-29-84
* UNDER EVALUATION BY NACD.
Determined not reportable under 10CFR 31 and 10CFR 50.55(c)

7-29-83
Date

QA/QC Specialist/Engineer

Final Disposition: Verified Hold Tags Removed **N/A**

Remarks:
CLOSED

3-26-84
Date
QA/QC Inspector

Accepted by:
3/27/84
Date
QA/QC Specialist/Engineer

- Distribution:**
- Orig: Director - QA/QC - SHNPP
 - CC: Proj. Gen. Mgr./Sr. Res. Engr.
 - Gen. Mgr. (SU/Operations)
 - Reg. Comp. Unit (SU/Operations)
 - Initiating QA/QC Specialist
 - Accounting
 - Mgr. - E&C QA/QC
 - Mgr. - HPES
 - Start-Up ED WILLETT (CAR)
 - NSSS Site Rep.
 - ANI

ANI Concurrence (ASME Code Section III Items Only):

N/A
Information Only

Authorized **FOR** Inspector Date

Report Closed: **A104**
3-28-84
Date
Director - QA/QC - SHNPP

CORRECTIVE ACTION REPORT
(Procedure CQC-2)

Proposed Disposition:

- Repair
- Rework
- Reject (Return to Vendor)
- Reject (Scrap)
- Permanent Waiver (Accept-as-is)
- Upgrade Code Certification
- Downgrade Item
- Other (describe below)

Details: *Change 2/8/85*

~~MODIFY THE DEFICIENT HANGERS TO REFLECT THE CORRECT INFORMATION AS CONSTRUCTED.~~ (SEE PAGE 2)
Cur 2/8/85

Recommended By: *MNF Shabell*
PW Howard
Discipline Engineer/
Responsible Supervisor
3/19/84
Date

Approved By: *[Signature]*
for MFT
Proj. Gen'l Mgr./Sr. Res. Engr./
Mgr. RPES/ General Mgr.
3/20/84
Date

Corrective Action and Final Disposition:

Documented Cause & Preventive Measures required:

Yes
 No
[Signature]
Signature
5-2-83
Date

Details:

~~THE FOLLOWING HANGERS WERE MODIFIED TO SHOW THE CORRECT INFORMATION AS CONSTRUCTED.~~
~~1-2-SW-H-3050 1BMT, 2-SW-H-975 35TMT~~ (SEE PAGE 2)
Cur 2/8/85

Cause:

SHOP/FIELD WELD DESIGNATIONS WERE NOT REQUIRED TO BE CORRECT ON THE DESIGN DRAWINGS AS PER FLC-H-3411. THIS CAUSED CONFUSION WHEN INSPECTIONS PERFORMED.

FOR INFORMATION ONLY

Preventive Measures:

Cur 2/8/85
~~ALL HANGERS MUST BE EXACTLY CORRECT PRIOR TO CALLING FOR FINAL CI AND QA INSPECTIONS. WELD SYMBOLS WILL BE MODIFIED TO SHOW CORRECT SIZES AND DESIGNATIONS OF SHOP/FIELD. ALL NEW REVISIONS WILL BE REVIEWED FOR CHANGES AND NEW CRAFT INSTRUCTIONS WILL BE ISSUED IF DESIGN CHANGES ARE FOUND TO AFFECT CI AND QA, PER WP#110 AND WP#151.~~ (See page 2)
Approved By: *[Signature]*
A104

MNF Shabell
PW Howard
Discipline Engineer/
Responsible Supervisor
3/19/84
Date

[Signature]
for MFT
Proj. Gen'l Mgr./Sr. Res. Engineer/
Mgr. RPES/ General Mgr.
3/20/84
Date

2A-4
3/30/82
Rev. 5

CAROLINA POWER & LIGHT COMPANY
CORPORATE QUALITY ASSURANCE DEPARTMENT

CORRECTIVE ACTION REPORT
Procedure CAC-2

DDR No. 1795
Issue Date 7/29/85
Page 2 of 2

Proposed Disposition:

- Repair
- Rework
- Reject (Return to Vendor)
- Reject (Scrap)
- Permanent Waiver (Accept-as-is)
- Upgrade Code Certification
- Downgrade Item
- Other (describe below)

Details:

Modify the hanger drawings for Hangers 1&2-SW-H-3050 and 2-SW-H-915 to reflect the correct information.

Recommended By: *[Signature]* 2/8/85 Date
Discipline Engineer/
Responsible Supervisor

Approved By: *[Signature]* 2/8/85 Date
Proj. Gen'l. Mgr./Sr. Res. Engineer/
Mgr. HPES/ General Mgr.

Corrective Action and Final Disposition:

Documented Cause & Preventive Measures required: Yes
 No N/A Signature N/A Date

Details:

The hanger drawings for Hangers 1&2-SW-H-3050 and 2-SW-H-915 were modified to show the correct information.

Note: Subsequent to the CAR Sign-off for DDR 1795 on 3/20/84, Hanger 1&2-SW-H-3050 was voided.

Cause:

(SEE PAGE 1)

Preventive Measures:

All hangers must be exactly correct prior to calling for final CI and QA Inspection. Weld symbols will be modified to show correct sizes, type, and designation for shop/field welds. All new revisions will be reviewed for changes and new craft instructions will be issued if design changes are found to cue CI and QA, per WP-110 and WP-111. Hangers will no longer be considered complete until they have been accepted to the provisions of the new hanger program established November 28, 1983. The new hanger program started with Revision 9 of Work Procedure #110. A material verification program was established. Work Procedure #129 was generated to prepare the work package for construction (i.e. Engineering review of the design drawings and weld mapping the weld joints). Work Procedure #140 set up an Engineering review for final acceptance of the hanger documentation prior to*

FOR INFORMATION ONLY

Approved By: *[Signature]* 2/8/85 Date
Discipline Engineer/
Responsible Supervisor

Approved By: *[Signature]* 2/8/85 Date
Proj. Gen'l. Mgr./Sr. Res. Engineer/
Mgr. HPES/ General Mgr.

* the package being placed in the vault.
QA VERIFICATION AND ACCEPTANCE: *[Signature]* 2/8/85 *[Signature]* 2-8-85

Type of Request:

- Permanent Waiver to "use-as-is"
- Field Change
- See Recommended Action

ORIGINAL

- Non-ASME
- ASME Section III Division 1
- ASME Section III Division 2
- 0
- Wop-Q

Nonconformance No Yes Report No. _____

REF # NA

Identification of Area and Item: MAIN STEAM AND FEEDWATER PIPE SUPPORTS, AND MAIN STEAM PIPING, IN TURBINE BUILDING.

Conflict/Condition

Reference Documents or Attachment

LETTER EB-C-14332 (ATTACHED)

DRAWING 2165 G-107.S01 REV 4 AND S02 REV 4

THE MAIN STEAM AND FEEDWATER PIPE SUPPORTS IN THE TURBINE BUILDING ARE CLASSIFIED AS SEISMIC "I" FOR PURPOSES OF ANALYSIS, NOT IN USE OF SAFETY CLASSIFICATION FOR REGULATORY COMMITMENT. THIS RECLASSIFICATION DOCUMENTATION AND THE DRAWINGS WHICH ARE NOT NECESSARILY REQUIRED FOR CONSTRUCTION OF THE PLANT.

VOID

DATE 1-1-83 BY EBR-H-145R-V

Uncontrolled Copy
FOR INFORMATION ONLY
RECEIVED
FEB 16 1983
PROJECT ENGINEERING

Recommended Action:

- Please Investigate and Resolve
- Please Resolve as Follows

ADD A NOTE TO DRAWING 2165 G-107 S01 REV 3 AND S02 REV 4 TO RECLASSIFY THE MAIN STEAM AND FEEDWATER PIPE SUPPORTS, AND THE MAIN STEAM PIPING, IN THE TURBINE BUILDING. THESE ITEMS ARE TO BE NON-SEISMIC, IN ACCORDANCE WITH LETTER EB-C-14332.

RECEIVED
DOCUMENT CONTROL
② APR 8 1983

Justification: THERE IS NO CODE OR REGULATORY REQUIREMENT THAT THESE ITEMS BE CLASSIFIED "SEISMIC I", AND THE CURRENT CLASSIFICATION CAUSES UN-NECESSARY INSPECTION AND DOCUMENTATION.

Requested by:

Glenn O. White
Discipline Engineer

11/4/83
Date

Site Approval:

E. E. Sillix 1-19-83
Senior Resident Engineer Date

CATEGORY 3-N

19

1 176 H-1145

Design Organization Approval AE NSSS NPED Only Other

Telephone Resolution Yes No

Approved as Recommended Rejected Conditional Approval

Design Organization Attachments Yes No

This change requires the following Document(s) (Specification, Drawing, SAR, etc.) to be changed DWG 2165 G 107 SOL AND SOC R/3

Comments: DWGS 59-107501 & 502 WILL BE REVISED PER EB-C-14332, IF APPLICABLE

<u>[Signature]</u>	<u>Lead Eng'g</u>	<u>2-22-83</u>	<u>[Signature]</u>	<u>PE</u>	<u>2/22/83</u>
Signature	Title	Date	Signature	Title	Date

CP&L Harris Plant Engineering Approval

NPES Attachments Yes No

Approved as Recommended Rejected Conditional Approval

<u>[Signature]</u>	<u>3/2/83</u>	<u>[Signature]</u>	<u>3/2/83</u>
Discipline Engineer	Date	MRPE or PPE/	Date

Site Concurrence: Recommend Implementation Alternate Resolution Rejected

[Signature] 4/7/83
Senior Resident Engineer Date

Distribution:

(Original) Document Control	(Copy)
(Copy)	(Copy)
(Copy)	(Copy)

Implementation Completed as Approved? Yes No

Comments:

Discipline Engineer Date

Final Distribution:

(Original) File in Doc. Control	(Copy)
(Copy)	(Copy)
(Copy)	(Copy)

ORIGINAL

- Permanent Waiver
- Field Change
- Non-ASME
- ASME Sect. III Div. 1
- ASME Sect. III Div. 2

- Category TIA
- Non-0
- Nonconformance N/A
- Building TURBINE BUILDING
- Elevation ALL

RFTs N/A MS-1-3020.004 FW-1-3050.003

Isometrics N/A

Instruments N/A

Lines N/A

Valves N/A

Cables N/A

List All Reference Documents (Drawings, Specs, FCR's, DCN's, Procedures, Etc.)

LETTER EE-C-14332 (ATTACHED)
DRAWING 2165G-107501 REV. 5 AND 502 REV 4

Description: RECLASSIFICATION OF MS & FW SUPPORTS IN THE TURBINE BUILDING

Conflict / Condition

THE MAINSTREAM AND FEEDWATER PIPE SUPPORTS IN THE TURBINE BUILDING WERE CLASSIFIED AS "SEISMIC" FOR PURPOSES OF ANALYSIS, NOT BECAUSE OF SAFETY CLASSIFICATION OR REGULATORY COMMITMENT. THIS REQUIRES OCCUPATION AND TESTING WHICH IS NOT NECESSARY BUT WOULD BE MAINTAINED FOR THE LIFE OF THE PLANT.

Attachments: No Yes FCR LETTERS - PAGES 3 & 4 OF 4

Recommended Action:

Please Investigate / Resolve
 Please Resolve As Follows

ADD A NOTE TO DRAWING 2165G-107501 REV. 5 AND 502 REV. 4 TO RECLASSIFY THE MAINSTREAM AND FEEDWATER PIPE SUPPORTS, AND THE MAINSTREAM PIPING IN THE TURBINE BUILDING. THESE ITEMS ARE TO BE NON-SEISMIC IN ACCORDANCE WITH LETTER EB-C-14332 EXCEPT FOR THE FOLLOWING HANGERS: FW-H-144, 145, 200, 201, 203, 204, 205, 206, 207, 172, 86, 87. MS-H-212, 213, 214, 215, 216, 217, 219, 230, 231, 232, 233, 234, 235, 237 & 345. FEEDWATER FRAMES C-1-309 & C-1-310 WILL ALSO REMAIN SEISMIC.

Justification: CONDITION ABOVE SATISFIES CRITERIA OF SEISMIC - NONSEISMIC
ON ISOMETRICS IT-261-FW-5 AND IT-286-MS-1.

JUN 1 1983

Requested By: IT CHRISCOE 5-13-83
 Discipline Engineer Date

Site Approval: [Signature] MPT 5-13-83
 Senior Resident Engineer Date

Pl. 5/23/83

PCRAW - H-1145 REV.1

Organization Approval AE NSSS NPED Only Other

None Resolution Yes No Design Organization Attachments Yes No

Approved as Recommended Rejected Conditional Approval

change requires the following Document(s) (Specification, Drawing, SAR, Etc.) to be changed:

2165-G-107501 & 2165-G-107501

Signature	Title	Date	Signature	Title	Date
CPBL Harris Plant Engineering Approval					
HPES Attachments <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
Approved as Recommended <input type="checkbox"/> Rejected <input type="checkbox"/> Conditional Approval					
Reference Documents: EBASCO LETTER ESC-10332 STEPS 120; IT-24-FW-5 REV. 5 and IT-206-MS-1 REV 6					

<u>Robert D. Harrington</u>	GRN 5/14/83	<u>90.1161A FIVE JF NEVILL</u>	5/26/83
Discipline Engineer	Date	MHPE or PPE	Date

Concurrence: Recommend Implementation Rejected

700.15 FIN 41PT 5/23/83
Senior Resident Engineer Date

Distribution:

(Original) Document Control

(1) DAVID TIMBERLAKE - WELDING

(1) WARD MEYER - QC

(Copy)

(Copy)

(Copy)

Implementation Completed As Approved? Yes No

Discipline Engineer _____ Date _____

Distribution:

(Original) File in Doc. Control

(Copy)

(Copy)

(Copy)

EBASCO SERVICES INCORPORATED

EBASCO

Two World Trade Center New York, N.Y. 10048

NOV 12 1982

EB-C- 14332
File: 5Q-H-2
5-5-11

Mr L I Loflin, Manager
Engineering - Harris Plant
Carolina Power and Light Company
P O Box 101
New Hill, North Carolina 27562

Dear Mr Loflin:

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT
ANALYSIS OF MAIN STEAM LINES SMS2-144
THROUGH 150

Reference: CE-13476

We have reviewed your request for deletion of snubbers associated with the subject lines and wish to offer the following for your consideration.

The EB-B-241 correspondence provided a criteria for support loads which assure a satisfactory seismic design. The snubbers in question cannot be replaced with rigid restraints without thermally overstressing the pipe during plant normal operation.

It is noted that any snubbers located in the Turbine Building will be reviewed and deleted if the criteria for design of anchors at seismic/non-seismic interfaces are not violated.

Regarding the subject lines, portions of the lines inside the Turbine Building do not have to be seismically designed. As discussed with your Mr G White, the most efficient way to reflect this change is to have CP&L prepare a generic FCR which would request Ebasco to "de-classify" all MS lines/portions of lines inside the Turbine Building to B31.1, non-seismic lines. Due to the large scope of these lines (much broader than SMS2-143 through 150 as indicated in your letter) the disposition of this change through a line and valve list would be too extensive. In our opinion this generic FCR will alleviate all concerns related to the additional inspection and documentation requirements for the supports in the Turbine Building. The only exception to this generic approach are the major Main Steam lines from the interface anchor to the turbine stop valve (44" lines). The declassification of these lines will be handled through a formal revision to the line list and other design documents including the PSAR. This is highlighted in our reply to your CE 13502 letter.

Please note that the generic FCR should also cover the feedwater supports in the Turbine Building. From the inspection and documentation aspects, these supports can be handled as B31.1, non-seismic, however, the lines will not be declassified to non-seismic. This is due to the fact that the interface anchors were not designed for the seismic/non-seismic load criteria.

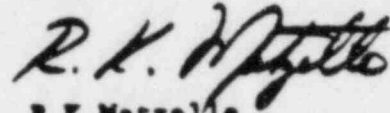
Please provide us with the aforementioned FCR as soon as possible.

NOV 12 1982

ANALYSIS OF MAIN STEAM LINES SMS2-144
THROUGH 150.

If you have any questions, please call us.

Very truly yours,



R K Matzelle
Project Manager

FF:amb

cc: L I Loflin
J J Sheppard
L E Martin
J L Willis
R M Parsons
Sheldon D Smith
G L Forehand
H J Chiangi

1	2	CTP	T.S. 0.8 X 1/4 X 2-9 1/2 (ASTM A500 GR. B)	192
2	2	CTP	T.S. 6 X 6 X 1/4 - 8 1/2 (ASTM A500 GR. B)	63
3	2	CTP	T.S. 4 X 4 X 1/4 X 1-10 1/2 (ASTM A500 GR. B)	63
4	1	CTP	T.S. 4 X 4 X 1/4 X 3-2 1/2 (ASTM A500 GR. B)	93
5	2	CTP	T.S. 4 X 4 X 1/4 X 6-9 1/2 (ASTM A500 GR. B)	166
6	2	CS	R 1/4 X 7/16 X 0-7 1/4 (SA-36)	9
7	2	CS	R 1/4 X 7/16 X 0-5 1/4 (SA-36)	5
8	2	2010	10-A1610 ROD STRUT P-PS1-6 1/4	81
9	2	2601	10-60 PIPE CLAMP	50
10	1	CTP	2 1/2 X 2 1/2 X 1/4 X 0-8 1/2 (ASTM A500 GR. B)	8
11	2	CS	SEE SHT 6	
12	2	CS	SEE SHT 5	
				TOTAL WT 616

7-15-83
 ✓
 27
 TPL 10416

INTERFERENCE CHECK

DESIGN BASE
 ON COMPUTER
 ANALYSIS

REF. I.P. COMPOSITE DWG C-1-315

BY RP DATE 11-2-82

SAFETY CLASS 4
 SEISMIC CLASS I

- NOTES
 1. (PA) DIMENSION LOCATES PIPE ATTACH. IN DESIGN POSITION
 2. (STL) DIMENSION LOCATES CENTER LINE OF STEEL ATTACHMENT

		RA-FX				
		BOF 2	BOF 6	BOF	BOF	BOF
OPERATING	WT. LD	-101	-101			
THERMAL	T LD	-807	-807			
VIBRATION	LD					
LOCA	LD					
8 LOSE RESPONSE	8 LD	5429				
SEISMIC	WIC 8 LD	333	333			
2 IMPROVED SEISMIC	SSD 8 LD	394	6228			
SEISMIC	DPO 8 LD	0				
SEISMIC	DRE 8 LD		9042			
SEISMIC	DPO 8 LD					
HYDRO	LD					
HANGER WGT.						
FRICTION FORCE						

*DENOTES LOADS INDICATED ARE ONE HALF OF LISTED COMBINATION



STRESS NO. 1	ST-261-FW-3	REV. 5
STRESS CALC. 1	72	REV. 10-10-82
STRESS PT. 1	1842	

LOCATION PLAN

P.O. NO. NY 436283		UNIT NO. 1	
BERGEN-PATERSON PIPESUPPORT CORP.			
FEEDWATER			
DESIGN	64-072 9/9	STRUCTURAL	64-258 9/10
JOB NO.	2291	PAR. NO.	1273
DATE	7-3-261-1-FW-H-11	SHEET	1 of 6
BY	SS	LY	AL
DATE	10-11-82		

EBASCO SERVICES INC. (CAR-EM-301)
 CAROLINA PWR. & LT. CO. - SHEARON HARRIS

AT06

DEFICIENCY NOTICE

No. M-C10

Item/Activity Description <u>4FW20-1-1 (DISCHARGE LINE FOR STEAM GENERATOR FEED PUMP 1A-NNS)</u>	Unit <u>1</u>	Location or Placement No. <u>TURBINE # 270</u>
Violated Section of Specification, Drawing, Procedure or Other <u>WUP-102, WUP-105 & 2145-G-107502</u>	DN Issuer <u>ED WILLIAMS</u>	

Nonconformance Details: THE WELDING SEQUENCE Page 1 of 6
 (DESCRIBED ON PAGES 2+3) IN CONJUNCTION WITH THE COUPLING
 FACE READINGS (PAGE 4) AND THE LACK OF SUFFICIENT
 RIGID RESTRAINTS (HANGERS/SUPPORTS SHOWN ON PAGES 5+6)
 INDICATE SEVERE NOZZLE LOADS HAVE BEEN IMPOSED
 ON THE DISCHARGE NOZZLE OF THE STEAM GENERATOR
 FEED PUMP 1A-NNS.

Item Evaluation Needed Per AP-IX-16:

- NO
- YES

Walter J. Gula 7-30-84
 DN Issuer's Supervisor Date

Corrective Action & Resolution Details: (Attach supporting documentation.)

Attached Documents (Specify)

**Uncontrolled Copy
FOR INFORMATION ONLY**

Prin. Disc. Eng./Sr. Res. Eng. _____ Date _____

Distribution:

Original F.E. WILLET
 Principal Discipline Engineer

- cc: Site Manager
 Senior Resident Engineer
 CI Unit Supervisor
 QA/QC Unit Supervisor

ED WILLIAMS

Resolution Verified and Accepted:

DN Issuer Date

Resolution Acknowledged:

DN Issuer's Supervisor Date

A107

A107

WD- 2836

WORK DIRECTIVE

PIPE HANGER No. T-3-261-1-FW-H-11

REV. 1/B

PER FCR-H-1145, THIS HANGER IS CONSIDERED
NON-SEISMIC AND WILL REQUIRE NO CI OR QC
INVOLVEMENT OR ACCEPTANCE. *Reviewed 7/13/83*

Empty table with 6 rows and 1 column for notes or signatures.

COMPLETED / DATE
(HANGER FOREMAN)

N/A / DATE
ACKNOWLEDGED (C I)

N/A / DATE
ACKNOWLEDGED (C C)

A128

ACKNOWLEDGED / DATE
(WELDING SUPV FOR NON-S)

A128

FORM NO. 107-9-78

ITEM	QUAN.	PART NO.	SIZE	DESCRIPTION	WGT.
1	2	CTP	T.S. 8x8x1/4 x 2'-9" L ₄	(ASTM A500 GR. B)	142
2	2	CTP	T.S. 6x6x1/4 x 1'-8" L ₄	(ASTM A500 GR. B)	63
3	2	CTP	T.S. 4x4x1/4 x 1'-10" L ₄	(ASTM A500 GR. B)	63
4	1	CTP	T.S. 4x4x1/2 x 3'-2" L ₄	(ASTM A500 GR. B)	53
5	2	CTD	T.S. 4x4 x 1/4 x 6'-9 3/4" L ₄	(ASTM A500 GR. B)	166
6	2	CS	R 1/4 x 7 1/2 x 0'-7 3/4" L ₄	(SA-36)	9
7	2	CS	R 1/4 x 5 3/4 x 0'-5 3/4" L ₄	(SA-36)	5
8	2	2010	10" RIGID ROD STRUT	F-221-5 1/4"	51
9	2	2600	10" 6" PIPE CLAMP		56
10	1	CTP	23 4x4x1/4 x 0'-8" L ₄	(ASTM A500 GR. B)	8
11	2	CS	SEE SHT 5		
12	2	CS	SEE SHT 5		
TOTAL WT					616

7-15-83
 1-27
 TPL 10416

INTERFERENCE CHECK

DESIGN BASE
 ON COMPUTER
 ANALYSIS

(IND/SPIC.) PAINT
 BUNDLE & TAG
 TOTAL

REF. B.P. COMPOSITE DWG. C-1-319

BY RP DATE 11-2-82

SAFETY CLASS 4
 SEISMIC CLASS I

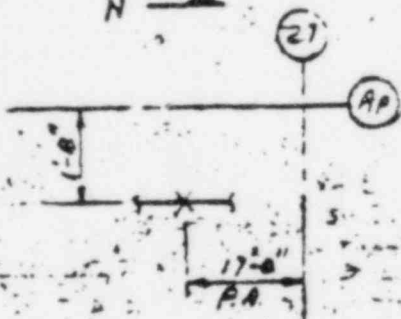
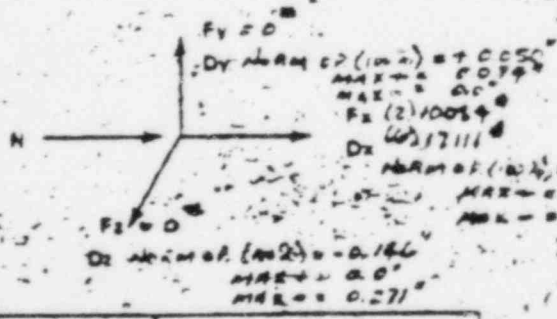
NOTES

- (PA) DIMENSION LOCATES PIPE ATTACH. IN DESIGN POSITION
- (STL) DIMENSION LOCATES CENTER LINE OF STEEL ATTACHMENT

		RR-FX					
		EQJ 2	EQJ 6	EQJ	EQJ	EQJ	EQJ
OPERATING	WT LD	-101	-101				
THERMAL	T LD	-807	-807				
VIBRATION	LD						
LOCA	LD						
BOBE RESPONSE	±LD	5429	—				
WVC	±LD	323	323				
SSD	±LD	3214	6228				
DPO	±LD	0	—				
DDE	±LD	—	9042				
DPD	±LD	—	—				
HYDRO	LD						
HANGER WGT.							
FRICTION FORCE		Fx		Fy		Fz	

RECEIVED
 AUG 14 1983
 SHEARON HARRIS

*DENOTES LOADS INDICATED ARE ONE HALF OF LISTED CONDITION.



STRESS ISO. #	IT-261-FW-3	REV. 5
STRESS CALC. #	72	REV. 10-10-82
STRESS PT. #	1842	

LOCATION PLAN

INVOICE CODE
 10# 6103
 N/A
 ADD FOOTPRINT, LOTS, SHT. 3 OR 6
 AL FOR FINAL REVIEW BEFORE RELEASE TO SHOP

P.O. NO. NY 435283 UNIT NO. 1
 EBASCO SERVICES INC. (CAR-SH-M-30)
 CAROLINA PWR. & LT. CO. - SHEARON HARRIS
 SS ORN SS CE LY AL DATE 2-8-83

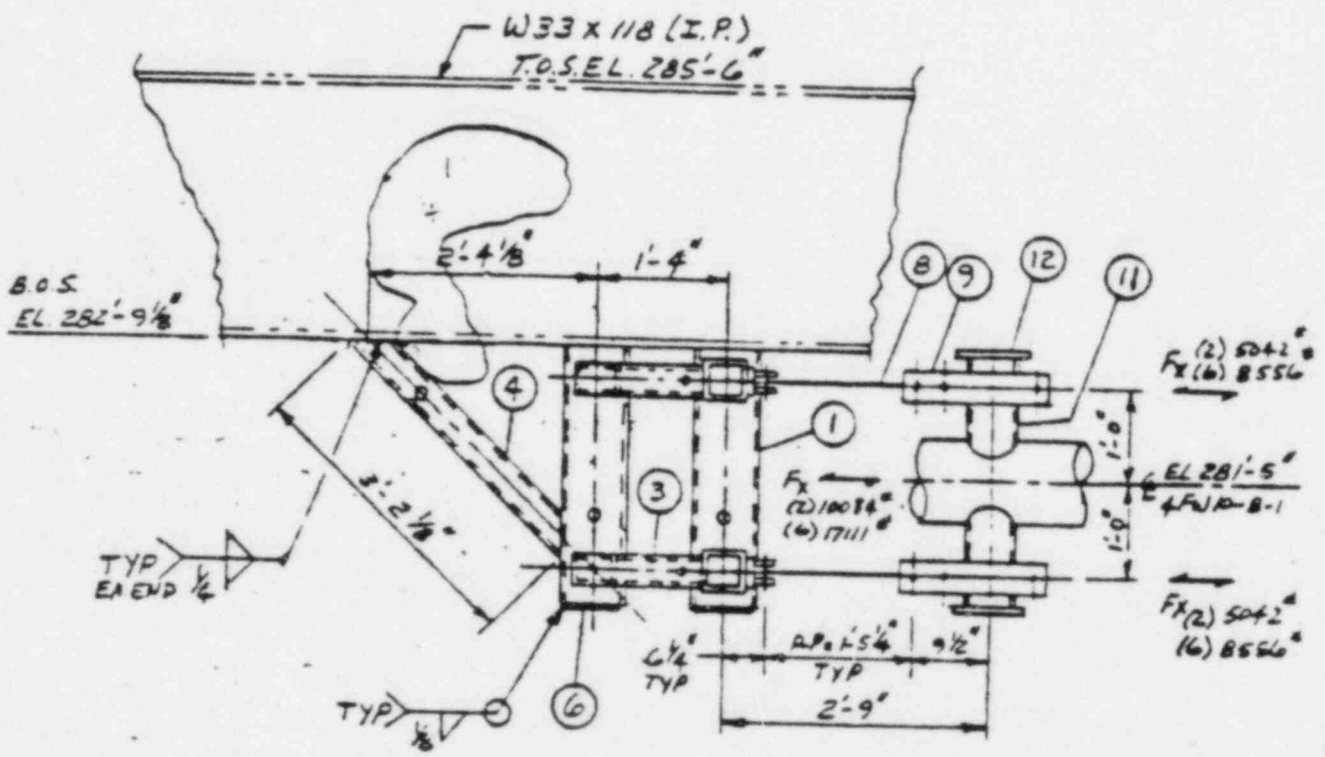
BERGEN-PATERSON PIPESUPPORT CORP.
 PIPING SYSTEM FEED WATER
 DWG. 54-072 R9 STRUCTURAL 84-258 R10
 JOB NO. 2291 PAR NO. 1273
 MAKE & DWG. NO. T-3-261-1-FW-H-11
 SHEET 1 OF 1

AT28

INVOICE CODE

DESCRIPTION

306 SMT. 1
SEE SMT. 1



SECTION "A-A"

17-80
5-27-83
1/8
BY
DATE
DES

U. C. NO. NY4352B3 UNIT NO. 1
EBASCO SERVICES INC. (CAR-SH-M-30)
CAROLINA PIPE & LT. CO. - SHEARON HARRIS
SS ORN SS CHK LY AP AL DATE 2-8-83

BERGEN-PATERSON PIPESUPPORT CORP.			
PIPING SYSTEM	FEED WATER		
REF. DWGS	PIPING 54-072 R/A	STRUCTURAL 84-258 A/10	
JOB NO.	2291	FAB NO. 1273	NO. 1
MARK & DWG NO	T-3-261-1-FW-H-11		SHEET 3 OF 6

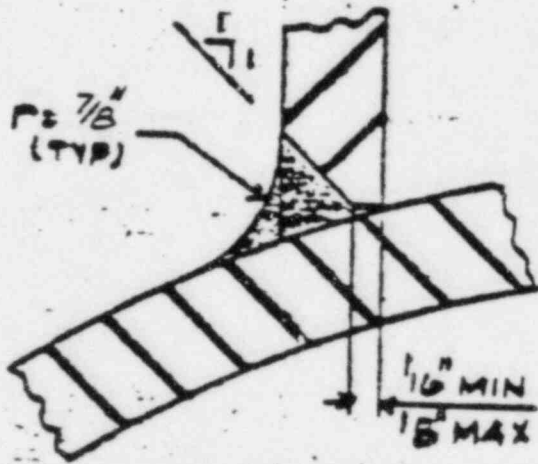
11	Z	CS	6" O.D. CH 80 PIPE X 0'-10 1/2" LG (SAE-413)	50	
12	Z	CS	2 1/2" X 8" X 0'-8" LG (SA-36)	9	
				TOTAL WT	59#

NOTES: 1) ALL WELDS TO BE GROUND SMOOTH TO SURFACE FINISH OF 250 RMS.

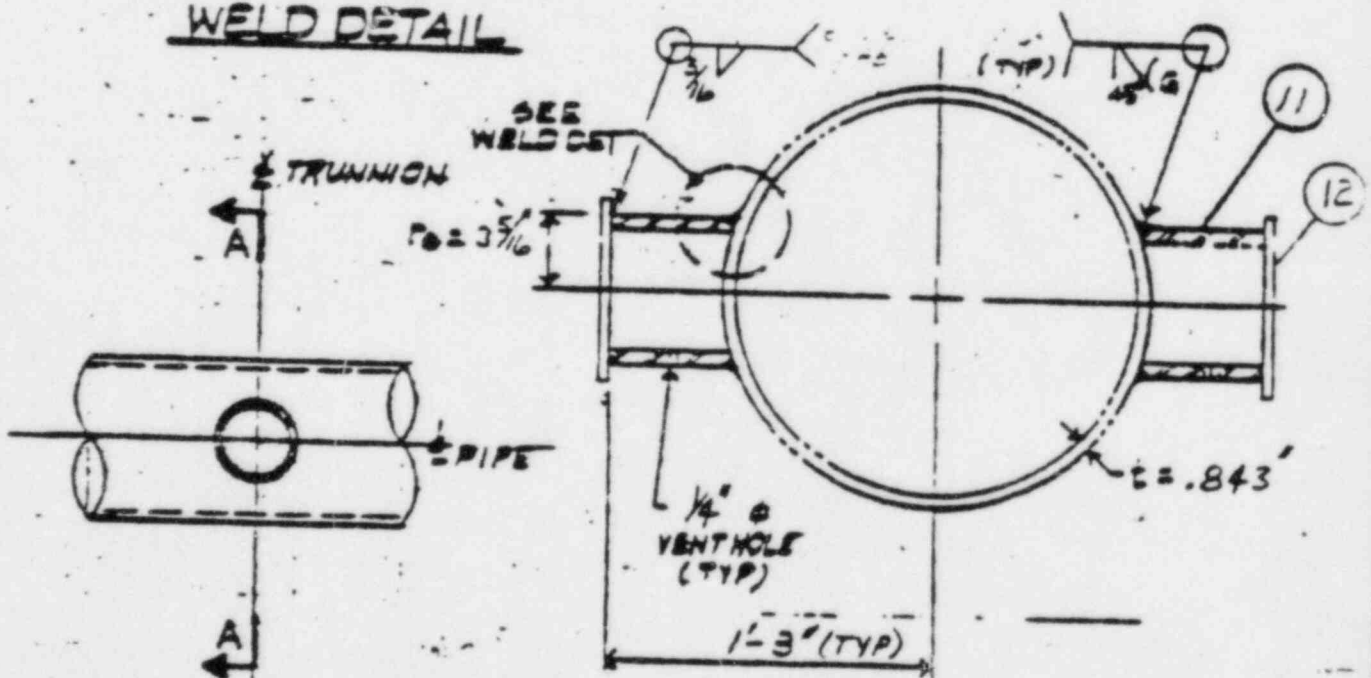
2) ALL WELDED ATTACHMENTS TO BE ANALYZED BY BATECH

3) FOR TRUNNION ORIENTATION SEE SHT 3 OF 5

4) WPA PASSED ANALYSIS IC# 5841, DATED 7-21-83



WELD DETAIL



SECTION A-A

INVOICE CODE

DESCRIPTION

586 SHT. 1
SEE SHT. 1

P. O. NO. NY 435283 UNIT NO. 1

BERGEN-PATERSON PIPESUPPORT CORP.

PIPING SYSTEM FEED WATER

EBASCO SERVICES INC. (CAR-SH-M-30)
CAROLINA PWR & LT. CO. - SHEARON HARRIS

REP. DWGS. DETAILS OF WELDED ATTACHMENTS

JOB NO. 2291 | MS NO. 1273 | NO. 202 ONE

MARK & NO. T-3-2/3-1-FW-H-11

606 15

REV. DATE SS SS CH LY AL DATE 2-8-83

Type of Request:

Permanent Waiver to "use-as-is"

Field Change

See Recommended Action

Nonconformance No Yes

Report No. _____

Non-ASME

ASME Section III Division 1

ASME Section III Division 2

Q

Non-Q

ORIGINAL

REF: N/A

Identification of Area and Item: MAIN STEAM AND FEEDWATER PIPE SUPPORTS,
AND MAIN STEAM PIPING, IN TURBINE BUILDING.

Conflict/Condition

Reference Documents or Attachment

LETTER EB-C-14332 (ATTACHED)

DRAWING 2165 G-107 S01 REV 4 AND S02 REV 4

THE MAIN STEAM AND FEEDWATER PIPE SUPPORTS IN THE TURBINE BUILDING ARE CLASSIFIED AS SEISMIC I FOR THE PURPOSES OF ANALYSIS, NOT IN USE OF SAFETY COMMITMENT. THIS REQUIRES DOCUMENTATION AND TESTING WHICH ARE NOT NECESSARY FOR JOINT REPAIR AND CONSTRUCTION OF THE PLANT.

VOID

DATE 1-5-83 BY ESR: LHSR-V

Uncontrolled Copy
FOR INFORMATION ONLY
RECEIVED
FEB 16 1983

Recommended Action:

Please Investigate and Resolve

Please Resolve as Follows

ADD A NOTE TO DRAWING 2165 G-107 S01 REV 3 AND S02 REV 3 TO RECLASSIFY THE MAIN STEAM AND FEEDWATER PIPE SUPPORTS, AND THE MAIN STEAM PIPING, IN THE TURBINE BUILDING. THESE ITEMS ARE TO BE NON-SEISMIC, IN ACCORDANCE WITH LETTER EB-C-14332.

RECEIVED DOCUMENT CONTROL

APR 8 1983

Justification: THERE IS NO CODE OR REGULATORY REQUIREMENT THAT THESE ITEMS BE CLASSIFIED SEISMIC I. THE CURRENT CLASSIFICATION CAUSES UN-NECESSARY TESTING AND DOCUMENTATION.

Requested by:

Site Approval:

George O. White
Line Engineer

11/4/83
Date

E. Ed. Ullide S. H. P. 7
Senior Resident Engineer

1-14-83
Date

CATEGORY: 2

FCR/PW H-1145

Design Organization Approval AE NSSS NPED Only Other

Telephone Resolution Yes No

Design Organization Attachments Yes No

Approved as Recommended

Rejected

Conditional Approval

This change requires the following Document(s) (Specification, Drawing, SAR, etc.)
to be changed DWG 2165 G 107 SOL AND SOE R/3

Comments:

DEGS 5G-1075E1 & 5E2 WILL BE REVISED PER SB-C-14332, AS APPLICABLE

<u>Office Lead Pp. 7</u>	<u>2-22-83</u>	<u>Wetly</u>	<u>2/27/83</u>
Signature	Title	Signature	Date

CP&L Harris Plant Engineering Approval

HPES Attachments Yes No

Approved as Recommended

Rejected

Conditional Approval

<u>George Q. White</u>	<u>2/2/83</u>	<u>J. Shell</u>	<u>3/2/83</u>
Discipline Engineer	Date	MHPE or PPE/	Date

Site Concurrence: Recommend Implementation

Alternate Resolution

Rejected

4/7/83
Senior Resident Engineer Date

Distribution:

<u>(Original) Document Control</u>	<u>(Copy)</u>
<u>(Copy)</u>	<u>(Copy)</u>
<u>(Copy)</u>	<u>(Copy)</u>

Implementation Completed as Approved?

Yes

No

Comments:

Discipline Engineer Date

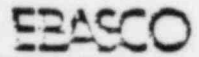
Final Distribution:

<u>(Original) File in Doc. Control</u>	<u>(Copy)</u>
<u>(Copy)</u>	<u>(Copy)</u>
<u>(Copy)</u>	<u>(Copy)</u>

FCR-4-1145 REV 1

HXPO-411-XXX-231 pg 3 of 4

EBASCO SERVICES INCORPORATED



Two World Trade Center, New York, N.Y. 10048

NOV 12 1982

EB-C- 14332
File: 5Q-H-2
5-S-11

Mr L I Loflin, Manager
Engineering - Harris Plant
Carolina Power and Light Company
P O Box 101
New Hill, North Carolina 27562

Dear Mr Loflin:

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT
ANALYSIS OF MAIN STEAM LINES 5MS2-144
THROUGH 150

Reference: CE-13476

We have reviewed your request for deletion of snubbers associated with the subject lines and wish to offer the following for your consideration.

The EB-B-241 correspondence provided a criteria for support loads which assure a satisfactory seismic design. The snubbers in question cannot be replaced with rigid restraints without thermally overstressing the pipe during plant normal operation.

It is noted that any snubbers located in the Turbine Building will be reviewed and deleted if the criteria for design of anchors at seismic/non-seismic interfaces are not violated.

Regarding the subject lines, portions of the lines inside the Turbine Building do not have to be seismically designed. As discussed with your Mr G White, the most efficient way to reflect this change is to have CP&L prepare a generic FCR which would request Ebasco to "de-classify" all MS lines/portions of lines inside the Turbine Building to B31.1, non-seismic lines. Due to the large scope of these lines (much broader than 5MS2-143 through 150 as indicated in your letter) the disposition of this change through a line and valve list would be too extensive. In our opinion this generic FCR will alleviate all concerns related to the additional inspection and documentation requirements for the supports in the Turbine Building. The only exception to this generic approach are the major Main Steam lines from the interface anchor to the turbine stop valve (44" lines). The declassification of these lines will be handled through a formal revision to the line list and other design documents including the FSAR. This is highlighted in our reply to your CE 13502 letter.

Please note that the generic FCR should also cover the feedwater supports in the Turbine Building. From the inspection and documentation aspects, these supports can be handled as B31.1, non-seismic, however, the lines will not be declassified to non-seismic. This is due to the fact that the interface anchors were not designed for the seismic/non-seismic load criteria.

Please provide us with the aforementioned FCR as soon as possible.

RECEIVED NOV 16 1982

ORIGINAL

- Permanent Waiver
- Field Change
- Non-ASME
- ASME Sect. III Div. 1
- ASME Sect. III Div. 2

O
 Category IIA Non-O
 Nonconformance N/A
 Building TURBINE BUILDING
 Elevation ALL

RFTs N/A MS-1-3020.004 FW-1-3050.003
 Isometrics N/A
 Instruments N/A
 Lines N/A
 Valves N/A
 Cables N/A

List All Reference Documents (Drawings, Specs., FCR's, DCN's, Procedures, Etc.)
LETTER EB-C-14332 (ATTACHED)
DRAWING 2165G-107501 REV. 5 AND SO2 REV 4

Description RECLASSIFICATION OF MS & FW SUPPORTS IN THE TURBINE BUILDING

Conflict / Condition

THE MAINSTREAM AND FEEDWATER PIPE SUPPORTS IN THE TURBINE BUILDING WERE CLASSIFIED AS "SEISMIC" FOR PURPOSES OF ANALYSIS, NOT BECAUSE OF SAFETY CLASSIFICATION OR REGULATORY COMMITMENT. THIS REQUIRES DOCUMENTATION AND TESTING WHICH IS NOT NECESSARY BUT WOULD BE MAINTAINED FOR THE LIFE OF THE PLANT.

Uncontrolled
FOR INFORMATION ONLY

Attachments: No Yes LETTER PAGES 3 & 4 OF 4

Recommended Action:

- Please Investigate/Resolve
- Please Resolve As Follows

ADD A NOTE TO DRAWING 2165G-107501 REV. 5 AND SO2 REV. 4 TO RECLASSIFY THE MAINSTREAM AND FEEDWATER PIPE SUPPORTS, AND THE MAINSTREAM PIPING IN THE TURBINE BUILDING. THESE ITEMS ARE TO BE NON-SEISMIC IN ACCORDANCE WITH LETTER EB-C-14332 EXCEPT FOR THE FOLLOWING HANGERS: FW-H-144, 145, 200, 201, 203, 204, 205, 206, 207, 172, 86, & 87. MS-H-212, 213, 214, 215, 216, 217, 219, 230, 231, 232, 233, 234, 235, 237 & 345. FEEDWATER FRAMES C-1-309 & C-1-310 WILL ALSO REMAIN SEISMIC.

Justification CONDITION ABOVE SATISFIES CRITERIA OF SEISMIC - NONSEISMIC ON ISOMETRICS IT-261-FW-5 AND IT-286-MS-1.

Requested By: BOB CHRISCOE 5-13-83
 Senior Resident Engineer Date
 Site Approval: Clay Fuller for MFT 5-13-83
 Senior Resident Engineer Date

Approved
-001 5/23/83

FCRAPW - H-1145 REV.1

Design Organization Approval AE NSSS NPED Only Other

Telephone Resolution Yes No Design Organization Attachments Yes No

Approved as Recommended Rejected Conditional Approval

It change requires the following Document(s) (Specification, Drawing, SAR, Etc.) to be changed:

2165-G-107501 & 2165-G-107502

Comments:

Signature	Title	Date	Signature	Title	Date
-----------	-------	------	-----------	-------	------

CP&L Harris Plant Engineering Approval

HPES Attachments Yes No

Approved as Recommended Rejected Conditional Approval

Reference Documents: EBASCO LETTER EBC-14332 STRESS 150' IT-24-FW-5 REV 5th and IT-286-MS-1 REV 6

Robert D. Harrington 5-19-83
 Discipline Engineer Date

JOHN W. FINE 5/26/83
 MHPE or PPE Date

Concurrence: Recommend Implementation Rejected

7/13/83 5/23/83
 Senior Resident Engineer Date

Distribution:
 (Original) Document Control
 (Copy) DAVID TIMBERLAKE - WELDING
 (Copy) WARD MEYER - QC

(Copy)
 (Copy)
 (Copy)

Implementation Completed As Approved? Yes No

Comments:

 Discipline Engineer Date

Final Distribution:
 (Original) File in Doc. Control (Copy)
 (Copy) (Copy)
 (Copy) (Copy)

Speed Letter.

Mr. M.A. Mc Duffie
Sr. Vice President, Engineering &
Construction

From Van V. Davis
Harris Site

Subject AS BUILT WALKDOWN VERIFICATION PROGRAM & PROCEDURE

MESSAGE

Attached are the copies of the subject above as recommended and prepared by me for your information.

JUL 14 1983

Date 7/14/83 Signed [Signature]

P.V.

Thank you very much for your ideas concerning the verification program at the Harris project. I'll discuss it with the people/^{who have} responsibility for this activity at the site, and I'm sure you will be hearing from them.

Date 7-15-83 Signed M.A. Mc Duffie

RECIPIENT—RETAIN WHITE COPY, RETURN PINK COPY

BENDER—DETACH AND RETAIN YELLOW COPY. SEND WHITE AND PINK COPIES WITH CARBON IN ENVELOPE

hanger ASBUILT WALKDOWN VERIFICATION 7-15-83
both Q and NON Q or B.O.P systems
prior to turnover to N.O.D.

40 DEFINITION "ASBUILT DATA"

Documented data that describes the ASBUILT configurations of piping/hanger systems, and to evaluate the impact of these ASBUILT.

TITLE:

CONSTRUCTION PIPING/HANGER
 ASBUILT WALKDOWN VERIFICATION
 FOR R.F.T.

1.0 PURPOSE AND SCOPE

This procedure provides the guidelines for performing the piping/hanger ASBUILT WALKDOWN systems verification of SHEARON HARRIS NUCLEAR POWER PLANT prior to R.F.T closed out.

2.0 REFERENCES

- a.. Piping/hanger construction W.P.
- b.. Piping/hanger EBASCO specification
- c.. M. 20
- d.. A.N.S.I. B.31-1 POWER PIPING CODE
- e.. A.S.M.E SECTION III CODE
- f.. Piping/hanger stress programs which are related to the ASBUILT condition for Q, seismic class, and thermal analysed systems.

3.0 APPLICABILITY

This procedure applies to the piping/hanger ASBUILT WALKDOWN VERIFICATION for both Q and NON Q or B.O.P systems prior to turnover to N.O.D.

4.0 DEFINITION "ASBUILT DATA"

Documented data that describe the ASBUILT configurations of piping/hanger systems, and to evaluate the impact of these ASBUILT.

5.0 PROCEDURE

— 5.1. ASBUILT WALKDOWN VERIFICATION

— 5.1.1

The intent of the ASBUILT WALKDOWN VERIFICATION is to verify that the "ASBUILT" installation has been satisfactorily completed, and prior to turnover to S.U. Groups.

— 5.1.2

The purpose of the turnover is to verify that a system is ready for start-up flushing and testing, and prior to transferring control systems from N.P.C.D. to N.O.D. This constitutes the technical acceptance of the closeout turnover Packages by N.P.C.D.

— 5.1.3.

The "ASBUILT WALKDOWN" Team members should include:

- A. Mechanical Lead Piping/Hanger-Engineer (Team Leader)
- B. Piping/Hanger Engineer
- C. Engineering Technicians
- D. Clerk typists
- E. Stress Engineers, and
- F. Pipe support designers

— 5.1.4

The participants in the ASBUILT WALKDOWN VERIFICATION TEAM should inspect the as-built installation per the guidelines of Appendix I to this procedure for items:

- A. N.O.D. or E.O.P. and not thermally analysed systems, and
- E. G., safety class, and thermally analysed systems.

5.1.5

A punch list and discrepancy form will be generated by combining all of the discrepancies identified during the "ASBUILT" walkdown verification with any other discrepancies known to exist in the design.

5.1.6.

The punch list and discrepancy form should be in the format of a memo from the system walkdown verification to the stress group for evaluation the impact of these asbuilt.

This memo should detail each discrepancy, and the asbuilt walkdown verification Team responsible for resolving it, and the date by which it should be resolved.

A sample punch lists, and discrepancy form, is shown:

A) Appendix II (pipe / valve / hanger's asbuilt walkdown verification for Non-seismic, or B.O.P, and not thermal analysed systems -

B) Appendix III (G, and safety piping)

C) Appendix IV (G, and safety hanger)

D) Appendix V (G, and safety valve)

E) Appendix VI (G, and Non-S permeable equipment).

F) Appendix VII (Bill of Materials use for asbuilt G, and Non-S Modification).

5.1.7

Refer to the punch list, and discrepancy form, the asbuilt walkdown verification team shall resolve those items in the:

A. NON-Q or B.O.P, and not thermal analysed systems. The discrepancies shall be "QUICK RESOLVED" during the walkdown by issuing the modification or P.W (Permanent waiver) as applicable prior to close out turnover system to N.O.D.

B. Q, safety class, and thermal analysed systems.

The discrepancies which are identified on the discrepancy form shall resolve accordingly.

1. The asbuilt walkdown verification team will assemble and prepare the modification or P.W (Permanent waiver) which they shall implement.
2. Any additional records, documentation, inspection, and stress re-analysis reports which are required by modification during system walkdown shall be attached into "SYSTEM AS BUILT WALKDOWN VERIFICATION TURNOVER PACKAGE."

3. The bill of Materials and spare parts list in the as built modification should identify which purchase order was used to procure each item on that list.

5.1.8.

Prior the system turnover to N.O.D, items which are identified as discrepancies should be placed in one of the following categories:

A. Discrepancies which must be resolved prior to placing the system verification in the turnover to N.O.D for flushing and testing.

B. Discrepancies which may be resolved after the system verification is turnover to N.O.D for flushing and testing.

In either case, the discrepancies as well as the individual or the asbuilt walkdown verification Team responsible for resolving the discrepancies and a date by which the discrepancies are to be resolved should be added to the punch list.

5.1.0

After all of the punch list items, and discrepancy forms have either been corrected or

concurrency for making them exceptions to the system turnover to the N.O.D. on schedule.

NOTE:

"Exceptions which may be considered are: Delays in receiving materials; equipment qualifications or certifications; long lead time in procurement of material; inability to satisfy necessary plant conditions; problems which require detailed design work."

The Mechanical asbuilt walkdown Lead Team Engineer should sign the turnover sheet, noting any exceptions to the recommendation for system turnover.

5.2.

PROCESSING SYSTEM ASBUILT WALKDOWN VERIFICATION TURNOVER PACKAGE

5.2.1.

Asbuilt walkdown verification Team is responsible for assembling all design documents to be used for the physical verification shall be described under the "SYSTEM PIPE/HANGER WALKDOWN VERIFICATION" Package.

The Package should consist of:

1. System walkdown verification turnover cover sheet
2. Piping design drawings
3. Hanger/Restraint design drawings (except M-20 hanger for non-seismic piping)

- D. Stress iso's (if applicable)
- E. Equipment, Component, and valve Vendor Drawing
- F. Line and Valve list
- G. Flow diagram drawing
- H. FCR, PM, or DCN (if applicable)
- I. As built walkdown punch list, and discrepancy form etc...
- J. Verification closeout check list.

5.2.2

As built walkdown team which compiled the asbuilt walkdown, verification turnover package is responsible for initiating the verification checklist.

5.2.3-

The verification closeout checklist will accompany the verification system turnover package through turnover and closeout.

5.2.4

The verification closeout checklist should be signed by the Mechanical Asbuilt walkdown Team Leader at the completion of the system turnover to ensure the system can be properly flushing and testing.

5.2.5

The documentation will be forwarded to the QA/QC unit for final inspection and review for a system, safety class, fire protection, and radioactive waste.

5.2.6.

5.2.6

The Director QA/QC Unit or his designee acknowledge receipt of the asbuilt walkdown verification turnover Package, and will review the system turnover Package, verifying that necessary documentation is complete, and will perform any necessary final inspections of the system to verify satisfactory completion of work covered by the turnover. Also all exceptions to turnover will be identified through a non-conformance report. A list of Non-Conformances will be provided with the asbuilt walkdown verification turnover Package. And all the documentation will be routed for storage in QA records (S.H.N.P.P vault).

5.2.7.

The asbuilt walkdown verification to Non-Q systems will be accomplished by the walkdown Team. The Team will evaluate the asbuilt, and the need for a modification will be determined by the Engineer walkdown team to ensure that asbuilt change is properly planned and implemented. For the system asbuilt walkdown verification which were accomplished by Mechanical asbuilt walkdown team, the Team Lead will

indicate his concurrence with the closeout and recommend its turnover by signing "Release for Test Acceptance form" and forwarding the as built modification, check-out checklist, and list of non-conformance to the Manager of turnover group.

5.2.E.

The Team Lead of asbuilt walkdown verification will route a copy of the completion System Asbuilt turnover information to: 1) Manager - Project Construction SHNPP and 2) Mechanical N.P.C.D Resident Engineer. Also another copy of system walkdown asbuilt verification turnover package will be routed for storage the documentation in "Document Control Department in SHNPP.

5.3.

PARTIAL TURNOVER

5.3.1

The system turnover which have been completed only in part should be minimized.

In general, a partial turnover should be conducted only when:

A. The construction implementation has been stopped and will not be continued for a significant period of time or.

B. The responsibility for the

implementation will be changed from one organization to another or

C.. The acceptance test cannot be performed.

5.3.2

The Team Lead as built walkdown verification Engineer will determine if a partial turnover is appropriate.

5.3.3

The partial turnover will be conducted in the same manner as a complete turnover. Items which are not applicable because the installation is not complete or is not being placed in testing should be so noted.

5.3.4

The implementing of systems turnover and drawing should be marked up to show status of the installation at the time of the turnover.

5.3.5

When the time comes to continue the installation, the Team Lead Engineer should provide a field copy of system as built walkdown verification package marked up to show the current state of the installation.

5.3.6.

The complete system as built walkdown verification turnover package should be filed with the partial Turnover package.

5.4.

SYSTEMS AS BUILT WALKDOWN VERIFICATION
TURNOVER PACKAGE

5.4.1 The system as built walkdown verification turnover package for Mechanical construction walkdown team to N.C.D (S.U) should include as follows:

- a.. Final list of affected plant document and status.
- b.. Construction documentation Package.
- c.. QA documentation Package status (if applicable)
- d.. Signed off hydrostatic test for embed piping (if applicable)
- e.. Engineering QA records (if applicable).
- f.. Drawings required showing as built conditions with a schedule of remaining as built drawings.
- g.. FCR's, PW's, or DCI's if applicable).

- h. - List and location of specifications and purchase orders (if applicable).
- i. - List and location of engineer calculations/analyses (if applicable).
- j. - Vendor manuals./

APPENDIX IGUIDELINES FOR SYSTEM ASBUILT WALKDOWN/
VERIFICATION INSPECTION

The inspection process "ASBUILT WALKDOWN" should include the verification of the following items:

I.. PIPE RUN GEOMETRY, LOCATION AND CLEARANCE

The pipe run geometry should be verified to determine that the piping as installed is in compliance with design drawing and stress iso's (if applicable).

Any observed deviations between the stress iso, design drawing, and as-built configuration should be marked up on stress analysis isometrics for S/A review.

Measurements should start at anchor points or equipment nozzle connection and run along the length of pipe.

The measurements should be taken between piping features such as elbows, centerline of tee, centerline of supports, end of valves or other in line equipment, termination welds, and the face of wall or floor in case of penetrations etc...

The following items should be verified during the walkdown:

- 1.. Asbuilt piping configuration
- 2.. Pipe outside diameter
- 3.. Clearance around pipe

4. Flanges other than weld necks.
5. Locations of field weld for ASME code class I piping greater than 1" ϕ diameter.
6. Any obstruction that may restrict the thermal expansion of the piping.
7. Any non-standard tee i.e., tees with reinforcing pads, weldolets, sockolets, sweepolets.
8. Any non-standard elbows i.e., short radius elbows, 5 diameter elbows.

II. Valve and valve operator location, tag number, weights, and orientation.

Valve tag number should be noted on stress isometric drawing and valve operator orientation form and verified Vendor supplied valve drawings to ensure that correct valve has been installed. The size and weight of each valve operator should also be extracted from Vendor drawings and recorded on stress isometric drawing.

The physical orientation of valve and operator with respect to the pipe centerline should be verified and recorded.

III. Hanger / Restraint location and function. The Hanger / Restraint location and function should be verified. Measurement of hanger / restraint locations should be made to the centerline of pipe attachment

with respect to the pipe run geometry.

Verification of hanger/restraint function should be done by visual inspection with the aid of stress analysis and hanger/restraint drawings (For seismic system)

Deviations in locations and functions should be recorded on stress isometric drawing.

Hanger/Restraint mark numbers should also be recorded and verified against stress analysis isometrics and hanger/restraint drawings.

The mark numbers of hanger/Restraints that are not installed should also be recorded.

Check that hanger/Restraint are properly fitted-up; that is, they are not loose or cocked, and that they have been adjusted to cold settings.

5	VERIFY C.I LIST GAP ON ALL INSPECTION AFTER 10-21-81		
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CAROLINA POWER & LIGHT
 SHEARON HARRIS NUCLEAR POWER PLANT
HANGER ASBUILT VERIFICATION CHECKLIST

HANGER NO:

R.F.T. NO:

UNIT:

	DESCRIPTION	ACCEPTABLE	DISCREPANCY
1	INSPECTION DOCUMENT Rev. V.S HANGER DWG Rev.		
2	VERIFY EMBED THICKNESS		
3	VERIFY INSPECTION DATE FOLLOW LOGICAL ORDER & MATCH WITH DOCUMENTATION APPLICABLE AT THAT TIME.		
4	VERIFY FITUP GAPS LIST BY		

CAROLINA POWER & LIGHT
SHEARON HARRIS NUCLEAR POWER PLANT

HANGER ASBUILT VERIFICATION CHECKLIST

HANGER NO:

R.F.T. NO:

UNIT:

	DESCRIPTION	ACCEPTABLE	DISCREPANCY
1	INSPECTION DOCUMENT Rev. V.S HANGER DWG Rev.		
2	VERIFY EMBED THICKNESS		
3	VERIFY INSPECTION DATE FOLLOW LOGICAL ORDER & MATCH WITH DOCUMENTATION APPLICABLE AT THAT TIME		
4	VERIFY FITUP GAPS LIST BY C.I ARE CLEARLY IDENTIFIABLE		

11	ARE THERE ANY DAMAGED PARTS.		
12	VERIFY CUT MEMO'S OR WORK DIRECTIVE ARE FOLLOWED AND INSPECTED PROPERLY.		

COMPLETED BY _____ TITLE _____ DATE _____

CONCURRED BY _____ TITLE _____ DATE _____

11	ARE THERE ANY DAMAGED PARTS.		
12	VERIFY CUT MEMO'S OR WORK DIRECTIVE ARE FOLLOWED AND INSPECTED PROPERLY.		

COMPLETED BY _____ TITLE _____ DATE _____

CONCURRED BY _____ TITLE _____ DATE _____

CAROLINA POWER & LIGHT
SHEARON HARRIS NUCLEAR POWER PLANT

HANGER VERIFICATION
DISPOSITION SHEET NO: _____

HANGER NO: _____ RFT NO _____ UNIT _____

ITEM NUMBER _____

COMPLETED BY _____ TITLE _____ DATE _____

CONCURRED BY _____ TITLE _____ DATE _____

CAROLINA POWER & LIGHT
SHEARON HARRIS NUCLEAR POWER PLANT

HANGER VERIFICATION
DISPOSITION SHEET NO: _____

HANGER NO: _____ RFT NO _____ UNIT _____

ITEM NUMBER _____

COMPLETED BY _____ TITLE _____ DATE _____

CONCURRED BY _____ TITLE _____ DATE _____

I ©

NUCLEAR POWER PLANT CONSTRUCTION MANAGEMENT

PREPARED BY CHAN VAN VO

PURPOSED: PROPORTIONAL OF INTEGRAL
DERIVATIVE CONTROLLER CONSTRUCTION

Ineffective construction management is the one of the most serious problems faced by U.S. industry. In particular the accident ^{at} T.M.I. 2 causes concerns all over the world and led to a lowering of public confidence in U.S. Nuclear industry.

"THE PROBLEMS IN CONSTRUCTION ARE REAL" Stello said in a paper delivered by Region II Administrator James O. Reilly and citing examples such as improper welding, poor quality control and structural defects.

"I AM GRAVELY CONCERNED ABOUT SHODDY CONSTRUCTION BECAUSE OF ITS POTENTIAL IMPACT ON PUBLIC HEALTH AND SAFETY."

To build a good plant, we must build a strong foundation. To have vigorous plants with safety, we must take good care of constructing the plant. Because construction is the foundation of the plant.

Therefore, to change attitudes dramatically toward safety, and to give optimism about Nuclear Power Plants; the Nuclear industry must establish a program that specifies appropriate effective construction and operation management of Nuclear Power Plants, including these for management of Q.A, Q.C, C.I, and others that conducts independent evaluations.

There are a myriad of excuses and reasons

why management fails. Others, such as attitudes and perceptions, are difficult to define.

Management ineffectiveness leads to physical defects that are built into a plant.

In the case of defects, the details may include as follows:

- 1- Inadequate staffing levels.
- 2- Inadequate organization
- 3- Inadequate corrective action systems
- 4- Inadequate analysis problems
- 5- Intimidation of job security
- 6- Lack of training
- 7- Lack of authority
- 8- Lack of employees "Buddy. Buddy organization
- 9- Lack of supervision
- 10- Lack of controlling & documenting
- 11- Poor or non-existing procedures
- 12- Falsified records.
- 13- Poor coordination.
- 14- Unqualified workers & inspectors etc.....

The N.R.C cannot tolerate these defects because of the enormous impact in terms of public risks. Other impacts on the industry involve cost to build the plant, public attitudes toward Nuclear Power Plants in general, and perceptions of competence.

There are many problems facing Nuclear Power Plants construction at the present time. To solve them with less groping and fewer errors, we must learn from the experienced people, and apply them in a creative way.

To correct the situation, each Power

(3)

company must have an on site independent safety Engineering Group to perform independent reviews of plant designing, construction, operation and reports to high level management. Its assignment would be to evaluate regularly procedures and general plant designing, construction, and operations from a safety perspective; to assess quality assurance program, to develop continuing safety programs, to research and provide technical knowledge for solving any actual and potential problems before they occur..

Management deficiencies in construction relate entirely to plant operations, and jeopardize plant reliability.

What are management techniques?

Management techniques are ways of doing things in managing. They not only belong in a basic science of management but also are important to practicing managers in their design, construction, operations, and maintenance of the persons for whom they are responsible.

Managing is an art, like medicine and engineering, that should rely on an underlying sciences of concepts, theory, principles, and techniques.

By the age 32, a majority of Engineers are engaged in both the supervision, and the management of people, ranging from team leadership to general management.

But most of them generally do not

understand the importance of management positions. Little, if any, management material is covered in undergraduate course work in the humanities, social sciences, and economic areas. It is a shame because they would be such a vital part of Engineering curriculum.

For the reasons as noted above, this purpose is prepared with the objective to support a Power Company or Contractor to construct their plant; and also help Engineers choose principles and concepts about "CONSTRUCTION MANAGEMENT" as it applies to their job for increased effectiveness and controlled constructing implementation.

Experience has demonstrated that management is a key role in assuring the success of any project. Technical and Engineering services should provide a project framework which assures maximum control of the work performed for a plant.

The complexity of today's industrial, and Nuclear Power Project's require an organization with the flexibility to manage each project effectively and efficiently.

The "PROPORTIONAL OF INTEGRAL DERIVATIVE CONTROL CONSTRUCTION" program is structured to meet these needs.

Under this program, the major functional conceptual framework are as follows:

I. PLANNING.

Planning is deciding in advance what to do how to do it, when to do it, and who is

to do it.

To coordinate plans, the Engineer who supervises or manages must make sure that derivative plans are consistent with, and time properly to support objectives and other decisions involved in a Major plan. That must also set clear goals and clearly delegate authority.

People can perform only when they know what is expected of them and what their area of responsibility is.

Since managerial operations in organizing, staffing, directing and leading, controlling, and Implementing (R.F.T) are designed to support the accomplishment of Nuclear Power Plants construction objectives necessary for all group effort.

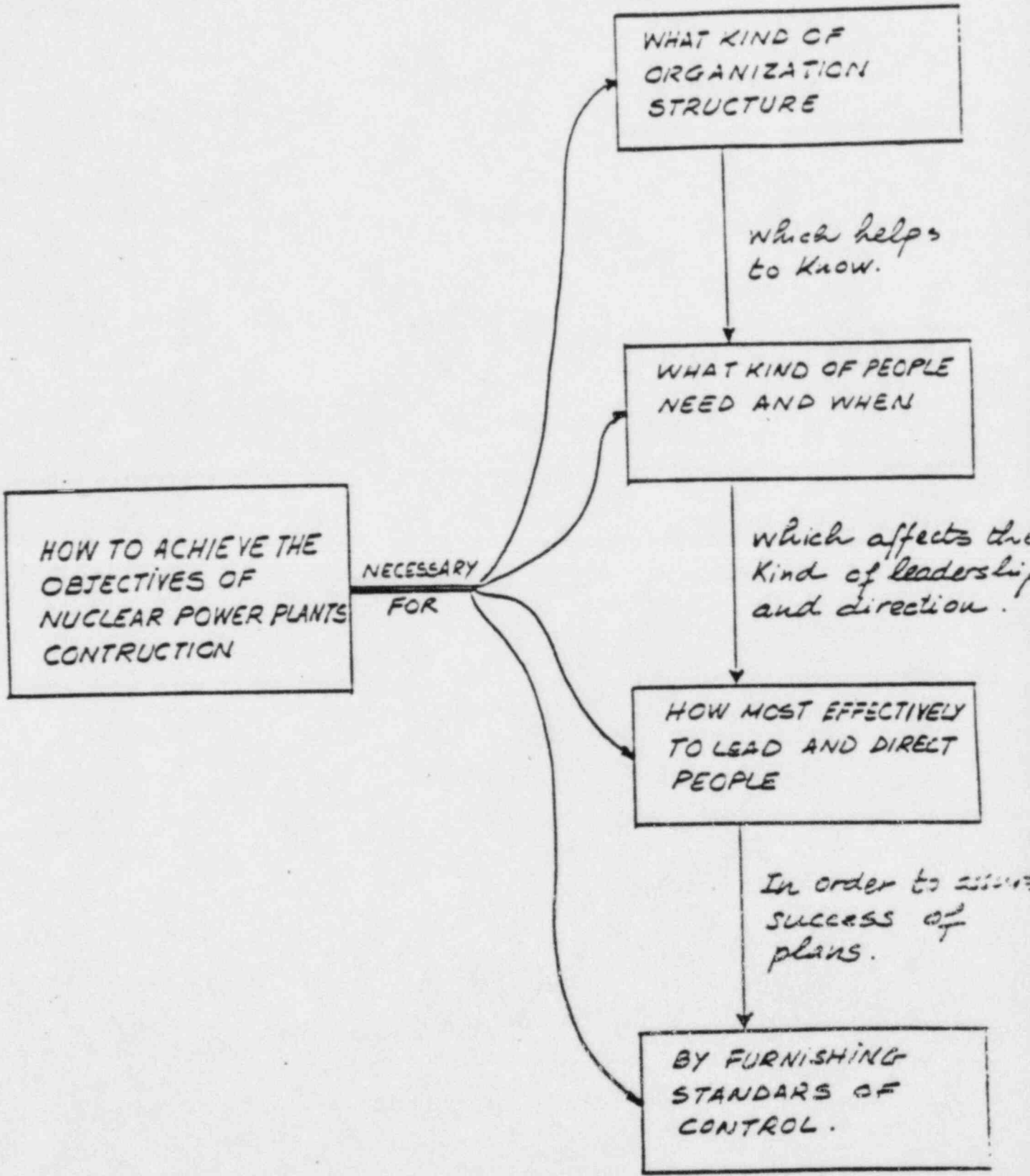
Because the planning process is a complex of many major and derivative plans and since Nuclear Power construction plans are necessarily related from one department to another, it is important that they fit together, not only in terms of content and action, but in terms of timing.

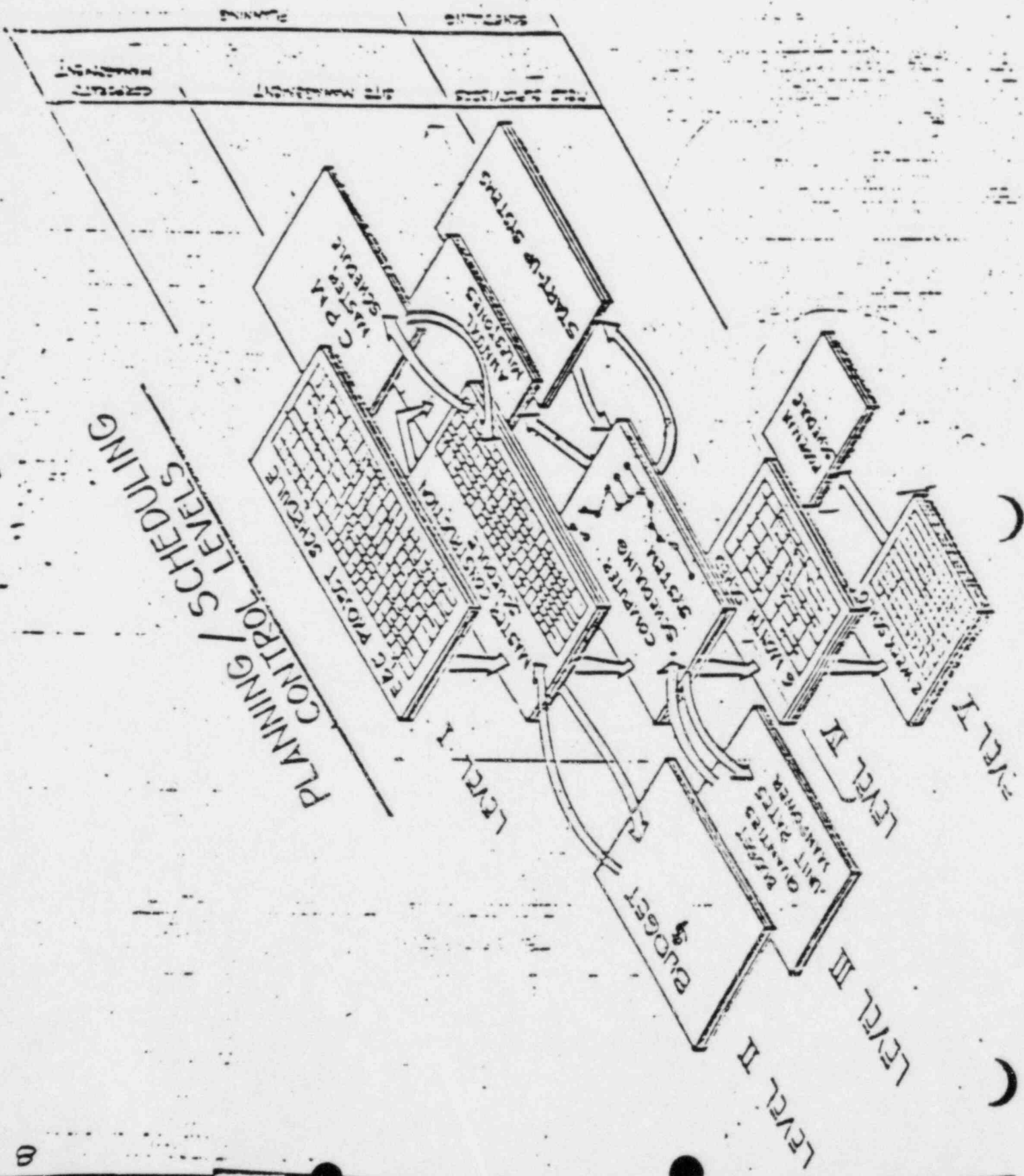
The principle of timing, then, reflects the fundamental truth that "The more plans structured to provide an appropriately timed, intermeshed network of derivative and supporting programs, the more efficient and efficiently will contribute to the attainment of Power construction objectives.

The best planning is done when supervisors are given an opportunity to contribute to plans affecting the areas over which they have authority.

In conclusion the efficiency of a plan is measured by the amount it contributes to purpose and objectives as offset by the costs and other unsought consequences required to formulate and operate it.

Planning is the foundation of management, and the process can be illustrated as shown in the figure next pages





PLANNING / SCHEDULING
CONTROL LEVELS

ORGANIZATION AND ADMINISTRATION

PERFORMANCE AREA

0A.1 ORGANIZATION
STRUCTURE

0A.2 MANAGEMENT
INVOLVEMENT AND
COMMITMENT
TO QUALITY

0A.3 ROLE OF FIRST
LINE MANAGERS
AND SUPERVISORS

TOTAL

I. ORGANIZING

Organizing involves the establishment of an intentional structure of roles through determination of the activities required to achieve the goals of the project and each part of it. The grouping of the activities to a manager, the delegation of authority to carry them out, and provision for coordination horizontally and vertically in the organization structure.

One of the most interesting and increasing forms of organization to use in Nuclear Power Plants Construction is "MATRIX" or "GRID" organization.

The essence of "MATRIX" or "GRID" organization as one normally find it, is the combining of functional and product forms of departmentation in the same organization structure.

Under this system of classification, functional supervisors or managers are given authority over the people in their area and over integrity of engineering work done by them.

"MATRIX" or "GRID" organization really represents a compromise functional and product departmentation.

All organizations accomplish their goals through a net work of people, and the success of technical projects can often depend on how skillful supervisors or managers

are in dealing with the people side in their jobs.

Effectiveness and personal career development are frequently tied to how adept they are in managing human interactions and motivating people.

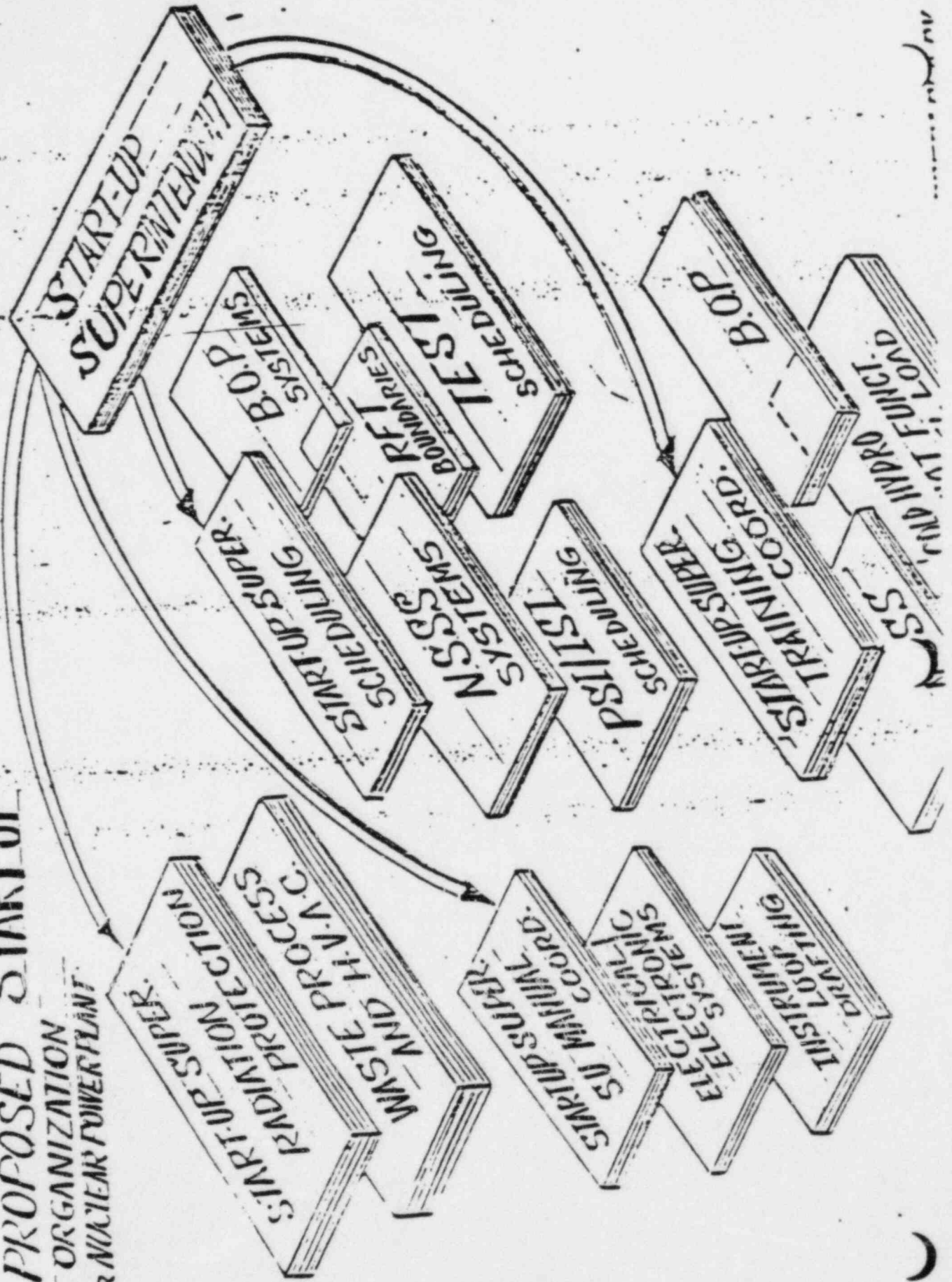
Because one of the most prominent areas of a management's environment, one which Power industry as well as other kinds of organizations has been justly criticized for being less alert to them than they should, is that of social attitudes, buddy buddy organization, beliefs, and values are bound to create a conflict in loyalties for the individuals.

Therefore, the Engineer who supervises or manages other people, to meet the project objectives need to develop both understanding and skill in these essential areas as follows:

- * How to identify individual behavioral styles of self and others to help create the optimal work climate.
- * How to identify the hidden needs that operate in individuals and workgroups, and how to respond to them. This skill is the key to tapping into what motivates today's work force.
- * How to deal effectively with problem behaviors in others. This skill can be used with subordinate peers, and even with the Engineer.

PROPOSED STARTUP

ORGANIZATION
FOR NUCLEAR POWERPLANT



The START-UP and test technical Engineer is responsible for the Engineering support to insure that assigned plant equipment systems are properly tested and placed in service to meet START-UP schedules and Regulatory requirements by the followings:

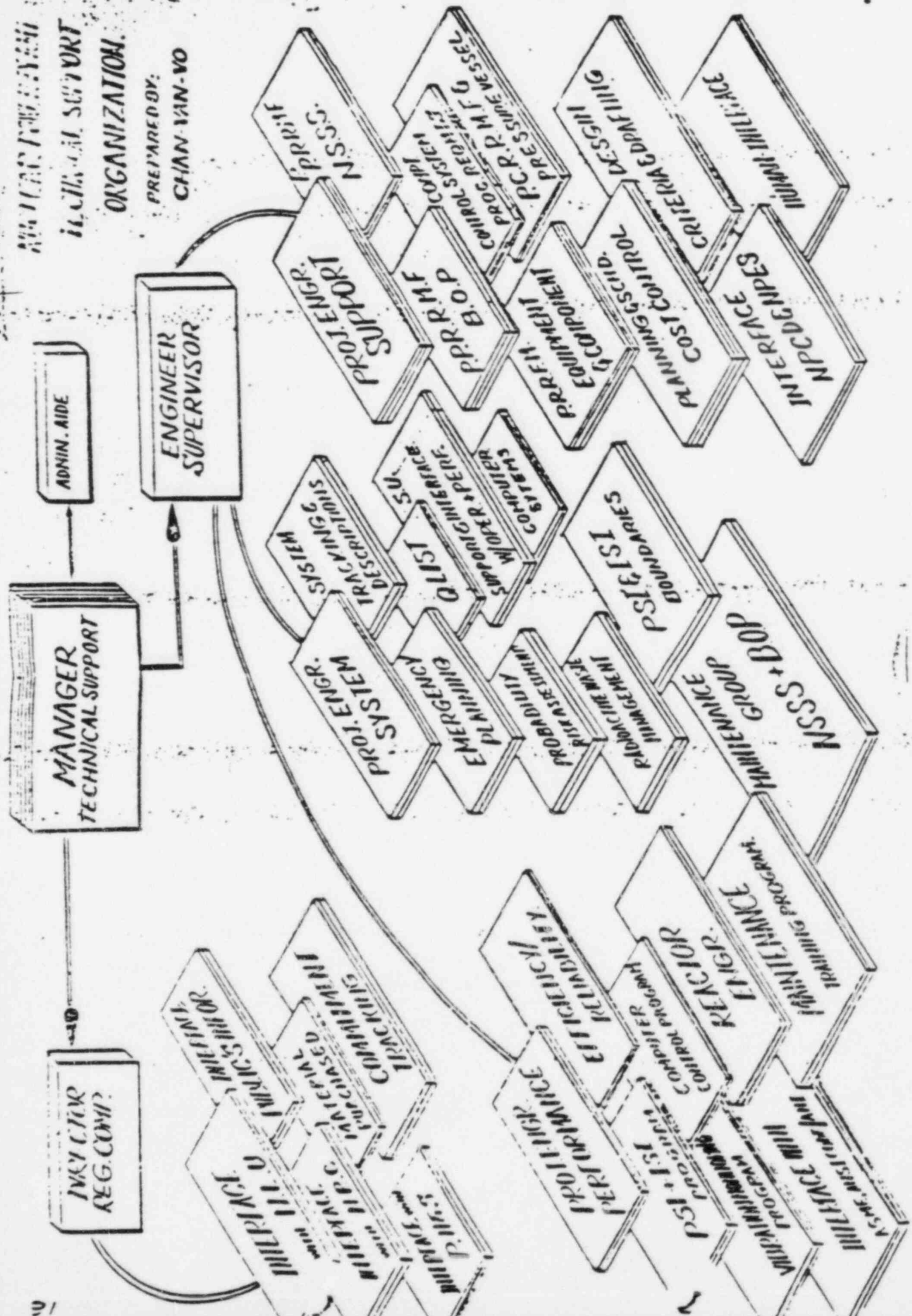
- 1.. During the construction phase the START-UP Engineer is responsible for the writing system descriptions.
- 2.. Laying out the "Release For Test" R.F.T Package:
 - a.. Defining R.F.T boundaries.
 - b.. Developing equipment, instrument and cable lists etc.....
 - c.. scheduling R.F.T's to support major project.
- 3.. Writing flush, hydrostatic test, and preoperational test procedures -
- 4.. Identifying potential design problems to supervisor and proposing design and/or engineering change to correct them.
- 5 Serving as test director and systems coordinator to assure correct and expeditious system testing -
- 6 Ensuring that all regulatory requirement pertaining to a system STARTUP are satisfied -
- 7 Ensuring that assigned systems are functioning properly and safely before releasing to operations -

8. Bringing design deficiencies and construction errors to the attention of the A/E and Construction Engineer, working with them to correct the problem, and checking out the resulting changes to the systems.

9. Providing engineering support to the overall STARTUP and test program.

TECHNICAL SUPPORT ORGANIZATION

PREPARED BY:
CHAN VAN VO



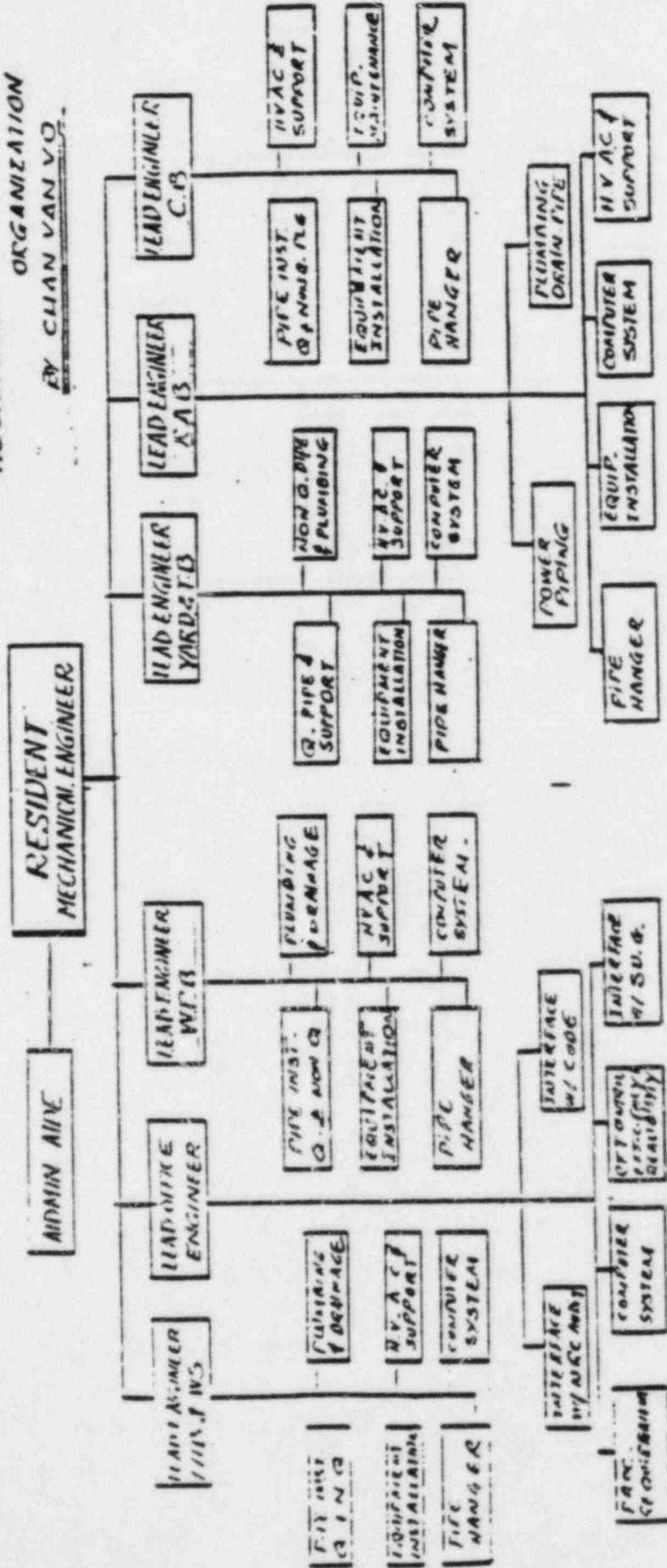
The Technical Support Engineer is accountable for acquiring sufficient knowledge of plant NSSS/EOP engineering, and is responsible for the followings:

1. Evaluating plant problems identified by plant personnel or outside sources and making recommendations to resolve these problems in a safe, reliable and cost-effective manner.
2. Designing and budgeting of needed plant modifications required to support operating and regulatory requirements, in accordance with applicable codes,
3. Providing technical direction and coordination in implementation of engineering projects major maintenance and modification activities including long-term outage planning -
4. Providing engineering studies and reports relating to plant design, operation, construction, and maintenance -

PURPOSE:

NUCLEAR POWER PLANT
MECHANICAL CONSTRUCTION
ORGANIZATION

BY CHAN VAN VO



II. STAFFING

Staffing involves manning, and keeping manned, the positions provided for by the organization structure. It thus necessitates defining manpower requirements for the job to be done, and it includes inventorying, appraising, and selecting candidates and incumbents, to accomplish their tasks effectively.

Staffing is formulated by the concept relationships between line and staff, in which line functions have direct responsibility for accomplishing the objectives of the power plant's construction and staff refers to the elements of the organization that help the line to work most effectively in accomplishing the primary objectives of the plant's construction.

It is stated in "Mechanical Construction Organization Chart" that Resident Mechanical Engineer is assigned an "Authority of ideas", "Mechanical Lead Building Engineer", and "Mechanical LEAD Office Engineer" are an "Authority to command" as illustrated as follows:

A. MECHANICAL LEAD BUILDING ENGINEER

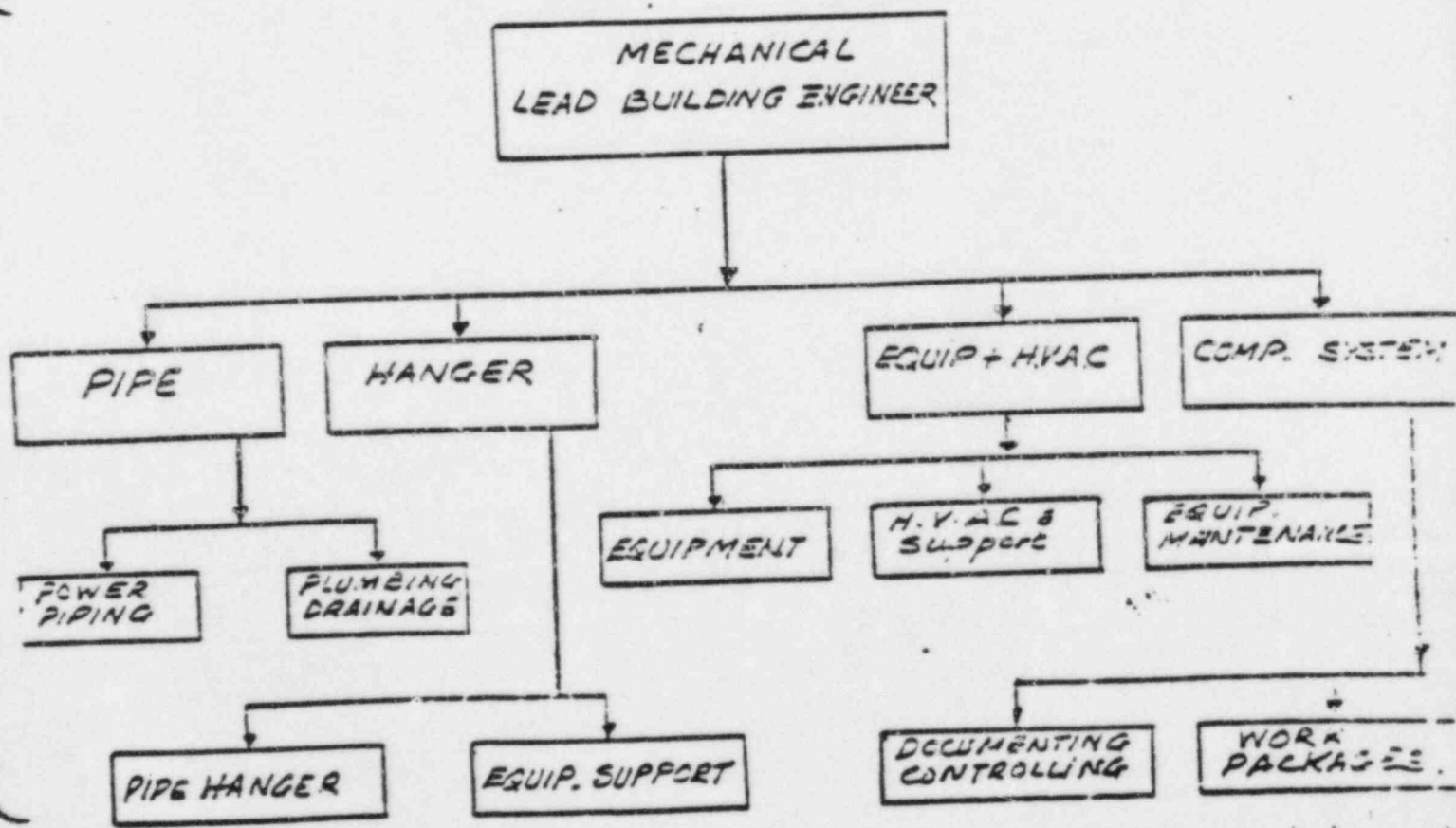
This group is supervised by a Project Engineer Mechanical or Senior Engineer Mechanical. The group is responsible for technical support to the piping, Hangers, Equipment, and H.V.A.C. installation Crafts.

Technical support to crafts consists of

preparing and/or interpreting design documents and work procedures, providing work packages, investigation of field problems, preparation of field changes "FCR/PN", pipe and hanger modification, and pipe hanger problems "P.H.P", resolution of non-conformances, and coordinating hydrostatic tests for buried or embedded pipe.

The group also integrates with Mechanical personnel, other N.P.C.D (Nuclear Power Construction Department) disciplines, for preparation, control, and completion of work items.

Integration of responsibility at all levels of this group must be achieved consistently which assures maximum control of the work performed for a building.



3.. MECHANICAL LEAD OFFICE ENGINEER

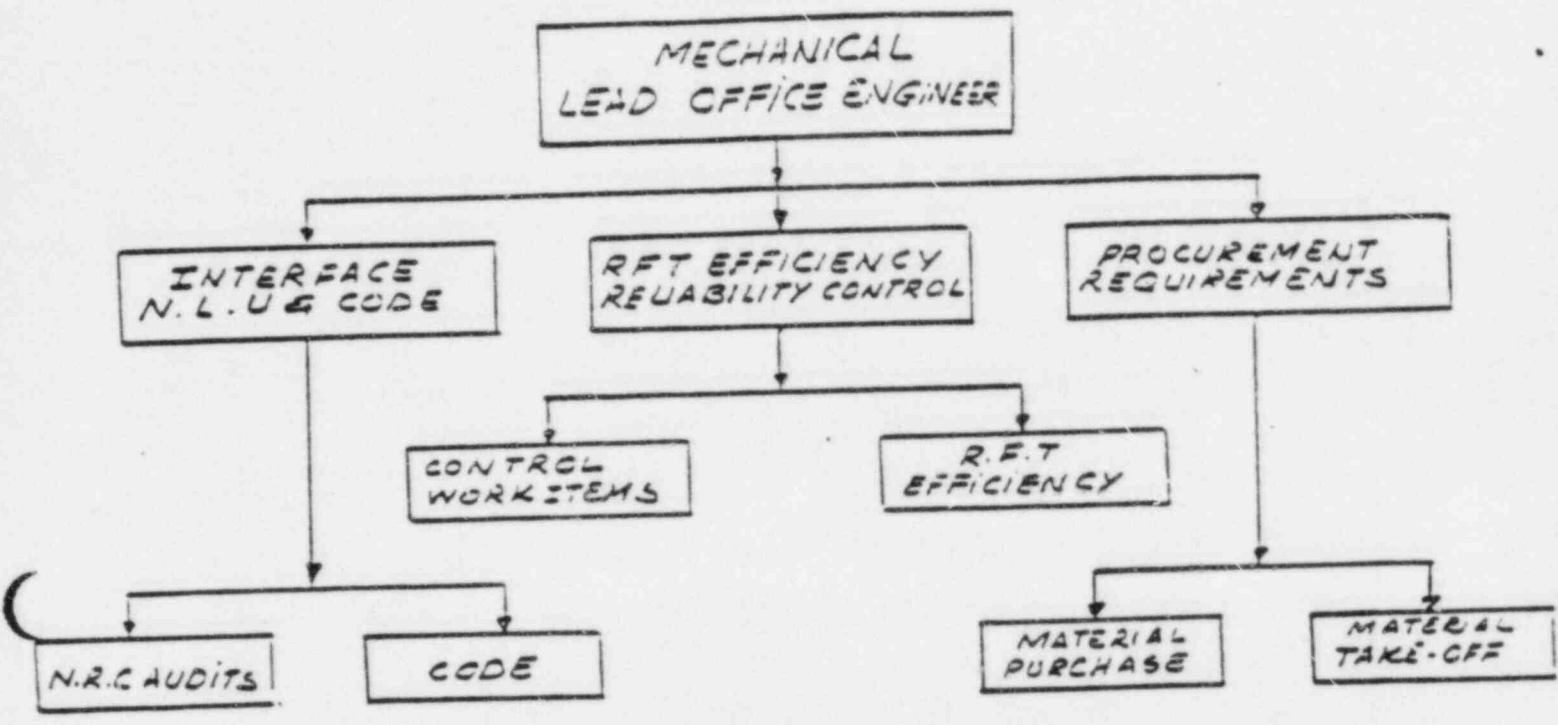
This group is supervised by a Senior Engineer Mechanical. This group is responsible for reviewing and interfacing with N.R.C Audits, A.S.M.E, A.N.S.I. E.31.1 Power Piping, A.S.T.M, A.I.S.C codes, and Mechanical work procedures.

The group is also responsible for preparing material requisitions and take-offs for site purchased material.

The group integrates with Mechanical personnel, and N.O.D "Nuclear Operation Department" S.U. Engineers for completion of Mechanical R.F.T's as follows:

- * Coordinate Mechanical R.F.T. systems with N.P.C.D Turnover Group for pipe, hangers, Equipment, and H.V.A.C.
- * Prepare detailed R.F.T. reports and boundaries that identify work activities and responsible organization for completion of work.
- * Assist in the preparation and control of work items required for R.F.T completion such as:
 - 1.. PSM's,
 - 2.. Hanger modification
 - 3.. P.H.P
 - 4.. FCR/PW or R.C.I
 - 5.. Pipe cleanliness
 - 6.. Pipe hangers
 - 7.. Records Review.
- * Attend the regularly scheduled R.F.T

meetings and reports on action items to N.P.C.D Turnover Group. Provide feedback to the Resident Engineer Mechanical, and Mechanical Lead Building Engineer.



II. DIRECTING AND LEADING

Directing and leading are the interpersonal aspect of managing by which subordinates are led to understand and contribute effectively and efficiently to the attainment of Nuclear Power Construction department objectives.

People are an important factor of production, but they cannot be treated as if they were inanimate. Neither can they be treated solely as rational economic, social, or self-actualizing.

Engineer who supervises or manages

should surely take advantage of human nature in the work situation. "Because subordinates want to be led, and led effectively. They will work just hard enough to get by if there is little or no leadership; with effective leadership they will work with zeal and confidence toward the peak of their capabilities."

In conclusion, the basis of directing and leading may be summarized by the principle that:

"The more effective the directing and leading process, the greater will be the contributions of subordinates to organizational goals!"

V.. CONTROLLING

Controlling is the measurement and correction of the performance of activities of subordinates in order to make sure that Power Plant objectives and the plans devised to attain them are being accomplished.

Control of activities operates through people. But we cannot know where the responsibility for deviations and needed action are, unless organizational responsibility is clear and definite.

One of the most frustrating situations managers can find themselves in is knowing that something is going wrong in their department and not knowing exactly where the responsibility for the trouble lies.

In recent years many Nuclear Power plants construction were used indirected-control and milestone budgeting systems to break a project down into controllable piece and then follow them.

But these systems just allows supervisors or managers to see a complex program in its simpler parts, thereby giving them some estimating completion time, with planned inputs of manpower and materials, run into the difficulty that, although accurate records of personnel and material costs can be kept, estimates of percentage of completion tend to reach 70 or 75 percent and stay there, when time and costs continue.

The best way to plan and control an engineering project is to break it down into a number of determinable events by using directed-control system.

The desirability of direct control rest upon four valid assumptions:

1. That qualified managers make a minimum of errors
2. That managerial performance can be measured.
3. That management concepts, principles and techniques are useful diagnostic standards in measuring management performance; and
4. That the application of management fundamentals can be evaluated.

Feedforward is the one of the best techniques of directed control in use to control of Network planning.

In engineering, feedforward is accomplished by analyzing the inputs to a process, seeing how they interact, and monitoring the inputs so that adjustment can be made in them or in the process before output from the system occurs.

In a sense, we could say that a feedforward control system is really one of feedback.

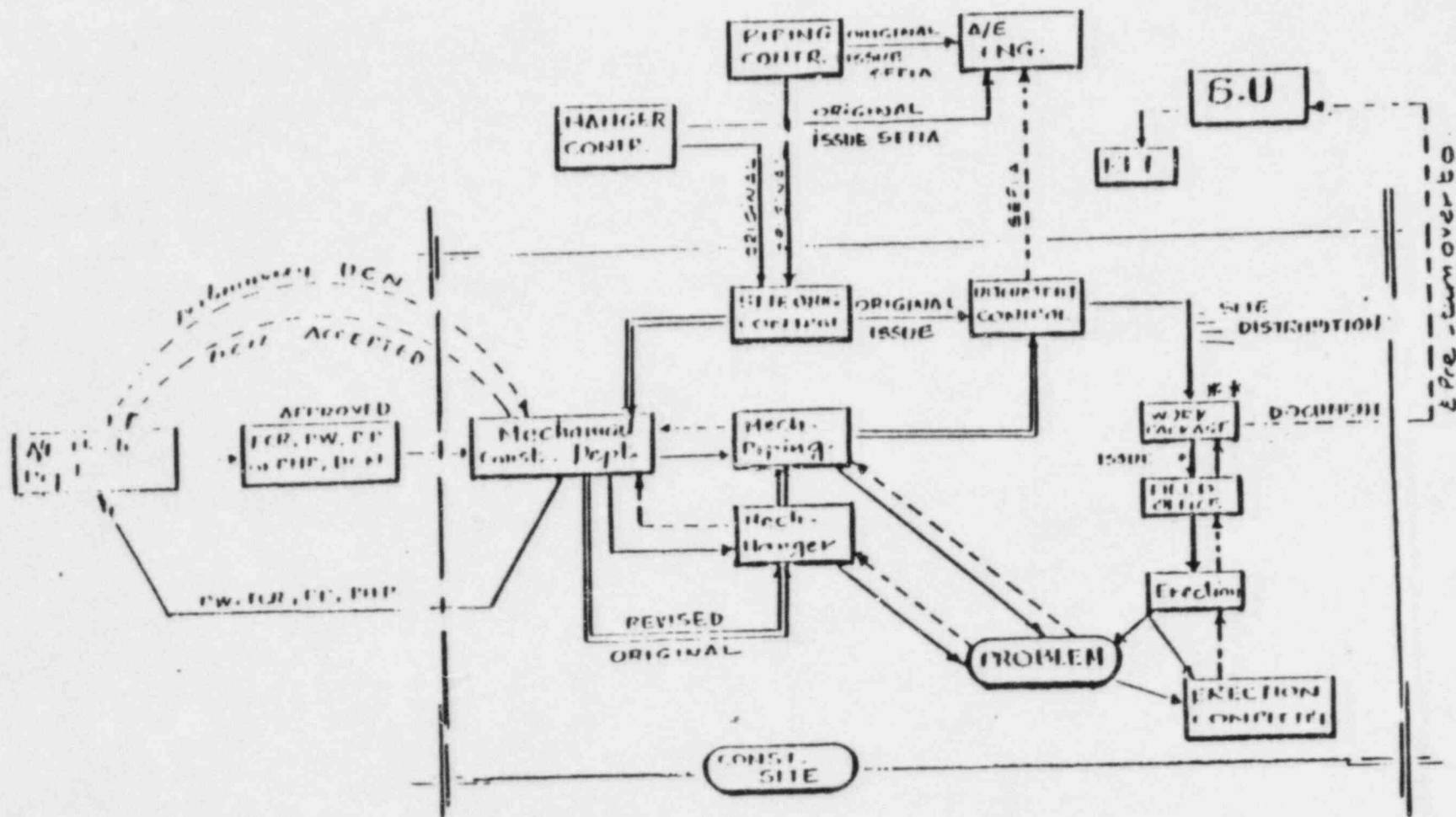
This is true, but the information feedback is at the input side of the system so that corrections can be made before the system output is affected. Also, no one would deny that, even with a feedforward system, a supervisor or manager would still want to measure final system output since nothing can be expected to work perfectly enough to give confidence that the final output will always be exactly what is desired.

Therefore, with this purpose that each Nuclear/or fossil Plants construction use the flow diagramming method (F.D.M.) for planning and controlling activities of Mechanical, Civil, or electrical construction networks.

F.D.M is a system similar in concept to critical path method (C.P.M) planning that it is activity oriented.

The reason for choice of (F.D.M.) networking is that it was considered by all to be easier to use at the Nuclear/or fossil plants construction working for both planning and controlling.

To give an idea of what feedforward and Flow diagramming Method in Mechanical construction management for planning and controlling pipe, pipe-hanger installation can be illustrated in "PIPE HANGER FLOW DIAGRAM" as shown in the next page.



Documenting & preparing Package includes walk down system, and any necessary documentation to be made to B.U.

Prepared by:
 [Signature]

PROPOSED PIPING & HANGER CONSTRUCTION FLOW CHART FOR NUCLEAR POWER PLANT

Management necessarily contains many subjective elements, but whether a subordinate is doing a good job should ideally not be a matter for subjective determination. Where controls are subjective, a superior or subordinate's personality may influence judgments of performance inaccurately; but people have difficulty in explaining away objective control of their performance particularly if the standards and measurements are kept up-to-date through periodic review.

Objective standards of Nuclear Power Plant construction can be quantitative, such as costs or man-hours per work packages or date of job completion; they can also be qualitative, as in the case of a training program that has specific characteristics or is designed to accomplish a specific kind of upgrading of the quality of the plans and personnel.

It may be concluded that an organizational structure is clear, complete, and integrated and the more that controls are designed to reflect the place in the organization structure where responsibility for action lies the more they will facilitate correction of deviations from plans.

The control techniques are applying for Mechanical N.P.C.D can be illustrated by several forms attachment.

* Presently some of these forms are in use at SHEARON HARRIS NUCLEAR POWER PLANT, especially the "HANGER OF THE WEEK" Program which was reviewed by I.N.P.O during their recent visit to Harris site, and it was very well received.

DESIGN CONTROL

PERFORMANCE AREA

- DC.1 DESIGN INPUTS
- DC.2 DESIGN INTERFACES
- DC.3 DESIGN PROCESS
- DC.4 DESIGN OUTPUT
- DC.5 DESIGN CHANGES

TOTAL

TEST CONTROL

PERFORMANCE AREA

10.1 TEST PROGRAM

10.2 TEST GROUP ORGANIZATION AND STAFFING

10.3 TEST PLAN

10.4 EQUIPMENT TURNOVER FOR TEST

10.5 TEST PROCEDURES AND TEST DOCUMENTS

10.6 EQUIPMENT STATUS CONTROLS

TOTAL

CONSTRUCTION CONTROL

PERFORMANCE AREA

CC.1 CONSTRUCTION ENGINEERING

CC.2 CONSTRUCTION FACILITIES
AND EQUIPMENT

CC.3 MATERIAL CONTROL

CC.4 CONTROL OF
CONSTRUCTION PROCESSES

CC.5 CONSTRUCTION QUALITY
INSPECTIONS

CC.6 CONSTRUCTION
CORRECTIVE ACTION

CC.7 TEST EQUIPMENT
CONTROL

TOTAL

Turnover No: _____
 Location: _____
 Zone: _____
 Design dwg: _____

Elev: _____

PIPE & HANGER INSTALLATION DAILY CONTROL

DATE	POSITION	NAME & BADGE NO	ISO NUMBER	ISO/SPOOL COMPLETE	NUMBER OF WELD	TOOYAGE	ENGINEERING PROBLEM	REPORT TO
/	FITTER WELDER							
/	FITTER WELDER							
/	FITTER WELDER							
/	FITTER WELDER							
/	FITTER WELDER							
		TOTAL						

COMMENT

FOREMAN NAME:

FIELD EVALUATION

FIELD EVALUATION PROGRAM HAS BEEN USED TO FIELD EVALUATIONS. THE PURPOSE OF THE METHOD HAS BEEN TO VERIFY AND UPDATE THE

EXISTING RECORDS & RECORDS OF THE QUALITY OF CONSTRUCTION WORK. THE METHOD HAS BEEN USED TO VERIFY AND UPDATE THE

ONE UTILITY WORK REVEALED BY FIELD EVALUATION. THE REVEALING IS DONE BY USING ONE OF THE METHODS, ONE FOOT, TRUCK AND UP, IN CONCRETE AREAS AND AROUND BLOCKOUTS WHERE THERE IS A HIGH PROBABILITY OF VOIDS. ONE

FOOT TRUCK REVEALING CAN BE USED ON AVERAGE OF THE FOUR TIMES AND CAN BE REPEATED MORE TIMES AFTER EACH FOUR. PURCHASING FOUR MATERIAL IN RANDOM LEVELS HAS

IN ADDITION TO REDUCING VOIDS, THE PEXIDOLITE FORMS ARE EASILY PACKAGED AND PERSONNEL CARRIED.

DISADVANTAGES ARE THAT THE PEXIDOLITE WILL USUALLY CRACK WHEN CONTACTED WITH A VIBRATOR, IS MORE EXPENSIVE THAN WOOD

FORMS, AND WILL BE REUSED IN THE SAME MANNER AS WOOD FORMS TO BE DIFFERENT.

RENDER OF THE FIELD EVALUATION PROGRAM IS

A VEHICLE TO UPGRADE THE QUALITY OF CONSTRUCTION WORK. EACH ENGINEER RESPONSIBLE FOR WATER INSTALLATION MUST

ENGINEER CHECKS THE INSTALLATION FOR CORRECT MATERIAL LOCATION, WEIGHT INTERFERENCES AND RELATED INSPECTION SIGN-

THE HEAD OF THE WATER DEPARTMENT. THE REPORTS ARE USED TO EVALUATE THE OVERALL EFFECTIVENESS OF THE TRAINING

INSPECTORS AND TO PERFECT TRAINING NEEDS OF SPECIAL AREAS. IT HAS THE MAJOR ADVANTAGE OF KEEPING THE

RECORDS OF THE FIELD EVALUATION PROGRAM.

Hanger of the Visc.

Page 97

Order No:

<p>1 INSP. FITUP GAPS INCREASED FILET WELD SIZE. <u>COMMENT</u></p> <p>initial Date</p>	<p>2 INSP. DOCUMENT REV. VS PACKAGE REV. <u>COMMENT</u></p> <p>initial Date</p>
<p>3 VERIFY EMBED THICKNESS. <u>COMMENT</u></p> <p>initial Date</p>	<p>4 VERIFY PHASE I INSPECTION <u>COMMENT</u></p> <p>initial Date</p>
<p>5 VERIFY INSP. DATE FOLLOW U.S. GIGI ORDER 2 MATCH DOCUMENT APPROVE ATTNE <u>COMMENT</u></p> <p>initial Date</p>	<p>6 VERIFY FITUP GAPS LIST BY CI/FE ARE CLEARLY UNDERSTANDABLE <u>COMMENT</u></p> <p>initial Date</p>
<p>7 VERIFY CI/FE LIST GAP ON ALL INSP. AFTER 10-21-81 <u>COMMENT</u></p> <p>initial Date</p>	<p>8 VERIFY LATEST REV. IS PLACED IN INSP. & DATE ON WDR <u>COMMENT</u></p> <p>initial Date</p>

Order No: 2

<p>9</p> <p>VERIFY WDR REFLECTS AS WELDED CONDITION</p> <p><u>COMMENT</u></p> <p>initial date</p>	<p>10</p> <p>VERIFY WELD SYMBOLS ARE ON WDR</p> <p><u>COMMENT</u></p> <p>initial date</p>
<p>11</p> <p>VERIFY NO IMPROPER DRAWN INCORRECT OR MISSING WELD SYMBOLS</p> <p><u>COMMENT</u></p> <p>initial date</p>	<p>12</p> <p>VERIFY OFFICE & FIELD COPY OF WDR IS SAME INFORMATION</p> <p><u>COMMENT</u></p> <p>initial date</p>
<p>13</p> <p>VERIFY HANGER REINSP. CLOSEOUT PACKAGES ARE CLEAR RELATIVE TO WELDING STATUS</p> <p><u>COMMENT</u></p> <p>initial date</p>	<p>14</p> <p>VERIFY SECTION III OF WDR IS COMPLETELY FILLED OUT.</p> <p><u>COMMENT</u></p> <p>initial date</p>
<p>15</p> <p>VERIFY WDR IS PROPERLY ASSIGNED VS S/SPEC. 034</p> <p><u>COMMENT</u></p> <p>initial date</p>	<p>16</p> <p>VERIFY WELDS CN SKEWED TEE JOINTS ARE NOT UNDERSIZE</p> <p><u>COMMENT</u></p> <p>initial date</p>

Page 01

- 01/21/10

<p>17 VERIFY SW ON DWG WERE MADE IN THE SHOP <u>COMMENT</u></p> <p>initial date</p>	<p>18 VERIFY GEOMETRY, LOCATION IN SPACES EMBED VS TOLERANCE W/ 10 <u>COMMENT</u></p> <p>initial date</p>
<p>19 VERIFY MATERIAL SUBST. ARE DOCUMENT <u>COMMENT</u></p> <p>initial date</p>	<p>20 VERIFY FW ACCEPTANCE CRITERIA PER CCC 19 & AWS D1.1 <u>COMMENT</u></p> <p>initial date</p>
<p>21 VERIFY BILL OF MATERIAL MATCH THE INSTALLED MEMBERS. <u>COMMENT</u></p> <p>initial date</p>	<p>22 VERIFY PREHEAT WAS DOCUMENTED IF HANGER MEMBERS THICKER THAN 1/2" <u>COMMENT</u></p> <p>initial date</p>
<p>23 VERIFY FW LENGTHS ARE EQUAL TO LENGTH ON HANGER SKETCH <u>COMMENT</u></p> <p>initial date</p>	<p>24 VERIFY FLEXIBLE CONNECTIONS ARE RECOGNIZED & PROPER INSP. <u>COMMENT</u></p> <p>initial date</p>

Order No:

<p>25 VERIFY HANGER NOT ATTACHED TO EMBED W/ THREAD STUD UNTIL CIVIL INSP. OF EMBED IS VERIFIED <u>COMMENT</u></p> <p>initial date</p>	<p>26 VERIFY SW ON DWG ARE INSP. IF THEY ARE ACTUALLY PA & PROPER NOTE ON TRAVELER & WDR <u>COMMENT</u></p> <p>initial date</p>
<p>27 VERIFY THE JOINTS LISTED ON WDR ARE UNIQUE. <u>COMMENT</u></p> <p>initial date</p>	<p>28 VERIFY GENERIC FOR'S ARE USED APPROPRIATELY. <u>COMMENT</u></p> <p>initial date</p>
<p>29 CHECK & VERIFY SW & THEIR EXISTANCE. <u>COMMENT</u></p> <p>initial date</p>	<p>30 VERIFY D/C WAS THE REV. MENTIONED ON COMPUTER PRINTOUT <u>COMMENT</u></p> <p>initial date</p>
<p>31 DOES THE TERMINAL ACCURATED SHOW STATUS OF HANGER <u>COMMENT</u></p> <p>initial date</p>	<p>32 VERIFY CUT MEMOS OR WORK DIRECTIVE IN THE G-1/CC. OFFICE FILES <u>COMMENT</u></p> <p>initial date</p>

RFT

EWR NUMBER _____

ENGINEERING WORK REQUEST

INITIATION

TITLE _____

UNIT _____ SYSTEM _____ EQUIPMENT CODE _____ SPECIFIC I.D. _____ TAG NO. _____

EQUIPMENT DESCRIPTION _____

LOCATION _____

REFERENCES _____

IS THIS A REGULATORY COMPLIANCE EWR? YES _____ NO _____, COMMITMENT NO. _____

DETAILED STATEMENT OF PROBLEM: (LIST RESTRICTIONS OR SPECIAL REQUIREMENTS) _____

PROPOSED SOLUTION: (IF ANY) _____

RESOLUTION NEEDED: (SPECIFY) _____

ORIGINATOR _____ POSITION _____ DATE _____

IMMEDIATE SUPERVISOR _____ POSITION _____ DATE _____
FORWARD TO ENGINEERING CLERK

2. REVIEWS

PROJECT ENGINEER REVIEW: COMMENTS _____

EWR APPROVED? YES _____ NO _____

EWR ASSIGNED TO PLANT ENGINEER _____

PLANNED RESOLUTION DATE _____

PROJECT ENGINEER _____ DATE _____
FORWARD TO ENGINEERING SUPERVISOR

ENGINEERING SUPERVISOR REVIEW: COMMENTS _____

EWR APPROVED? YES _____ NO _____

ENGINEERING SUPERVISOR _____ DATE _____
FORWARD TO ENGINEERING

There are four main reasons why direct control system is needed for Nuclear Power Plant construction.

* First, greater accuracy is achieved in assigning personal responsibility.

* The second, direct control hastens corrective action and makes it more effective.

* The third reason of direct control is potentiality for lightening the burden now caused by indirect-control.

* The fourth is psychological reason, because subordinate supervisors or managers know what is expected of them understanding the nature of managing, and feel a close relationship between performance and measurement. Intelligent superior supervisors or managers will reciprocate this feeling because they will know what they are expected to evaluate in subordinates and will have a technique for doing so.

II. NUCLEAR POWER PLANT CONSTRUCTION FILING- AND RECORDS CONTROL.

Considering all the attention that has been given to the preservation and construction control records to be applied for A Nuclear Power Plant, we might wonder why so much concern with these matters is necessary.

The construction control record is an integrated computerized tracking tool that provides material and construction installati

4

status continuously through all phases of construction, and provides an early warning system for potential R.F.T schedule problems. The construction control records assists the N.P.C.D and S.G (Start-Up Group) in the efficient and orderly turnover of system jurisdiction.

The construction control record is also given to record keeping in order to provide a verifiable and traceable process meeting principal plant design.

This type verification would be required by the N.R.C before any attempt at acquiring an operating license could be made.

Therefore, these construction control records must be preserved and controlled in such a way that they can be found when they are needed. And the systems and procedures of filing are designed to perform this function for individuals as well as for N.P.C.D.

Filing is the process of arranging and storing materials safely and systematically so that they can be located easily and quickly when they are needed.

There are three main purposes of the various systems of filing are as follows:

- 1.. To make records readily available when they are needed, whether for reference or evidence.

- 2.. To keep all related information and materials together so that the history of

the all work performed by N.P.C.D on systems/ equipment will be available in one place for R.F.T.

3. To provide a permanent and safe place for construction and personal records during the time they are not in use.

As stated earlier, records should be stored in such a manner that they can be located easily and quickly when they are needed.

Specially, for Nuclear Power Plant Construction the number of files is large, and beside all systems were assigned and breakdown to a group of number such as "applications for controlling".

Example: 2000 = Core cooling and support system

This kind of group of number for P.W.R are depicted in the page 45, 46, 47, 48, 49 and 50

In conclusion to have an effective filing system is applied for Nuclear Power Construction we must use of color in numeric filing.

Color coding is frequently used in numeric filing systems as an aid in quick identification of groups of numbers and in identification of misfiled folders.

A color-accented filing system is planned so that the use of particular color for a particular group; each of a series of numbers is identified with a particular coloric section in the system, thus giving it a positive color code by which identification of a given numeric system can be made more easily than otherwise would be possible.

TABLE 5.1
PWR SYSTEM LIST

1000 HEAT SOURCE

1005	Reactor Vessel and Internals System
1045	Excore Nuclear Instrument System
1050	Incore Nuclear Instrument System
1060	Area Power Distribution Monitoring System
1063	Rod Control System
1075	Rod Position Indication System
1080	Reactor Protection System
1090	Engineered Safety Features Actuation (Controls)
1095	Metal Impact Monitoring System
1100	Containment Isolation System
1900	NSSS Process Instrumentation Control System

2000 CORE COOLING AND SUPPORT SYSTEMS

2005	Reactor Coolant System
2025	Reactor Coolant Pump and Motor
2030	Reactor Coolant Pump Vibration Monitoring
2050	Pressurizer
2060	Chemical and Volume Control System
2065	Boron Thermal Regeneration System
2070	Containment Spray System
2075	H ₂ Purge System
2080	High Head Safety Injection System
2085	Low Head Safety Injection and RHR
2090	Passive Safety Injection System
2105	Gross Failed Fuel Detection System
2110	Reactor Coolant Make-up Water
2115	Reactor Coolant Sampling System
2150	Process Control System
2175	Hydrogen Recombiner

3000 STEAM CYCLE

3005	✓ Steam Generator
3010	✓ Steam Generator Blowdown System
3015	✓ Steam Generator Chemical Addition System
3020	✓ Main Steam
3025	✓ Extraction Steam
3030	Moisture Separator/Reheater
3035	Steam Dump System
3040	Auxiliary Steam
3050	✓ Feedwater
3055	Feedwater Heater
3060	Heater Vents, Drains, and Level Control
3065	Auxiliary Feedwater
3067	Auxiliary Condensate

3070	Condensate System
3075	Condensate Polishing Demineralizer System
3080	Condensate Make-up System
3100	Steam Cycle Sampling
3115	Steam Generator Hot Lay-up System
3120	Auxiliary Boiler Fuel Oil
3324	Instrument Installation

4000 HEAT SINK

4005	Condenser
4010	Condenser Vacuum System
4015	Circulating Water System
4020	Circulating Water Treatment System
4025	Cooling Towers System
4030	Cooling Towers Make-up System
4035	Cooling Tower Blowdown System
4040	Traveling Screens & Screen Wash
4045	Reservoir
4047	Reservoir (Aux)
4055	Reservoir Blowdown System
4060	Normal Service Water System
4065	Emergency Service Water System ✓
4080	Component Cooling Water System
4082	Waste Processing Building Component Cooling Water System
4085	Essential Chilled Water System
4086	Non-Essential Chilled Water System
4115	Emergency Screen Wash

5000 ELECTRICAL CONVERSION AND DISTRIBUTION SYSTEMS

5005	Turbine System
5015	Electro-Hydraulic Control System
5020	Turbine-Generator Lube Oil System
5025	Gland Seal System
5030	Exhaust Hood Spray System
5040	Generator System
5045	Generator Exciter System
5050	Generator Gas System
5060	Seal Oil System
5065	Generator Isolated Phase Bus System
5070	Load Frequency Control System
5095	Diesel Generator System
5100	Diesel Fuel Oil System
5105	Diesel Lube Oil System
5110	Diesel Jacket Water System
5112	Diesel Starting Air
5135	230 KV Switchyard System
5145	Startup and Auxiliary Transformer System
5155	Transformer Fire Protection System
5165	6.9 KV AC Distribution System
5170	4 KV AC Distribution System

- 5175 480 V AC Distribution System
- 5135 208/120 V AC Distribution System
- 5195 Uninterruptible AC System (30P)
- 5196 Uninterruptible AC System (Class II)
- 5205 Normal AC Lighting System
- 5210 Emergency AC Lighting System
- 5215 Emergency DC Lighting System
- 5220 250 V DC Distribution System
- 5222 125 V DC System A-SA (Class II)
- 5224 48 V DC Reservoir Make-up System
- 5226 125 V DC Security System
- 5245 125 V DC System A (Non-Class II)
- 5250 Lightning Protection System
- 5255 Cathodic Protection System
- 5260 Site Grounding System
- 5265 Heat Tracing and Freeze Protection System
- 5270 Building Electric Unit Heater System

6000 INTEGRATED PLANT AND SITE SYSTEMS

- 6005 Process Computer/SPDS
- 6008 Balance of Plant Process Instrumentation Control System
- 6010 Main Control Board
- 6015 Annunciator Systems
- 6016 Isolation Cabinets
- 6020 Auxiliary Control Board
- 6030 PA System
- 6035 PABX System
- 6040 Sound Powered Telephone System
- 6055 Portable Radios (FCC Licensed)
- 6060 Microwave System
- 6070 Meteorological and Environmental Systems
- 6075 Seismic Monitoring System
- 6080 Defensive Security Equipment
- 6085 Security Computer System
- 6090 Personnel Radiation Computer System
- 6095 Card Reader/Access Control System
- 6100 Surveillance/Alarm Assessment System
- 6105 Intrusion Detection System
- 6110 Security Illumination System
- 6115 Security Fencing and Gates
- 6120 Special Purpose Detectors
- 6125 Key Control and Hardware (Security, Radiation, and Safety Related)
- 6130 Security Communication System
- 6135 Instrument Air System
- 6140 Service Air System
- 6150 Nitrogen Supply System
- 6160 Argon Supply System
- 6162 Oxygen Supply System
- 6165 Carbon-Dioxide Supply System
- 6175 Site Fire Protection System
- 6180 Site Fire Detection System

- 6185 Emergency Diesel Generator CAR DCR System
- 6190 Air Compressors
- 6200 Lube Oil Storage and Transfer System
- 6210 Sewage Treatment System
- 6213 Sewage Drains Systems
- 6220 Storm Drains System
- 6225 Oil Drains System
- 6230 Chemical Drains System
- 6235 Radioactive Floor Drains System
- 6240 Radioactive Equipment Drains System
- 6242 Secondary System Drain System
- 6245 Laundry and Hot Showers System
- 6250 Water Treatment System
- 6262 Upflow Filter
- 6265 Potable Water System
- 6270 Demineralized Water System
- 6272 Acid & Caustic System
- 6285 Filter Backwash Storage and Transfer System
- 6310 Waste Neutralization
- 6840 Waste Process Computer
- 6850 Sample System

7000 RADWASTE

- 7005 Process Radiation Monitoring System
- 7045 Solid Waste Processing System
- 7055 Oily Waste and Collection Separator System
- 7060 Liquid Waste Processing System
- 7062 Secondary Waste Treatment System
- 7065 Boron Recovery System
- 7070 Gaseous Waste Processing System
- 7075 Radwaste Sampling System
- 7095 Refueling System
- 7100 New Fuel System
- 7105 Spent Fuel System
- 7110 Spent Fuel Pool Cooling System
- 7115 Spent Fuel Pool Cleanup System
- 7120 Spent Fuel Cask Decontamination and Spray
- 7125 Spent Fuel Cask
- 7130 Spent Basin and Concentrates Storage and Treatment System
- 7135 Waste Processing Ammuniators
- 7140 Waste Processing Analog Control System

8000 STRUCTURE AND GROUND SYSTEMS

- 8001 Site Plot Plan
- 8002 Plant Model
- 8010 Containment System
- 8015 Contaminated Storage Building
- 8020 Containment Liner and Penetration System
- 8025 Security Building
- 8045 Grounds Maintenance/Landscaping
- 8050 Containment Pressure Relief System

- 8055 General Hoists
- 8060 Containment Vacuum Breaker System
- 8063 Bridge Cranes
- 8070 Containment Pressurization System (T-10)
- 8085 Machine Shop & Storeroom
- 8100 Penetration Pressurization
- 8115 Chemical Storage Building
- 8150 HVAC Containment Building System
- 8152 Containment Cooling
- 8160 Containment Radioactivity Removal System
- 8165 Compressed Gas Storage
- 8170 Containment Purge System
- 8180 Rod Drive Cooling System
- 8200 Spent Fuel Cask Handling Crane
- 8210 HVAC Auxiliary Building
- 8220 HVAC Control Room Area
- 8231 HVAC Emergency Service Water Intake Structure
- 8250 HVAC Service Building
- 8260 HVAC Turbine Building
- 8280 HVAC Waste Processing Building
- 8285 Microwave Building
- 8291 Operations Office
- 8300 Administrative Building
- 8301 Records Storage Vault
- 8302 HVAC Administrative Building
- 8303 Plant Library
- 8310 Auxiliary Boiler House
- 8320 Auxiliary Building
- 8330 Control Room Area
- 8340 Diesel Building
- 8342 HVAC Diesel Building
- 8343 HVAC Diesel Fuel Oil Transfer Pump
- 8350 Fuel Handling Building
- 8352 HVAC Fuel Handling Building
- 8360 Service Building
- 8370 Turbine Building
- 8371 Turbine - Health Physics Building
- 8372 Turbine Lunchroom
- 8380 Warehouse
- 8382 HVAC Warehouse
- 8390 Waste Processing Building
- 8400 Water Treatment Building
- 8450 Polar Crane System
- 8460 T-G Gantry Crane System
- 8470 T-G Maintenance Canopy System
- 8490 Chlorine Storage Shed
- 8500 Elevator System
- 8510 Site Roads and Parking Lots
- 8515 Site Railroad Spurs
- 8520 Outside Storage
- 8530 Plant Dams/Dikes/Spillways
- 8535 Paint/Contaminated Equipment/Chemical Storage Building
- 8540 Stores Receiving Building

III... R.F.T "Release for test" or IMPLEMENTING

Mechanical Lead Office Engineer is responsible for the following R.F.T activities are as follows:

- * Scheduling and expediting completion of systems/equipment, pipe, hanger, installation to meet R.F.T priorities.
- * Verifying construction completion and coordinating R.F.T exception list inspections.
- * Recording R.F.T exceptions -
- * Assembling, reviewing and transmitting R.F.T packages
- * Identifying and updates the status of major Mechanical.
- * Preparing release for test acceptance forms (see the following pages.)

- 8563 Paint Shop/Mobile Equipment Shop
- 8560 Fire House
- 8558 Hot Machine Shop Building
- 8560 Outage Support Building
- 8565 Technical Support Center

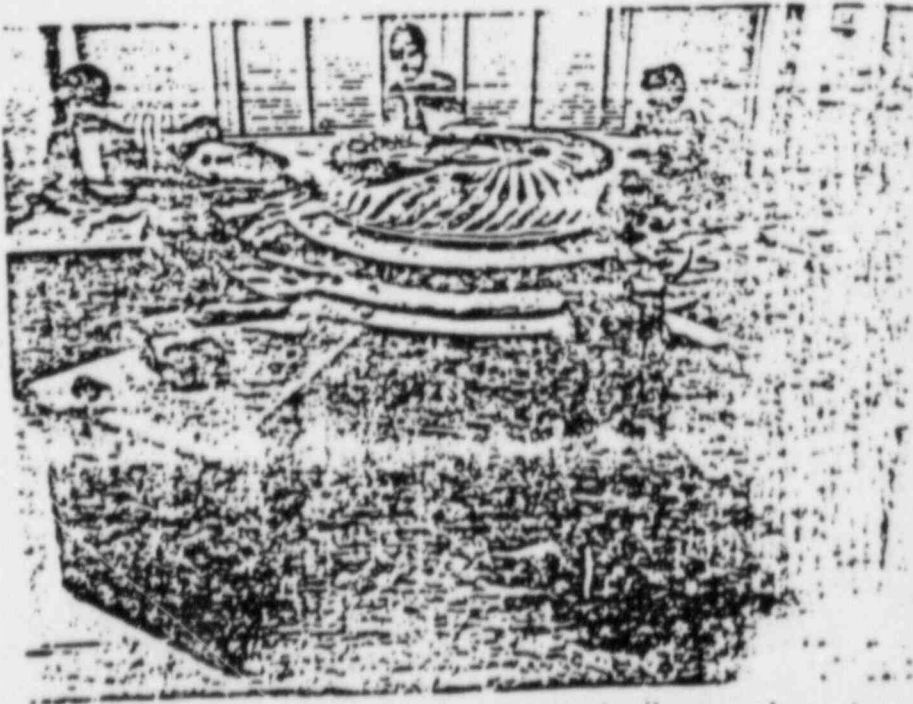
Finally, is evaluating equipment for correspondence filing.

The use of any particular type of equipment depend primarily upon the kind of records being held and the frequency of reference to them.

As stated earlier, in Nuclear Power Plant construction the number of file is large, therefore to provide greater accessibility to a large volume of records, and material held in the system is much more visible, the ROTARY EQUIPMENT should be used.

The CENTRAL ROTARY EQUIPMENT as shown in picture below, includes four circular sections or tiers and six work stations. Within the framework of this rotary unit, each tier moves independently; and thus each operator at a work station has access to the records

being held in any part of any tier. Work stations are equipped with telephone connections enabling operators to communicate directly with persons requesting information.



Date: _____
 Location: _____
 Project: _____
 Unit: _____

Page _____ of _____
 Number of the _____
 Flowchart page number _____

PERMANENT EQUIPMENT CONSTRUCTION CHECKLIST AND PRE-REI

LOCATION	ZONE	SYSTEM	DESIGN DWG.				
UNIT # _____ EQUIP. NO. _____ SERIAL NO. _____	EQUIP. INST. INSR.	DATA PACKAGE					
	FORM T-29 B-124	EQUIP. INST. ALL					
	TRAVELER NPI05EX4	30LT TORQUE DATA					
	CRD WP129 EX1	ENAL COUPLING ALGN.					
	DATA WP105 EX2	CLASS. WP105 EX2					
	CHECKLIST M13 EX3	PERMANENT EQUIP.					
	TRANSFER DATA T07	PROTECTIVE TUBING					
	INSR. T-29 EX1273	HYDRO TESTS					
	RECORD	SPECIAL INSTALL.					
	NONCONFORMANCE	DOCUMENTATION					
	CLOSED	STRESSURE TEST					
	REPORT/ANALYSIS	FCR CP DCU					
	CLOSED	EMC REPORT					
	COMPLETION	READ FOR					
	TURNOVER						

RECOMMENDATIONS:

Recommend that each Nuclear or fossil Power Plant Construction have a separate organization and coordination Group on site. Each discipline elect., Mech., civil of this Group should obtained experience people with the expertise to take responsibility for the following goals:

- 1.. Examination and evaluation of overall plan design and performance.
- 2.. Bringing design deficiencies, and construction interferences to the attention of the A/E and construction Engineers, and making recommendations to resolve the problem in a safe, reliable and cost effective manner.
- 3.. Providing construction Engineering studies, technical direction, and coordination with construction site disciplines elect., Mech., civil in an effort to assure that systems are designed properly and safely before releasing for construction.
- 4.. Substantially more attention and care must be devoted to the writing, reviewing, and monitoring of plant construction procedures:
 - * The wording of procedures must be clear and concise.
 - * The content of procedures must be reflect both engineering thinking and construction practicalities.
 - * The format procedures, particularly those that deal with seismic, and safety class conditions, must be especially clear, including clear diagnostic instructions for identifying the particular conditions confronting the construction crafts.

5.. Contracting for a "Turn-Key" plant in which the Vendor or A/E contracts to supply a fully construction plant and provides all planning construction and modification, or

6.. Assembling expertise capable of integrating the design process.

In either case, it is critical that the knowledge and expertise gained during design and construction of the plant be effectively transferred to those responsible for operating the plant, and reliability of plant.

EXHIBIT J

Rev. 10
 1/30/82

Item/Activity Name or Description PIPE HANGER INSTALLATION	Shop Order NA	Quantity SEE DETAIL	Unit 1+2	Quality Assurance No. (70 & Item No.) QA-NA
Serial, Head or Other Identification No. SEE DETAIL	Supplier or Manufacturer N/A	Type of Procurement <input type="checkbox"/> CPIL PO <input type="checkbox"/> Transfer <input checked="" type="checkbox"/> CA-E PO N/A <input type="checkbox"/> NSSS PO		
Location (Specification, Drawing, Procedure or Unit) WP-110	Item No. NA	Reporting Inspector THE UNIDENT		

Deficiency Details: A QA SURVEILLANCE OF TWELVE (12) PIPE HANGERS THAT HAVE BEEN INSPECTED AND ACCEPTED BY CI FOR PHASE II REVEALED THE FOLLOWING MATERIAL SUBSTITUTION/CONTROL PROBLEMS ON FIVE (5) OF THE HANGERS. ONE ADDITIONAL PROBLEM WAS NOTED DURING THE SURVEILLANCE PERTAINING TO MATERIAL CONTROL. THE PROBLEMS ARE LISTED BELOW.

1. (N/A) SEISMIC MATERIAL WAS ISSUED FOR A SEISMIC PIPE HANGER (1-SW-H-1570) ON CONSTRUCTION MATERIAL REQUISITION (CMR) # 087571 ITEM # 3 AND # 9
2. A SPEED LETTER DATED 4-25-80 ISSUED ITEM # 6 (R 1" X 7" X 9/16") FOR PIPE HANGER 1-CC-H-105 FROM PURCHASE ORDER (P.O.) # 21022, ALTHOUGH P.O. # 21022 WAS VOIDED AND NO DOCUMENTATION EXISTS THAT MATERIAL WAS RECEIVED.

JDR Evaluation

<input checked="" type="checkbox"/> Construction Phase	<input type="checkbox"/> Engineering Phase
<input type="checkbox"/> QA Program Violation	<input type="checkbox"/> Specification Deviation
<input checked="" type="checkbox"/> Procedural Deviation	<input type="checkbox"/> Unacceptable Workmanship
<input type="checkbox"/> Damage/Defect	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> Not Reportable	

Site: CA
 QA/QC Engt.: EPES
 Eval. by: GEF
 Date: 8-9-83

* DETERMINED NOT TO BE REPORTABLE UNDER 10CFR2 AND 10CFR50.55 (e)

[Signature]
 QA/QC Specialist/Engineer 7/21/83
 Date

Final Disposition: Verified Hold Tags Removed NO HOLD TAGS APPLIED

Remarks: **AD 10-9-84**

[Signature] Christopher M. Carr 10-9-84
 QA/QC Inspector Date

Accepted by: *[Signature]* 10-9-84
 QA/QC Specialist/Engineer Date

- DISTRIBUTION:**
- Orig: Director - QA/QC - SENPP
 - CC: Proj. Gen. Mgr./Sr. Res. Engr.
 - Gen. Mgr. (SU/Operations)
 - Eng. Comp. Unit (SU/Operations)
 - Initiating QA/QC Specialist
 - Accounting
 - Mgr. - EIC QA/QC
 - Mgr. - EPES
 - Start-Up Ed WILLET (CAR)
 - NSSS Site Rep.
 - ANT

ANI Concurrence (ASME Code Section III Items Only):

N/A Date

Authorized Nuclear Inspector

Report Closed:

[Signature] J. GLF 10-15-84
 Director - QA/QC - SENPP Date

- 3) A FURTHER INVESTIGATION OF P.O. # 21022 REVEALED THAT MATERIAL FROM THIS P.O. WAS USED ON PIPE HANGER 1-CC-H-1242, 1-RH-H-193 AND NUMEROUS OTHER PIPE HANGERS NOT LISTED HERE, ALTHOUGH P.O. # 21022 WAS VOIDED AS PREVIOUSLY STATED IN (2) ABOVE.
 - 4) CMR # 105087 INDICATED THAT ITEM #3 (END ATTACHMENTS) WERE ISSUED FROM SURPLUS PIPE HANGER 2-WG-H-1264 AND USED ON PIPE HANGER 1-SW-H-2339. HOWEVER, 2-WG-H-1264 HAS NO END ATTACHMENTS
 - 5) CMR # 66234 AND CMR # 66126 BOTH ISSUED $\frac{1}{8}$ " R FOR PIPE HANGER 1-SW-H-410. HOWEVER, NO $\frac{1}{8}$ " R WAS ORDERED OR RECEIVED ON THE P.O. #4153 REFERENCED ON THE CMR,
 - 6) CMR # 53789 ISSUED ITEM #2 (R $\frac{1}{2}$ " X 6" X 6") FROM P.O. # 435076 FOR PIPE HANGER 1-SW-H-625. HOWEVER THERE IS NO $\frac{1}{2}$ " R ON P.O. # 435076
 - 7) CMR # 53833 ISSUED ITEM #2 (R $\frac{1}{2}$ " X 8" X 6") AGAIN FROM P.O. # 435076 FOR PIPE HANGER 1-SW-H-625. WHICH MATERIAL WAS USED ON PIPE HANGER 1-SW-H-625 COULD NOT BE DETERMINED
 - 8) CMR # 106839 AND CMR # 087571 BOTH ISSUED ITEMS #1, 2 AND 3, CONSTITUTING (2) TWO SETS OF MATERIAL FOR PIPE HANGER 1-SW-H-1570. WHICH ITEMS WERE USED ON PIPE HANGER 1-SW-H-1570 IS INDETERMINATE.
 - 9) CMR # 087571 ISSUED ITEM #9 (R $\frac{3}{4}$ " X 4" X 5") FOR PIPE HANGER 1-SW-H-157 FROM PIPE HANGER 1-CE-H-166. HOWEVER, THE ONLY $\frac{3}{4}$ " R AVAILABLE FROM PIPE HANGER 1-CE-H-166 IS $\frac{3}{4}$ " X 3" X 5" WHICH IS TOO SMALL
 - 10) CMR # 50574 ISSUED ITEM #3 (2100-12 RIGID TELESCOPING STRUT ASSY.) FOR PIPE HANGER 1-SW-H-625 FROM PIPE HANGER 1-CC-H-941. HOWEVER THE ITEM #3 INSTALLED IS MARKED 1-CC-H-99 AND 1-CC-H-910.
 - 11) CMR # 090726 ISSUED 16 GAUGE SHIM MATERIAL FOR PIPE HANGER 2-SW-H-915. HOWEVER, MATERIAL WAS MEASURED AT .105" WHICH IS APPROXIMATELY 10 GAUGE.
- ALL "SW" PIPE HANGERS ARE IN RFT 4065.
ALL "CC" PIPE HANGERS ARE IN RFT 4080.
- NOTE: EXCEPT FOR ITEM 11, THE ACTUAL MATERIALS USED COMPLY WITH THE DIMENSIONAL REQUIREMENTS

CORRECTIVE ACTION REPORT
(Procedure CQC-2)

Proposed Disposition:

- Repair
- Rework
- Reject (Return to Vendor)
- Reject (Scrap)
- Permanent Waiver (Accept-as-is)
- Upgrade Code Certification
- Downgrade Item
- Other (describe below)

Details:

UPGRADE MATERIAL DEFICIENCIES LISTED ON THE REFERENCED DDR TO ACCEPTABLE STATUS.

Recommended By: [Signature] 9/26/84
 Discipline/Engineer
 Responsible Supervisor
 Date

Approved By: [Signature] 9/26/84
 Proj. Gen'l Mgr./Sr. Res. Engineer/
 Mgr. HPES/ General Mgr.
 RCM 10-5
 Date

Corrective Action and Final Disposition:

Documented Cause & Preventive Measures required:

Yes
 No
[Signature] 7/26/84
 Signature Date

Details:

SEE ATTACHED PAGES 2, 3, 4 OF 16 FOR DETAILS.
 17
 MAC
 7-26-84

Cause:

THE PIPE HANGER DEPARTMENT HAD AN INADEQUATE MATERIAL PROGRAM - WITHOUT SUFFICIENT CHECKS & BALANCES.

Preventive Measures:

A MATERIAL CONTROL PROGRAM HAS BEEN ESTABLISHED ACCORDING TO WORK PROCEDURE #110, REV 11. TRAINING CLASSES HAVE BEEN HELD TO INSTRUCT HANGER PERSONNEL CONCERNING IMPLEMENTATION OF THE PROGRAM.

[Signature] 9/26/84
 Discipline Engineer /
 Responsible Supervisor
 Date

[Signature] 9/26/84
 Proj. Gen'l Mgr./Sr. Res. Engineer/
 Mgr. HPES/ General Mgr.
 RCM 10-5
 Date

① 1-SW-H-1570 NON-SEISMIC MATERIAL SUPPLIED FOR THIS HAUGER WAS REMOVED AND SCRAPPED PER WORK DIRECTIVE #18026. (SEE ATTACHED COPY PAGE 506)

② RESEARCH HAS SHOWN THAT THE 1" PLATE ISSUED FROM PO #21022 WAS ACTUALLY RECEIVED ON PURCHASE ORDER #19019. THE PLATE WAS REQUISITIONED FROM PO #19019 ON A WP-18 FORM (IE. #C-131Q) TO BE USED AT THE SITE FABRICATION SHOP.

PURCHASE ORDER #21022 WAS ASSIGNED TO THE SITE FABRICATION SHOP FOR STORAGE PURPOSES. THE PLATE WAS RELEASED FROM THE WP-18 FORM AND PLACED IN STORAGE UNDER PURCHASE ORDER #21022 BY CPIL PURCHASE RELEASE NUMBER 1 OF PO-H-21022. (SEE ATTACHED)

THE PLATE WAS THEN RELEASED TO THE FIELD UNDER THE STORAGE PURCHASE ORDER #21022 FOR INSTALLATION.

THE PURCHASE ORDER #21022 WAS VOIDED IN ERROR BY PURCHASING. THE PO WAS WRITTEN AFTER THE NUMBER WAS ASSIGNED, BUT WAS NOT RETURNED TO PURCHASING TO BE FILED.

CONT ② FOR ADDITIONAL ASSURANCE, THE PLATES IDENTIFIED AS COMING FROM PURCHASE ORDER #21022 WILL BE PLACED IN THE SAMPLING PROGRAM.

③ SEE RESPONSE #⑥

④ THE END ATTACHMENTS ARE ACCEPTABLE AS IS ACCORDING TO THEIR PHYSICAL DIMENSIONS.

⑤ 10 GAGE SHEET STEEL WAS RECEIVED ON PURCHASE ORDER #41553. IT IS A STANDARD PRACTICE TO USE 10 GAGE SHEET STEEL WHERE 1/8" NONSTRUCTURAL SHIM STEEL IS REQUIRED ON HANGERS, SINCE THE THICKNESSES ARE APPROXIMATELY EQUAL. 10 GA. \approx 0.11
1/8" \approx 0.12

⑥ PLATE 1/2" THICK WAS ORDERED AND RECEIVED ON PURCHASE ORDER #435076 ON MRR #14092. (SEE ATTACHED)

⑦ SEE RESPONSE #⑥

⑧ MATERIAL WAS RECEIVED ON CMR #087571 AND CMR #106839 WAS VOIDED.

⑨ SEE RESPONSE #①

⑩ THE STRUT ISSUED FOR THIS HANGER WAS RECEIVED FROM BERGEN-PATERSON FOR 1-CC-H-941. IT IS ACCEPTABLE ACCORDING TO ITS PHYSICAL DIMENSIONS.

⑪ THE MATERIAL INSTALLED IN THE FIELD WAS MEASURED BY ENGINEERING AND FOUND TO BE ≈ 0.078 " THICK, WHICH IS APPROXIMATELY 16 GAGE MATERIAL. SHIM MATERIAL IS NON-STRUCTURAL AND IS ACCEPTABLE AS IS.

NO - 12026

WORK DIRECTIVE

PIPE HANGER No A3-236-1-SW-4-1570

REV. 251 MI

DOR #1775

SINCE THE MATERIAL FOR ITEMS #3 AND #9 WERE SUPPLIED FROM
 A NONSEISMIC HANGER, IT MUST BE REMOVED. CUT FIELD
 JOINTS #7, #8, #9, #10, ~~#11~~ #15. SCRAP ITEMS #9 AND
 BOTH #3's. HAVE QC VERIFY THE ITEMS ARE
 SCRAPPED. MHF 9.20.84

NOTE: FOREMEN TO REVISE EXHIBIT #4 TO WP 139,
 IN PACKAGE, TO SHOW A REQUIREMENT FOR NEW MATERIAL.

[Signature] / 9.25.84
COMPLETED / DATE
(HANGER FOREMAN)

N/A / 9.20.84
ACKNOWLEDGED / DATE
(C.I.)

[Signature] / 9.25.84
ACKNOWLEDGED / DATE
(Q.C.)

N/A / 9.20.84
ACKNOWLEDGED / DATE
(WELDING SUPV. FOR NON-Q)

QA-7
3/77
Rev. 4

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT
RECEIVING INSPECTION REPORT

Date Received 7-26-79
Quality Release No. N/A

Item Name/Description <u>PLATE</u>	Shop Order <u>N/A</u>	Code Class <u>Q</u>	Quantity <u>2</u>	Unit <u>N/A</u>	Quality Assurance Number (Purchase Order & Item No.) <u>QA-H-19019-1</u>
Serial Heat or Other Identification No. (Specify) <u>SEE REMARKS</u>	Supplier or Manufacturer <u>CARBON STEEL PROD</u>		Type of Procurement <input checked="" type="checkbox"/> GENL PO <input type="checkbox"/> TRAIL OR <input type="checkbox"/> A-K PO <input type="checkbox"/> INSS PO		
Base PO and CN's <u>N/A</u>	Project PO and CN's <u>YES</u>	Base E-Spec. and Rev. <u>N/A</u>	Project E-Spec./Dwg. and Rev. <u>YES</u>	Storage Level <u>D</u>	Special Handling/Inspections <u>NONE</u>
Physical Damage <u>NONE</u>	Identification and Marking <u>SAT</u>	Cleaness <u>SAT</u>	Protective Covers and Seals <u>N/A</u>	Coatings and Preservatives <u>N/A</u>	Inert Gas Blanket <u>N/A</u>
				Desiccant and Indicator <u>N/A</u>	Lubricants <u>N/A</u>
				Electrical Insulation <u>N/A</u>	User's Test <u>N/A</u>
				*Material Certification <u>YES</u>	*Manufacturing Documentation <u>YES</u>
				*Dimensions and Test Progs <u>SAT</u>	*Workmanship <u>SAT</u>

511022

*Inspection of these items not mandatory when Quality Release is received with shipment.

Remarks

ITEM	DESCRIPTION	QTY
1	1'x4'x8' PLATE H-19019 HT. 8934525	2

ORDER COMPLETE
SHIPPING AND HANDLING NOT SPECIFIED BY PO/SIC

Inspected By: Robert C. [Signature] 7.26.79
QC Inspector Date
Reviewed By: David [Signature] [Signature]
QA Specialist Date

White-RIR Package Canary-Accounting Pink-RIR Package (Temporary)
QA-H 19019-1

QA-6
2/20/79
Rev. 3

BOLENA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT
RECORDS REVIEW AND ACKNOWLEDGEMENT

DDL #1775
Page 7 of 17

Transmittal Letter No. NIA

Quality Release No. QA-H-9014

Item Name/Description <u>PLATE</u>	Shop Order <u>NIA</u>	Code Class <u>Q</u>	Quantity <u>2</u>	Unit <u>NIA</u>	PO Number <u>H-19014</u>	Item No.
Serial Heat or Other Identification No. (Specify) <u>SEE REMARKS</u>	Supplier or Manufacturer <u>CARBON STEEL PROD.</u>		Type of Procurement <input checked="" type="checkbox"/> CP&L PO <input type="checkbox"/> Transfer <input type="checkbox"/> A-E PO <input type="checkbox"/> NSSS PO			

Type of Documents Included	
1	Document Index Sheet
2	Quality Releases and Supplements
3	Deviation Notices
4	Manufacturer's Data Report (Code Form)
5	Material Test Reports
6	Material Certificates of Compliance
7	Milestone Reports
8	Welding Data
9	Repair Records
10	Identification (Nameplate rubbing)
11	Heat Treatment Charts/Records
12	Ultrasonic Examination Reports
13	Magnetic Particle Examination Reports
14	Liquid Penetrant Examination Reports
15	Radiographic Examination Reports
16	Radiograph Film
17	Leak Test Reports
18	Hydrostatic Test Reports
19	Valve Minimum Wall Thickness Reports
20	Dimensional Reports
21	Performance Test Reports
22	Seismic Calculations or Test Reports
23	Certification of Compliance to Seismic Requirements
24	Cleaning, Painting and Packaging Reports
25	
26	
27	
28	
29	

A-E & NSSS PROCURED ITEMS
Records are Complete and Accepted
NIA
Reviewer's Signature Date

SITE PROCURED ITEMS
Records are Complete and Accepted
GH
Reviewer's Signature Date

REMARKS
FOR INFORMATION ONLY
KAD
10-9-84

QA RECORDS
Records Received and Filed in QA Records

(Signature) Date

5/79

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT
MISCELLANEOUS STEEL FABRICATION REQUEST

MP-18

DATE: B-15-79

REPORT (SEE)
Request No. C-1319

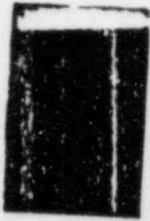
5. Item No.	6. Qty.	7. Mark No.	8. Reference Document #	9. Forward To Field Warehouse	10. Heat No.	11. Inspection Hold Points	
						Material Inspector/Date	Fabrication Inspector etc
1	15	1x5x15"	P.O. # 19019	WAREHOUSE	B9345-25		
2	15	1x6x16"					
3	15	1x7x17"					
4	15	1x8x18"					
5	10 ²⁰	1x10x10"					
6	10	1x12x12"					

Remarks (By Item) Please fabricate these plates from the steel on P.O. # 19019. Edges of plate should be square and ready for fillet welding. Each plate should be marked with heat number and P.O. number in permanent yellow paint. Remainder of steel should also be marked and returned to warehouse with these plates. Each plate should have the heat number stamped in the low-stress stamp. (P.S. slugs)

Construction Manager: *[Signature]*
Metallurgy/Welding Engineer
Welding Sp. Specialist

Date

10-9-84
KAD
D-11
10-11-84



SEE NOTE ATTACHED
CPA

T
L (12-F-18)

SHEARON HARRIS NUCLEAR POWER PLANT

PURCHASE RELEASE

RELEASE NUMBER	PURCHASE ORDER NO
1	H-21022

USED FOR	COST CODE	ITEM	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL PRICE
PAINT FOR AEE MATERIALS	Q	1	1" x 5"	32			
		2	1" x 6"	15			
		3	1" x 7" x 7"	15			
		4	1" x 8" x 8"	14			
		5	1" x 10" x 10"	12			
		6	1" x 12" x 12"				

DATE 9/18/74
H-21022
let for phase
same
Clyde R. A.
INEL LOCATION 12 FIK
REQUISITION

REQUISITIONER

PURCHASING APPROVAL



Request No. C-131Q
KAD
9-27-84



Phase 10-11

PURCHASE REQUISITION

CAROLINA POWER & LIGHT COMPANY

POWER PLANT CONSTRUCTION DEPARTMENT

SHEARON HARRIS NUCLEAR POWER PLANT

P. O. BOX 101

NEW HILL, N. C. 27692

PAGE _____ OF _____

REQUISITION NUMBER	REQ. DATE	DATE MATL. REQUIRED	PROMISED DEL.	SHIP VIA	F. O. B.	TERMS	PURCHASE ORDER NUMBER	C / O
21022	8/29/79	N.A.						
REQUESTED BY B. HAYNES SUGGESTED SOURCES OR REMARKS SHNPP SITE FAB SHOP PLEASE MAKE AN EFFORT TO STORE MATERIAL ON ^{TO EACH OTHER} RELEASES IN CLOSE PROXIMITY ^{TO EACH OTHER} AT THE WAREHOUSE.								
VENDOR SHNPP SITE FAB SHOP <input type="checkbox"/> CONFIRMING TELEPHONE ORDER BY _____ ON _____ <input type="checkbox"/> ORIGINAL NOTIFICATION TO _____ ON _____								
USED FOR	COST CODE	ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE	BUYER CODE
PERMANENT PLANT EXPENDS FROM FAB SHOP			THE PURPOSE OF THIS ORDER IS TO ESTABLISH A BRACKET ORDER TO STEEL MATERIAL WHICH HAS BEEN FABRICATED AT THE SITE FAB SHOP.					
	SEE INDIVIDUAL RELEASES		ALL RELEASES WILL BE ACCOMPANIED BY A FIELD FAB REQUEST AND ANY APPLICABLE DRAWINGS.					
			MATERIAL WILL BE TAGGED/BUNDLED AND TAGGED WITH ITEM NUMBER AND RELEASE NUMBER.					
APPROVAL: _____ QUALITY ASSURANCE: _____ SUPPLIER APPROVAL: _____			DISCIPLINE ENG: _____ APPROVAL: _____			APPROVAL: _____ BUYER CODE: _____		

CAROLINA POWER & LIGHT CO.
WAREHOUSE REQUISITION

DATE 5-19-80

QUANTITY	DESCRIPTION OF MATERIAL & TAG NUMBER	P. O. No.	Q/C
1	1" X 10" X 10" plate	21022	12/78

INTENDED USE: *Hardware* A-2-236-1-CC-H-105 (DELIVER TO MC LEOD N-E CORNER OF R.A.B. #1)

RECEIVED: *ET. Hoffman* 6/6/80
ISSUED: *[Signature]* 2-11-80

White: WAREHOUSE Gold: Q.A. Pink: ENGINEERING Green: STAGING Yellow: ORIGINATOR



Phase 12.10.17

NOTE: ORDER NUMBER MUST APPEAR ON ALL INVOICES, CORRESPONDENCE, SHIPPING PAPERS AND CARTONS.

ORDER DATE	SHIPMENT PROMISED BY	SHIP VIA	FOB	TERMS	REQ. NO.	BUYER C.
10/5/82	10/13/82	SW	JB	N/30	41558	WFB

SUPPLIER

Peden Steel
 P.O. Drawer 26208
 Raleigh, N. C. 27611

IMPORTANT INSTRUCTIONS

1. ADDRESS ORIGINAL & (2) COPIES OF YOUR ITEMIZED INVOICE TO THE ABOVE ADDRESS ATTENTION ACCOUNTS PAYABLE DEPARTMENT.
2. ATTACH ORIGINAL BILL OF LADING SHIPPING RECEIPT TO INVOICE.
3. INVOICE MUST SHOW ITEM NUMBER SHOWN ON PURCHASE ORDER.
4. WHEN PREPAID ATTACH ORIGINAL TRANSPORTATION RECEIPT.
5. EACH DISCOUNT PERIOD WILL BE FROM RECEIPT OF INVOICE CORRECTED.



ITEM	DESCRIPTION	QUANTITY	UNIT	2	3	STOP
	Confirming telephone order to Ron Cover on 10/5/82. <u>DO NOT DUPLICATE</u>					
	Purnish the following:					
1.	16 ga sheet steel (ASTM-A-569) 6" x 4'-0"	24	ea			
2.	10 ga sheet steel (ASTM-A-569) 8" x 4'-0"	18	ea			
3.	3/16" TK plate (ASTM-A-36) 6" x 8'-0"	20	ea			
4.	1/4" TK Plate (ASTM-A-36) 6" x 8'-0"	20	ea			
5.	5/16" TK plate (ASTM-A-36) 6" x 8'-0"	20	ea			
6.	3/8" TK plate (ASTM-A-36) 6" x 8'-0"	20	ea			
7.	1/2" TK Plate (ASTM-A-36) 6" x 8'-0"	20	ea			
8.	5/8" TK Plate (ASTM-A-36) 6" x 8'-0"	20	ea			
9.	3/16" TK plate (ASTM-A-36) 8" x 8'-0"	20	ea			
10.	1/4" TK Plate (ASTM-A-36) 6" x 8'-0"	20	ea			
11.	5/16" Plate (ASTM-A-36) 8" x 8'-0"	20	ea			
12.	3/8" TK Plate (ASTM-A-36) 8" x 8'-0"	20	ea			

Shipper #1	Shipper #2	Shipper #3
<i>Peden Steel</i>		
Shipped from <i>Raleigh, N.C.</i>	Shipped from	Shipped from
Car/Pro # <i>10-14-82</i>	Car/Pro #	Car/Pro #
Date Rec.	Date Rec.	Date Rec.
Received by <i>Robert Spencer</i>	Received by	Received by
Shippers order #	Shippers order #	Shippers order #
Weight	Weight	Weight
Carrier <i>Kendrick</i>	Carrier	Carrier
Prepaid/Collect	Prepaid/Collect	Prepaid/Collect

10-18-82

RECEIVING

ITEM	DESCRIPTION	QUANTITY	UNIT	1	2	3/7	ST
13.	1/2" Th Plate (ASTM-A-36) 8' x 8'-0"	20	ea	20			
14.	5/8" Th. Plate (ASTM-A-36) 8' x 8'-0"	20	ea	20			

Material test reports required with shipment for items 3-14.

Certificates of Conformance to ASTM-A-369 for items 1 and 2.

Each item # 1 & #2 using 1/4" min Letters marking: (N-41558, Ca.).

(Low Stress) stamp items #3-14 using 1/4" min. letters stating: (N-41558, Thickness, and vendor heat #s.).

TOTAL ORDER MAY VARY +/- 10%.

Acknowledge receipt and acceptance of this purchase order by return mail.

All Documentation required by this purchase order must be furnished in accordance with Attachment I of this purchase order, entitled "Certification Requirements", dated 1/30/81.

ATTACHMENT: Certification Requirements

Anthony Vann

QA INSPECTION AND DOCUMENTATION REQUIRED



Shipper #1	Shipper #2	Shipper #3
<i>Edwards Steel</i>		
Shipped from	Shipped from	Shipped from
Car / Pro #	Car / Pro #	Car / Pro #
Date Rec.	Date Rec.	Date Rec.
Received by	Received by	Received by
Shippers order #	Shippers order #	Shippers order #
Weight	Weight	Weight
Carrier	Carrier	Carrier
Prepaid/Collect	Prepaid/Collect	Prepaid/Collect

10-18-82

RECEIVING

ACER STEEL COMPANY
 AREA CODE 919 PHONE 632-2081
 P.O. DRAWER 26208 KALEIGH NC 27541

SHIPPING TICKET

LOAD NO. 121
 TRAILER NO. 30
 DATE SHIPPED... 6-13-79
 SHIPPED VIA... 21

SEARCH SERVICES INC
 03483P
 SECTION OF JOB SHELDON HARRIS NUCLEAR
 NEW HILL, N. C.

MRR14097

DATE 6-13-79
 P. O. # NY 435076
 VENDOR Federal Steel Co.
 CARRIER Same
 CHECKER NAME Mamed
 MATERIAL LOCATION 1-20 FEB 79
 220E-12

QUANTITY	SIZE	TYPE	SHIP-MARK	LOC.	WEIGHT	BATCH
1	6	2	51F2	W	155	101
1	6	2	51F5	W	185	B210
1	6	2	243F1	H	4,349	B210
1	6	2	359S2	C	306	B210
1	6	2	359S5	J	150	B210
1	6	2	359S9	C	75	B210
1	6	2	361S1	C	157	B210
1	6	2	361S3	C	97	B210
1	6	2	361P4	W	207	B210
1	6	2	365S1	WT	427	M211
1	6	2	365P4	L	71	M211
1	6	2	365P5	L	35	M211
1	6	2	366P1	L	74	M211
1	6	2	366P2	L	71	M211
1	6	2	366P3	L	102	M211
1	6	2	373P5	L	146	M211
1	6	2	388P2	C	135	10
1	6	2	389P13	W	120	B210
1	6	2	393S1	L	73	M211
1	6	2	393S2	L	73	M211
1	6	2	393S3	L	129	M211
1	6	2	393S4	L	73	M211
1	6	2	393S5	L	73	M211
1	6	2	393S6	L	41	M211
1	6	2	393S7R	L	92	M211
1	6	2	393S7L	L	92	M211
1	6	2	393S8	L	608	M211
1	6	2	418D2	WT	131	M211
1	6	2	418D3	WT	139	M211
1	6	2	418D6	WT	137	M211
1	6	2	35D4	H	395	B220

11 to H. S. for material
 AD 10-9-84
 C. W. H.

111776 PAGE 2
 CUSTOMER NAME ELSCO SERVICES INC
 CUSTOMER I.D.
 JOB NUMBER C3485P
 LOCATION OF JOB SHEARON HARRIS NUCLEAR
 NEW HILL, N. C.
 UNIT NUMBER 36

PEDER STEEL COMPANY

SHIPPING TICKET
 DATE SHIPPED.....
 SHIPPED VIA.....

IMPR 14892
 DATE 6-13-79
 P. O. # NY 435076
 Vendor Peder Steel Co.
 CARRIER DESCRIPTION Same
 CHECKER NAME Mares
 MATERIAL LOCATION L20F12
 L20F10

QUANTITY	S/S	DIV.	SHIP-MARK	LOC.	DESCRIPTION	LENGTH	WEIGHT	BATCH
1	0	2	350E	U	4 X 55	10-1 1/4	790	B2201
1	0	2	35010	W	4 X 55	10-1 1/4	318	B2201
1	0	2	360A	U	10 X 21	2-7	179	B2201
1	0	2	37010	W	8 X 31	2-7	128	E 01
1	0	2	3805	U	8 X 17	OBS 3-10 1/4	113	B2201
1	0	2	3907	U	8 X 17	OBS 3-10 1/4	145	B2201
1	0	2	39012	U	8 X 17	OBS 5-10 1/4	209	B2201
1	0	2	0501	W	8 X 17	OBS 1-5 1/2	232	B2201
1	0	2	6906	C	9 X 13.4	3-7	53	B2201
1	0	2	96V1	L	2 1/2 X 2 1/2 X 1/4	3-4	32	M2119
1	0	2	96V3	L	2 1/2 X 2 1/2 X 1/4	3-2	31	M2119
1	0	2	96V4	L	3 X 3 X 3/8	3-1 3/4	24	M2119
1	0	2	96P5	L	3 X 3 X 1/4	36-9	17	M2119
1	0	2	22301	U	8 X 35	39- 1/2	1,896	F2102
1	0	2	22601	U	8 X 31	7-3	1,664	F2102
1	0	2	27701	W	8 X 31	8-1	302	F2102
1	0	2	29501	W	8 X 31	9-	564	F2102
1	0	2	29702	U	8 X 31	7-7 1/2	523	F2102
1	0	2	32101	W	8 X 31	9-7	585	F2102
1	0	2	343W11	WT	6 X 13.5	OBS 9-9 1/2	153	M2119
1	0	2	343W14	L	3 1/2 X 3 1/2 X 3/8	8-4 1/2	83	M2119
1	0	2	343W13	L	3 1/2 X 3 1/2 X 3/8	18-4 3/4	71	M2119
1	0	2	344W2	C	12 X 20.7	8-8 1/2	424	M2102
1	0	2	370W5	C	10 X 15.3	8-8 3/4	197	M2102
1	0	2	370W6	C	10 X 15.3	8-8 1/2	198	M2102
1	0	2	371W2	C	12 X 20.7	8-8 1/2	197	M2102
1	0	2	371W3	C	12 X 20.7	8-8 1/2	211	M2102
1	0	2	371W7	C	8 X 11.5	4-8 1/2	125	M2102
1	0	2	50701	W	12 X 27	OBS 2-11 1/4	450	B2201
1	0	2	507W2	L	2 1/2 X 2 1/2 X 1/4	3-8 1/2	34	B2201
1	0	1	131F3	PL	18 X 1/2	3-8 1/2	228	G0114
1	0	1	131F4	PL	13 X 1/2	3-8 1/2	114	G0114
1	0	1	131F5	PL	16 X 1/2	3-8 1/2	114	G0114
1	0	1	131F6	PL	16 X 1/2	3-8 1/2	114	G0114
1	0	1	131F7	PL	18 X 1/2	3-8 1/2	114	G0114

Loc L12
 Loc 20-F12

For H. Sturman Only
 AD 10-9-84

11/76 PAGE 2
 CUSTOMER NAME ELSCO SERVICES INC
 CUSTOMER I.D.
 JOB NUMBER C748EP
 LOCATION OF JOB SHEARON HARRIS NUCLEAR
 NEW HILL, N. C.
 QUANTITY NUMBER 30

PEDER STEEL COMPANY

SHIPPING TICKET
 DATE SHIPPED.....
 SHIPPED VIA.....

MRB/4092

DATE *6-13-79*
 P.O. # *17436076*
 VENDOR *Peder Steel Co.*
 CARRIER DESCRIPTION *Same*
 CHECKER NAME *Mans*
 MATERIAL LOCATION *Lock 20-F12*

QUANTITY	S/S	DIV.	SHIP-MARK	LOC.	CARRIER DESCRIPTION	LENGTH	WEIGHT	BAT
1	0	2	350C	U	8 X 31	2-7	790	B22
1	0	2	35016	W	8 X 31	2-7	318	B22
1	0	2	360A	U	8 X 31	2-7	173	B22
1	0	2	37010	W	8 X 31	2-7	128	B22
1	0	2	3805	U	8 X 31	2-7	113	22
1	0	2	3907	W	8 X 17	OBS 3-10 1/4	145	B22
1	0	2	39D12	U	8 X 17	OBS 3-10 1/4	209	B22
1	0	2	3901	W	8 X 17	OBS 5-10 1/4	232	B22
1	0	2	8906	C	9 X 13.4	1-5 1/2	53	B22
1	0	2	96V1	L	2 1/2 X 2 1/2 X 1/4	3-7	32	H21
1	0	2	96V3	L	2 1/2 X 2 1/2 X 1/4	3-4	31	H21
1	U	2	96V4	L	3 X 3 X 3/8	3-2	24	H21
1	U	2	96P5	L	3 X 3 X 1/4	3-1 3/4	17	H21
1	0	2	22301	U	8 X 35	38-9	1,856	F21
1	U	2	22601	U	8 X 31	39- 1/2	1,664	F21
1	0	2	27701	W	8 X 31	7-3	302	F21
1	0	2	29501	W	8 X 31	8-1	564	F21
1	0	2	29702	U	8 X 31	9-	523	F21
1	0	2	32101	U	8 X 31	7-7 1/2	585	F21
1	0	2	343V11	WT	6 X 13.5	OBS 9-7	153	H21
1	0	2	343V12	L	3 1/2 X 3 1/2 X 3/8	9-9 1/2	83	21
1	0	2	343V13	L	3 1/2 X 3 1/2 X 3/8	8-4 1/2	71	H21
1	0	2	344U2	C	12 X 20.7	18-4 3/4	424	H21
1	0	2	370U5	C	10 X 15.3	8-8 1/2	197	H21
1	0	2	370U6	C	10 X 15.3	8-8 3/4	198	H21
1	0	2	371W2	C	12 X 20.7	8- 5/8	197	H21
1	0	2	371W3	C	12 X 20.7	8-8 1/2	211	H21
1	0	2	371W7	C	8 X 11.5	8- 1/2	125	H21
1	0	2	50701	W	12 X 27	OBS 4-8 1/2	450	B22
1	0	2	507W2	L	2 1/2 X 2 1/2 X 1/4	2-11 1/4	34	B22
1	0	1	131F3	PL	18 X 1/2	3-8 1/2	228	G01
1	0	1	131F4	PL	18 X 1/2	3-8 1/2	114	G01
1	0	1	131F5	PL	18 X 1/2	3-8 1/2	114	G01
1	0	1	131F6	PL	18 X 1/2	3-8 1/2	114	G01
1	0	1	131F7	PL	18 X 1/2	3-8 1/2	114	G01

For Identification Only
 RFD
 10-9-84

Loc 20-F12
Lock 20-F12

EXHIBIT K

DEFICIENCY NOTICE

No. M-010

Item/Activity Description <u>4FW20-1-1 (DISCHARGE LINE FOR STEAM GENERATOR FEED PUMP 1A-NNS)</u>	Unit <u>1</u>	Location or Placement No. <u>TURBINE X 270</u>
---	------------------	---

Violated Section of Specification, Drawing, Procedure or Other <u>LUP-103, LUP-105 & 2105-G-107502</u>	DN Issuer <u>ED WILLIAMS</u>
---	---------------------------------

Nonconformance Details: THE WELDING SEQUENCE Page 1 of 6
 (DESCRIBED ON PAGES 2+3) IN CONJUNCTION WITH THE COUPLING
 FACE READINGS (PAGE 4) AND THE LACK OF SUFFICIENT
 RIGID RESTRAINTS (HANGERS/SUPPORTS SHOWN ON PAGES 5+6)
 INDICATE SEVERE NOZZLE LOADS HAVE BEEN IMPOSED
 ON THE DISCHARGE NOZZLE OF THE STEAM GENERATOR
 FEED PUMP 1A-NNS.

Item Evaluation Needed Per AP-IX-16:

NO
 YES

[Signature] 7-30-82
 DN Issuer's Supervisor Date

Corrective Action & Resolution Details: (Attach supporting documentation.)

Attached Documents (Specify)

 Prin. Disc. Eng./Sr. Res. Eng. Date

Distribution:

Original F E WILLET
 Principal Discipline Engineer

cc: Site Manager
 Senior Resident Engineer
 CI Unit Supervisor
 QA/QC Unit Supervisor

ED WILLIAMS

Resolution Verified and Accepted:

 DN Issuer Date

Resolution Acknowledged:

 DN Issuer's Supervisor Date

EXHIBIT I

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANTPAGE 2 OF 6
DN-M-010

FIELD INSPECTION REPORT

Date JULY 23, 1982 Spec. No. WP-105
 Location TURBINE BUILDING Inspector ED WILLIAMS
 Elevation 261 Shift _____
 Weather _____

COMMENT

ON JULY 9, 1982, AN ALIGNMENT READING
WAS TAKEN ON STEAM GENERATOR FEED
WATER PUMP (1A-NNS) BEFORE ANY FIELD
WELDS WERE MADE ON 4FW 20-1-1.
ALIGNMENT READING IS SHOWN BY FIGURE
"A" ON ACCOMPANYING SKETCH.

ON JULY 14, 1982, FIELD WELD #222
WAS MADE ON 4FW 20-1-1, BUT NO ALI-
GNMENT READINGS ARE AVAILABLE ON
THIS DATE.

ON 7-15-82, FIELD WELD #220 WAS
STARTED AND ALIGNMENT READING IS SHOWN
BY FIGURE "B" ON ATTACHED SKETCH. PRIOR
TO FIELD WELD #220, ROOT PASS HAD
BEEN MADE ON FIELD WELD #214. THE
NEXT DAY, 7-16-82, FIELD WELD #220
WAS COMPLETED AND ALIGNMENT READING
IS SHOWN BY FIGURE "C." AFTER PIPE WAS
ALLOWED TO COOL OVER THE WEEKEND, AN
ALIGNMENT READING WAS TAKEN ON 7-19-82 (cont.)

INSPECTOR Ed Williams

Q A REVIEW _____

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT

FIELD INSPECTION REPORT

Date JULY 23, 1982 Spec. No. WP-105
 Location TURBINE BUILDING Inspector ED WILLIAMS
 Elevation 261 Shift _____
 Weather _____

COMMENT

ALIGN IS SHOWN BY FIGURE "D" AND ATTACHED SKETCH

DURING JULY 20, 21, 22, & 23, 1982 THE CLOSURE WELD WAS MADE AT FIELD WELD #2K WHICH ALIGNMENT READINGS ARE SHOWN BY FIGURES "E", "F", "G", & "H" RESPECTIVELY. DURING THIS TIME THE TEMPORARY WELDS ON KEY BLOCK WERE BROKEN WHICH WERE MADE AFTER PRELIMINARY ALIGNMENT

~~THE~~ ANCHOR BOLTS HAD BEEN SNUCCED DOWN DURING PHASE II INSPECTION IN FEBRUARY 1982.

ALL READINGS SHOWN ARE CONCENTRICITY ALIGNMENTS, EXCEPT IN FIGURES "E", "F", "G", & "H" THE PARALLELITY READINGS ARE SHOWN INSIDE THE CIRCLE.

INSPECTOR

Ed Williams

Q & A REVIEW

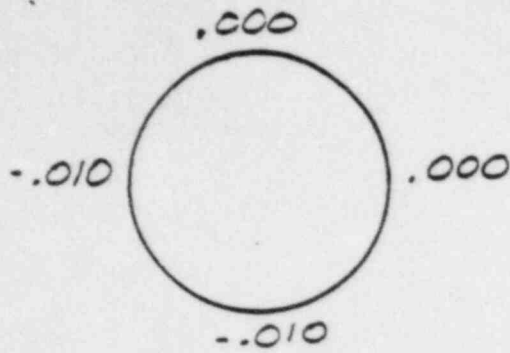


FIGURE "A"

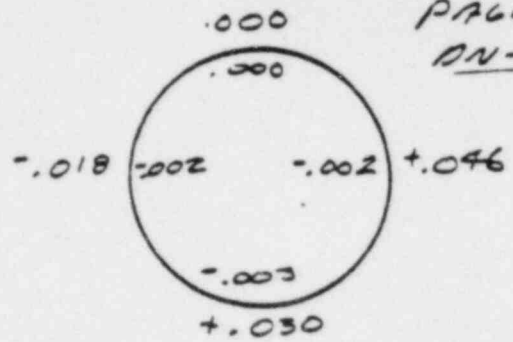


FIGURE "E"

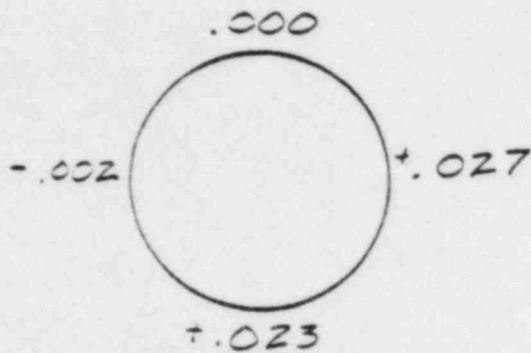


FIGURE "B"

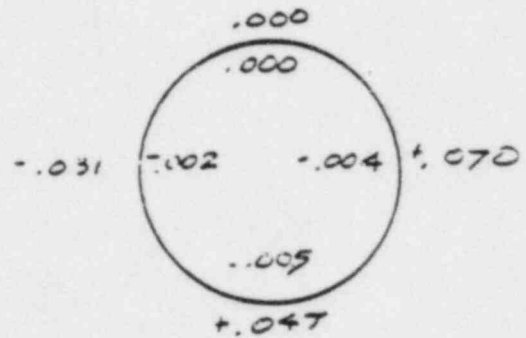


FIGURE "F"

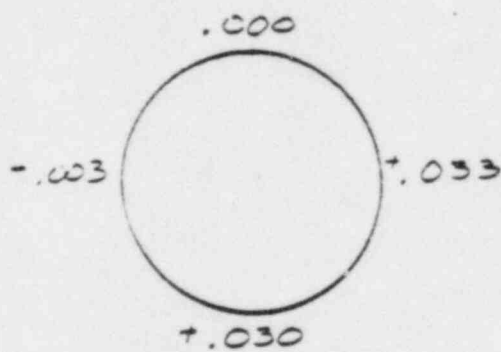


FIGURE "C"

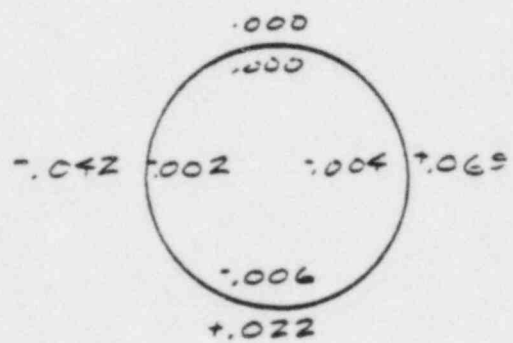


FIGURE "G"

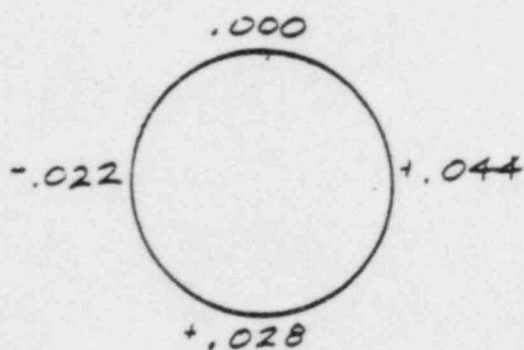


FIGURE "D"

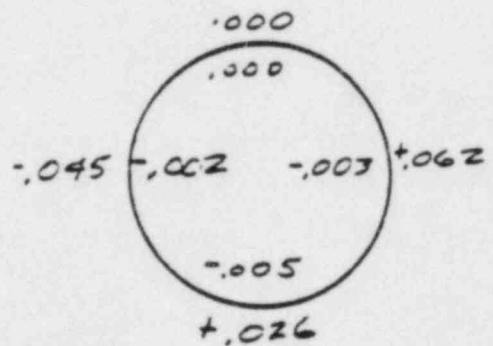


FIGURE "H"

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANTPAGE 2 OF 6
DN-M-010

FIELD INSPECTION REPORT

Date JULY 23, 1982 Spec. No. WP-105
 Location TURBINE BUILDING Inspector ED WILLIAMS
 Elevation 261 Shift _____
 Weather _____

COMMENT

ON JULY 9, 1982, AN ALIGNMENT READING
WAS TAKEN ON STEAM GENERATOR FEED
WATER PUMP (IA-NNS) BEFORE ANY FIELD
WELDS WERE MADE ON 4FW 20-1-1.
ALIGNMENT READING IS SHOWN BY FIGURE
"A" ON ACCOMPANYING SKETCH.

ON JULY 14, 1982, FIELD WELD #222
WAS MADE ON 4FW 20-1-1, BUT NO ALIGN-
MENT READINGS ARE AVAILABLE ON
THIS DATE.

ON 7-15-82, FIELD WELD #220 WAS
STARTED AND ALIGNMENT READING IS SHOWN
BY FIGURE "B" ON ATTACHED SKETCH. PRIOR
TO FIELD WELD #220, ROOT PASS HAD
BEEN MADE ON FIELD WELD #214. THE
NEXT DAY, 7-16-82, FIELD WELD #220
WAS COMPLETED AND ALIGNMENT READING
IS SHOWN BY FIGURE "C." AFTER PIPE WAS
ALLOWED TO COOL OVER THE WEEKEND, AN
ALIGNMENT READING WAS TAKEN ON 7-19-82 (cont)

INSPECTOR ED WILLIAMS

Q A REVIEW _____

A107

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT

FIELD INSPECTION REPORT

Date JULY 23, 1982Spec. No. WP-105Location TURBINE BUILDINGInspector ED WILLIAMSElevation 261

Shift _____

Weather _____

COMMENT

AND IS SHOWN BY FIGURE "D" AND ATTACHED SKETCH.

DURING JULY 20, 21, 22, & 23, 1982 THE CLOSURE WELD WAS MADE AT FIELD WELD #214, WHICH ALIGNMENT READINGS ARE SHOWN BY FIGURES "E," "F," "G," & "H" RESPECTIVELY. DURING THIS TIME, THE TEMPORARY WELDS ON KEY BLOCK WERE BROKEN, WHICH WERE MADE AFTER PRELIMINARY ALIGNMENT.

^{7-26-82 EW} ALL ANCHOR BOLTS HAD BEEN SNUGGED DOWN DURING PHASE II INSPECTION IN FEBRUARY 1982.

ALL READINGS SHOWN ARE CONCENTRICITY ALIGNMENTS, EXCEPT IN FIGURES "E," "F," "G," & "H" THE PARALLELITY READINGS ARE SHOWN INSIDE THE CIRCLE.

INSPECTOR Ed Williams

Q A REVIEW _____

A107

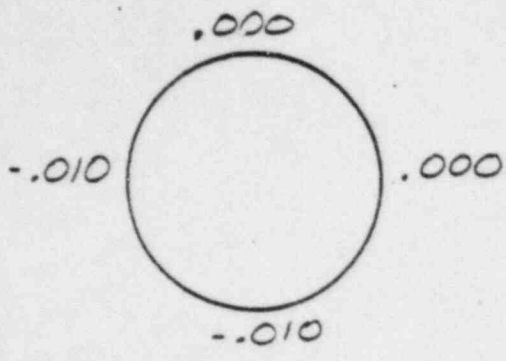


FIGURE "A"

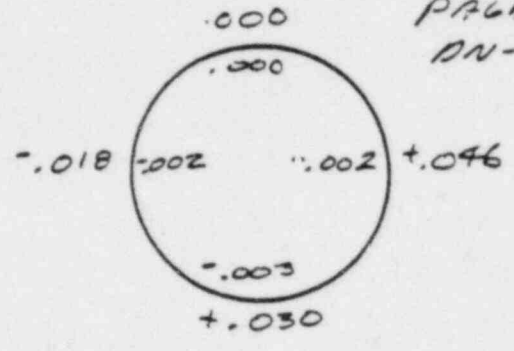


FIGURE "E"

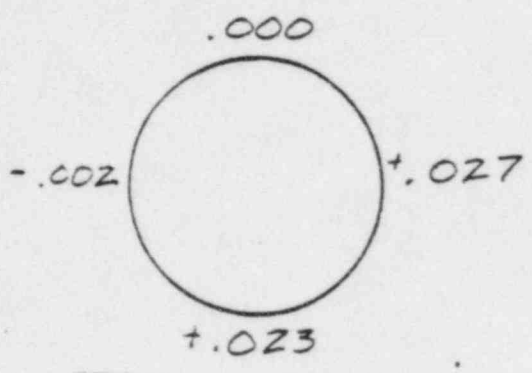


FIGURE "B"

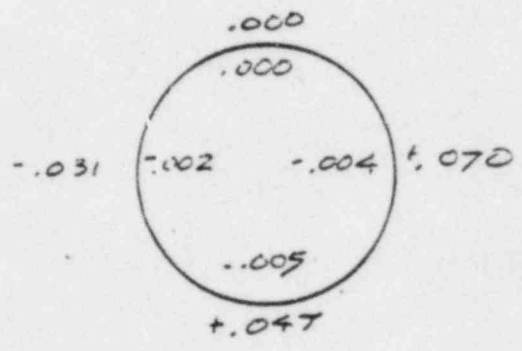


FIGURE "F"

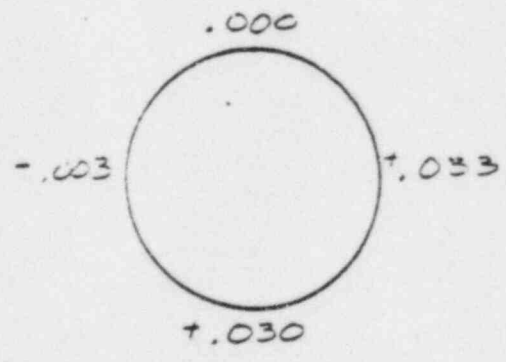


FIGURE "C"

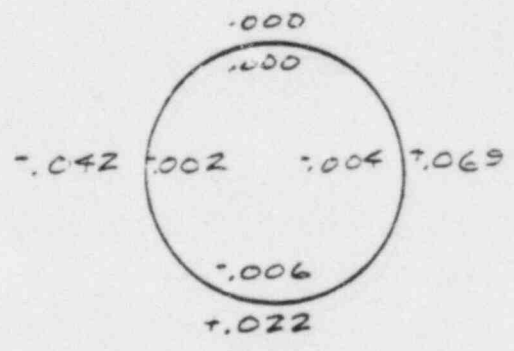


FIGURE "G"

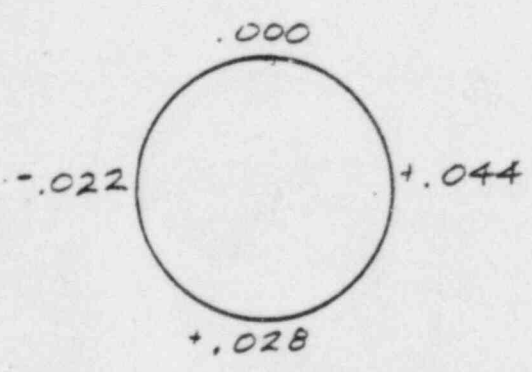


FIGURE "D"

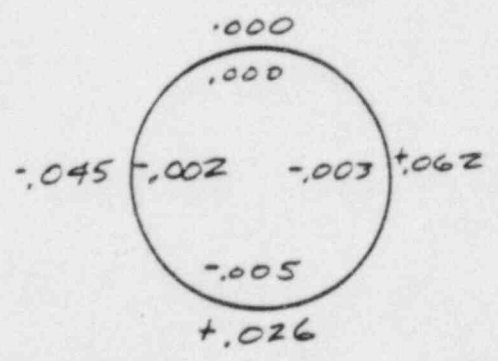


FIGURE "H"

CAROLINA POWER & LIGHT COMPANY
WAGON HARRIS NUCLEAR POWER PLANT
POTENTIAL REPORTABLE ITEM TRAVELER
(PART 50 ITEMS)

V. Williamson

(DN/)

Traveler No: DR/DDR/NCR/RIR NI-010

Subject: TURBINE # 270 4FW 20-1-1 (Discharge Line for Stream generator Feed pump 1A-5NS)

A. CIC/ Supervisor

1. Initiate Traveler
2. Attach DR/DDR/NCR/RIR and other Data

Signature

Date

Walter [Signature] 8-2-82

E. CIC/ Unit Supervisor & Discipline Engineer (Civil/Mech/Elect)

1. Review and Check, as Applicable

Condition Represents:

- | | |
|-------------------------------------|-------------------------------------|
| Yes | No |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> |

- Deficiency in Design
- Deficiency in Construction and Breakdown in QA Program
- Nonconformance of Design to SAR/CP
- Nonconformance of Construction to Design
- Damage/Defect
- Deviation from Performance Specs

Is there a "link" with a safety portion of the system is piping and aux feed pumps? 8/2/82

Reportability Evaluation:

- Item is significant/indeterminate. Need other evaluation.
- Item is not reportable per paragraph 3.4.2 of this procedure.

2. Comments (Attach Data, as Appropriate):

THE ITEM IN QUESTION IS NON-NUCLEAR SAFETY RELATED AND BY DEFINITION CANNOT ADVERSELY AFFECT THE SAFE OPERATION OR SAFE SHUTDOWN SHOULD IT BECOME IMPERATIVE.

E. E. Williams 8-5-82
W. J. [Signature] 8-4-82
W. J. [Signature] 8/5/82

C. Site Management

1. Review and Check, as applicable

Reportability Evaluation:

- | | |
|--------------------------|--------------------------|
| Yes | No |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

- Significance for Reportability
- Could Adversely Affect Safety
- Is Reportable/Potentially Reportable

Auxiliary feed pumps are safety related system to assist in removing heat from the system to assist in safe shutdown.

2. Comments (Attach Data, as Appropriate):

Uncontrolled Copy

Is Reportable/Potentially Reportable. Notified:

- a. (CPL Management)
- b. (E&C QA)
- c. _____

4. If Reportable/Potentially Reportable:

- a. Initial written report due _____
- b. Report responsibility assigned to: W. J. [Signature] 8/1/82

D. Site Quality Assurance

1. Distribute Traveler
2. Maintain File of Traveler and Data Package

Distribution:

- Site Manager*
- Senior Resident Engineer
- Report Preparer*
- Discipline Engineer W. J. [Signature]
- Project Manager*
- Manager*
- Senior Construction Manager*
- Manager E&C QA*/QC*

W. J. [Signature] 8/1/82



Rev. 0
10/81

CAROLINA POWER & LIGHT COMPANY
SEAFORD HARRIS NUCLEAR POWER PLANT

Exhibit 1
TP-9

DEFICIENCY NOTICE

No. M-016

Item/Activity Description <u>4FW20-1-1 (DISCHARGE LINE FOR STEAM GENERATOR FEED PUMP 1A-NNS)</u>	Unit <u>1</u>	Location or Placement No. <u>TURBINE # 270</u>
Violated Section of Specification, Drawing, Procedure or Other <u>WUP-103, WUP-105 & 2165-G-107502</u>		DN Issuer <u>ED WILLIAMS</u>

Nonconformance Details: THE WELDING SEQUENCE (DESCRIBED ON PAGES 2+3) IN CONJUNCTION WITH THE COUPLING FACE READINGS (PAGE 4) AND THE LACK OF SUFFICIENT RIGID RESTRAINTS (HANGERS/SUPPORTS SHOWN ON PAGES 5+6) INDICATE SEVERE NOZZLE LOADS HAVE BEEN IMPOSED ON THE DISCHARGE NOZZLE OF THE STEAM GENERATOR FEED PUMP 1A-NNS.

Page 1 of 6

Item Evaluation Needed Per AP-IX-16:

- NO
- YES

Walter J. Latta
DN Issuer's Supervisor

7-30-82
Date

Corrective Action & Resolution Details: (Attach supporting documentation.)

Attached Documents (Specify)

Distribution: Original <u>F.E. WILLET</u> Principal Discipline Engineer cc: Site Manager Senior Resident Engineer CI Unit Supervisor QA/QC Unit Supervisor <u>ED WILLIAMS</u>	Prin. Disc. Eng./Sr. Res. Eng. Resolution Verified and Accepted: DN Issuer Resolution Acknowledged: DN Issuer's Supervisor	Date Date Date
--	--	----------------------------------

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANTPAGE 2 OF 6
DN-M-010

FIELD INSPECTION REPORT

Date JULY 23, 1982 Spec. No. WP-105
 Location TURBINE BUILDING Inspector ED WILLIAMS
 Elevation 261 Shift _____
 Weather _____

COMMENT

ON JULY 9, 1982, AN ALIGNMENT READING WAS TAKEN ON STEAM GENERATOR FEED WATER PUMP (1A-NNS) BEFORE ANY FIELD WELDS WERE MADE ON 4FW 20-1-1. ALIGNMENT READING IS SHOWN BY FIGURE "A" ON ACCOMPANYING SKETCH.

ON JULY 14, 1982, FIELD WELD #222 WAS MADE ON 4FW 20-1-1, BUT NO ALIGNMENT READINGS ARE AVAILABLE ON THIS DATE.

ON 7-15-82, FIELD WELD #220 WAS STARTED AND ALIGNMENT READING IS SHOWN BY FIGURE "B" ON ATTACHED SKETCH. PRIOR TO FIELD WELD #220, ROOT PASS HAD BEEN MADE ON FIELD WELD #214. THE NEXT DAY, 7-16-82, FIELD WELD #220 WAS COMPLETED AND ALIGNMENT READING IS SHOWN BY FIGURE "C." AFTER PIPE WAS ALLOWED TO COOL OVER THE WEEKEND, AN ALIGNMENT READING WAS TAKEN ON 7-19-82 (CONT)

INSPECTOR Ed Williams

Q A REVIEW _____

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT

FIELD INSPECTION REPORT

Date JULY 23, 1982

Spec. No. WP-105

Location TURBINE BUILDING

Inspector ED WILLIAMS

Elevation 261

Shift _____

Weather _____

COMMENT

AND IS SHOWN BY FIGURE "D" IN ATTACHED SKETCH.

DURING JULY 20, 21, 22, & 23, 1982 THE CLOSURE WELD WAS MADE AT FIELD WELD #214, WHICH ALIGNMENT READINGS ARE SHOWN BY FIGURES "E", "F", "G", & "H" RESPECTIVELY. DURING THIS TIME, THE TEMPORARY WELDS ON KEY BLOCK WERE BROKEN, WHICH WERE MADE AFTER PRELIMINARY ALIGNMENT.

7-2-82 EDW
ALL ANCHOR BOLTS HAD BEEN SNUGGED DOWN DURING PHASE II INSPECTION IN FEBRUARY 1982.

ALL READINGS SHOWN ARE CONCENTRICITY ALIGNMENTS, EXCEPT IN FIGURES "E", "F", "G", & "H" THE PARALLELITY READINGS ARE SHOWN INSIDE THE CIRCLE.

INSPECTOR Ed Williams

QA REVIEW _____

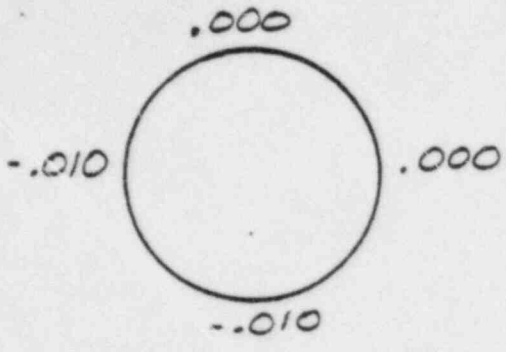


FIGURE "A"

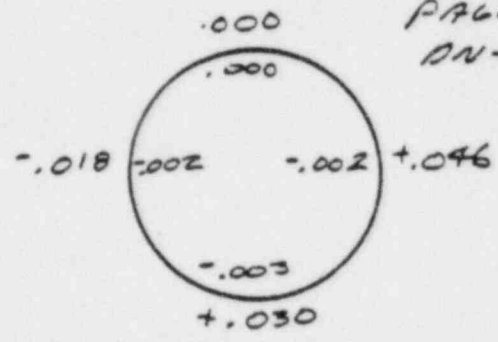


FIGURE "E"

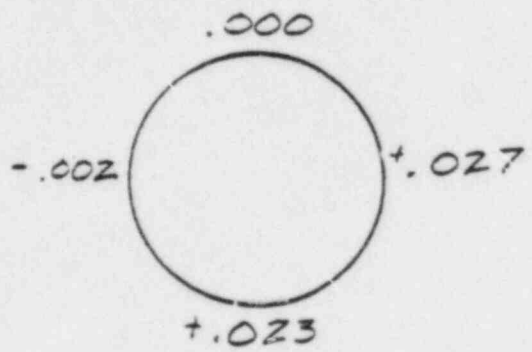


FIGURE "B"

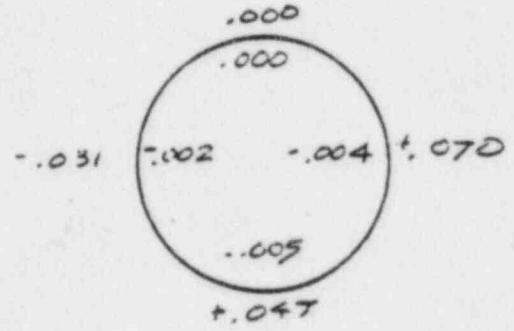


FIGURE "F"

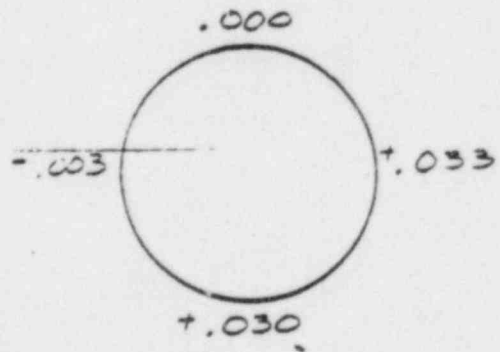


FIGURE "C"

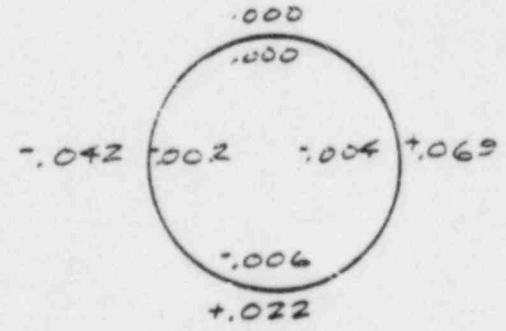


FIGURE "G"

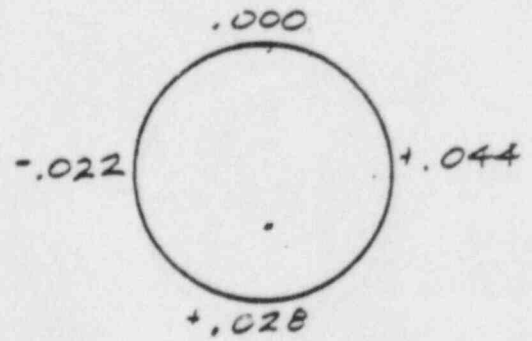


FIGURE "D"

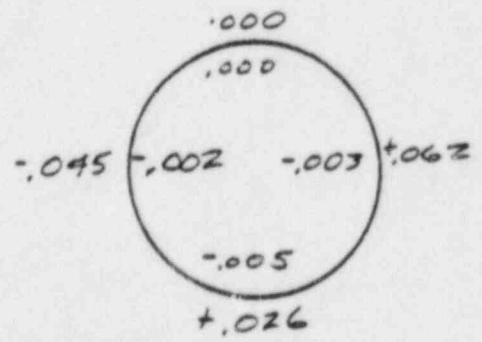
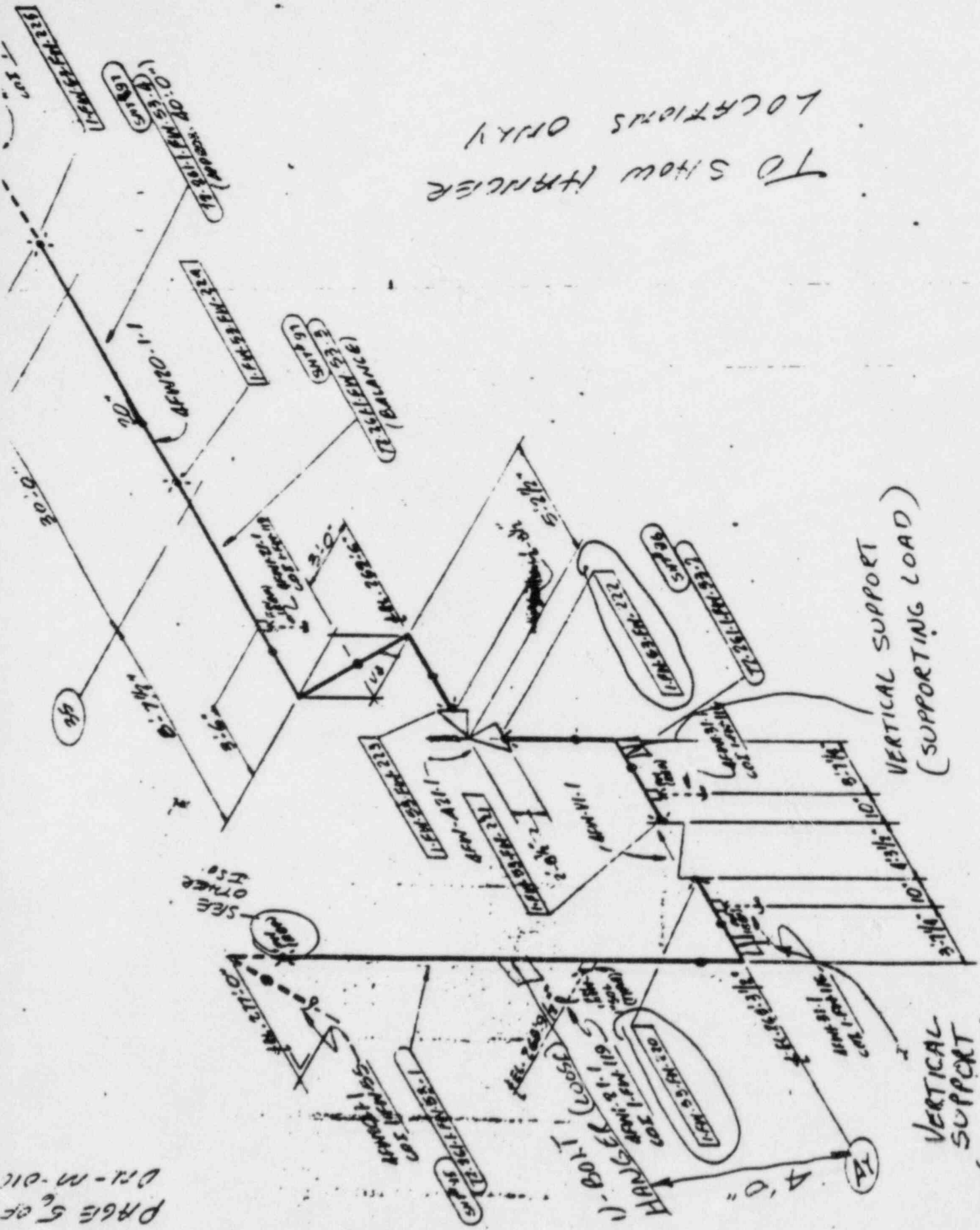


FIGURE "H"

TO SHOW HANGER LOCATIONS ONLY



VERTICAL SUPPORT
(SUPPORTING LOAD)

VERTICAL SUPPORT
(NO SUPPORT)

Speed Letter.

A1
A2

ALEX FULLER

From VAN VO DAVIS

Subject Loads imposed on the steam generator feed pump IA-NNS

MESSAGE

Date 8/25 1982

While checking hanger installations in the turbine building at elevation 261.0", I noticed the craft imposing extreme loads on the steam generator feed pump (IA-NNS) They were installed the feed water piping to the pump. The problem was that they started their work point at the pump in lieu of working the pipe toward the pump. Please investigate.

Van Vo Davis

REPLY

Date _____ 19__

103
100 ✓ (50)

103
100 ✓ (50)

500

A108

Signed

A108

Speed Letter. 44-902

GrayLine SNAP-A-WAY FORM

To Mr. F.E. Willet

c/c Mr. Alex Fuller

Speed Letter.

From Van Vo Davis

Subject Hanger Phase II walkdown verification

MESSAGE

For the week ending 7/15/83, attached are copies of 13" hanger phase II verification check list to the subject above, been verified by myself and QA personnel for your information.

A110

Date 7/18/83

Signed

Johnson

REPLY

A110

CAROLINA POWER & LIGHT
SHEARON HARRIS NUCLEAR POWER PLANT

HANGER PHASE II VERIFICATION CHECKLIST

HANGER NO: A.2.236-1.CC.H-105 ^{By} _D R.F.T. NO:

UNIT: 1

	DESCRIPTION	ACCEPTABLE	DISCREPANCY
1	INSPECTION DOCUMENT Rev. V.S HANGER DWG Rev.	O.K	
2	VERIFY EMBED THICKNESS	O.K	
3	VERIFY INSPECTION DATE FOLLOW LOGICAL ORDER & MATCH WITH DOCUMENTATION APPLICABLE AT THAT TIME.	O.K	
4	VERIFY FITUP GAPS LIST BY C.I ARE CLEARLY UNDERSTANDABLE	O.K	A110

A110

5	VERIFY C.I LIST GAP ON ALL INSPECTION AFTER 10-21-81	OK	
6	VERIFY GEOMETRY V.S TOLERANCE OF W.P. 110		see Disposition sheet #1
7	VERIFY MATERIAL SUBSTITUTIONS ARE DOCUMENT, AND THAT C.M.R BEEN FILLED OUT PROPERLY & MATCHES AS BUILT CONDITION		see Disposition sheet #1
8	VERIFY BILL OF MATL MATCH WITH THE INST. MEMBERS, AND THAT CATALOGUE PARTS MATCH WITH WP. 110 CRITERIA AND SD/C. A 1018.		see disposition sheet no #1
9	VERIFY HANGER IS ATTACHED TO EMBED OR STRUCTURAL STEEL WITHIN TOLERANCE. ALSO CHECK THREADED STUDS	OK	
10	VERIFY GENERIC F.C.R.'S ARE USED APPROPRIATELY, AND ALL OTHER APPLICABLE DOCUMENTS ARE LISTED ON TRAVELER		DR NO: M-134 was written on 12/22/80 see disposition sheet no #1

11	ARE THERE ANY DAMAGED PARTS.	NO DAMAGED	
12	VERIFY CUT MEMO'S OR WORK DIRECTIVE ARE FOLLOWED AND INSPECTED PROPERLY.		W/D 645 work did not correct see disposition sheet #1

COMPLETED BY *[Signature]* TITLE Const. Engineer DATE 7/25/85
VAN VO DAVIS

CONCURRED BY _____ TITLE _____ DATE _____

A110

A110

CAROLINA POWER & LIGHT
SHEARON HARRIS NUCLEAR POWER PLANT

HANGER VERIFICATION
DISPOSITION SHEET NO: 001

HANGER NO: A-2-236-1-CC-H-105 RW 3/D RFT NO _____ UNIT 1

ITEM NUMBER (6) BOX FRAME TOP NO GAP - BOTTOM $\frac{1}{32}$ " GAP - NO GAP ON SIDES.

(7 & 8) item # 5 has been marked SCRAP MATERIAL.
~~All materials are used from surplus. Refer to sketches~~
~~has 2 quantities for item #1 - CMR # 66145 was issued~~
~~only (1), could not identify another material where~~
~~come from? Refer to Computer. Print out ^{the} Mat'l's~~
~~of this hanger been supplied by B.P and on site.~~
~~Why Field use surplus materials?~~

(Item #12) Work directive 645 signed off however discrepancy
has not been corrected - closed

PR # M.134 has not been corrected -

order is PO 21022
link @ post rms Rel 1
on SW 200 44536
Did photo ship home
sw 174, 176
A110

COMPLETED BY [Signature] TITLE Asst. Engineer DATE 7/15/83
VAN VO DAVID

CONCURRED BY _____ TITLE _____ DATE _____

SEISMIC HANGER INSTALLATION & INSPECTION TRAVELER

HANGER NUMBER CC-H-105 REV NO N/A
 LINE NO 3007A-25A-1

LOCATION OR SPECIAL REQUIREMENTS: A-2-236-1
NO-645 WPL 12-21-82
12-29-82 Met by # 66145 D

ACTIVITY	RESPONSIBILITY	SIGN-OFF					
		PHASE I		PHASE II		PHASE III	
		INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
1 PROVIDE HANGER WORK PACKAGE	MECH ENGR						
2 FIT-UP HANGER MEMBERS	HANGER SUPT	ST 3/D	12/4/82	ST 3/D	12/29/82		
3 INSPECT HANGER							
A IDENTIFICATION PER PACKAGE	CI	ST 3/D	12-7-82	R. J. ...	12-28-82		
B LOCATION & ORIENTATION PER PACKAGE & PROCEDURE	CI	ST 3/D	12-28-82	R. J. ...	12-28-82		
C WELDMENT FIT-UP (FULL PEN WELD)	QA			N/A			
D LOCATION PER STRESS ISO	CI						
E GEOMETRY PER SKETCH	CI						
4 WELD OUT MEMBERS							
A PRIMARY	HANGER SUPT.	ST 3/D	12/4/82				
B SECONDARY	HANGER SUPT						
5 INSPECT COMPLETED WELDS	QA	ST 3/D	12/28/82	QA B 3/D	3-23-83		
6 PULL COPY OF TRAVELER	QA						
7 RETURN PACKAGE TO MECH ENGR	HANGER SUPT	ST 3/D	12/3/82	ST 3/D	12/29/82		
8 SUBMIT PACKAGE TO CI	MECH ENGR						
9 SUBMIT PACKAGE TO QA	CI						

EMBED THICKNESS $\leq 1\frac{1}{2}$ " DET 12/2/82
 EMBED THICKNESS = 1 1
 PREHEAT VERIFIED BY QA 1 1

COMMENTS

CI 1 (* Review of inspection from previous travel)

QA 1 Noted DET 12-2-82
Reinspection completed 12-2-82
Top #1 to East #2 - no gap, Top #1 to West #2 - 1/16" on South
Bottom sides & R. J. ... 12-28-82
Noted to 3/D DNB 12/2/83

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT

DISCREPANCY REPORT

DR No. M-134

Activity Description	Partial	Unit	Location or Placement No.
A-2-236-1-CC-H-105 R 3/2; Inspection		I	RAB #1; Elevation 236'
Isolated Section of Specification, Drawing, Procedure or Other	Reporting Construction Inspector		
A-2-236-1-CC-H-105 R 3/2	Robin Davis, Dallas		

Conformance Details: While performing an inspection on A-2-236-1-CC-H-105 R 3/2, the following violations were found: Piece ① is 2" below its design location where attached to east piece ② and it is also 5/16" west of its design location where attached to the floor embed. East piece ① is 3/8" out of square with the west piece ②. Lower piece ① is 1/8" above its design location and upper piece ① is 7/16" below its design elevation.

Note: These members have been fully welded out.

- Item Evaluation Per AP-IX-16
- Not Reportable Per Para. 3.3.1.2
- Item Traveler Required

[Signature] 12/22/80
Construction Inspection Supervisor Date

Corrective Action & Resolution Details: (Attach supporting documentation.)

CORRECTION IS REWORK IN ACCORDANCE WITH REVISION 3/D.

AG7
Pat Orisove 4-28-82
Signature Date

Distribution:
Original EE Willett
Discipline Engineer
cc: Senior Resident Engineer
CI Unit Supervisor
Principal QA Specialist

Resolution Verified:
[Signature] 4-29-82
Construction Inspector Date
Resolution Accepted:
[Signature] 4-29-82
Construction Inspection Supervisor Date

From Wayne T. [unclear]

Subject PPC Hammer A-2236-1-CE-H-105 Rev 3/10
MESSAGE

Date 4-25 80

Obtain from P.O. 21022 Rel #1 a 1"x10"x10" plate
and use for member (6) (1"x7"x9 1/2" plate).
Install as shown.

A110

Signed [Signature]

Date _____ 19__

PLY

A110

FORM 87-237-8-N

ITEM	QTY	UNIT	HAFT NO	SIZE	DESCRIPTION	WGT
1	2		CTP	TS 3x3x1/4 x L=0.75' LG	A500 GR.B	20
2	2		CTP	TS 4x4x1/4 x 2'-6"		69
3	1		CTP	TS 3x3x1/4 x 9'-0" LG		28
4	2		CA	R 5x5 x 3/16	SA 30	3
5	1		CTP	TS 3x3x1/4 x 2'-0" LG	A500 GR.B	18
6	1		CA	R 1" x 7" x 9 1/2" LG	(4A-36)	19
<input checked="" type="checkbox"/> MAT'L PREVIOUSLY SHIPPED CUT TO NEW LENGTH BY FIELD <input checked="" type="checkbox"/> MAT'L TO BE FURN W/ FIELD SURPLUS STOCK						
TOTAL						151

DOCUMENT CONTROL
 MAY 27 1980
 SHEARON HARRIS N. P. P.

REFERENCE CHECK

REF. DP. COMMENTS DATE C-1-112
 BY A.T. GS 5-17-79
 DATE 7-24-78

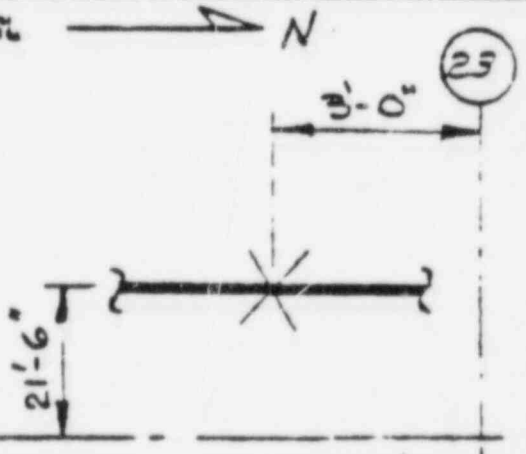
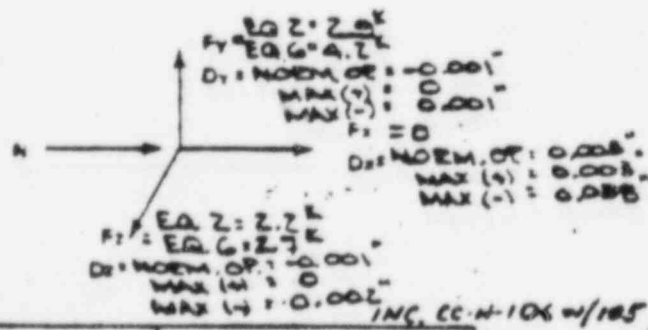
(Issd/spec.) PAINT
 BUNDLE & TAG
 TOTAL

MODEL CHECK
 LV 5-24-78
 BY J.W.D. DATE 7-25-78

CLASS I

	LD	RD	RD 2	RD 6	RD 2	RD 6
OPERATING V			-927	-927	6	6
THERMAL			-724	-724	-1653	-1653
VIBRATION						
LOCA						
2 (CORE RESPONSE)			*869	1738	*249	498
2 (BESD)			*416	832	*265	530
2 (PENT. REL. STIS DISPL.)						
2 (WATER & STM HAMMER)						
RELIEF VALVE						
WIND						
HYDRO						
HANGER WGT						
FRICTION FORCE						

PROPOSED LOADS INDICATED ARE ONE HALF OF LISTED CONDITION.



STRESS ISO. #	1A-256-CC-6 REV. 1
STRESS CALC. #	1230-3 REV. 1
STRESS PT. #	129

LOCATION PLAN A110

BERGEN-PATERSON PIPESUPPORT CORP.

PIPING SYSTEM: **COMPONENT COOLING**

PIPE: PIPING STRUCTURAL 7

DNOS: 5-G-124' 25376-11624x6

JOB NO: 2291

DATE: 8-2-78

SHEET: 210

UPDATED DETAIL TO REV. ISO. REDESIGN
 REVISED ITEM LENGTH AND STRESSES.
 REVISED PER FIELD COMMENTS

DATE: 6-27-79, 7-24-79, 8-12-80

A110

① PO # 21022 been voided on 8-27-80
Refer to Purchasing Dept. log books.

② Refer to hanger surplus Mat'l Request form written on 1-8-81 for subject Material substitution as follows:

* Item # 2 4" x 4" x 1/4" x 2'-6" LG sub. from CH-H-719-
Refer to the telephone conversation w/ Mr. KOLONIKS / EBASCO on 7/26/83 the Mat'l been shipped on 7/9/79 by B/L 2164, and hanger was voided. Therefore all mat'l shipped to surplus.

* Item # 2 4" x 4" x 1/4" x 2' x 6" LG sub./from SW.H. 200
The as built mat'l. mark SW.H. 200 - But WH. never been issued.

* Item # 4 5" x 5" x 3/8" sub./from SW.H. 176,
SW.H. 174-

Refer to Warehouse documentation these mat'l. never been issued.

* Item # 5 T15 3x3" x 1/4" x 2'-0" LG sub./from
Material received from CC-H-536^{CC-H-536} never been issued, and its were untagged -
Mat'l. received from CC-H-536 Rev 3/0 still stored in warehouse.

* Refer to W.H-R materials reflect to CC-H-105 been issued to the Field For Const. on 3-7-80.

Finally could not identified, which are mat'l's been used to build this hanger

QA SURVEILLANCE REPORT
CONTINUATION SHEET

HANGER NO. 1-CC-H-105 3/D

PHASE II 3/D

ATTIBUTES	S	U	N/A	NC	COMMENTS
VERIFY NO DAMAGE	✓				
VERIFY SPECIAL REQUIREMENTS					
✓ TRAVELER ARE IN WORK PACKAGE	✓				
VERIFY ANGULAR DEVIATION OF TRUSS $\leq 4^\circ$ (SEE 3.6 EXCEPTIONS)			✓		
ANGLE BETWEEN STRUTS $> 60^\circ$ AND $\leq 120^\circ$			✓		
VERIFY ALL HANGER PARTS AND HARDWARE	✓				
VERIFY PROPER SHIMMING IN BOX HANGERS		✓			SHIMS REQUIRED BY WORK DIRECTIVE #12
VERIFY END ATTACHMENTS, CLEAN WELDS UNFERROUS PARTS IN PLACE			✓		
VERIFY GAP TOLERANCES AT CAP PINS			✓		
ENSURE FASTENERS ARE NOT TAMPERED WITH			✓		
VERIFY PIPE TO HANGER CLEARANCE		✓			TOP AND SIDES NO GAP BOTTOM 1/32" GAP
VERIFY SHIMMING IS PROPER ⁰⁰⁵ 7-1583					
VERIFY COMPLETE WELDS	✓				
VERIFY SEQUENTIAL INSPECTION DATES	✓				
ARE FIT-UP GAPS REFERENCED IF INSPECTED AFTER 10-21-81	✓				
ARE FIT-UP GAPS CLEARLY LOCATED	✓				
VERIFY MATERIAL SUBSTITUTIONS AND C.M.R.'S		✓			* SEE OVER
VERIFY BILL OF MATERIAL	✓				
VERIFY CUT MEMO/WORK DIRECTIVES		✓			** SEE OVER
OTHER:					
A110					A110