

U- 0787  
L30 -85(01-29)-L  
1A.120

ILLINOIS POWER COMPANY



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

January 29, 1985

Docket No. 50-461

Director of Nuclear Reactor Regulation  
Attention: Mr. A. Schwencer, Chief  
Licensing Branch No. 2  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: November 20, 1984 Resolution Meeting on ASME  
Section III Subsection NF Boundary Jurisdiction

Dear Mr. Schwencer:

On November 20, 1984 Illinois Power (IP) held a meeting with Mr. Horace K. Shaw of Nuclear Reactor Regulation Mechanical Engineering Branch and Mr. Frank J. Jablonski of Region III to resolve the NRC IE Inspection Report Number 50-461/83-09, dated August 15, 1983 concerns regarding the code boundary jurisdiction between ASME Section III, Subsection NF, 1974 Edition, Summer 1974 Addenda and American Institute of Steel Construction (AISC) Standards. Attached for your information are meeting minutes and a copy of the IP presentation.

It is our understanding as a result of this meeting that NRR and Region III accept IPs application of the boundary jurisdiction of these codes on the Clinton Power Station.

Sincerely yours,

F. A. Spangenberg  
Director - Nuclear Licensing  
and Configuration  
Nuclear Station Engineering

TLG/lm

Attachments

cc: B. L. Siegel, NRC Clinton Licensing Project Manager  
NRC Resident Office  
Regional Administrator, Region III USNRC  
Illinois Department of Nuclear Safety

8502050376 850129  
PDR ADOCK 05000461  
Q PDR

13001  
1/1

Illinois Power Company  
Clinton Power Station -  
Unit 1

Notes of Meeting - November 20, 1984  
Sargent & Lundy Offices  
NF Boundary Jurisdiction and Criteria  
for Auxiliary Steel

THOSE PRESENT:

Frank J. Jablonski	)	NRC Projects
Horace K. Shaw	)	NRC/NRR/MEB
Richard Campbell	)	Illinois Power Company (IPC)
Terry Grebel	)	
John Spencer	)	
Ernest B. Branch	)	
Bryan A. Erler	)	
Roger C. Heider	)	
Ahmed E. Meligi	)	Sargent & Lundy (S&L)
Prshant C. Bhatt	)	
Raymond A. Parson	)	

1. Purpose

The purpose of the meeting was to resolve the Notice of Violation dated August 15, 1983, Inspection Report Number 50-461/83-09, by:

- a. Presenting to the NRC/NRR the basis used to define the NF boundary jurisdiction for Clinton Power Station (CPS) ASME component supports.
- b. Demonstrating that the Codes and Procedures applied to CPS auxiliary steel are compatible with the requirements of the NF code.

Copies of all exhibits discussed during the meeting are attached to these notes as Appendix A.

2. Background

IPC's response is provided in the following letter:

IPC's letter (U-10095) from Mr. D. P. Hall to Mr. J. G. Keppler dated October 18, 1983 concerning Response to Notice of Violation dated August 15, 1983, NRC Inspection Report Number 50-461/83-09.

Notes of Meeting -  
November 20, 1984

Page 2

2. Background (cont'd)

This response was not accepted by the NRC Region III and was referred to the Office of Nuclear Reactor Regulation for resolution as noted in the following letter:

NRC's letter from Mr. R. C. Knop to Mr. W. C. Gerstner dated October 28, 1983.

3. NF Boundary Jurisdiction

CPS has defined ASME component support members which are in direct contact with the pressure retaining boundaries as NF. The structural steel shape members which connect the component support to the building structure were defined to be Auxiliary steel. This Auxiliary steel was designed to the rules of the AISC Code. Examples are shown in Exhibits 1 and 2. Members A and B in Exhibit 1 are classified as NF, but Members A and B in Exhibit 2 are classified as auxiliary steel. These definitions of the boundary jurisdiction are the same or are similar to many other stations of the same code of record.

4. Basis for Clinton Classification

The rationale for the classification explained in Item 3 above is as follows:

- a. Paragraphs NCA-3220 (J) and NCA-3252 of ASME Section III and Paragraph III-1-79-94 of the Section III Code Interpretation Book Number 5 indicate that it is the responsibility of the owner to determine the jurisdictional boundaries.
- b. The applicable ASME Code for Clinton is the 1974 with the Summer Addenda which did not include stamping requirements for component supports. The AISC requirements for these structural shapes were essentially the same as NF.

5. Comparison of AISC and NF Requirements

We have compared the requirements of AISC vs. NF for design, materials, and examination and inspection, and our conclusions follow:

a. Design

All non-NF auxiliary steel is designed in accordance with AISC. The NF Design requirements for auxiliary steel were based upon the AISC requirements. The differences in design requirements have been identified and the major items of the survey are:

5. Comparison of AISC and NF Requirements (cont'd)

a. Design (cont'd)

1. Effect of temperature on allowable stress for NF
2. Stability limit is lower than AISC
3. The allowable stress for SSE loads is lower than AISC
4. Weld allowable stress is lower

The above differences are small and were determined to have no effect on the CPS design.

b. Materials

The material for all non-NF auxiliary steel is in accordance with the AISC/AWS Codes. The component supports for CPS are not required to be NF stamped. The materials used for CPS are compatible with NF Code.

S&L specifications require certified material test reports (CMTR) for auxiliary steel and welding materials. These CMTR's are compatible with the NF requirements and are maintained on record at the CPS.

Certificates of Compliance for bolting materials are adequate and are available at the site.

Materials were controlled, similar to ASME Code requirements, to assure that only correct and accepted material was used per the applicable drawing requirements.

Welding of auxiliary steel components was performed using welding procedures and welders qualified to the requirements of AWS D1.1 or ASME, Section IX. Welding materials were controlled in accordance with ASME Code requirements, using acceptable procedures. Also, adequate provisions exist for repairing unacceptable material defects.

c. Examination and Inspection

All non-NF classified welds have been 100% visually examined in accordance with the AWS D1.1 criteria. Procedures for this examination exist and were implemented. The weld inspection personnel meet the qualification requirement of ANSI N45.2.6. Where NDE examinations were required, the examinations were performed using personnel qualified to the requirements of SNT-TC-1A.



5. Comparison of AISC and NF Requirements (cont'd)

c. Examination and Inspection (cont'd)

The weld examination requirements between NF and AWS are compatible since fillet welds are used for the auxiliary steel connections.

6. Summary

The CPS classification of NF Boundary Jurisdiction is in compliance with the NF 1974 (Summer addenda) and is similar to the classification of many other nuclear plants under construction. The auxiliary steel not classified as NF meet the requirements of the AISC Code and have been designed, constructed and examined in accordance with rules compatible with NF requirements.

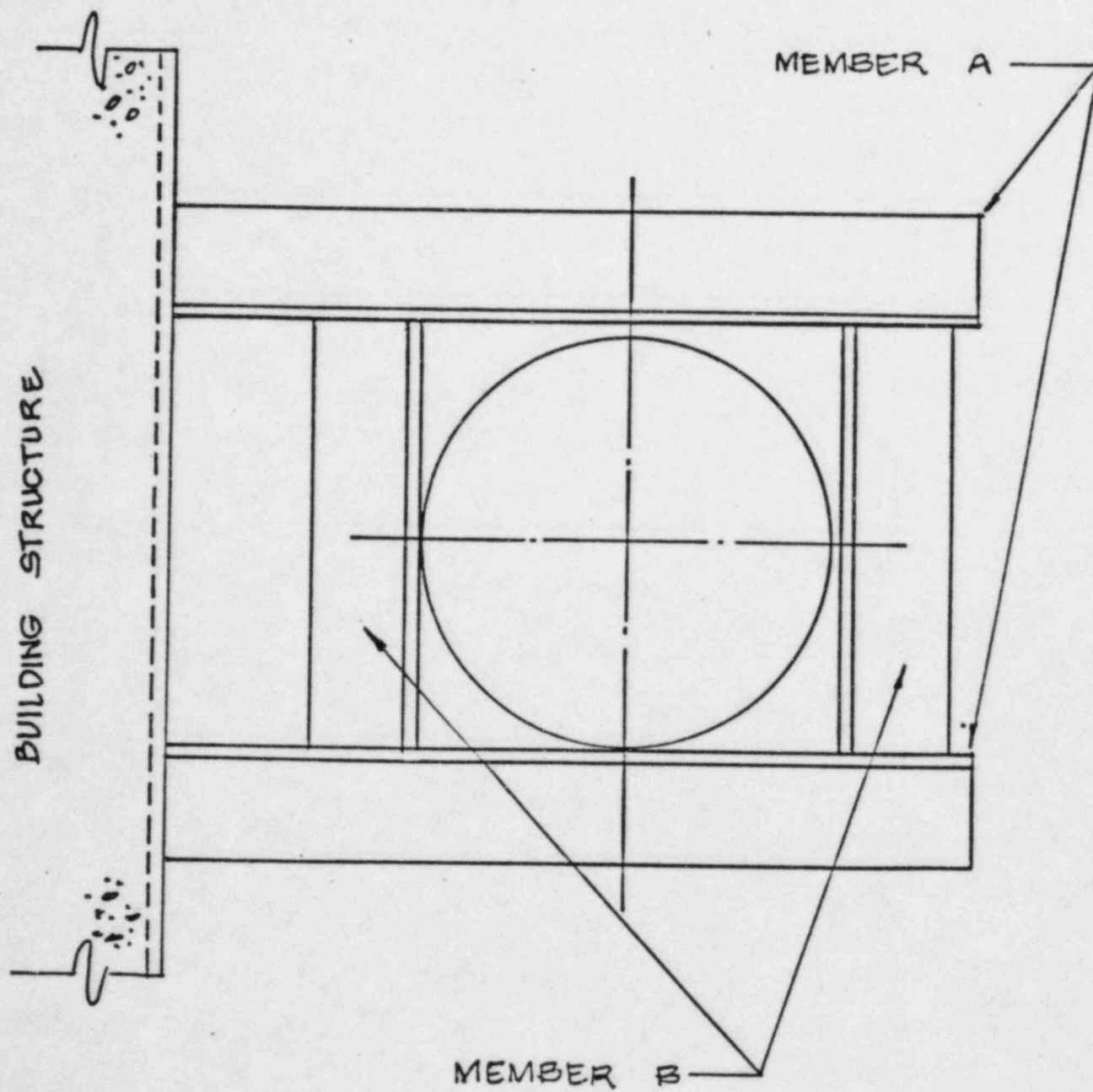
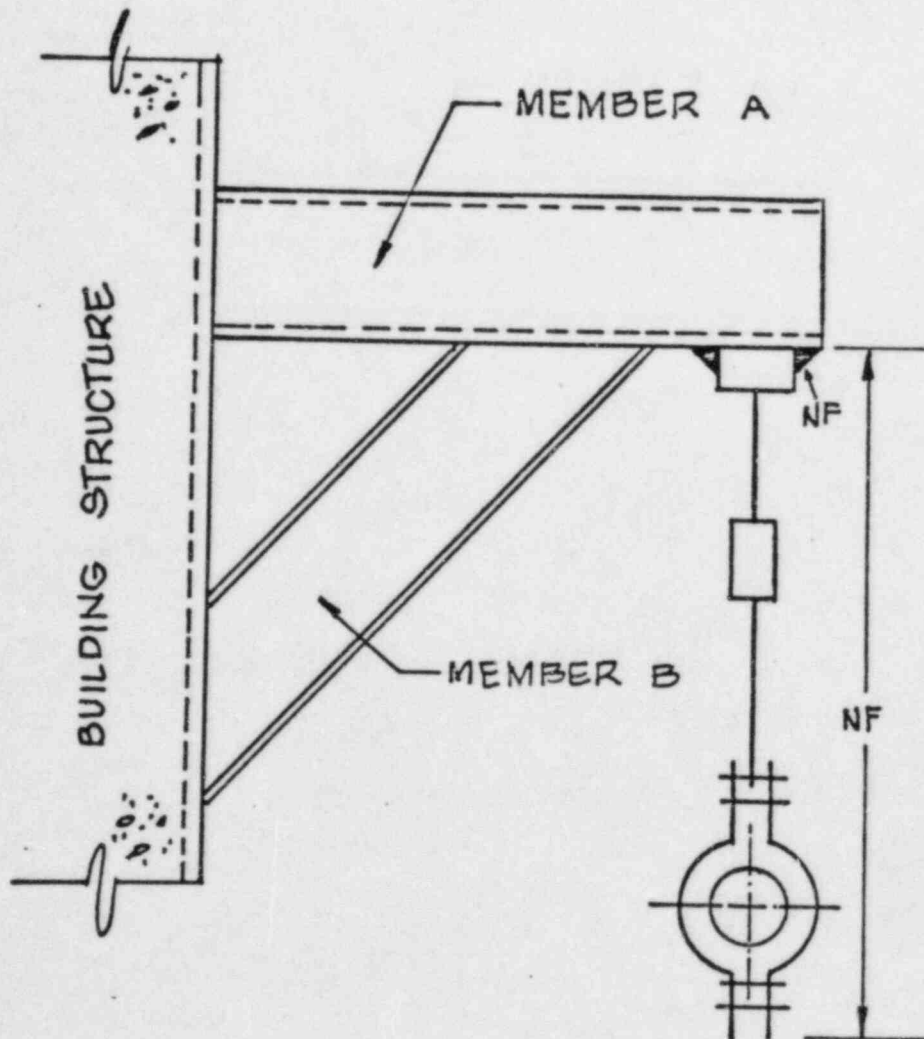
Exhibit 1Auxiliary Steel in Direct Contact With Pipe

Exhibit 2

Auxiliary Steel Acting as a Fundamental Support



APPENDIX A

EXHIBITS FROM  
NOVEMBER 20, 1984 MEETING



CLINTON POWER STATION

PRESENTATION

ON

ASME COMPONENT SUPPORTS CLASSIFICATION

TO

THE NRC STAFF

## AGENDA

- INTRODUCTIONS
- HISTORY
- PRESENTATION
- QUESTIONS

HISTORY

5-16-83 to 7-26-83:

INSPECTION REPORT 83-09 RESIDENT INSPECTION  
IDENTIFIED VIOLATION

10-18-83 IPC RESPONSE TO NRC

10-28-83 NRC REGION III REFERS MATTER TO NRR

## PRESENTATION OUTLINE

- NF COMPONENT SUPPORTS
- BOUNDARY JURISDICTION:
  - ASME POSITION
  - CLINTON POSITION
  - SIMILAR INDUSTRY POSITIONS
- CLINTON RULES & PROCEDURES:
  - MATERIALS
  - DESIGN
  - EXAMINATION AND INSPECTION
- CONCLUSIONS

## CONCLUSIONS

- CLINTON ASME PIPING IS SUPPORTED ADEQUATELY AND SAFELY
- CLINTON CLASSIFICATION FOR NF BOUNDARY JURISDICTION IS IN COMPLIANCE WITH NF 1974 (SUMMER ADDENDA) AND IS SIMILAR TO THE CLASSIFICATION OF MANY OTHER NUCLEAR PLANTS UNDER CONSTRUCTION
- THE SUPPLEMENTARY STEEL MEETS THE REQUIREMENTS OF THE AISC CODE AND HAS BEEN DESIGNED, CONSTRUCTED AND EXAMINED IN ACCORDANCE WITH RULES COMPATIBLE WITH NF REQUIREMENTS



## NF COMPONENT SUPPORTS

- DEFINITION: METAL ELEMENTS WHICH TRANSMIT  
ASME COMPONENTS LOADS TO THE  
BUILDING STRUCTURE
- HISTORY AND APPLICABILITY:
  - (1971 - PRESENT) CONTROVERSIAL EVEN AMONG  
EXPERTS
  - NO STAMPING REQUIREMENTS FOR 1974 (WITH  
SUMMER ADDENDA) OR BEFORE

## BOUNDARY JURISDICTION

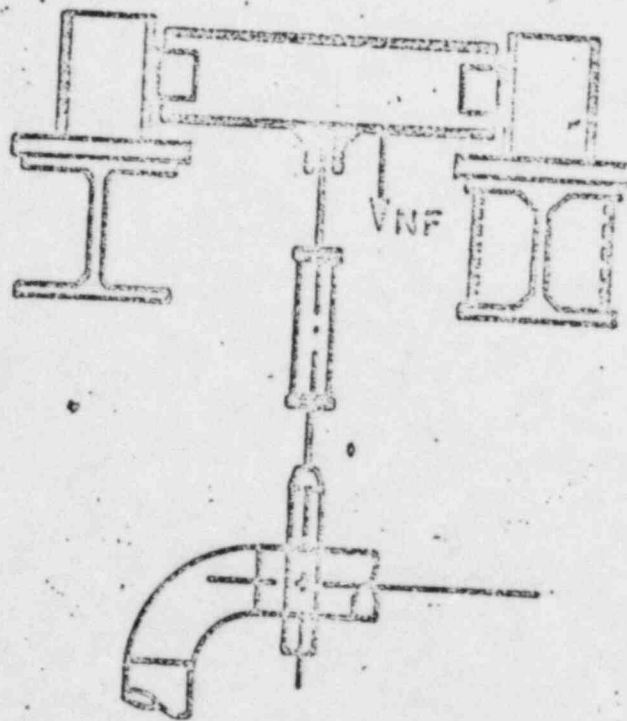
- ASME SECTION III POSITION

IT IS THE OWNERS RESPONSIBILITY TO DETERMINE  
THE JURISDICTIONAL BOUNDARIES

- NF COMMITTEE POSITION

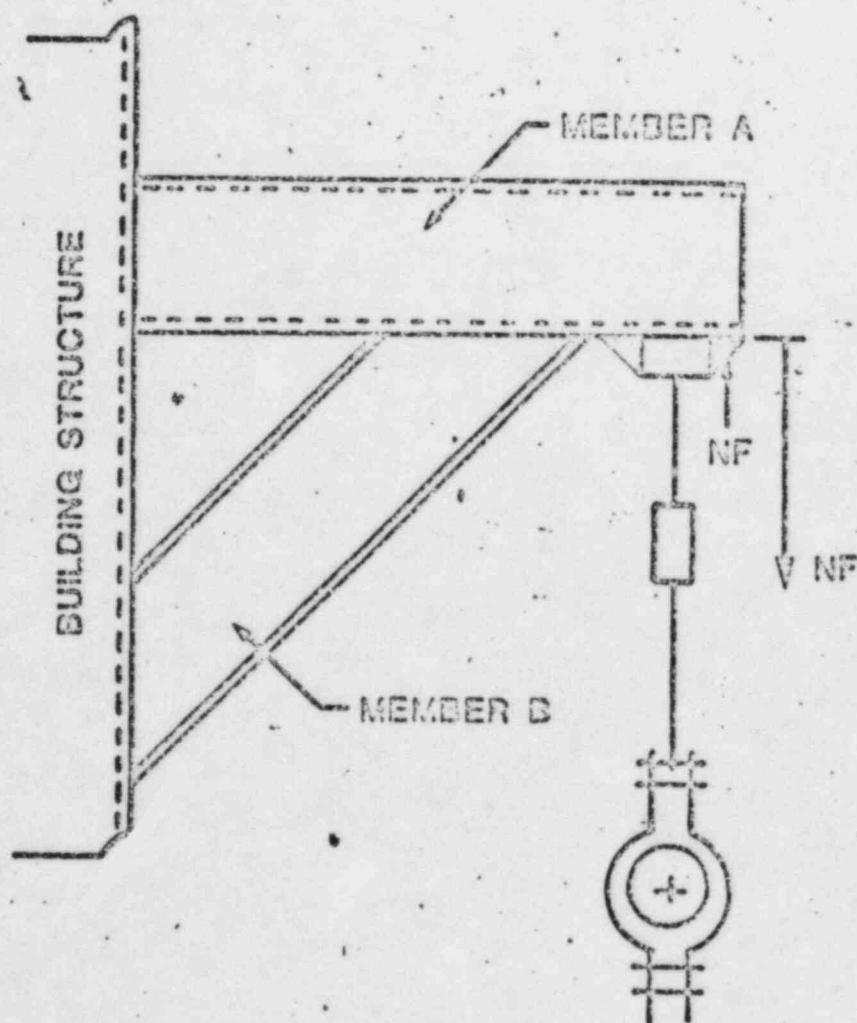
SEVERAL ATTEMPTS WERE MADE TO DIFFERENTIATE  
BETWEEN BUILDING STRUCTURE AND COMPONENT  
SUPPORTS AND THE REQUIREMENTS FOR EACH. IN  
THE COURSE OF DOING SO, MANY CONCEPTS HAVE  
BEEN INTRODUCED SUCH AS: SUPPLEMENTARY  
STEEL, INTERVENING ELEMENTS, PRIMARY AND  
SECONDARY MEMBERS, ETC. IN 1974, THE MOST  
POPULAR AND WIDELY ACCEPTED POSITION WAS  
THE POSITION WHICH CLINTON HAS ADOPTED.

CLINTON POSITION



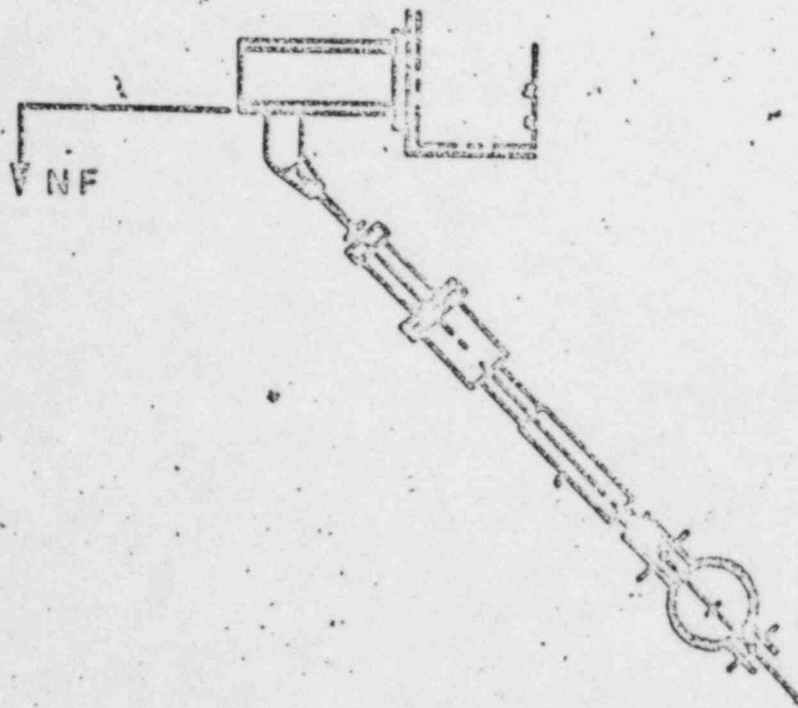
EXAMPLE 1

CLINTON POSITION



EXAMPLE 2

CLINTON POSITION

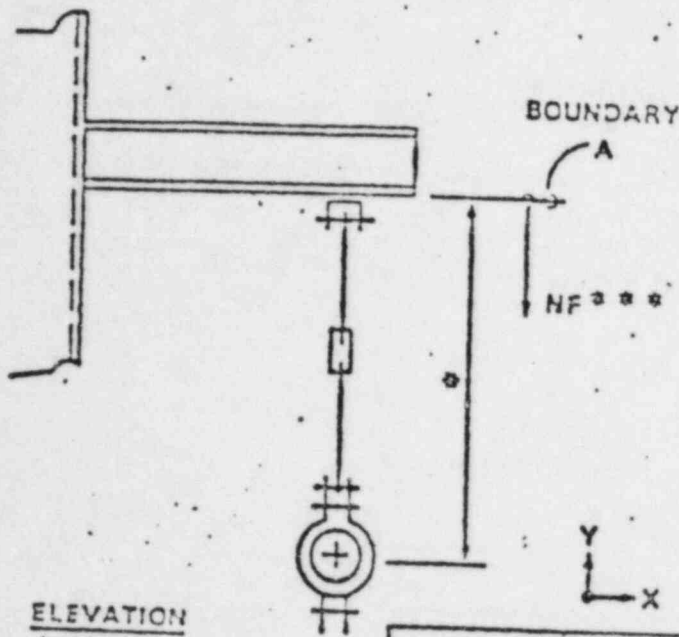


EXAMPLE 3



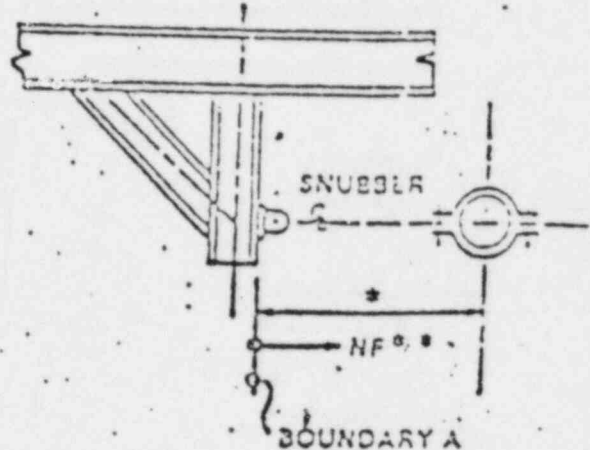
BECHTEL'S POSITION  
(FROM NF MEETINGS CORRESPONDENCE).

(APRIL 1975)



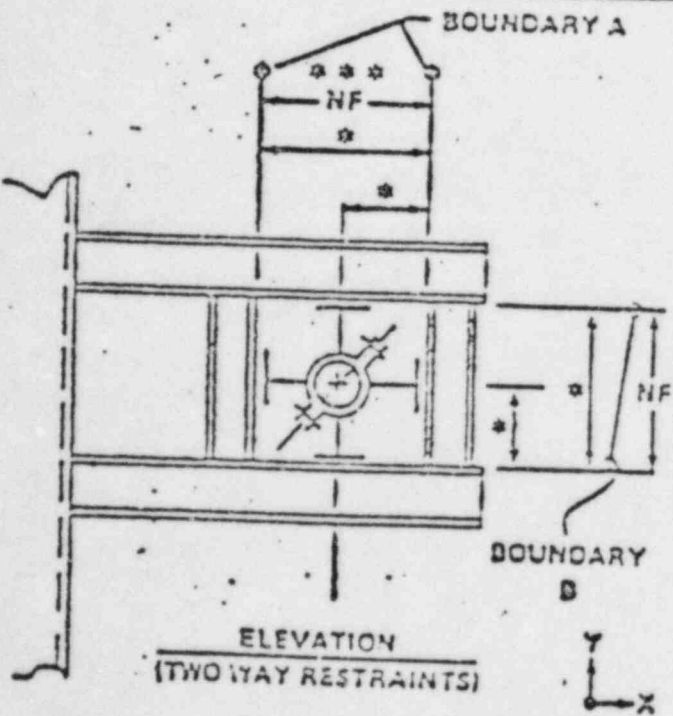
ELEVATION  
(HANGER)

BOUNDARY	FORCE FY
A	**



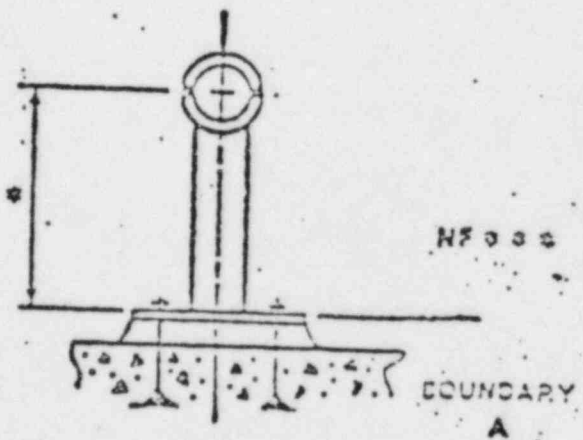
ELEVATION  
(SNUBBLER)

BOUNDARY	FORCE FY
A	**



ELEVATION  
(TWO WAY RESTRAINTS)

BOUNDARY	FORCES	
	Fx	Fy
A	***	*
B		**



ELEVATION  
(ANCHOR)

BOUNDARY	FORCE		MOMENT	
	Fx	Fy	Mx	My
A	***	***	***	***

- \* Per 4.B.1.3
- \*\* Per 4.B.1.5
- \*\*\* Per 4.B.1.6

SIMILAR INDUSTRY POSITIONS

THE FOLLOWING PLANTS HAVE AUXILIARY STEEL/NF CLASSIFICATIONS  
SIMILAR TO CLINTON:

LIMRICK  
VOGTLE  
PALO VERDE  
HOPE CREEK  
CATAWBA  
SOUTH TEXAS  
BYRON  
BRAIDWOOD

CLINTON RULES AND PROCEDURES  
AND  
DESIGN AND CONSTRUCTION OF PIPE SUPPORTS

- DESIGN
- MATERIAL
- EXAMINATION AND INSPECTION

## DESIGN

- ALL NON-NF SUPPLEMENTARY STEEL DESIGNED IN ACCORDANCE  
WITH AISC
- NF DESIGN REQUIREMENTS FOR SUPPLEMENTARY STEEL OBTAINED  
FROM AISC REQUIREMENTS
- MINOR DIFFERENCES IN DESIGN REQUIREMENTS
  - EFFECT OF TEMPERATURE ON ALLOWABLE STRESS IN ASME  
STABILITY LIMIT LOWER THAN AISC
  - ALLOWABLE STRESS FOR SSE LOAD COMBINATIONS LOWER  
THAN AISC
  - WELD ALLOWABLE STRESS LOWER
- ABOVE DIFFERENCES DO NOT AFFECT CLINTON DESIGN

## MATERIALS

- PERMITTED NF MATERIALS AND CLINTON MATERIALS ARE COMPATIBLE
- NO NF STAMPING REQUIREMENTS WERE APPPLICABLE TO CLINTON
- CERTIFIED MATERIALS TEST REPORT (CMTR)
- CMTR FOR ALL MATERIALS ARE ADEQUATE AND AVAILABLE
- CERTIFICATE OF COMPLIANCE FOR BOLTING MATERIAL ARE ADEQUATE AND AVAILABLE
- EXISTING ADEQUATE PROCEDURES FOR CONTROLLING WELD MATERIAL
- EXISTING ADEQUATE PROVISIONS FOR REPAIRING UNACCEPTABLE MATERIAL DEFECTS



### EXAMINATION AND INSPECTION

- DETAILED PROCEDURES FOR EXAMINING WELDS DO EXIST AND WERE IMPLEMENTED
- ALL WELDED JOINTS WERE 100% VISUALLY EXAMINED IN ACCORDANCE WITH AWS D1.1 CRITERIA
- QUALIFICATION OF WELD INSPECTION PERSONNEL MEET THE REQUIREMENTS OF ANSI N45.2.6
- QUALIFICATION OF NDE EXAMINATION PERSONNEL MET THE REQUIREMENTS OF SNT-TC-1A