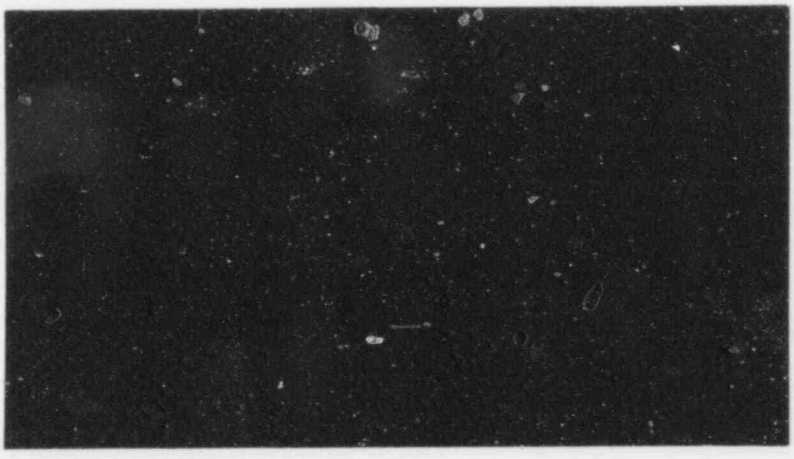
[redacted]



Yankee Atomic Electric Company

YANKEE

1840 123

8001290 254

INSERVICE INSPECTION
EXAMINATION REPORT

VERMONT YANKEE NUCLEAR POWER
CORPORATION

SEPTEMBER 24, 1979 THROUGH NOVEMBER 4, 1979

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1840 125

PREFACE

This report covers the inservice inspection of Vermont Yankee Nuclear Power Station during the period September 24, 1979 through November 4, 1979.

Included in this report is the Form NIS-1 as required by the provisions of ASME Section XI and a Summary Report of the examinations performed, conditions observed, and corrective measures taken.

FORM NIS-1 OWNERS' DATA REPORT FOR INSERVICE INSPECTIONS

As required by the Provisions of the ASME Code Rules

1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, VT 05701
(Name and Address of Owner)

2. Plant Vermont Yankee Nuclear Power Station, P.O. Box 157, Vernon, VT 05354
(Name and Address of Plant)

3. Plant Unit 1 4. Owner Certificate of Authorization (if required) DPR-28

5. Commercial Service Date 11/30/72 6. National Board Number for Unit None

7. Components Inspected

Item	Component or Appurtenance	Manufacturer or Installer	Manufacturer or Installer Serial No.	State or Province No.	National Board No.
1	12 Nozzle Inner Radii	Chicago Bridge & Iron	B4698	N/A	N/A
2	3 Nozzle to Safe-end Welds	Chicago Bridge & Iron	B4698	N/A	N/A
3	1 Nozzle to Safe-end Weld	Mercury Co.	N/A	N/A	N/A
4	2 Vessel Clad Patches	Chicago Bridge & Iron	B4698	N/A	N/A
5	1 Piping Safe end Weld	Per attached Isometrics Ebasco	N/A	N/A	N/A
6	60 Pipe Welds	Per attached Isometrics Ebasco	N/A	N/A	N/A
7	20 Supports/ Hangers	Per attached Isometrics Ebasco	N/A	N/A	N/A
8	92 < 2" Bolts	Per attached Isometrics Ebasco	N/A	N/A	N/A
9	8 > 2" Bolts	Per attached Isometrics Byron Jackson	671-S-1108	N/A	N/A
10	1 < 6" Branch Connection	Per attaches Isometrics Ebasco	N/A	N/A	N/A

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8½ in. x 11 in., (2) information in items 1 through 6 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

This form (E00029) may be obtained from the Order Dept., ASME, 345 E. 47th St., New York, N.Y. 10017

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(if required)

5. Commercial Service Date 11/30/72 6. National Board Number for Unit None

10. Abstract of Examinations

Category		No. of Components Examined	Examination
Reactor	D	12 Nozzle Inner Radii	UT, PT
	F	3 Nozzle to Safe-end Welds	RT, PT, VT
		1 Nozzle to Safe-end Weld	RT, UT, PT, VT
	I	2 Vessel Cladding Patches	VT
Piping	F	1 Piping-to-Safe-end Weld	UT, PT, VT
	G-2	36 Flange Bolts and Corresponding Nuts	VT
	J	58 Piping Welds	UT, VT
		2 Piping Welds	RT, VT
		1 <6" Branch Connection Weld	PT, VT
	K-1	3 Integrally-welded Supports	PT, VT
	K-2	16 Non-welded Supports	VT
Pumps	G-1	8 Cover-to-Casing Bolts	UT
	K-2	1 Non-welded Support	VT
Valves	G-2	56 Bolts and Corresponding Nuts (in place)	VT

Notes: 1. The CRD hydraulic return line was rerouted, and the nozzle was capped. The nozzle-to-cap weld received radiographic examination in accordance with Code requirements. Ultrasonic and surface baseline examinations were also performed. An ultrasonic calibration standard accurately matching the diameter and thickness of the carbon-side base material was not available, therefore the CS-side UT exam was considered "best effort". A re-examination of this weld will be performed during the next refueling outage, when it is anticipated that this standard will be on hand. A hydrostatic test

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to the requirements of IWB 5000 was performed in accordance with VY procedure OP4101.

2. Instrument lines on jet pump risers A, D, F and H were cut and capped, and the weld joints were hydrostatically tested in accordance with the requirements of IWB 5000 and OP4101.

3. 22 of 61 Category J welds were examined in accordance with Proposed Change 70 to Tech. Specs. for augmented inspection of service-sensitive lines.

4. All examination procedures are Yankee Atomic Procedures except where otherwise noted.

Ultrasonic Examination Procedures

YA-UT-1 Ultrasonic Examination - General Requirements
YA-UT-7 Ultrasonic Examination of Bolting
YA-UT 9 Ultrasonic Examination of Piping - Ferritic Welds
YA-UT-10 Ultrasonic Examination of Piping - Austenitic Welds (incl. Appendix A)
YA-UT-11 Ultrasonic Examination of Piping - Dissimilar Metal Welds
YA-UT-14 Ultrasonic Examination of Piping - Base Material and Weld Heat - Affected Zone
YA-UT-15 Ultrasonic Examination of Piping - Straight Beam Method when used for Weld and Heat Affected Zone Examination

80A3223 Nuclear Energy Services, Manual Ultrasonic Examination Procedure for Reactor Pressure Vessel Nozzle Inner Radius Area

Liquid Penetrant Examination Procedures

YA-PE-2 Liquid Penetrant Examination
QCP 3104 Mercury Co., Liquid Penetrant Examination

Radiographic Examination Procedures

PTM 3.20.A.1-2 Peabody Testing, Radiographic Examination of Welds

Visual Examination Procedures

YA-VT-1 Visual Examination Procedure
OP4101, Rev. 7 Vermont Yankee, RPV Operational Hydro Test

11. Abstract of Conditions Noted:

A. During liquid penetrant and visual examinations of Reactor Vessel Head Nozzle to safe-end weld N6B-SE, a depression 3/64" deep x 9/16" long x 1/8" wide was noted and recorded.

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11. Abstract of Conditions Noted: (Cont'd)

B. During Ultrasonic Examination of the inner radius surfaces of Reactor Vessel Nozzles, the following indications were recorded:

Nozzle	No. of Indications
N2D	2
N4A	2
N4B	7
N4C	4
N4D	3
N5A	2
N5B	3

C. During Visual Examination of snubber MS-32 on Main Steam Line D, it was noted that one bottom nut was loose.

12. Abstract of Corrective Measures Recommended and Taken

A. Visual evaluation of the depression on weld N6B-SE has determined that it is actually located in the base metal. It is very shallow with gentle tapers, and is therefore considered acceptable. No further action is deemed necessary.

B. The ultrasonic indications recorded by the examiners were reviewed by the YAEC UT Level III. The review criteria were:

a. when manually plotted, did the indications fall within the area of interest?
b. were they located with both the CCWand CW scans?
c. did they coincide with known depressions?

When the above criteria were applied, it was determined that there were no nozzle inner radius indications. The reflectors were in areas of manual cladding or were from depressions caused by previous grind-outs.

The above conclusions were drawn prior to a liquid penetrant exam of the nozzle inner radii. This liquid penetrant exam confirmed the fact that there was no evidence of nozzle inner radius cracking.

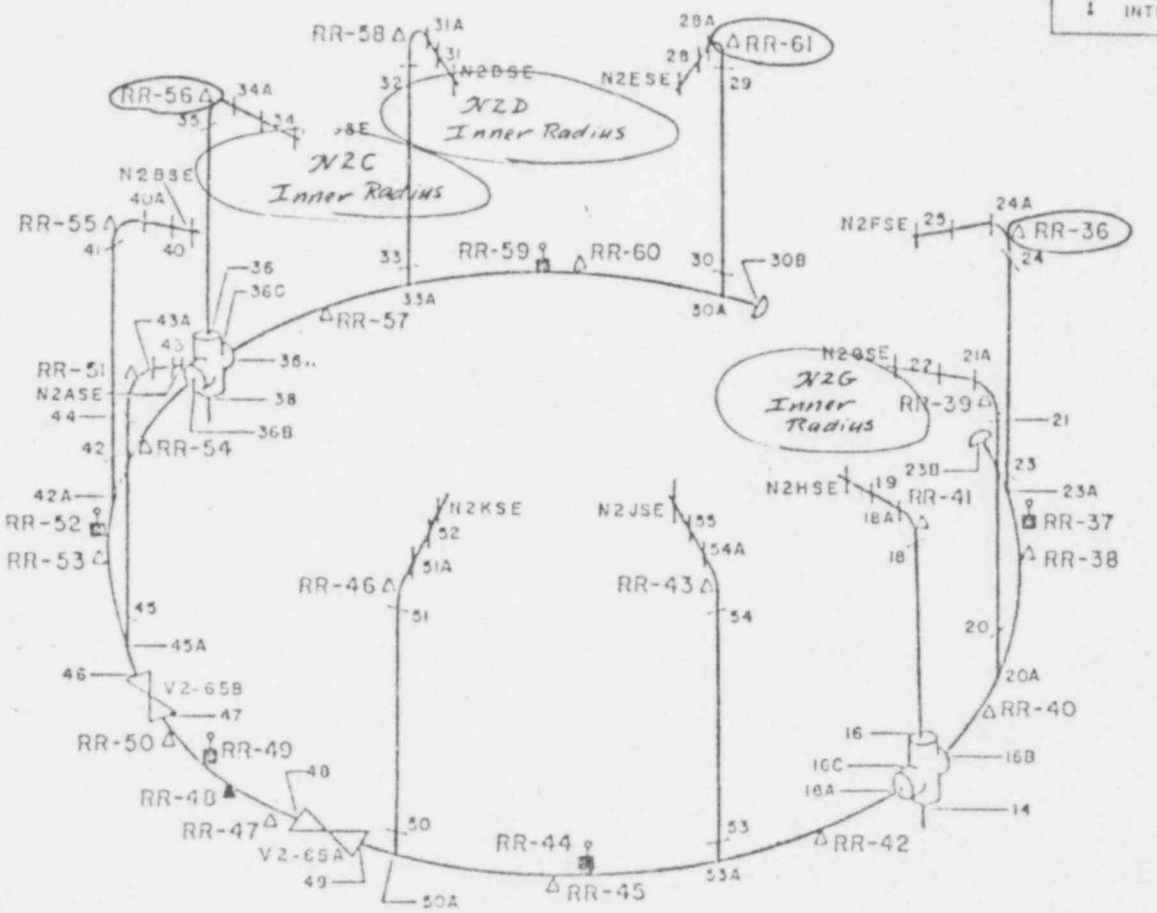
C. The loose nut on snubber MS-32 has been tightened, and re-evaluation was performed by qualified Maintenance Department personnel. No further action is deemed necessary.

1840 130

ISOMETRICS

Attached

Note: Inspected components have been circled, with explanations included as necessary.



LEGEND

- SPRING HANGAR OR SUPPORT
- INTEGRALLY WELDED SPRING HANGAR OR SUPPORT
- RIGID HANGAR, SUPPORT OR RESTRAINT
- INTEGRALLY WELDED RIGID HANGAR, SUPPORT OR RESTRAINT
- SWAY BRACE
- INTEGRALLY WELDED SWAY BRACE
- SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHEAR BLOCKS

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3. Plant Unit 1 4. Owner Certificate of Authorization (If Required) NPS-29
5. Commercial Service Date 11/30/72 6. National Board Number for Unit None

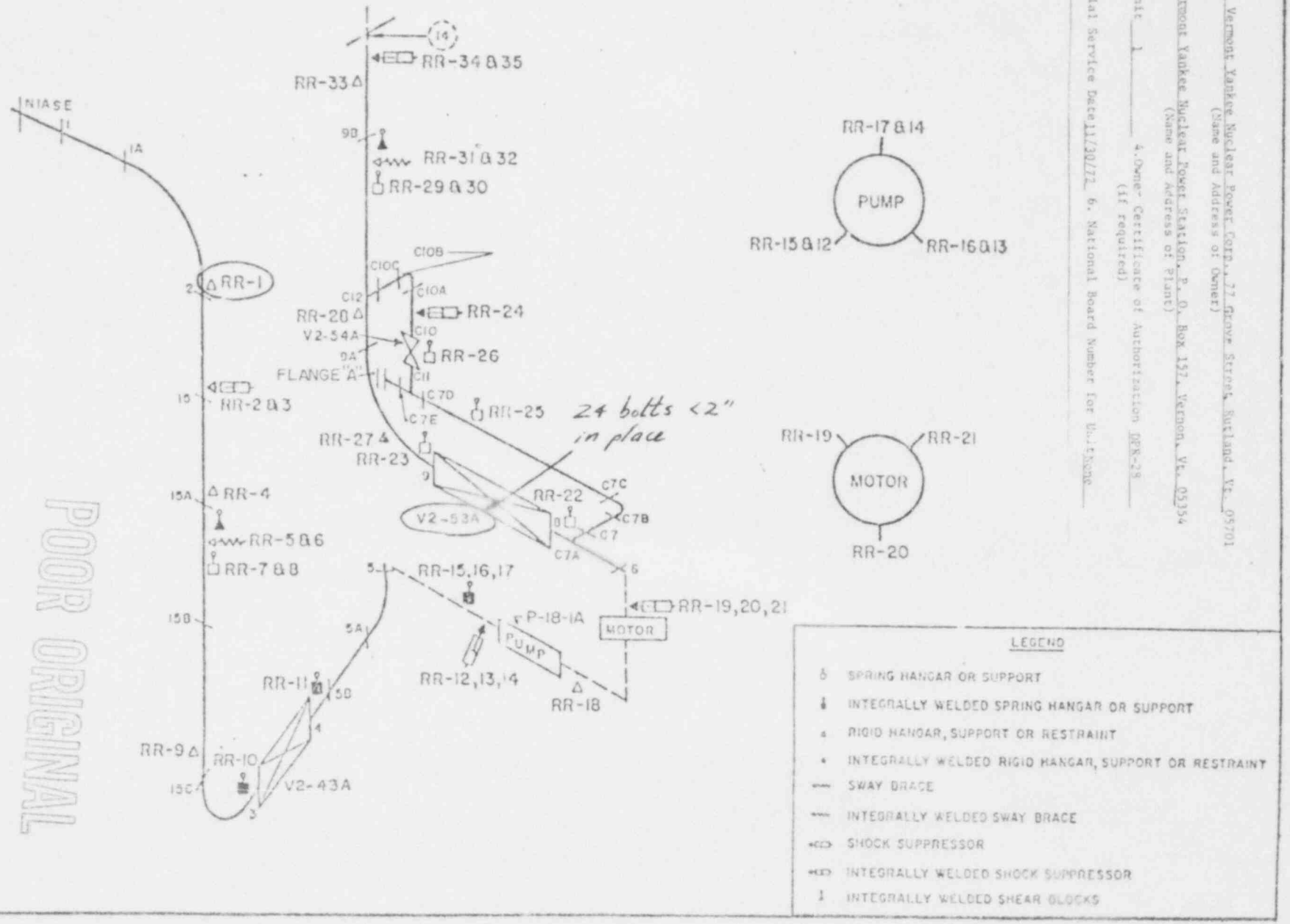
DRWG. H-1

RECIRC RING HEADER & INLETS

REF. EBASCO DWG. 5920-FS-I33

POOR ORIGINAL

1840 131



RECIRC LOOP "A"

REF EBASCO DWG. 5920-FS-I33

DRWG. H-2

1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701
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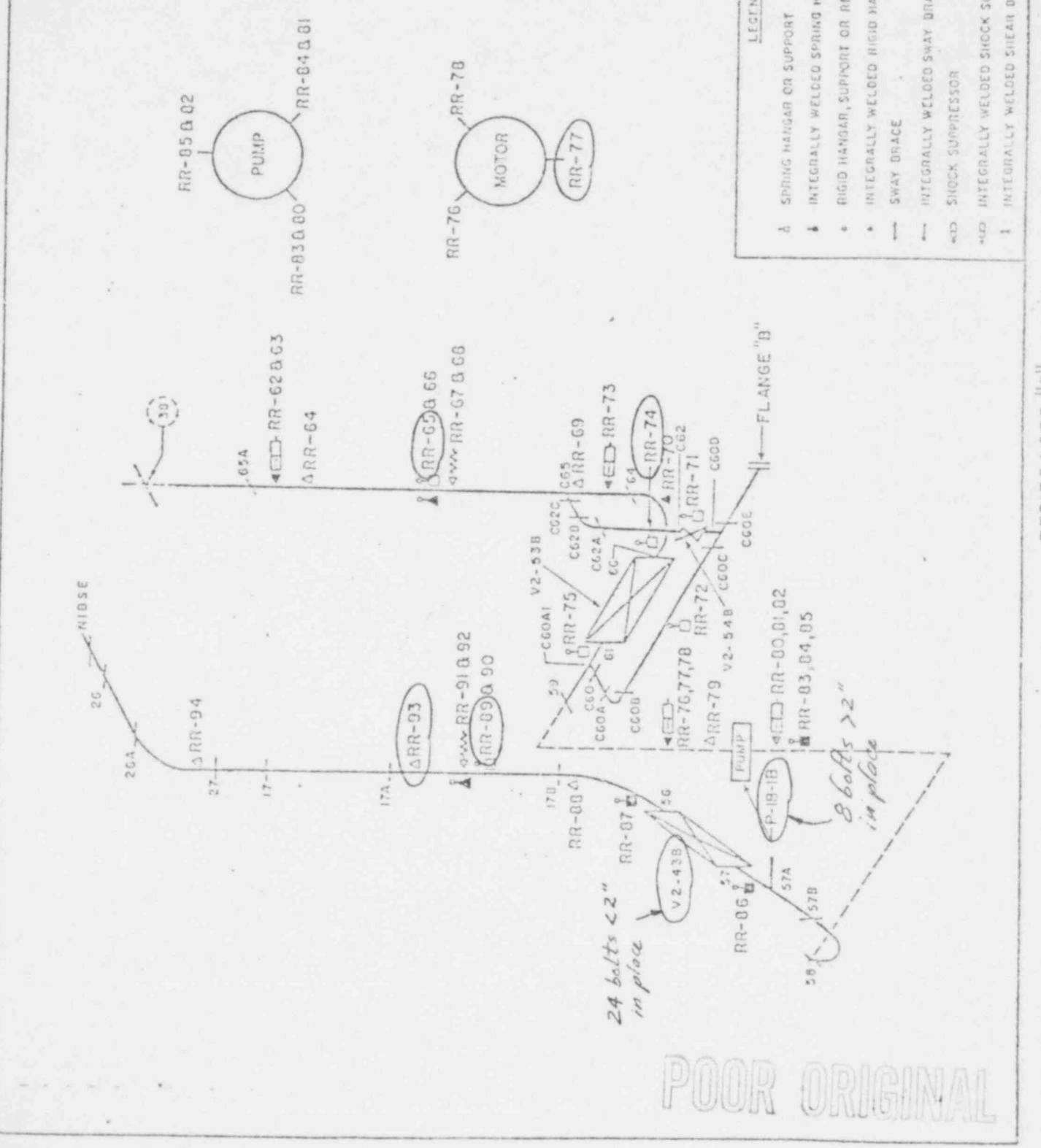
3. Plant Unit 1 4. Owner Certificate of Authorization DPR-28
(if required)

5. Commercial Service Date 11/30/72 6. National Board Number for Unit None



DRWG. H-3

RECIRC LOOP "B"

REF. EDASCO DWG. 5920-FS-133

1840 133

I - 99

1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701
(Name and Address of Owner)

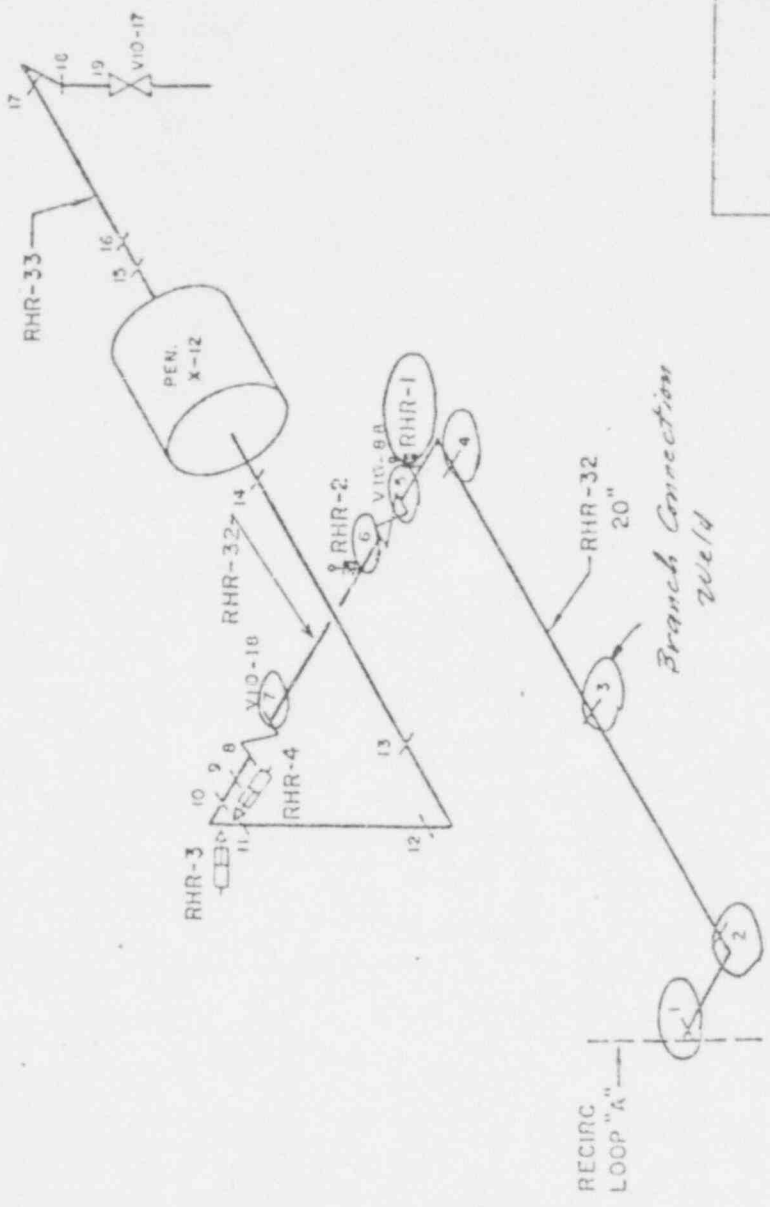
2. Plant Vermont Yankee Nuclear Power Station, P. O. Box 157, Vernon, Vt. 05354
(Name and Address of Plant)

3. Plant Unit 1 4. Owner Certificate of Authorization DPR-28
(if required)

5. Commercial Service Date 11/30/72 6. National Board Number for Unit None

LEGEND

- A SPRING HANGAR OR SUPPORT
- INTEGRALLY WELDED SPRING HANGER OR SUPPORT
- RIGID HANGAR, SUPPORT OR RESTRAINT
- INTEGRALLY WELDED RIGID HANGAR, SUPPORT OR RESTRAINT
- SWAY BRACE
- INTEGRALLY WELDED SWAY BRACE
- SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHEAR BLOCKS



RHR PIPING LINE "A"
REF. EBASCO DWG. 5920-FS-1438

DRWG. H-4

POOR ORIGINAL

1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701
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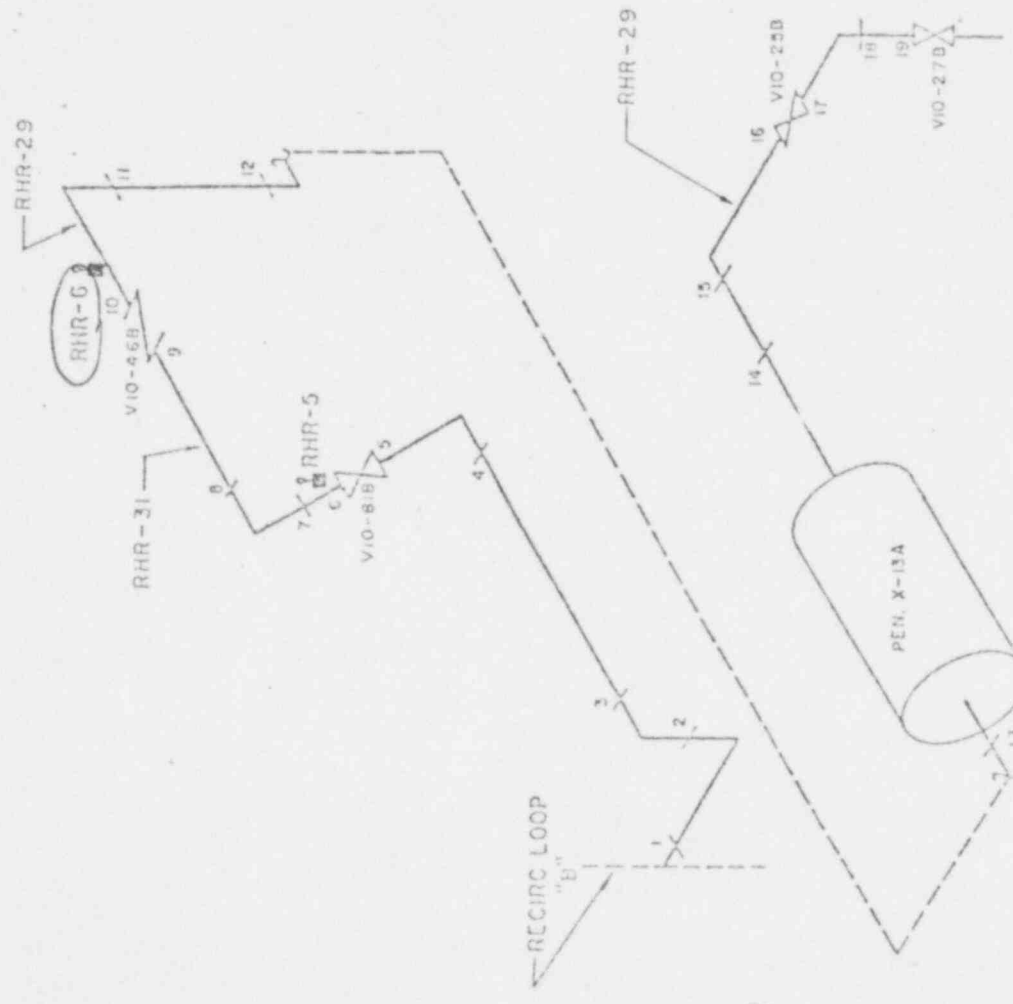
(Name and Address of Plant)

3. Plant Unit 1 4. Owner Certificate of Authorization DPR-28
(If required)

5. Commercial Service Date 11/30/72 6. National Board Number for Unit None

LEGEND

- SPRING HANGAR OR SUPPORT
- INTEGRALLY WELDED SPRING HANGAR OR SUPPORT
- RIGID HANGAR, SUPPORT OR RESTRAINT
- INTEGRALLY WELDED RIGID HANGAR, SUPPORT OR RESTRAINT
- SWAY BRACE
- INTEGRALLY WELDED SWAY BRACE
- SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHEAR BLOCKS



RHR PIPING LINE "B"

DRWG. H-5

1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701
(Name and Address of Owner)

2. Plant Vermont Yankee Nuclear Power Station, P. O. Box 157, Vernon, Vt. 05354
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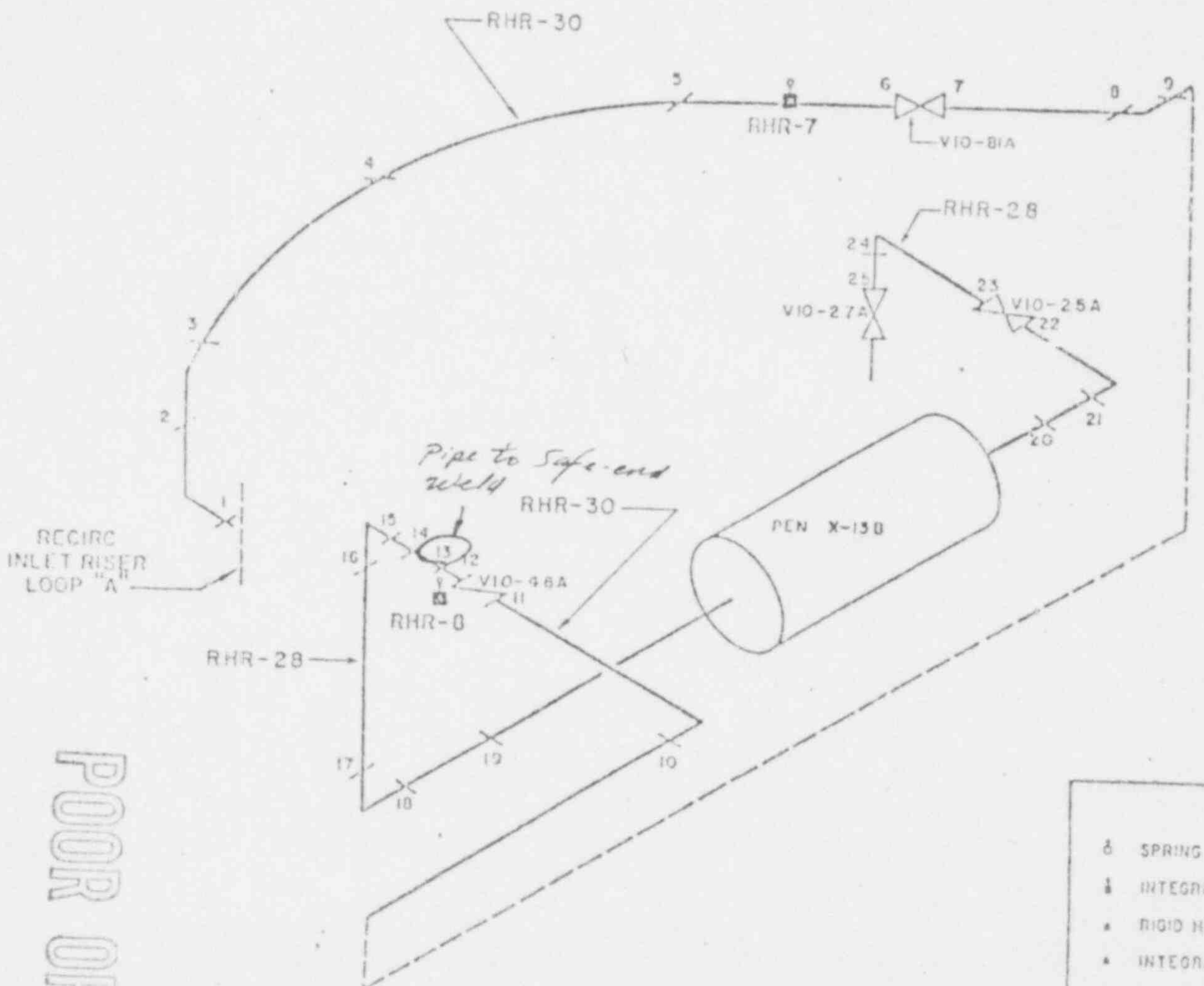
(if required)

5. Commercial Service Date 11/30/72 6. National Board Number for Unit None



LEGEND

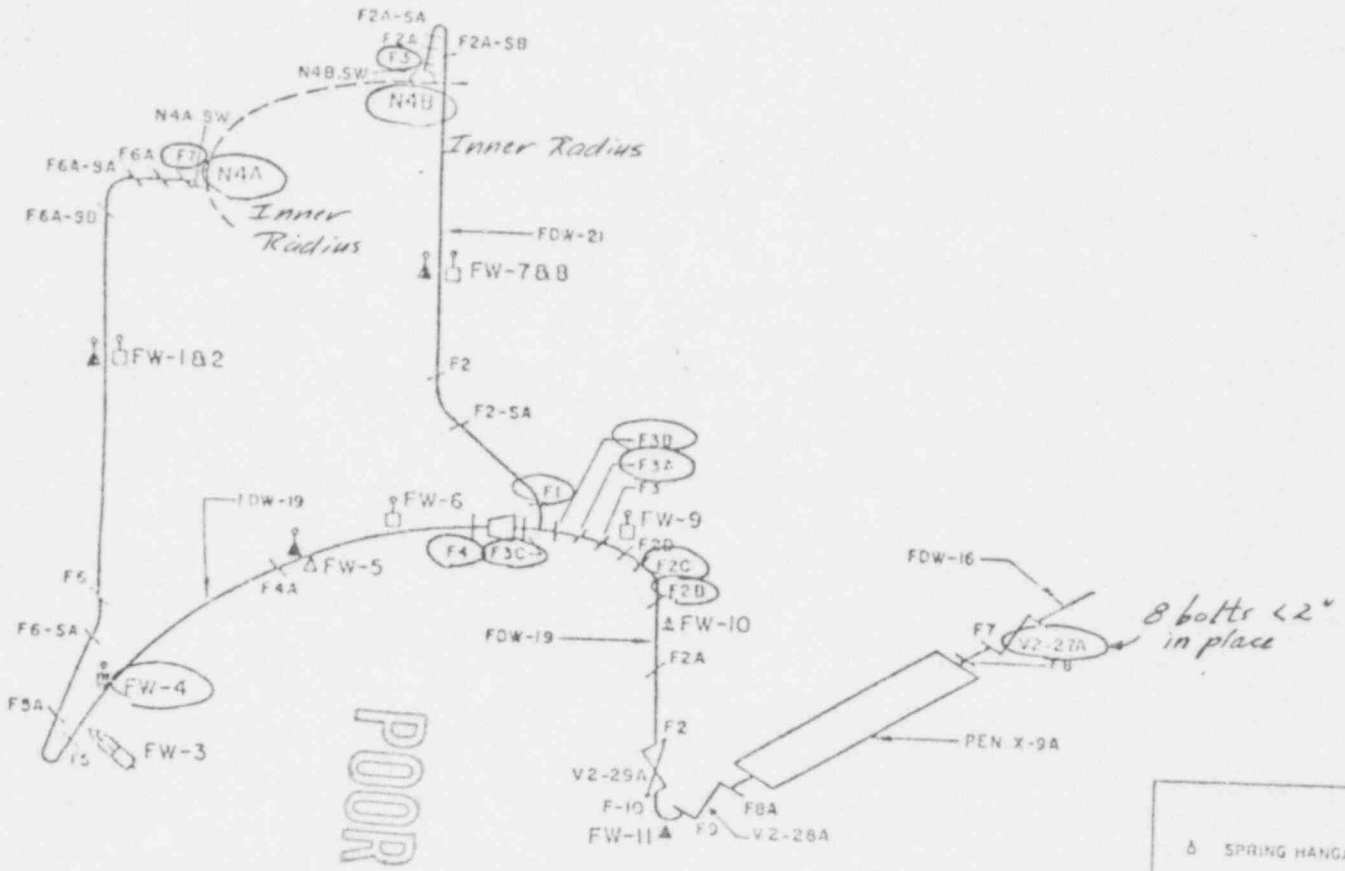
- SPRING HANGAR OR SUPPORT
- INTEGRALLY WELDED SPRING HANGAR OR SUPPORT
- RIGID HANGAR, SUPPORT OR RESTRAINT
- INTEGRALLY WELDED RIGID HANGAR, SUPPORT OR RESTRAINT
- SWAY BRACE
- INTEGRALLY WELDED SWAY BRACE
- SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHEAR BLOCKS

POOR ORIGINAL

RHR PIPING LINE "C"

REF EBASCO DWG 5920-FS-T43B

DRWG H-6



1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701 (Name and Address of Owner)
2. Plant Vermont Yankee Nuclear Power Station, P. O. Box 157, Vernon, Vt. 05354 (Name and Address of Plant)
3. Plant Unit 1 4. Owner Certificate of Authorization (If required) NPT-25
5. Commercial Service Date 11/30/72 6. National Board Number for Unit None

LEGEND

- SPRING HANGAR OR SUPPORT
- INTEGRALLY WELDED SPRING HANGAR OR SUPPORT
- RIGID HANGAR, SUPPORT OR RESTRAINT
- INTEGRALLY WELDED RIGID HANGAR, SUPPORT OR RESTRAINT
- SWAY BRACE
- INTEGRALLY WELDED SWAY BRACE
- SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHEAR BLOCKS

POOR ORIGINAL

FEEDWATER PIPING LINE "A"

REF. EDASCO DWG. 5920-FS-I20

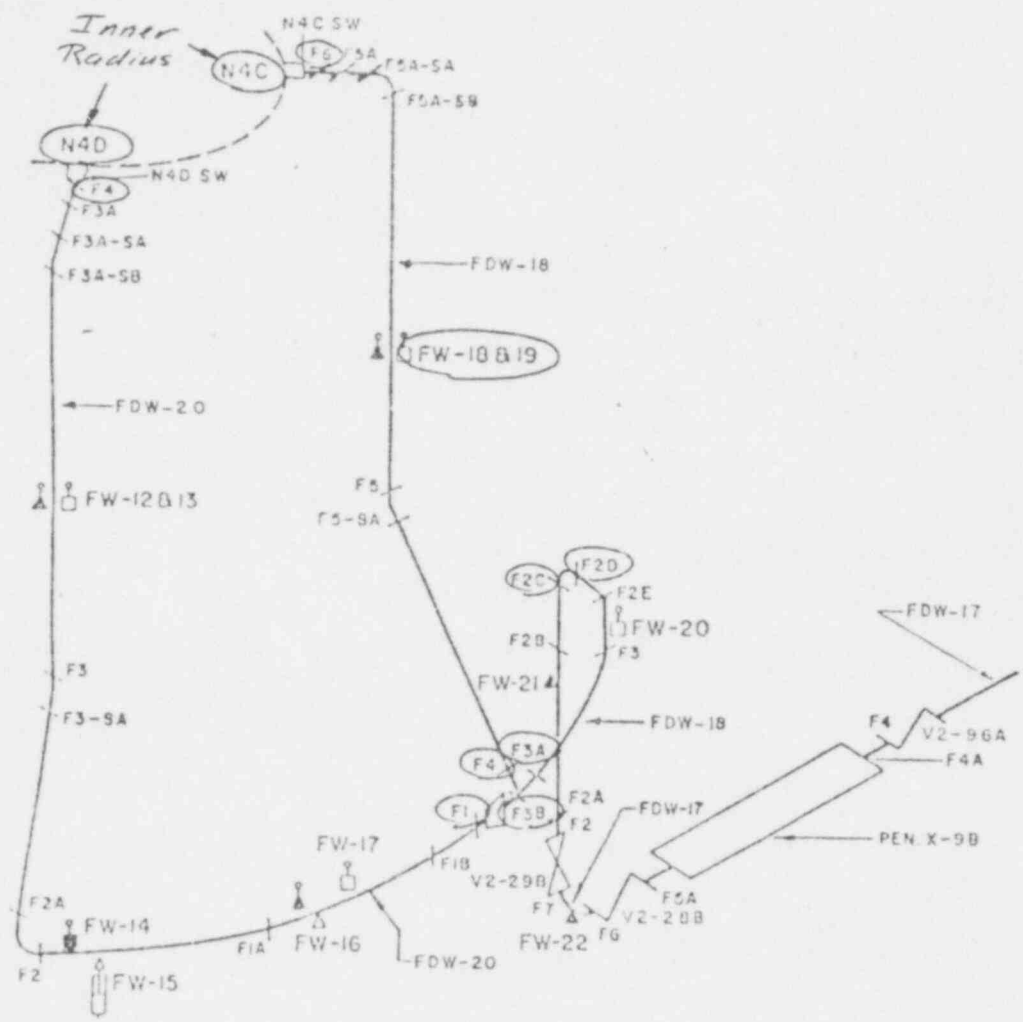
DRWG. H-7

1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701
(Name and Address of Owner)

2. Plant Vermont Yankee Nuclear Power Station, P. O. Box 157, Vernon, Vt. 05354
(Name and Address of Plant)

3. Plant Unit 1 4. Owner Certificate of Authorization (If required) NPT-29

5. Commercial Service Date 11/30/72 6. National Board Number for Unit None



LEGEND

- SPRING HANGAR OR SUPPORT
- INTEGRALLY WELDED SPRING HANGAR OR SUPPORT
- RIGID HANGAR, SUPPORT OR RESTRAINT
- INTEGRALLY WELDED RIGID HANGAR, SUPPORT OR RESTRAINT
- SWAY BRACE
- INTEGRALLY WELDED SWAY BRACE
- SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHEAR BLOCKS

FEEDWATER PIPING LINE "B"

* REF. EBASCO DWG. 5920-FS-126

DRWG. H-8

1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701
(Name and Address of Owner)

2. Plant Vermont Yankee Nuclear Power Station, P. O. Box 157, Vernon, Vt. 05354
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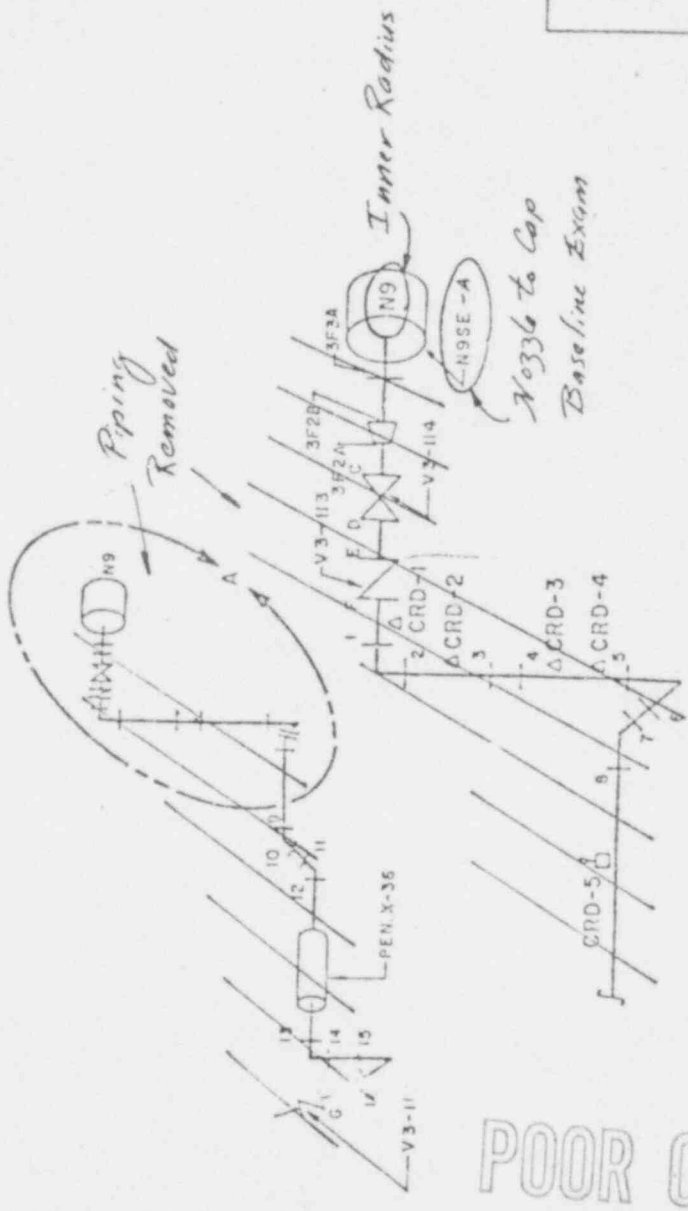
3. Plant Unit 1 4. Owner Certificate of Authorization DPR-28
(if required)

5. Commercial Service Date 11/30/72 6. National Board Number for Unit None

LEGEND

- SPRING HANGAR OR SUPPORT
- INTEGRALLY WELDED SPRING HANGAR OR SUPPORT
- RIGID HANGAR, SUPPORT OR RESTRAINT
- INTEGRALLY WELDED RIGID HANGAR, SUPPORT OR RESTRAINT
- SWAY BRACE
- INTEGRALLY WELDED SWAY BRACE
- SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHEAR BLOCKS

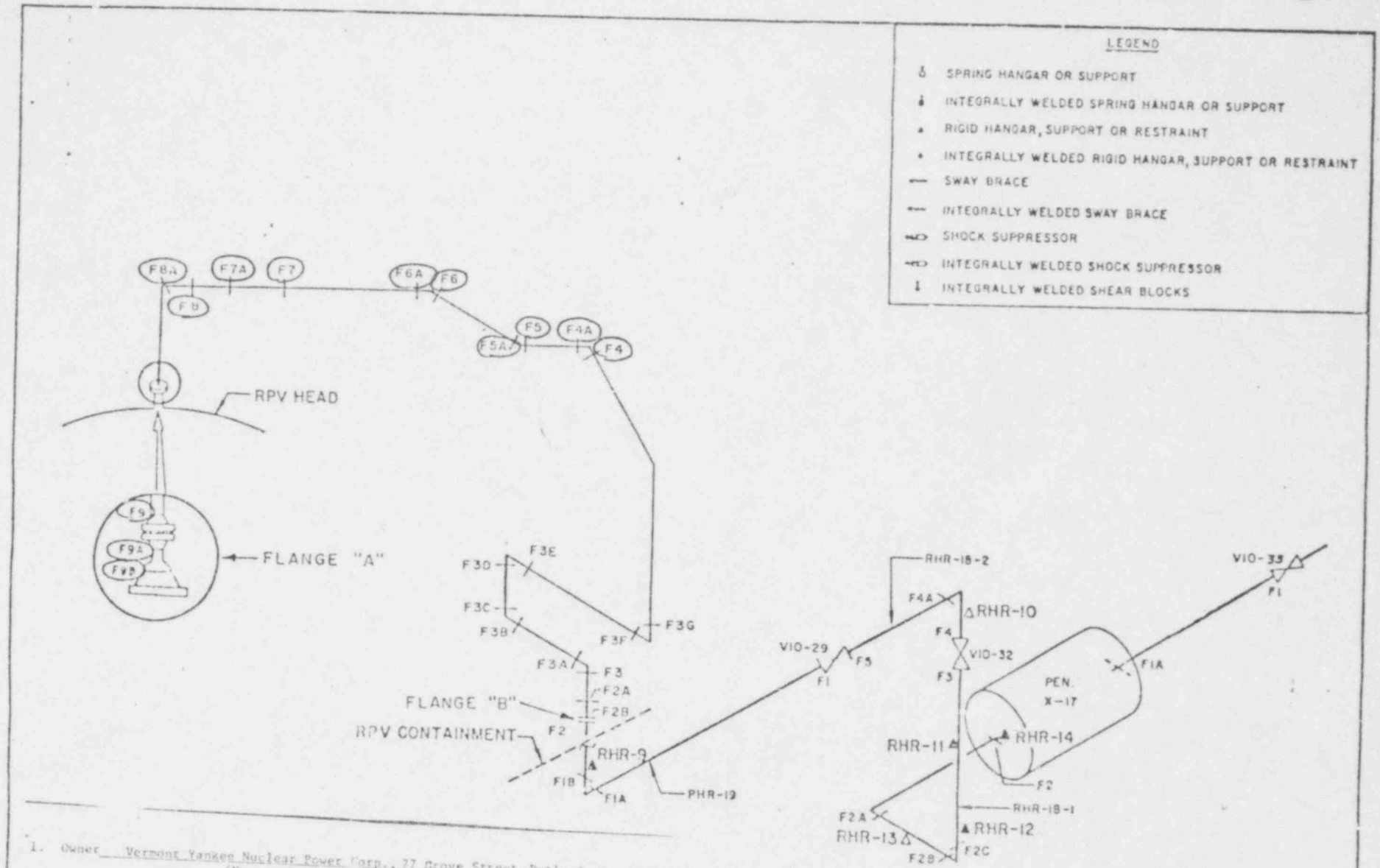


DRWG. H-9

CRD RETURN PIPING

POOR ORIGINAL

1840 139



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(Name and Address of Plant)

3. Plant Unit 1 4. Owner Certificate of Authorization DPR-28
(If required)

5. Commercial Service Date 11/30/72 6. National Board Number for Unit None

HEAD SPRAY PIPING

REF. ENASCO DWG. 5920-FS-I43B

DRWG. H-10

1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701
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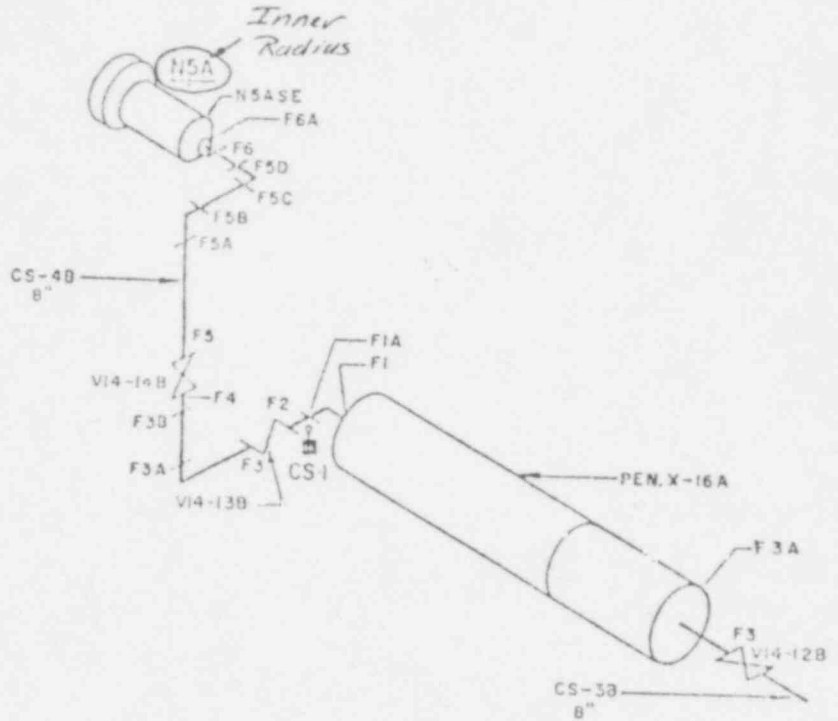

LEGEND

- SPRING HANGAR OR SUPPORT
- INTEGRALLY WELDED SPRING HANGAR OR SUPPORT
- RIGID HANGAR, SUPPORT OR RESTRAINT
- INTEGRALLY WELDED RIGID HANGAR, SUPPORT OR RESTRAINT
- SWAY BRACE
- INTEGRALLY WELDED SWAY BRACE
- SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHEAR BLOCKS

CORE SPRAY "A" SIDE

REF. EBASCO DWG 5920-FS-149

DRWG. H-11

1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701
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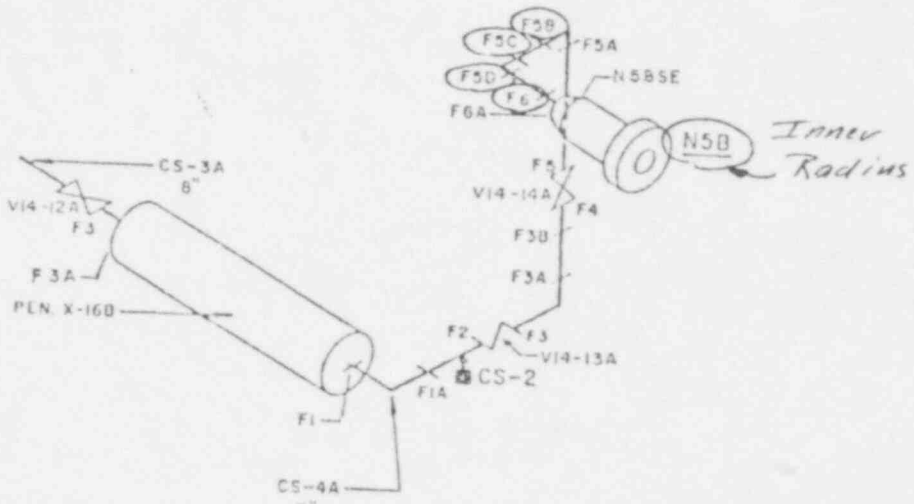


LEGEND

- SPRING HANGAR OR SUPPORT
- INTEGRALLY WELDED SPRING HANGAR OR SUPPORT
- RIGID HANGAR, SUPPORT OR RESTRAINT
- INTEGRALLY WELDED RIGID HANGAR, SUPPORT OR RESTRAINT
- SWAY BRACE
- INTEGRALLY WELDED SWAY BRACE
- SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHEAR BLOCKS

CORE SPRAY "B" SIDE

REF. EB&CO DWG. 5920-FS-I49

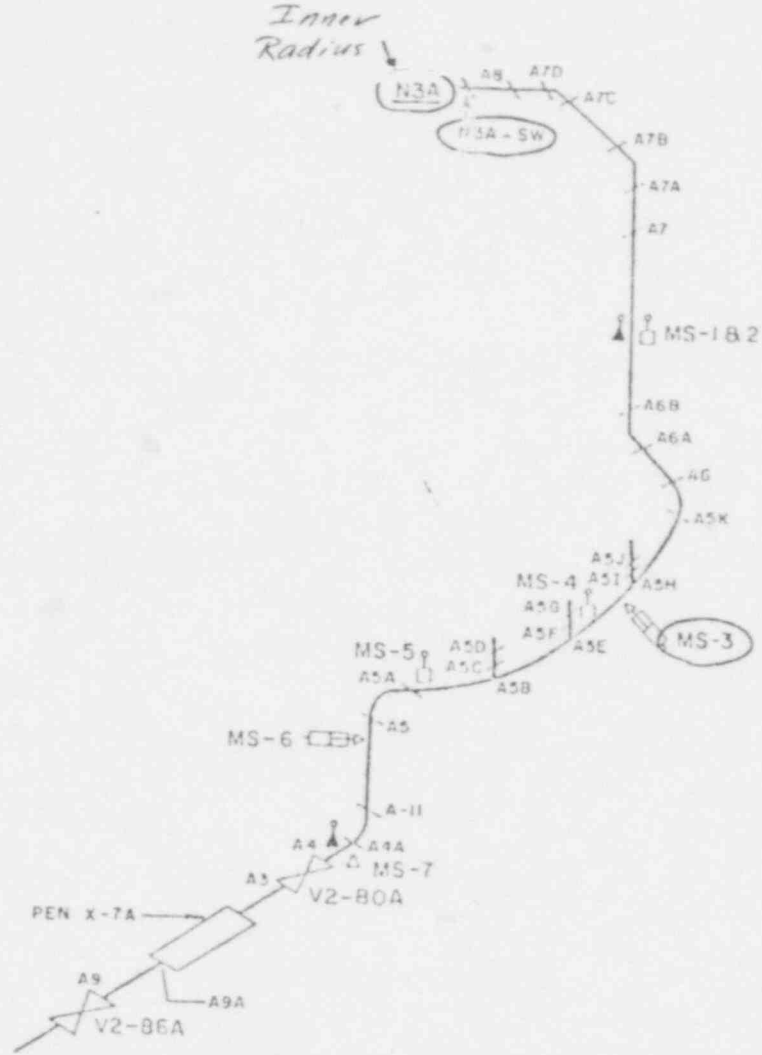
DRWG. H-12

1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701
(Name and Address of Owner)

2. Plant Vermont Yankee Nuclear Power Station, P.O. Box 157, Vernon, Vt. 05354
(Name and Address of Plant)

3. Plant Unit 1 4. Owner Certificate of Authorization (If required) N/A

5. Commercial Service Date 11/20/72 6. National Board Number for Unit None



LEGEND

- SPRING HANGAR OR SUPPORT
- INTEGRALLY WELDED SPRING HANGAR OR SUPPORT
- RIGID HANGAR, SUPPORT OR RESTRAINT
- INTEGRALLY WELDED RIGID HANGAR, SUPPORT OR RESTRAINT
- SWAY BRACE
- INTEGRALLY WELDED SWAY BRACE
- SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHEAR BLOCKS

POOR ORIGINAL

MAIN STEAM LINE "A"

R&F EBASCO DWG 5920-FS-13

DRWG. H-14

1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701
(Name and Address of Owner)

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3. Plant Unit 1 4. Owner Certificate of Authorization (If required) N/A

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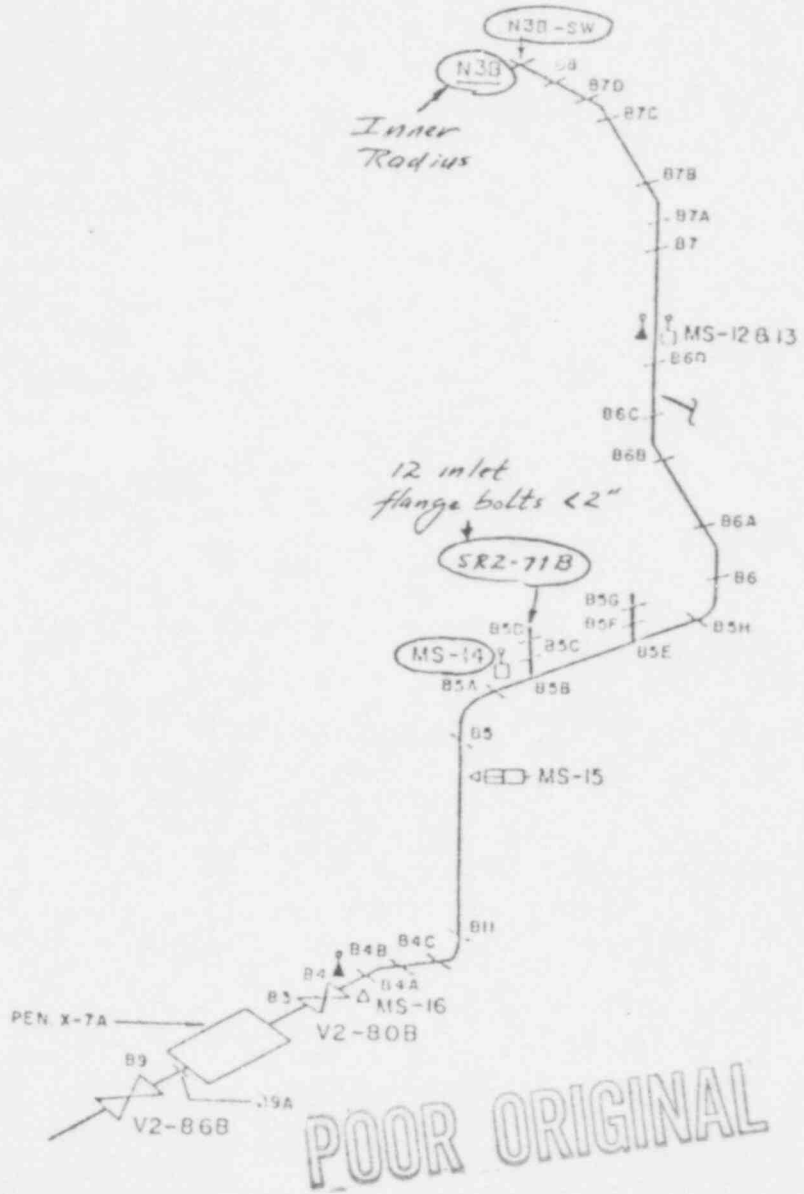

LEGEND

- SPRING HANGAR OR SUPPORT
- INTEGRALLY WELDED SPRING HANGAR OR SUPPORT
- RIGID HANGAR, SUPPORT OR RESTRAINT
- INTEGRALLY WELDED RIGID HANGAR, SUPPORT OR RESTRAINT
- SWAY BRACE
- INTEGRALLY WELDED SWAY BRACE
- SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHEAR BLOCKS

MAIN STEAM LINE "B"

REF EBASCO DWG. 5920-FS-13

DRWG. H-15

1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701
(Name and Address of Owner)

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3. Plant Unit 1 4. Owner Certificate of Authorization DPR-28
(If required)

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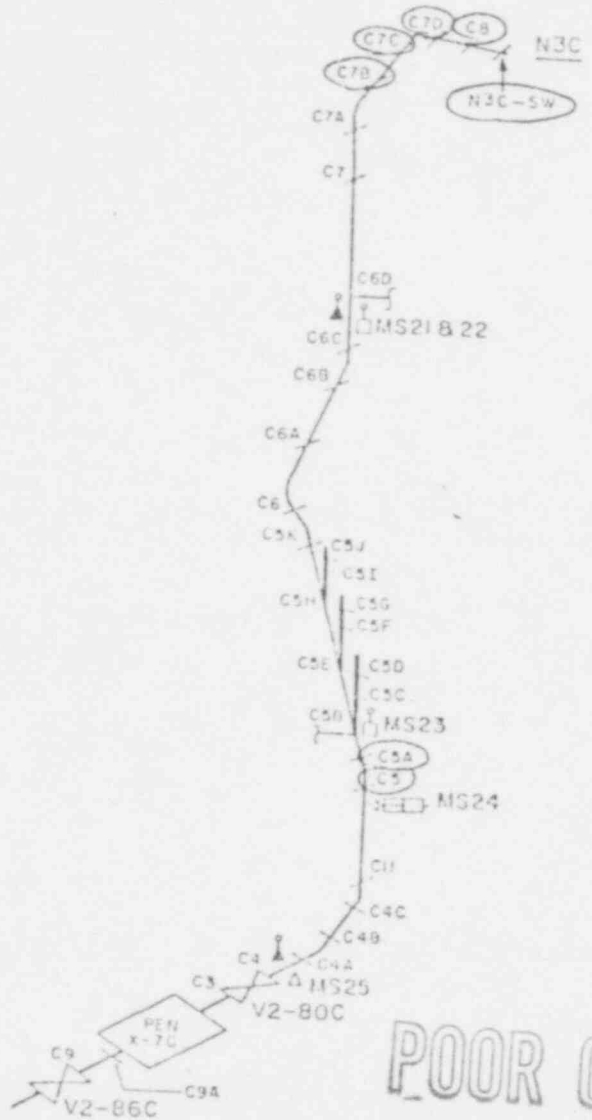


POOR ORIGINAL

LEGEND

- SPRING HANGAR OR SUPPORT
- INTEGRALLY WELDED SPRING HANGAR OR SUPPORT
- RIGID HANGAR, SUPPORT OR RESTRAINT
- INTEGRALLY WELDED RIGID HANGAR, SUPPORT OR RESTRAINT
- SWAY BRACE
- INTEGRALLY WELDED SWAY BRACE
- SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHEAR BLOCKS

MAIN STEAM LINE "C"

REF EBASCO DWG. 5920-FS-I3

DRWG. H-16

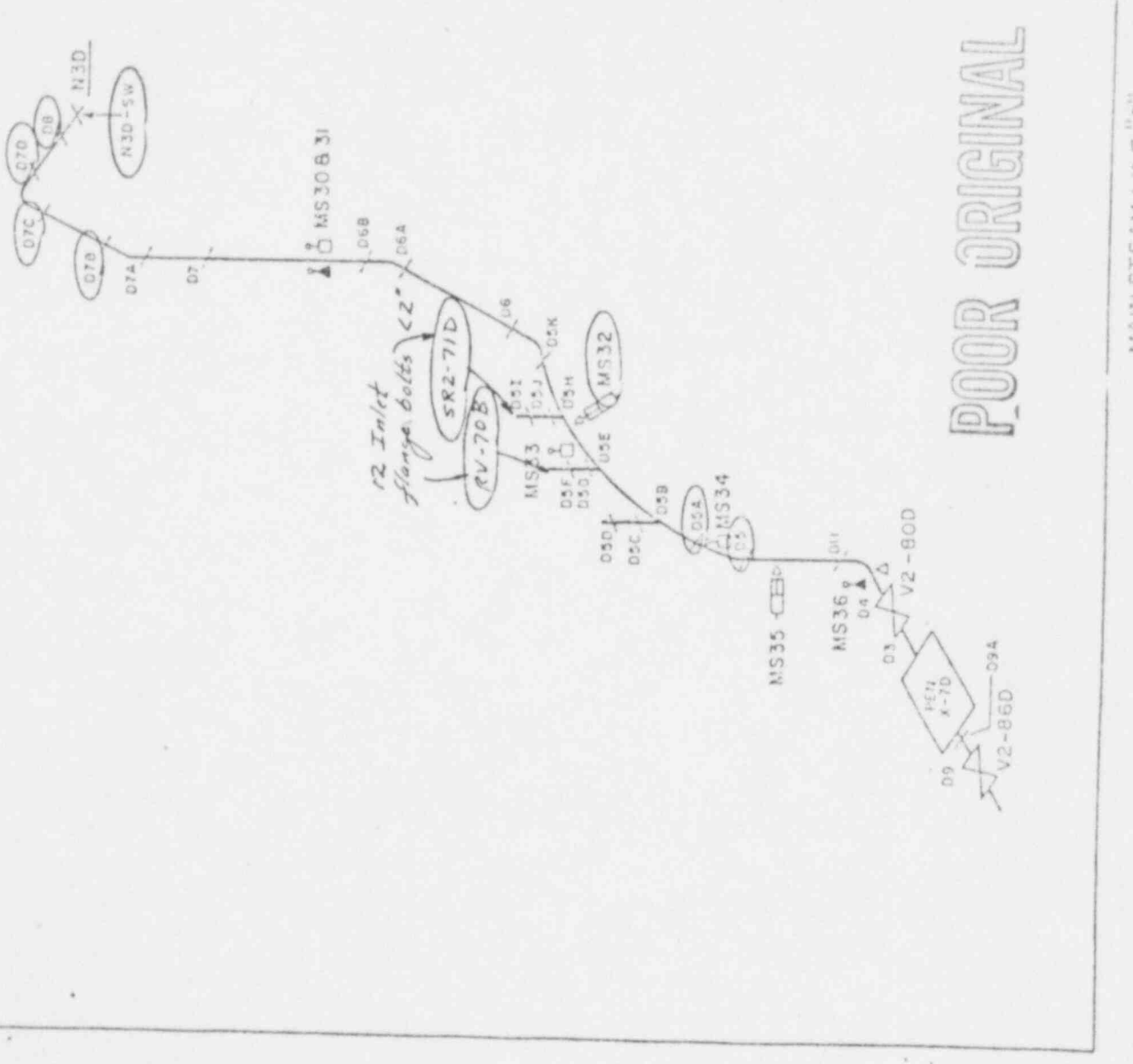
1840 145

1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701
(Name and Address of Owner)

2. Plant Vermont Yankee Nuclear Power Station, P. O. Box 157, Vernon, Vt. 05354
(Name and Address of Plant)

3. Plant Unit 1 4. Owner Certificate of Authorization DPR-28
(if required)

5. Commercial Service Date 11/30/72 6. National Board Number for Unit None

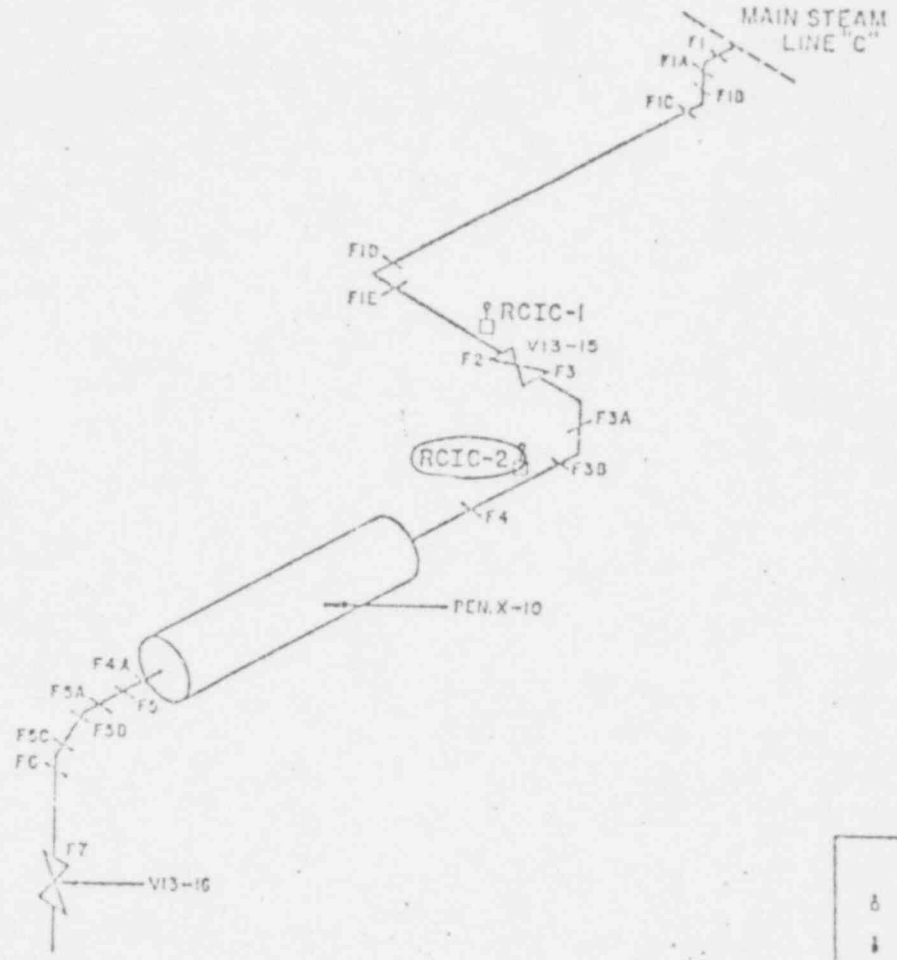


1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701
(Name and Address of Owner)

2. Plant Vermont Yankee Nuclear Power Station, P. O. Box 157, Vernon, Vt. 05354
(Name and Address of Plant)

3. Plant Unit 1 4. Owner Certificate of Authorization NPT-28
(If required)

5. Commercial Service Date 11/30/72 6. National Board Number for Unit None



LEGEND

- SPRING HANGAR OR SUPPORT
- INTEGRALLY WELDED SPRING HANGAR OR SUPPORT
- RIGID HANGAR, SUPPORT OR RESTRAINT
- INTEGRALLY WELDED RIGID HANGAR, SUPPORT OR RESTRAINT
- SWAY BRACE
- INTEGRALLY WELDED SWAY BRACE
- SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHEAR BLOCKS

POOR ORIGINAL

RCIC

MAIN STEAM ATTACHMENT

REF. EBASCO DWG. 5020-FS-140

DRWG. H-19

1840 147

1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701
(Name and Address of Owner)

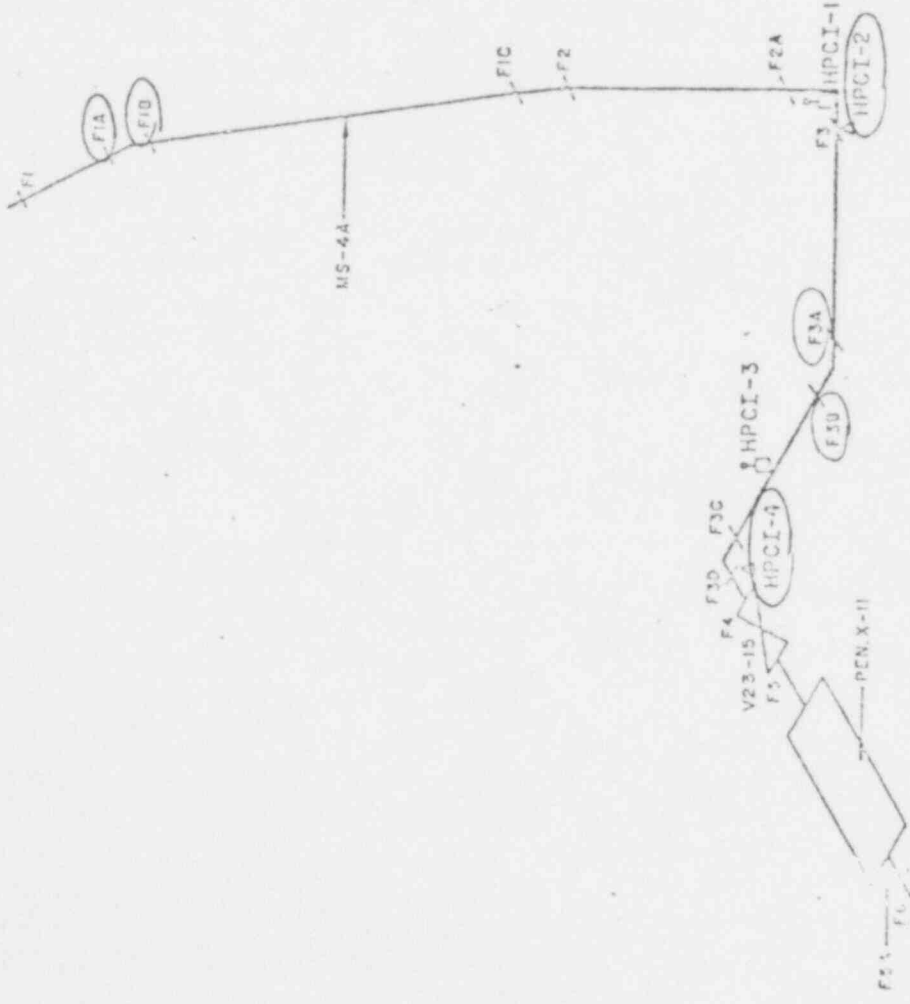
2. Plant Vermont Yankee Nuclear Power Station, P. O. Box 157, Vernon, Vt. 05354
(Name and Address of Plant)

3. Plant Unit 1 4. Owner Certificate of Authorization DPR-28
(if required)

5. Commercial Service Date 11/30/72 6. National Board Number for Unit None

LEGEND

- SPRING HANGER OR SUPPORT
- INTEGRALLY WELDED SPRING HANGAR OR SUPPORT
- RIGID HANGAR, SUPPORT OR RESTRAINT
- INTEGRALLY WELDED RIGID HANGAR, SUPPORT OR RESTRAINT
- SWAY BRACE
- INTEGRALLY WELDED SWAY BRACE
- SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHOCK SUPPRESSOR
- INTEGRALLY WELDED SHEAR BLOCKS



HIGH PRESSURE COOLANT INJECTION PIPING
REF EDASCO DWG. 5020-FS-157

DRWG. H-20

POOR ORIGINAL

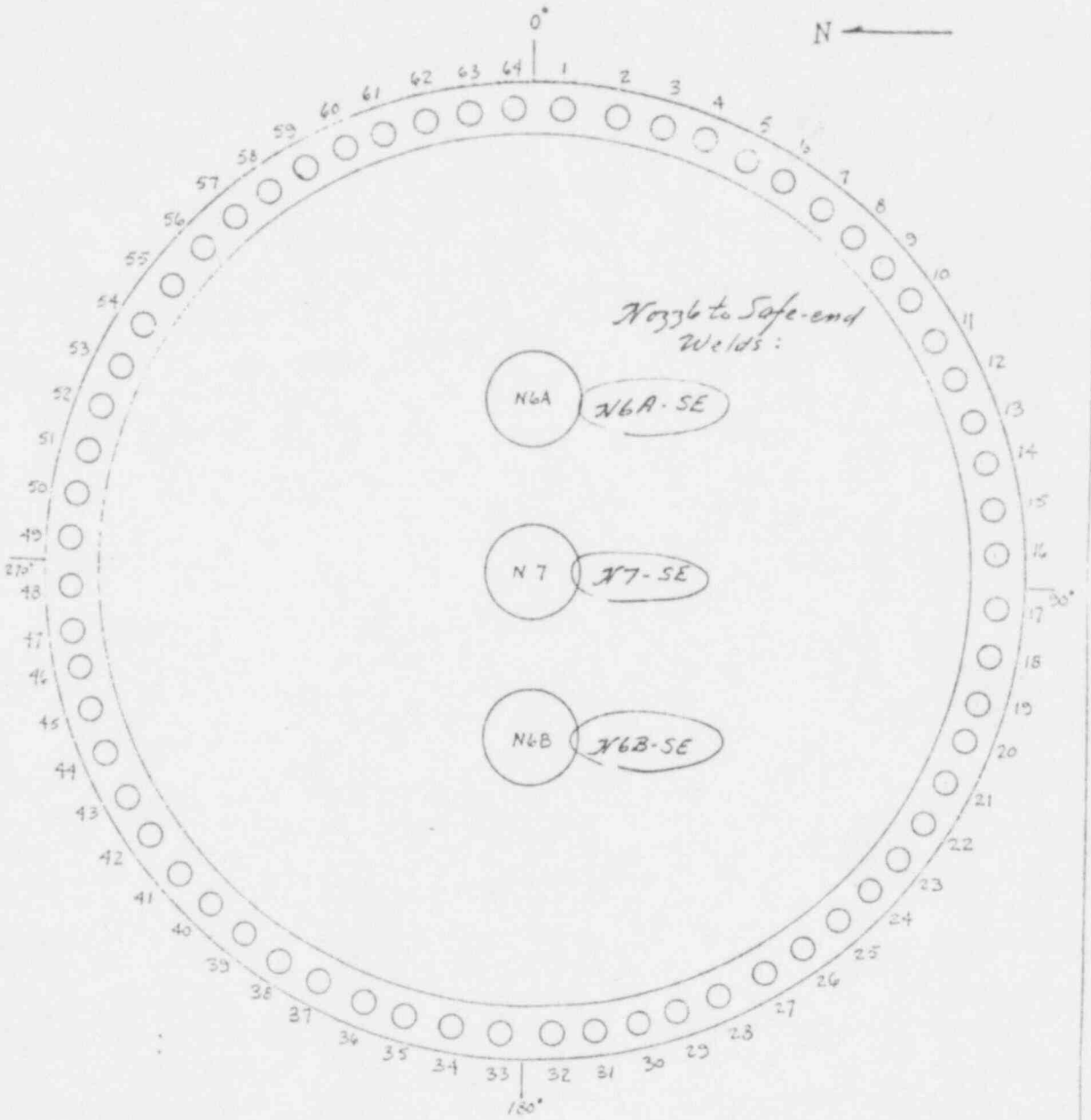
1840 148

1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701
(Name and Address of Owner)

2. Plant Vermont Yankee Nuclear Power Station, P. O. Box 157, Vernon, Vt. 05354
(Name and Address of Plant)

3. Plant Unit 1 4. Owner Certificate of Authorization DPR-28
(if required)

5. Commercial Service Date 11/30/72 6. National Board Number for Unit None

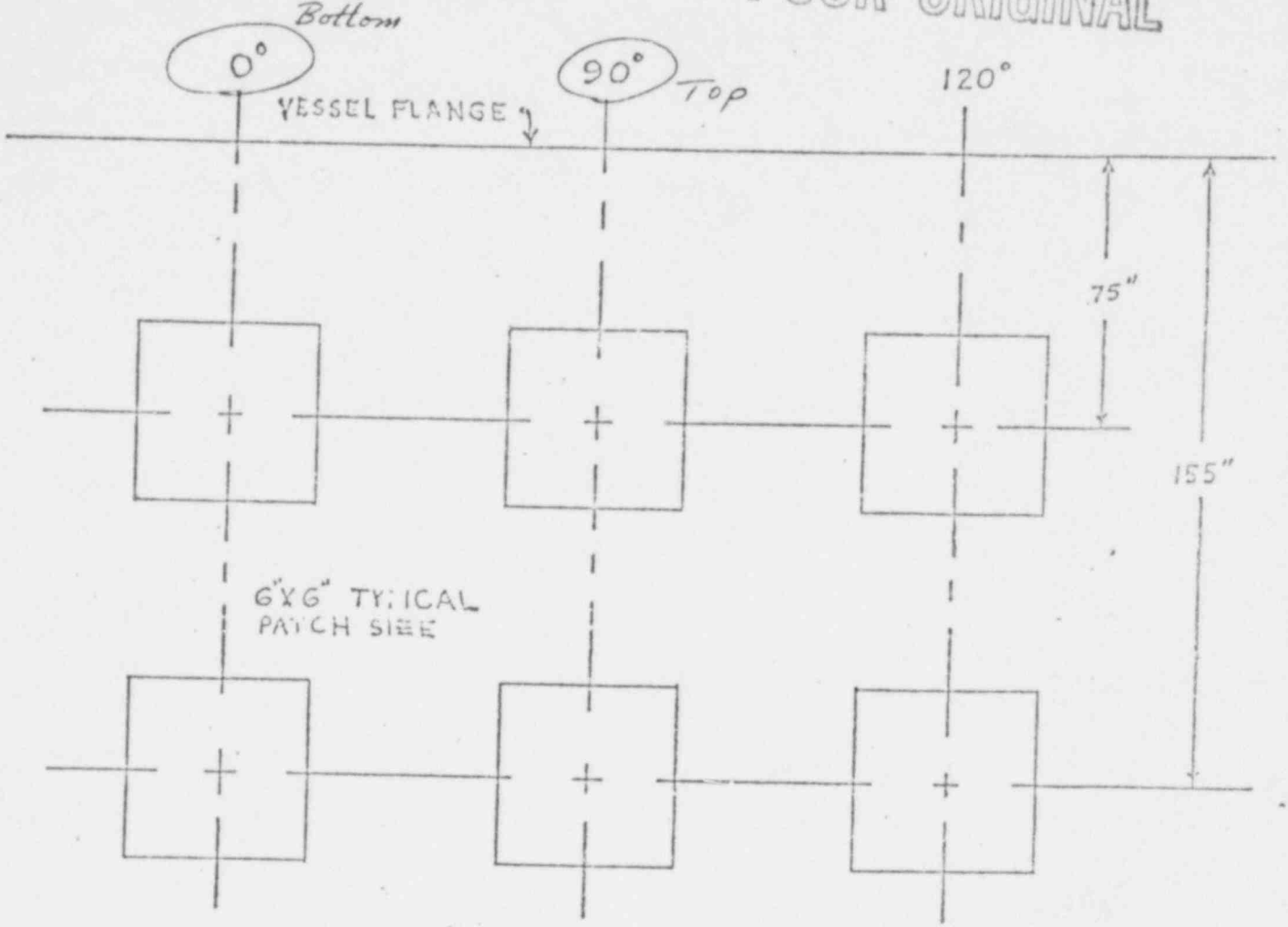


VESSEL HEAD CLOSURE
STUD LOCATIONS

DRWG. H-21

1840 149

LOCATION OF CLADDING PATCHES EXAMINED ON VESSEL INNER WALL



1. Owner Vermont Yankee Nuclear Power Corp., 77 Grove Street, Rutland, Vt. 05701
(Name and Address of Owner)

2. Plant Vermont Yankee Nuclear Power Station, P. O. Box 157, Vernon, Vt. 05354
(Name and Address of Plant)

3. Plant Unit 1 4. Owner Certificate of Authorization DPR-28
(if required)

5. Commercial Service Date 11/30/72 6. National Board Number for Unit None

DRWG. H-24

I - 120

1840 150

SUMMARY REPORT

1.0 INTRODUCTION

This report describes the inservice inspections performed during 1979 at the Vermont Yankee Nuclear Power Station, Vernon, Vermont. The examinations performed are those of the second outage of the second period of the first 10 year interval. The non-destructive examination procedures used for inservice inspection were in accordance with the ASME Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Reactor Coolant Systems," as referenced by the plant technical specifications. The areas subject to examination and the methods used were in accordance with the plant technical specifications. Pressure boundary welds, and integrally welded supports and adjacent base metal were examined as required by Section XI to the extent that the system design and non-destructive testing technology permitted. All limited scans are described in the data. This report summarizes the areas examined, the type of examinations, the results of the test data, evaluations and repairs. Ultrasonic, radiographic, liquid penetrant, magnetic particle, and visual examination techniques were employed to perform the required examinations.

1.1 Examination Methods

Non-destructive examinations were performed in accordance with the procedures contained in the Yankee Atomic Electric Company, Engineering Guidelines, Book III, "Inservice Inspection NDE Procedure" or Vendor Procedures reviewed and approved by

Yankee Atomic Electric Company per the Engineering Department Quality Assurance Manual. The examination procedures were reviewed and approved by personnel qualified to SNT-TC-1A Level III. These procedures conform to the requirements of ASME Section XI (S'75) and the referenced parts of ASME Section V (S'75) except where these editions are in conflict with the technical specification requirements, i.e., for Category B-F and B-J, Section XI S'76 Addenda Appendix III and appropriate Acceptance Criteria. The inservice examinations were performed and evaluated by personnel qualified to the 1975 Edition of SNT-TC-1A.

The procedures used for these examinations are listed in Section 10 of the NIS-1 form.

1.2 Evaluation of Date

The examination results were reviewed at the site by personnel qualified to SNT-TC-1A Level III. Indications were evaluated to the acceptance standards as defined in the Vermont Yankee Nuclear Power Station Technical Specifications.

1.3 Examination Results

Summaries of all the examinations that were performed are contained in Sections 2, 3, and 4 of this report. The detailed examination data along with the calibration record, procedures, equipment certifications and personnel qualifications are maintained at the plant site.

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2.0 SUMMARY OF EXAMINATIONS

This section summarizes the inservice inspection data for the 1979 refueling outage at Vermont Yankee Nuclear Power Station. For clarity, the results are summarized in accordance with the examination categories of Section XI.

2.1 Reactor Vessel Data

Category B-D - Nozzle to Vessel Welds

Ultrasonic examinations were performed on Reactor Vessel Nozzle Inner Radii. The nozzle inner radii examined were:

Recirc Inlet - N-2C, N-2D, N-2G

Main Steam - N-3A, N-3B

Feedwater - N-4A, N-4B, N-4C, N-4D

Core Spray - N-5A, N-5B

CRD Return - N9

The nozzle to vessel welds were examined during the 1978 outage.

Liquid Penetrant Examinations were performed on the feedwater and CRD return nozzle inner radii from the vessel ID. The work was performed by General Electric I&SE to their procedures. No indications were found on the feedwater or CRD return nozzles.

Ultrasonic indications were recorded on the nozzle inner radii as follows:

N2D	2 indications
N4A	2 indications
N4B	7 indications
N4C	4 indications

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N4D	3 indications
N5A	2 indications
N5B	3 indications

Evaluation of the indications recorded by the examiners was performed on full scale, graphic representations of the nozzles.

It was concluded that the majority of indications were from the area of manual cladding over the nozzle to vessel weld. This indicates the roughness of the clad to base metal interface in this area. Evaluation also indicated reflectors appearing in the area of previous grind outs. No indication was seen from two directions (clockwise and counter clockwise scan). It was concluded that there were no indications on the nozzle inner radii. In the case of the CRD and feedwater nozzles, this fact was later confirmed by Liquid Penetrant Examinations.

Category B-F - Nozzle to Safe-End Welds

Three nozzle to safe-end welds on the vessel head were examined using Radiographic, Liquid Penetrant, and Visual techniques. Radiography was used instead of ultrasonic techniques because the geometry did not permit meaningful ultrasonic results.

No indications were found on N-7SE and N6BSE. A visual indication was noted on N-6ASE in the base metal adjacent to the weld. Evaluation of the indication was, "a shallow depression of minimal depth, smoothly blended." It was considered acceptable as found. No further action is required.

The nozzle to safe end weld on the CRD cap was examined as a best effort baseline exam from the nozzle side and a code complying exam on the cap side. The CRD nozzle cap was installed and radiographed per the requirements of ASME Section III NB, during this outage.

The required caliabration block is currently being fabricated. The examination will be performed as soon as possible.

Category B-I-2 - Vessel Cladding

Two 6 x 6 vessel clad areas were visually examined by direct means when the vessel level was lowered for examination of feedwater nozzles. No indications were found.

2.2 Piping Data

Category F - Pipe to Safe-End Welds

Ultrasonic, visual, and liquid penetrant examinations were performed on one (1) pipe to safe-end weld. The examination was performed on RHR - line 28, weld #13. No recordable indications were found.

Category G-2 - Pressure Retaining Bolting Less than 2" Diameter

Pressure relief valve flange to pipe bolting was examined visually on the following main steam line components.

1. Main Steam B
   a. RV-70B - 12 bolts and nuts examined when removed
   b. SR2-71B - 12 bolts and nuts examined in place
2. Main Steam D
   a. SR2-71D - 12 bolts and nuts examined when removed

No recordable indications were found.

Category J - Piping Welds

Fifty-eight (58) piping welds were visually and ultrasonically examined on the following systems:

a.	RHR-A Line 32	6 welds
b.	Feedwater A - Line FDW-19	7 welds
	Line FDW-21	2 welds
c.	Feedwater B - Line FDW-20	2 welds
	Line FDW-18	6 welds
d.	Head Spray - Line RHR-19	11 welds
e.	Core Spray B - Line CS-4A	4 welds
f.	Main Steam A	1 weld
g.	Main Steam B	1 weld
h.	Main Steam C	7 welds
i.	Main Steam D	7 welds
j.	HPSI - Line MS-4A	4 welds
	Total	58 welds

The examinations above included twelve (12) inches of intersecting longitudinal seams where applicable. No recordable indications were found.

Category J - Piping Welds

Two (2) welds were radiographed and visually examined. Radiography was performed because access for proper ultrasonic scanning was not available. The welds examined were F9A, F9B on line RHR-19. No recordable indications were found.

Category J - Branch Connections less than 6"

Branch connection weld #3 on line RHR-32 (RHR-A) was examined using visual and penetrant techniques. No recordable indications were found.

Category K-1 - Integrally Welded Supports

Three (3) integrally welded supports were examined using liquid penetrant and visual examination techniques. The supports were:

a. Feedwater line A support FW-4

b. RHR line A - support RHR-1

c. RHR line B - support RHR-6

No recordable indications were found.

Category K-2 - Non-Integral Supports

Sixteen (16) non-welded hangers and supports were visually examined in the following systems:

a.	Recirc. Risers - RR-36, RR-56, RR-61	3
b.	Recirc Loop A -RR-1	1
c.	Recirc Loop B - RR-65, RR-74, RR-89, RR-93	4
d.	Main Steam A - MS-3	1
e.	Main Steam B - MS-14	1
f.	Main Steam D - MS-32	1
g.	Feedwater B - FW-18, FW-19	2
h.	HPSI - HPSI-2, HPSI-4	2
i.	RCIC - RCIC-2	1
	Total	16

MS-32 on Main Steam D is a hydraulic snummber which was found to have a loose nut. Independently, plant maintenance had identified this

condition and corrected it prior to start-up. The item is considered resolved. Recommendation is provided in maintenance files.

No other recordable conditions were found.

2.3 Piping Welds - Augmented Inspections for IGSCC

Examination of Category J welds for Intergranular Stress Corrosion Cracking (IGSCC) was developed as a result of NUREG-0313 and Vermont Yankee Proposed Change 70 to technical specifications. Proposed Change 70 was submitted on December 29, 1977.

Twenty-two (22) of the Sixty-one (61) welds defined in Category J were examined because of the requirements of the proposed change.

In the two years following the first issue of NUREG-0313, the IGSCC phenomenon has changed its complexion. Therefore, based on internal memorandum addressing these changes, an additional sample of approximately 30 welds was included in the 1979 outage. These additional welds are not included in the Category J paragraphs of this report. All documentation is on file at the plant site.

The examinations of 304 type stainless steel were performed using the EPRI/SWRi techniques. These techniques include the use of dual element, zone focused, 1.5 MHz search units.

2.4 Pumps

Category G-1 - Pressure Retaining Bolting greater than 2" Diameter

Eight (8) bonnet bolts on Recirc Pump P-18-1B (Loop B) were examined ultrasonically in place. No recordable indications were found.

2.5 Valves

Category G-2 - Pressure Retaining Bolting less than 2" Diameter

Visual examination was performed in place on the bolting of 3 valves indicated below. The total bolts numbered 56.

	System	Valve	Bolts/Studs and Nuts
a.	Recirc A	V2-53A	24
b.	Recirc B	V2-43B	24
c.	Feedwater A	V2-27A	8

No recordable indications were found.

3.0 SYSTEM PRESSURE TEST

The reactor coolant system was given a system pressure test at operating pressure per IWB-5221 and Vermont Yankee OP4101. The reactor vessel, recirculation risers and non-isolable portions of the reactor coolant boundary received a system hydrostatic leak test per the requirements of IWB-5222.

The system hydrostatic leak test was performed as required by IWA-4210, which requies a pressure test after welded repairs. The subject repairs were the CRD nozzle cap and the cutting and capping of the instrument lines on recric risers A, D, F, and H.

No leakage (other than normal controlled leakage) was detected in either test.

4.0 CONCLUSIONS

The examinations performed during this outage conclude those required for the second period of the first inspection interval.

There are no unacceptable conditions and no continuing or follow-up items.