



February 16, 2004

L-MT-04-008
10 CFR Part 50.55a(a)

US Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Monticello Nuclear Generating Plant
Docket 50-263
License No. DPR-22

Inservice Inspection Program Fourth Ten-Year Interval Relief Request No. 4

Reference 1) Letter from Nuclear Management Company, LLC to Document Control Desk, "Request for Review and Approval of Relief Requests Associated with Fourth 10-Year Interval Inservice Inspection Examination Plan Submittal," dated December 6, 2002.

In Reference 1 Nuclear Management Company, LLC (NMC) requested NRC approval of relief requests associated with the Monticello Nuclear Generating Plant (MNGP) Fourth 10-Year Interval Inservice Inspection Examination Plan. One of the relief requests contained in Reference 1 was Relief Request Number 4 associated with the Reactor Pressure Vessel (RPV) stabilizer brackets. This letter supercedes NMC's previous request for approval of Relief Request Number 4.

Pursuant to the provisions of 10 CFR 50.55a(a)(3)(ii), NMC hereby requests NRC authorization of the following request for the Fourth Ten-Year Interval of the Inservice Inspection Program.

Four RPV stabilizer brackets are attached to the MNGP RPV. The RPV stabilizers, brackets, and their attachment welds are designed to withstand and resist jet reaction forces and seismic loads while allowing axial and radial movement due to normal thermal growth. These brackets do not provide structural support during normal operation and have never experienced jet reaction or seismic forces. Per American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Category B-K, Item B10.10, each welded attachment (stabilizer brackets to the RPV) would require a surface examination and each weld would require full examination. The bracket locations, interferences, other accessibility issues and the radiological conditions encountered near the RPV results in a high radiological dose to NMC workers. Therefore, NMC has determined that compliance with the ASME code requirement results in a hardship or unusual difficulty without a compensating increase in quality or safety.

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USNRC
Page 2

NMC proposes an alternative to perform a surface examination on the stabilizer bracket attachment welds if jet reaction forces or seismic design loads are experienced. NMC previously received this relief during the 2nd and 3rd ISI 10-year intervals.

NMC requests approval by February 2005 based on preparations for a plant outage in the spring of 2005.

This letter contains no new commitments and no revisions to existing commitments.



Thomas J. Palmisano
Site Vice President, Monticello Nuclear Generating Plant
Nuclear Management Company, LLC

Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Monticello, USNRC
Resident Inspector, Monticello, USNRC
State of Minnesota Boiler Inspector
Hartford Insurance

**MONTICELLO NUCLEAR GENERATING PLANT INSERVICE INSPECTION
RELIEF REQUEST NO. 4**

Reactor Vessel Stabilizer Bracket Welds

ASME CODE COMPONENT AFFECTED

Code Class:	Class 1
Code Subsection:	IWB
Code Examination Category:	B-K, Welded Attachments for Vessels, Piping, Pumps, and Valves
Code Item No.:	B10.10
Parts Examined:	Pressure Vessels, Welded Attachments
Examination Method:	Surface
Examination Frequency:	1st Interval and each Successive Interval
System:	Reactor Pressure Vessel (RPV)
Component Description:	RPV Stabilizer Bracket welds to the RPV
ISI Summary Number	102650
Component ID:	Vsl Stblzr Lugs, (Quantity of 4)
Description of Relief:	Proposed alternative to the Code examination frequency requirements

APPLICABLE CODE EDITION AND ADDENDA

American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 1995 Edition with 1996 Addenda is the base Code of Record for the 4th ISI Interval.

APPLICABLE CODE REQUIREMENT

TABLE IWB-2500-1, CATEGORY B-K, ITEM B10.10, INCLUDING NOTE 2 (Précis)

In each Inspection Interval, each welded attachment and each identified occurrence is required to be examined with a surface examination method (described in IWA-2220).

NOTE (2) The extent of the examination includes essentially 100% of the length of the attachment weld at each attachment subject to examination.

REASON FOR REQUEST

Monticello Nuclear Generating Plant (MNGP) is a General Electric Type 3 Boiling Water Reactor (BWR-3) with a Mark I Containment. The reactor vessel was designed and built to the 1965 Edition of ASME Section III with Summer 1966 Addenda. Piping systems were designed in accordance with the 1967 Edition of USA Standard (USAS) Code for Pressure Piping B31.1.0. "Power Piping." Construction Permit CPPR-31 was issued on June 19, 1967 and full commercial operation began on June 30, 1971.

Plants of this vintage were designed and erected prior to the examination access requirements of ASME Section XI. The Atomic Energy Commission (AEC) mandated the rules of ASME Section XI in 1971 for all nuclear plants with construction permits issued after January 1, 1971, and in 1976, they mandated use of ASME Section XI for all nuclear plants.

10CFR50.55a(g)(1) states *"For a boiling or pressurized water-cooled nuclear power facility whose construction permit was issued before January 1, 1971, components (including supports) must meet the requirements of paragraphs (g)(4) and (g)(5) of this section to the extent practical."*

10CFR50.55a(g)(4) states *"... components (including supports) which are classified as ASME Class 1, Class 2, and Class 3 must meet the requirements, except design and access provisions and preservice examination requirements, set forth in Section XI of editions of the ASME Boiler and Pressure Vessel Code and Addenda ..."* [Emphasis Added]

At MNGP, four RPV stabilizer brackets are attached to the Class 1 RPV with full penetration fillet welds at 0°, 90°, 180°, and 270° RPV azimuth at an elevation of 994'-2". The RPV stabilizers are connected with flexible couplings to the brackets on the RPV and also to the biological shield wall. The RPV stabilizers, brackets, and their attachment welds are designed to withstand and resist local loads (jet reaction forces) and seismic loads while allowing axial and radial movement due to normal thermal growth. The RPV stabilizers brackets do not provide structural support during normal operation. The MNGP RPV has never experienced jet reaction forces or seismic events, therefore the stabilizers, brackets, and attachment welds have not experienced the loads for which they are designed.

The MNGP Mark I primary containment structure, or drywell, is shaped somewhat like an upside-down light bulb. The RPV stabilizer brackets are located in the higher, necked-down elevations of the drywell. This region of the drywell is a very limited access area; it was not designed with the intention of providing access and accommodations normally considered necessary for a general work area.

The area around the stabilizers is extremely congested. The RPV stabilizer brackets are surrounded by mirror insulation that is secured by cable hangers and buckles, ventilation ductwork with support bracing, and electrical installations such as

thermocouples. All of this equipment must be relocated and restored to provide access to the stabilizers for examination of the welds. Additionally, due to the location of the stabilizer brackets and the lack of a working platform at the stabilizer location a complex scaffold installation is required to provide access to the examination location.

The photos and reference drawings attached to this request show the physical obstacles imposed by the design and construction of the primary containment, RPV, ventilation ducting, RPV stabilizers, containment supports, and other interferences. Combined, these obstacles as described below, create an unusually difficult hardship to overcome to provide access for the examination of the stabilizer bracket attachment welds that are specified by the Code.

In the course of scaffold installation and removal, interference removal and restoration, insulation removal and restoration, weld preparation, performance of the examination, and health physics monitoring, NMC personnel would be subjected to significant radiation doses found in the drywell. Dose survey maps taken from the recent refueling outages at this region of containment indicate dose rates in the general area to be 5 - 140 millirem per hour (mrem/hr). It is reasonable to expect that the contact dose rates at the bracket welds would be similar to those experienced at the nearby feedwater (986'-7" elevation) and main steam nozzles (999'-0" elevation). These dose rates range from 20 - 80 mrem/hr in the general nozzle area and 20 - 800 mrem/hr in contact with the components.

NMC estimates indicate that radiation exposure to personnel involved in the activities associated with examination of the four RPV Stabilizer Bracket Welds would result in 21.675 person-rem.

In summary, NMC has determined that:

1. MNGP is not subject to the access requirements of ASME code as described in 10CFR50.55a(g)(4) due to its vintage and design.
2. MNGP design makes access to the RPV stabilizer brackets difficult due to their location, interferences, and surrounding equipment.
3. Radiological dose rate estimates for work activities necessary to perform Code required exams on the RPV stabilizer bracket welds are high due to the general and localized radiation conditions encountered within the MNGP containment.

Therefore, pursuant to 10CFR50.55a(a)(3)(ii), NMC has determined that compliance with the Code requirement would result in hardship or unusual difficulty without a compensating increase in quality or safety

PROPOSED ALTERNATIVE AND BASIS FOR USE

As an alternative to the requirements of the ASME Section XI Code, Table IWB-2500-1, Category B-K, Item B10.10, NMC proposes to perform a surface examination on the stabilizer brackets if local (jet reaction forces) or seismic design loads are experienced.

The stabilizer brackets are located in a very limited access area of the drywell which precludes inadvertent damage to be imparted on the brackets such as rigging, climbing, arc strikes, etc. The RPV stabilizer bracket attachment welds have never experienced loads due to jet reaction forces or seismic events. The stabilizer brackets do not provide support during normal operation.

The NMC therefore concludes that this proposed alternative to the frequency requirements of Table IWB-2500-1, Category B-K, Item B10.10 will provide an acceptable level of quality and safety.

DURATION OF PROPOSED ALTERNATIVE

NMC is requesting relief for the 4th Ten-year Interval of the ISI Program for the Monticello Nuclear Generating Plant.

PRECEDENTS

This relief from the requirements of 10CFR50.55a and alternative to the Code was previously approved for 2nd and 3rd Ten-year Intervals of the ISI program at Monticello:

- NRC Letter, "Monticello - Second Ten-Year Inservice Inspection (ISI) Program," (TAC No. 46510), November 29, 1990, Relief Request No. 51
- NRC Letter, "Evaluation of the Third 10-Year Interval Inservice Inspection Program Plan and Associated Requests for Relief for Monticello," (TAC No. M82545), October 18, 1994, Relief Request No. 2

REFERENCES

See attached photos and drawings

ATTACHMENTS

1. Photo #1 (Multiple components shown in area of RPV Stabilizer Bracket, taken during 2003 refueling outage)
2. Photo #2 (zoomed view of Bracket and nearby components, taken during 2003 refueling outage)
3. Photo #3 (zoomed view of Bracket with ruler, taken during 2003 refueling outage)
4. Photo #4 (view of Bracket, inboard of RPV Stabilizers, taken during 2003 refueling outage)
5. Initial Licensed Operator Training Lesson Plan M-8107L-028, Rev. 9: Reactor Vessel and Assembly
 - Page 10 of 41, Elevation View
 - Page 11 of 41, Overhead View and Side View showing arrangement of Stabilizer Bars/Brackets in relation to Vessel and Bioshield
 - Page 12 of 41, Elevation View showing Mirror Insulation / Insulation Supports with pointer to Bracket Cutouts
6. Plant Drawings
 - NX-7831-49 Rev. 2, Vessel Stabilizer
 - NF-36423 Rev. B, Drywell H&V Plans & Sections between EL. 971'-0" & 1014'-0"
 - NX-7831-112 Rev. D, Vessel Insulation Development
 - NX-7831-241 Rev. D, Mirror Insulation Outline Dimensions
 - NX-8290-53 Rev. 6, Stabilizer Brackets & Top Head Lifting Lugs
 - NX-7831-323 Rev. C, Insulation Arrangement – Upper Vessel
 - NF-36790 Rev. C, Reactor Pressure Vessel Thermocouple Locations & Extension Lead Routing

NOTE: Documents provided herein are provided for the information of the NRC and are not subject to update upon revision.

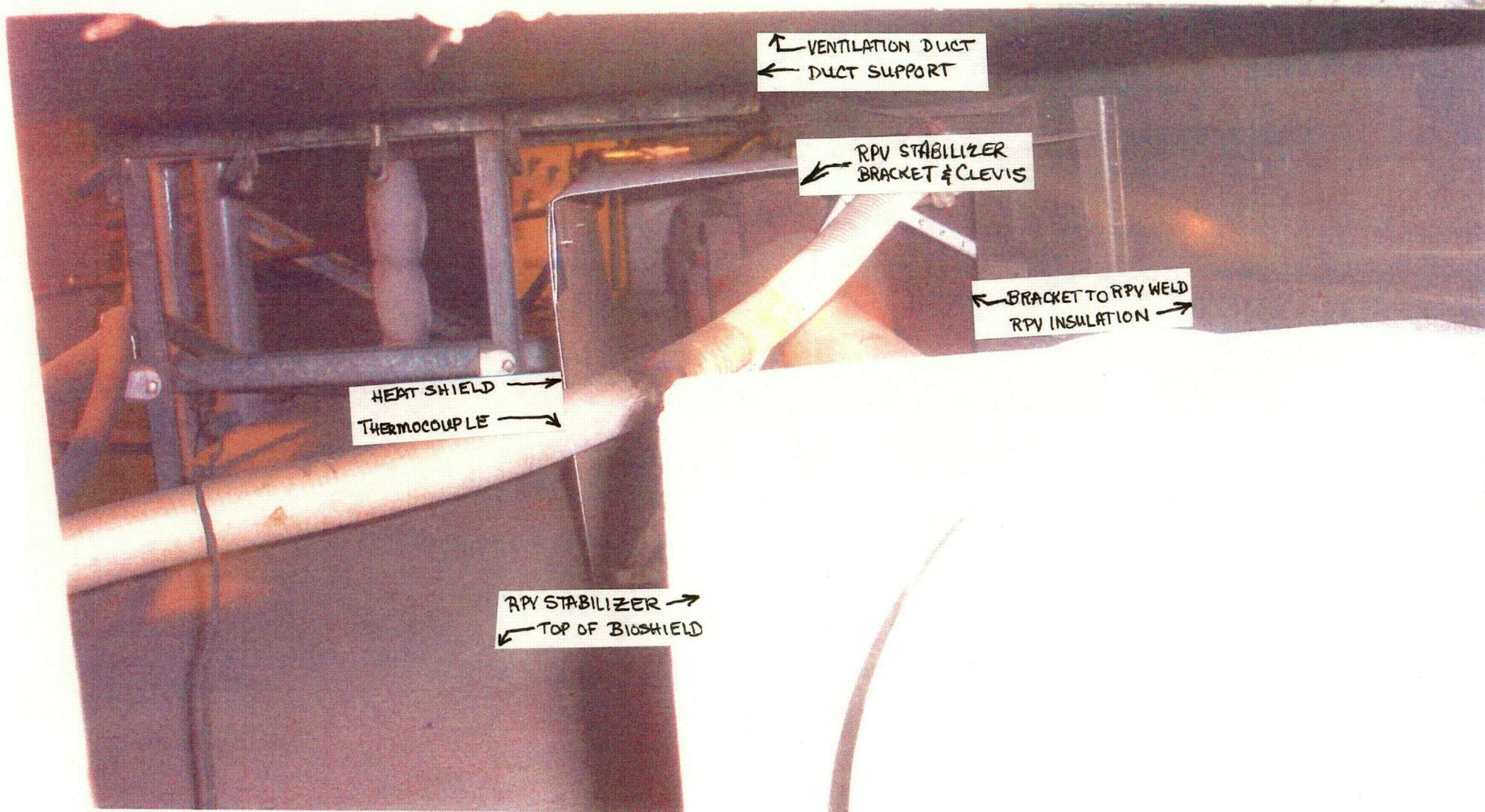


PHOTO #1

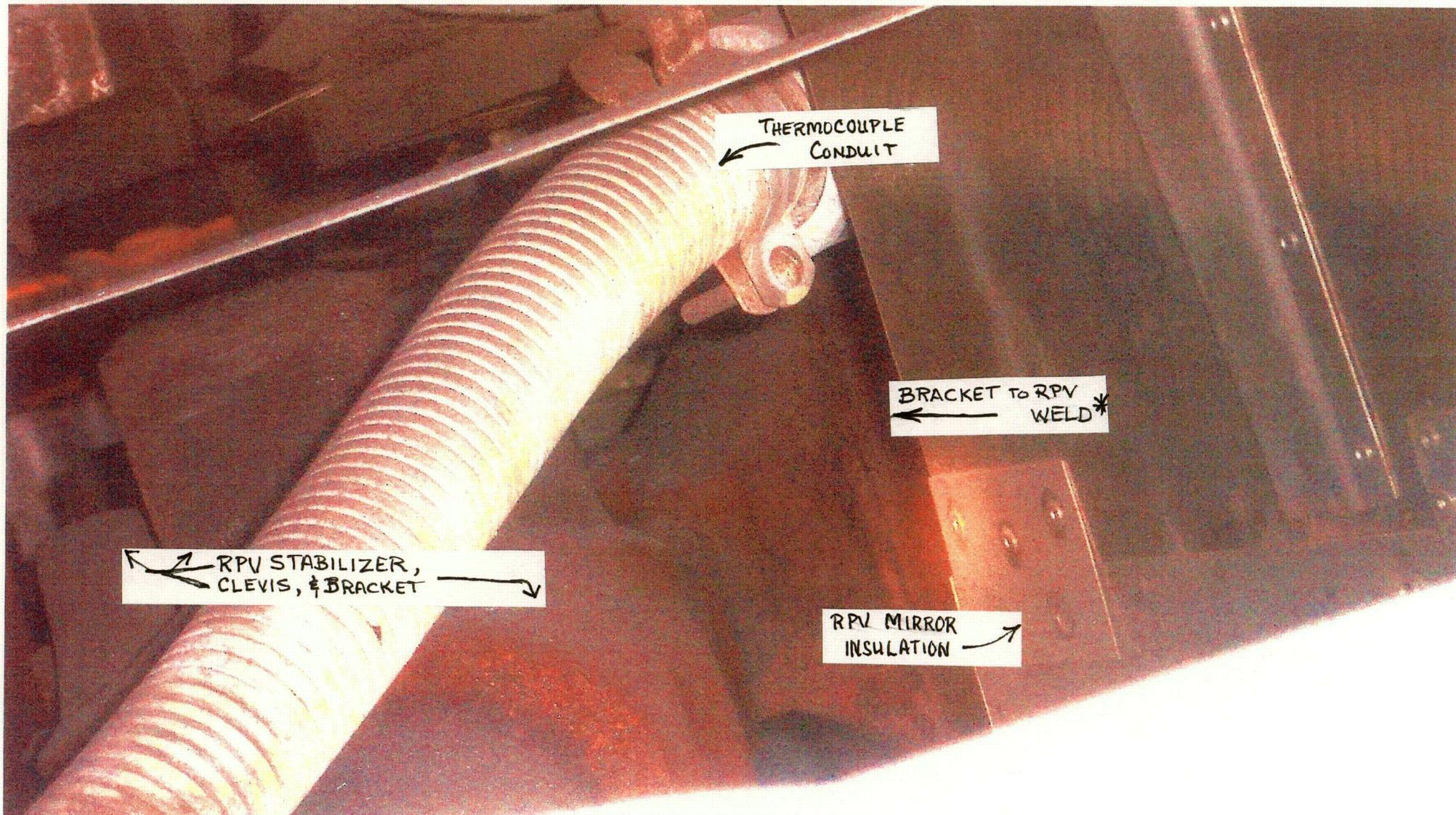
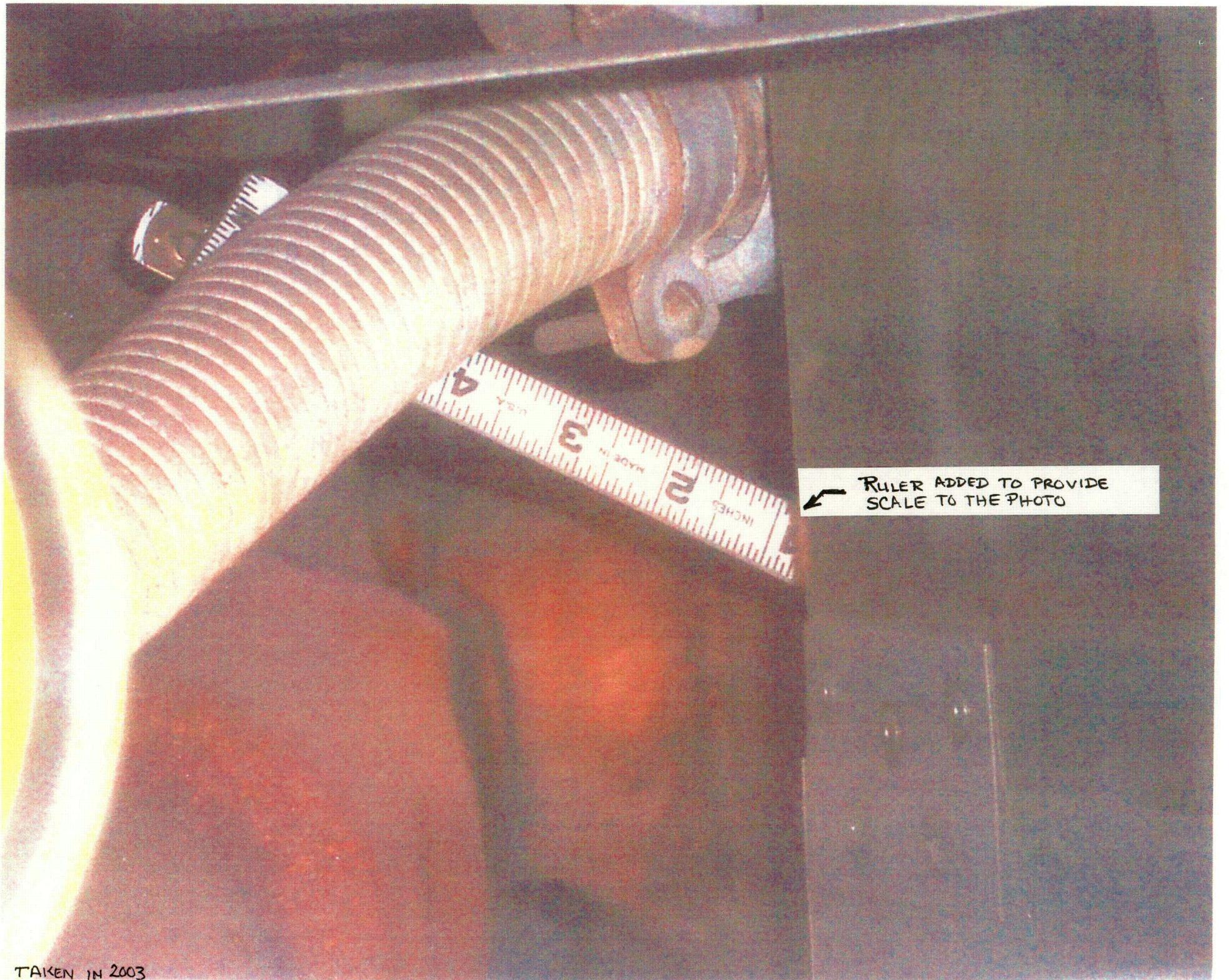
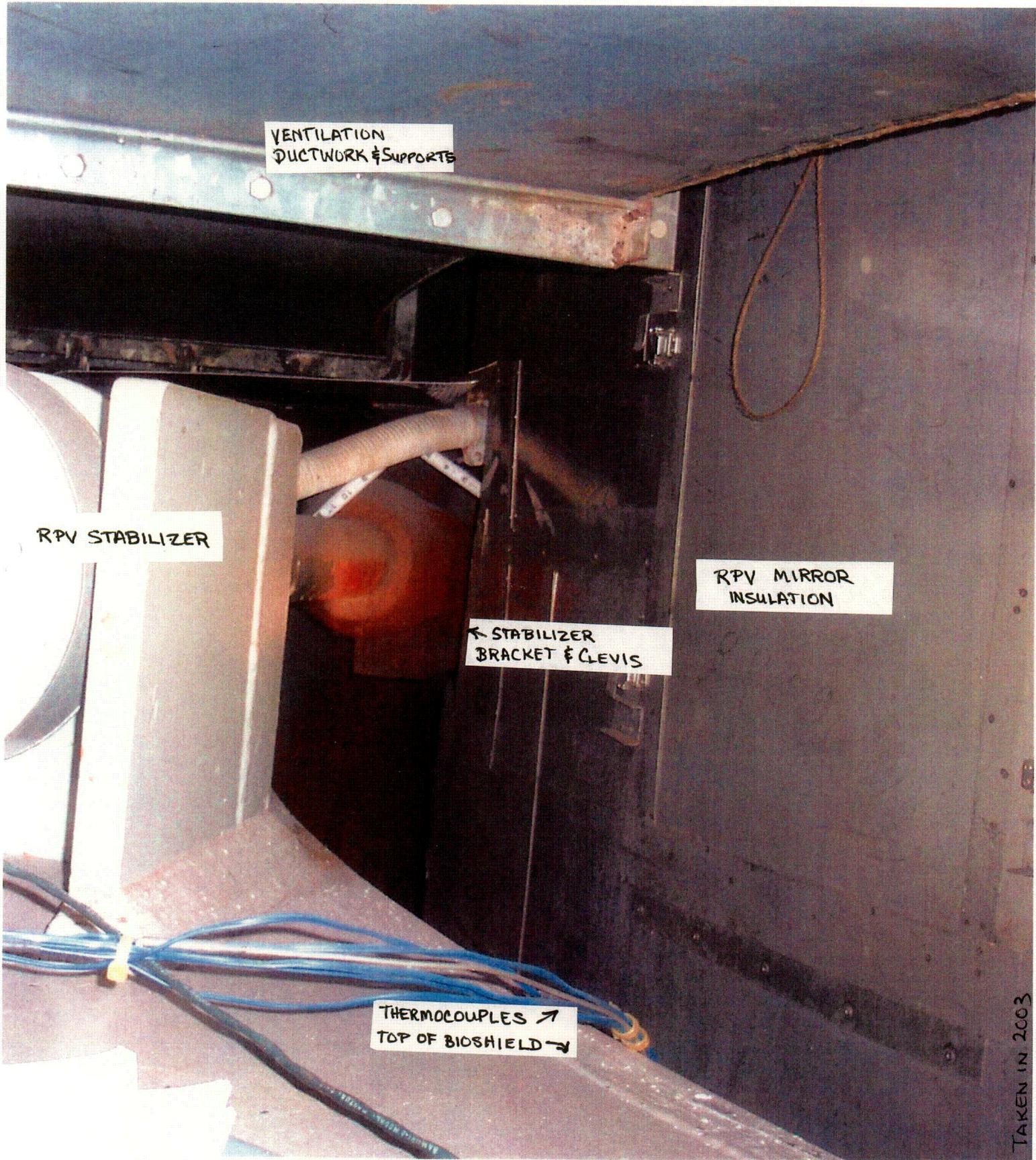


PHOTO #2



← RULER ADDED TO PROVIDE SCALE TO THE PHOTO



VENTILATION
DUCTWORK & SUPPORTS

RPV STABILIZER

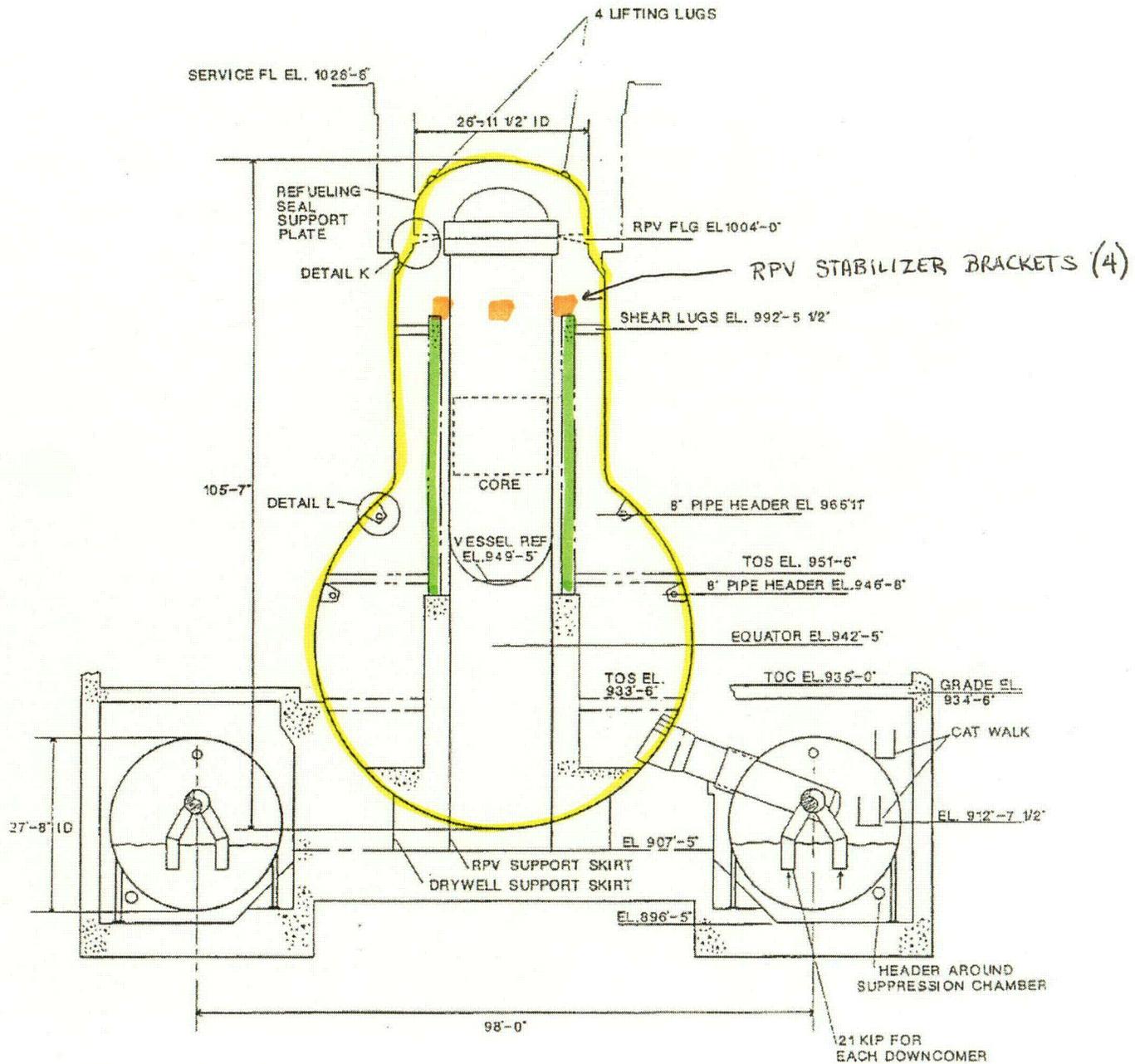
RPV MIRROR
INSULATION

← STABILIZER
BRACKET & CLEVIS

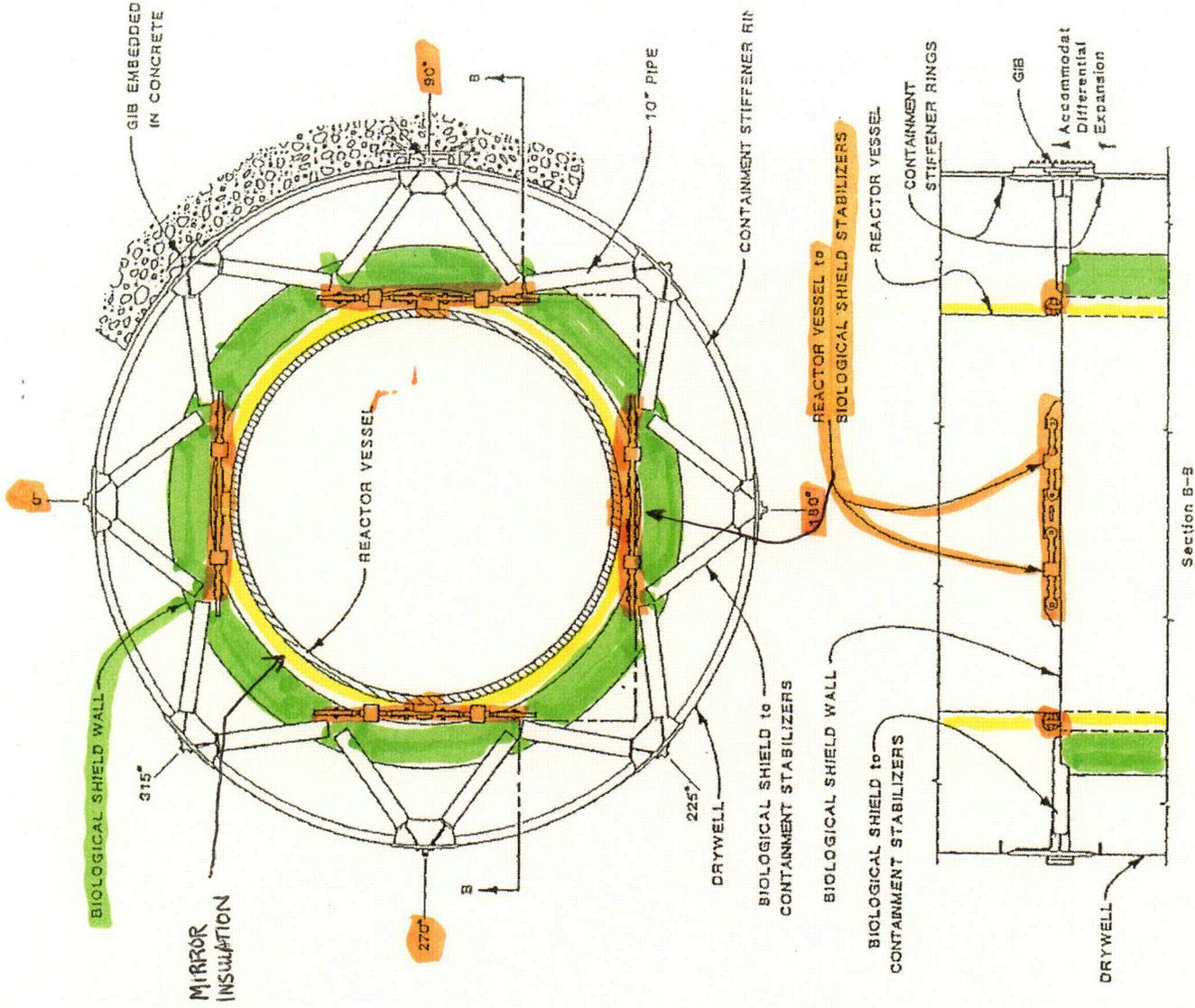
THERMOCOUPLES →
← TOP OF BIOSHIELD

TAKEN IN 2003

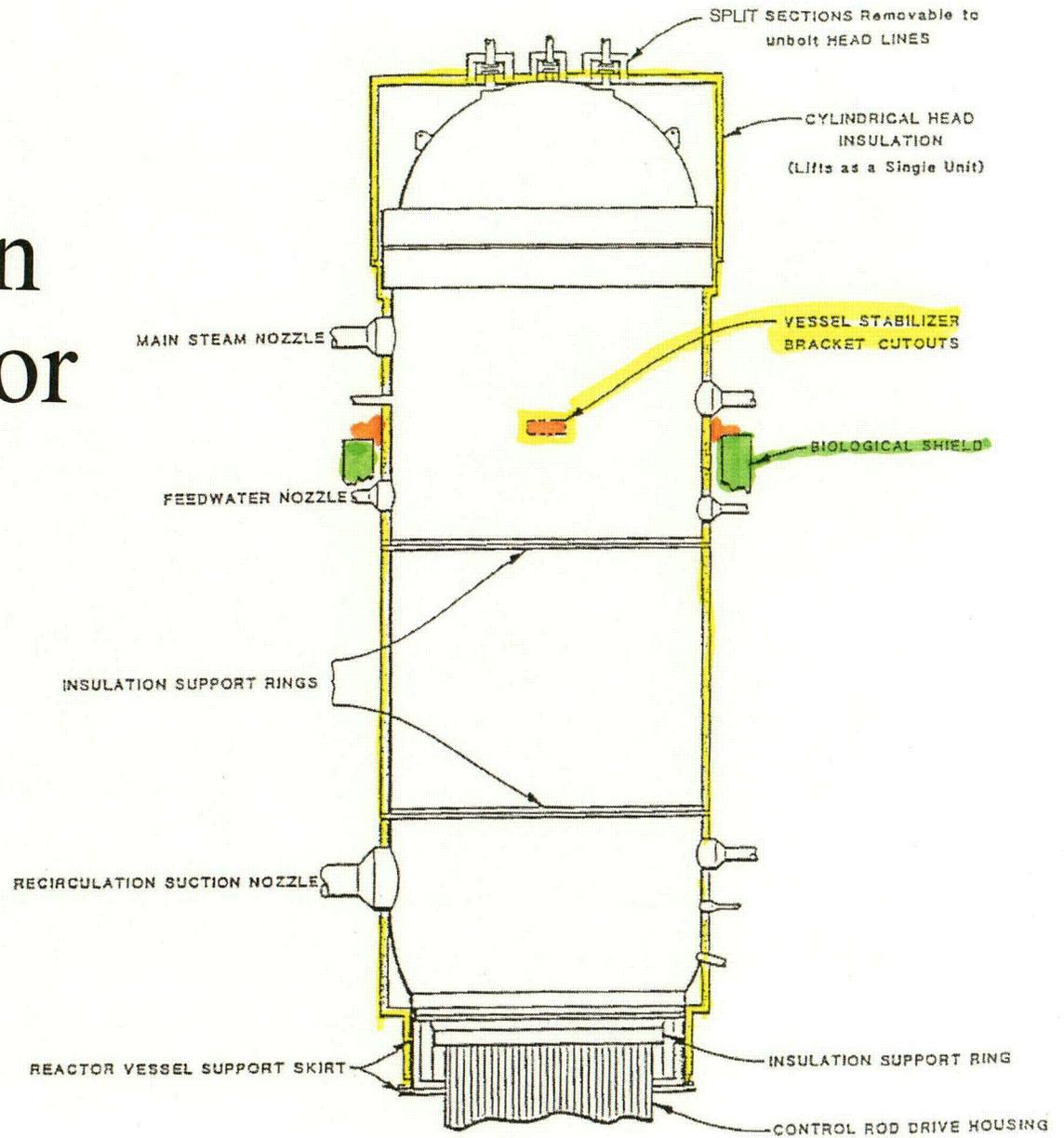
PHOTO #4

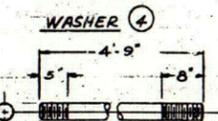
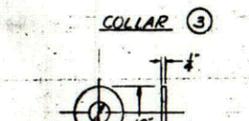
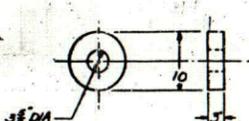
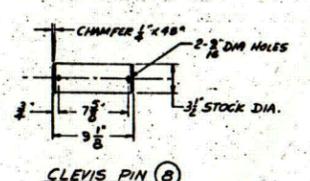
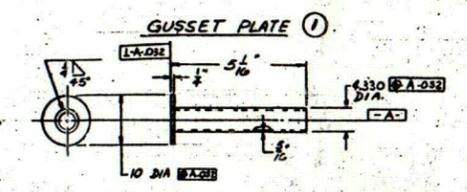
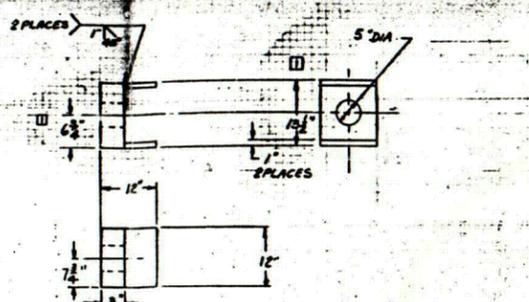
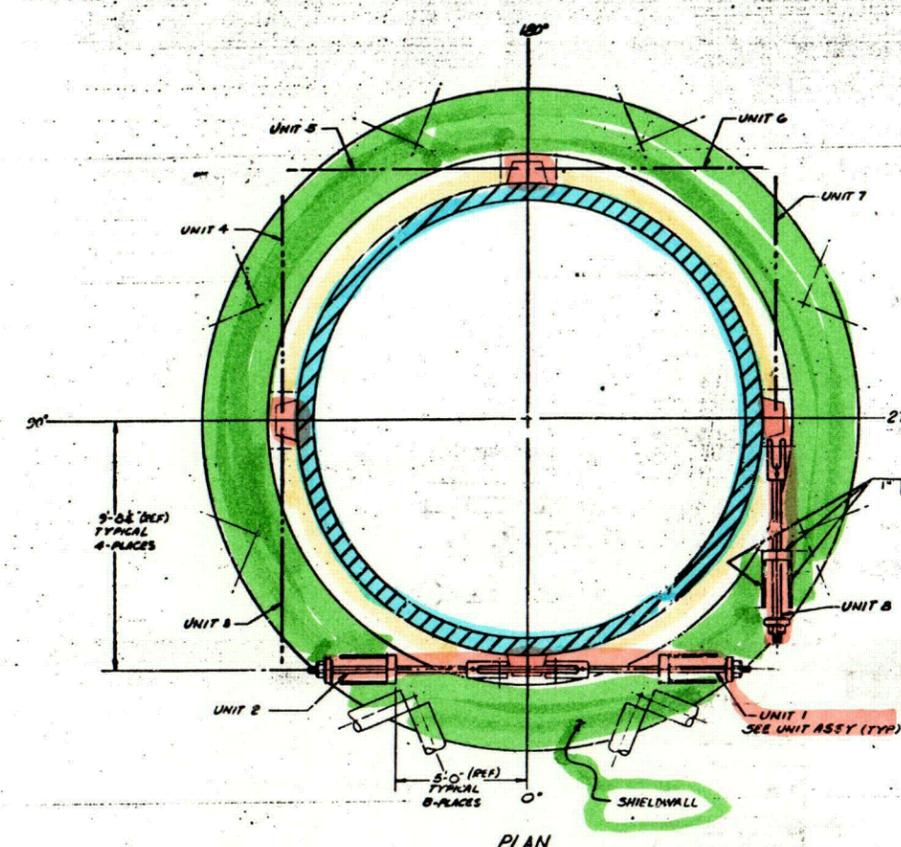


Reactor Vessel Lateral Supports



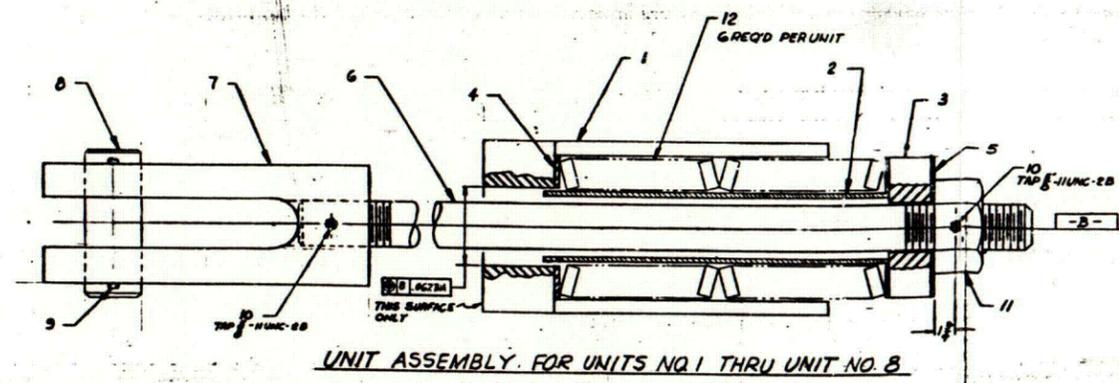
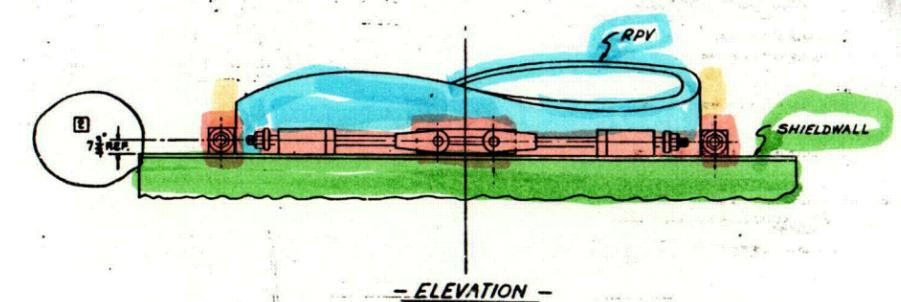
Mirror Insulation on Reactor Vessel





- NOTES:**
- FABRICATION, WELDING & SHOP PAINTING TO BE IN ACCORDANCE WITH AISC STANDARD PRACTICES.
 - INTERNAL SUBSTITUTION OF DEVIATIONS SHALL BE SUBMITTED FOR THE BUYER'S APPROVAL PRIOR TO FABRICATION.
 - NO LUBRICANTS OR GREASE TO BE APPLIED TO PIERCE SPRINGS.
 - DESIGN DATA PER STABILIZER:
 DESIGN LOAD = 500
 PRE-LOAD = 500
 DESIGN WIND LOAD = 500
 THE MAXIMUM STRESS IN ALL COMPONENTS OF THE VESSEL STABILIZERS SHALL NOT EXCEED 150% OF AISC ALLOWABLE STRESS.
 - BREAK ALL SHARP EDGES.
 - PARTS 1, 3, 6 & 11 SHALL BE CLEANED TO REMOVE LOOSE MILL SCALE, RUST, WELD SPALL & DIRT. ALL SURFACES EXCEPT THREADED AREAS SHALL BE GIVEN ONE COAT OF FED. SPEC. TT-300 TYPE 1 OR 2 RED LEAD PRIMER OR APPROVED EQUAL, APPLIED THOROUGHLY AND EVENLY & WELL WORKED INTO JOINTS.
 - BLACK OR EQUAL SINGLE STAGE 5000 TENSIONERS SHOULD BE USED. TENSIONERS SHALL REMAIN THE PROPERTY OF GENERAL ELECTRIC CO.

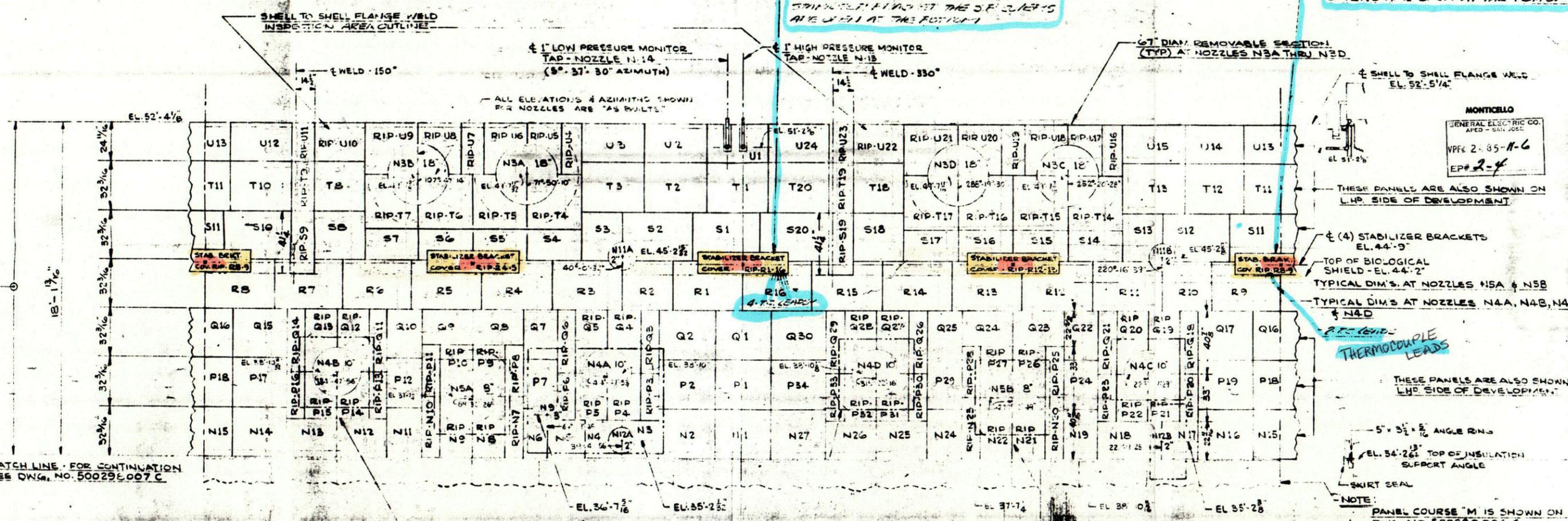
- INSTALLATION AND SETTING PROCEDURE:**
- INSTALL STABILIZER UNIT NO. 1 THRU NO. 8.
 - TAKE OUT ALL SLACK ON ALL UNITS BY HAND TIGHTENING ADJUSTING NUTS.
 - INSTALL TENSIONERS TO STABILIZERS UNITS 1 & 2.
 - APPLY PUMP PRESSURE EVENLY TO BOTH TENSIONERS FROM A SINGLE PUMP SOURCE TO THE REQUIRED RESIDUAL LEAD OF 90° IN ORDER TO ACHIEVE THIS, THE TENSIONERS MFR INSTRUCTIONS SHOULD BE FOLLOWED.
 - HAND TIGHTEN ADJUSTING NUT & RELEASE TENSIONERS.
 - REMOVE TENSIONERS FROM STABILIZER UNITS 1 & 2 AND INSTALL ON STABILIZER UNITS 5 & 6.
 - PERFORM STEPS 4 & 5.
 - REMOVE TENSIONERS FROM STABILIZER UNIT 5 & 6 AND INSTALL ON STABILIZER UNITS 3 & 4.
 - PERFORM STEPS 4 & 5.
 - REMOVE TENSIONERS FROM STABILIZER UNITS 3 & 4 AND INSTALL ON STABILIZER UNITS 7 & 8.
 - PERFORM STEPS 4 & 5.
 - REMOVE TENSIONERS FROM STABILIZER UNITS 7 & 8.
 - AFTER 24 HOURS STRESS-RELAXATION REPEAT STEPS 3 THRU 12 TO CHECK RESIDUAL LEAD AND ADJUST IF REQUIRED.
 - SPOT DRILL DRAWBAR PT. 6 AND LOCK SET SCREW PT. 10.





A LEAD TO 330° THERMOCOUPLES TO PENETRATE OUT THRU THE 11x60" CUT-OUT PROVIDED FOR STABILIZER BRACKET. THE S.E. COVERS N12 OPEN AT THE BOTTOM.

2 LEADS TO 170° THERMOCOUPLES TO PENETRATE OUT THRU THE 11x60" CUT-OUT PROVIDED FOR STABILIZER BRACKET. THE S.E. COVERS N12 OPEN AT THE BOTTOM.



MONTICELLO GENERAL ELECTRIC CO. APED - 3411 JES VPK 2-85-11-6 EP# 2-4

THESE PANELS ARE ALSO SHOWN ON L.H.D. SIDE OF DEVELOPMENT.

(4) STABILIZER BRACKETS EL. 44'-9"

TOP OF BIOLOGICAL SHIELD EL. 44'-2" TYPICAL DIM'S. AT NOZZLES N5A & N5B

TYPICAL DIM'S AT NOZZLES N4A, N4B, N4C & N4D

5" x 3 1/2" x 1/2" ANGLE RING EL. 54'-2 1/2" TOP OF INSULATION SUPPORT ANGLE

SKIRT SEAL

NOTE: PANEL COURSE "M" IS SHOWN ON DWG. NO. 500298007C

REF. DWGS: CHICAGO BRIDGE & IRON CO. DWGS: CONTR. NO. 9-5624 DWG. # 1, 5, 8, 9, 10, 15, 36, 47 G.E. CO. DWGS: # 719E401 & 886D482 MIRROR INSUL. DWGS: # 500298007C

GRADUATION FOR DEGREES AT INSULATION O.D. (708.8255" CIRCUMFERENCE (59'-0 1/4") = 1.9689" INCHES PER DEGREE)

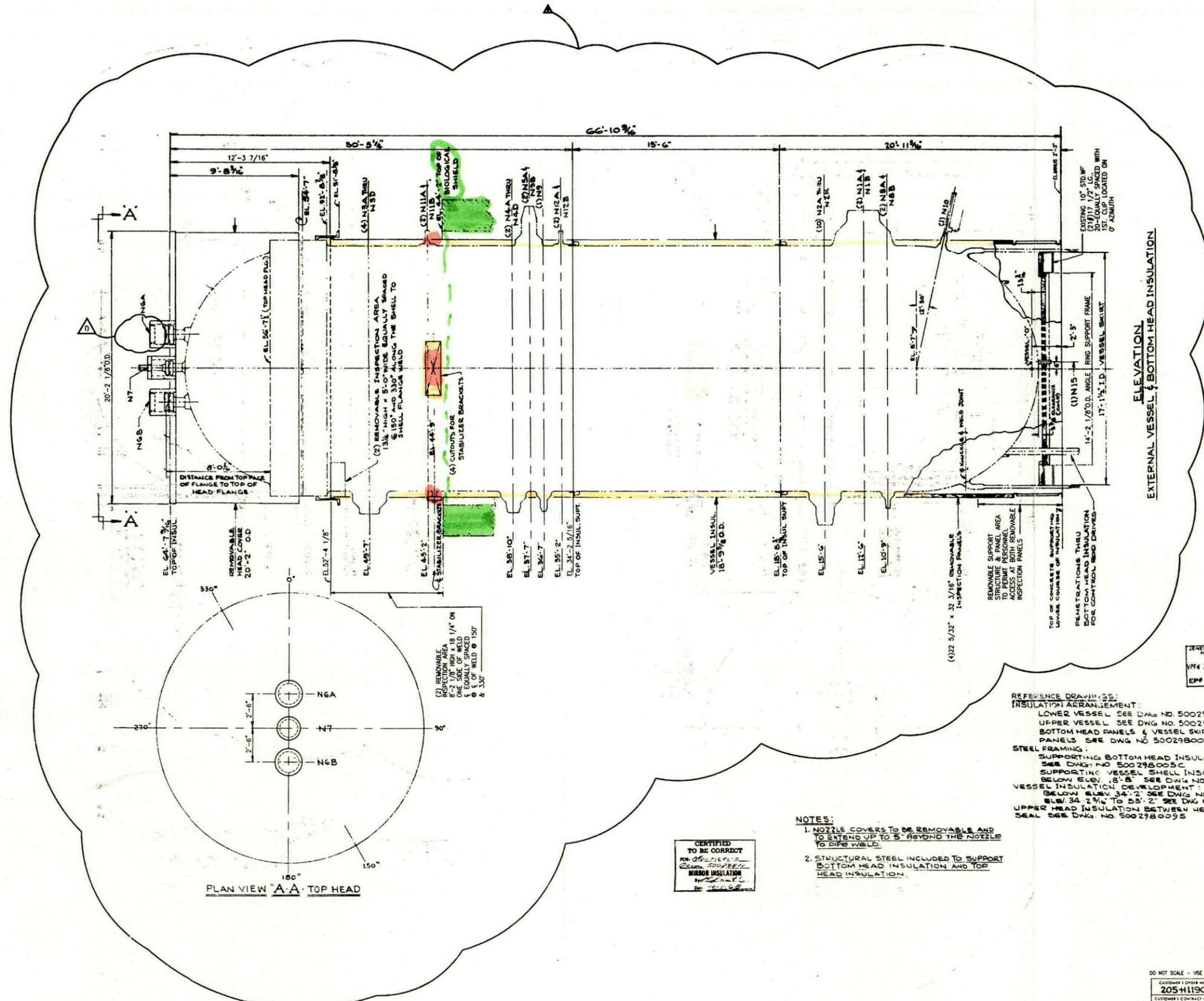
0° AZIMUTH

NOTES: 1. R.I.P. - REMOVABLE INSPECTION PANEL. 2. ALL R.I.P.S ARE PROVIDED WITH BUCKLES AND CABLE HANGERS. 3. ALL ELEVATIONS ON THIS DWG. ARE FROM VESSEL "O"

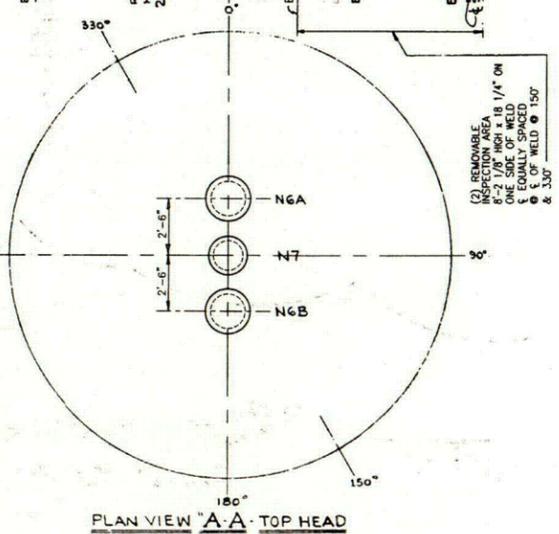
Project information block including: VESSEL INSULATION DEVELOPMENT - ELEV. 52'-4 1/2" FOR G.E. NUCLEAR REACTOR - MONTICELLO VESSEL UNIT; MIRROR INSULATION; DIAMOND POWER SPECIALTY CORPORATION; CUSTOMER'S ORDER NO. 205-H1190; CUSTOMER'S CONTRACT NO. 500298007C; DATE: JUNE 5, 1985; DRAWN BY: CWS; CHECKED BY: JFS; SCALE: 1" = 1'-0"; SHEET NO. 500298007C.

Revision table with columns for DATE, REVISIONS, BY, and CHECKED. It lists several revisions to the drawing, including updates to panel lines and nozzle details.

REVISIONS
 AS-BUILT
 REVISED TO REFLECT
 THE RHR HEAD SPRAY
 SPOOL PIECE REMOVAL
 MODIFICATION
 ENHANCEMENTS INDICATED
 BY
 PER DRR: MO-03-0108
 DWN: JJC 9-28-03
 CHK: JJC 10/14/03
 MOD: 020295
 FILED: 11.24.03



ELEVATION
EXTERNAL VESSEL BOTTOM HEAD INSULATION



PLAN VIEW "A-A" TOP HEAD

CERTIFIED
 TO BE CORRECT
 FOR THE
 MIRROR INSULATION
 BY
 [Signature]

- NOTES:
1. NOZZLE COVERS TO BE REMOVABLE AND TO EXTEND UP TO 5' BEYOND THE NOZZLE TO PIPE WELD.
 2. STRUCTURAL STEEL INCLUDED TO SUPPORT BOTTOM HEAD INSULATION AND TOP HEAD INSULATION.

REFERENCE DRAWINGS:
 INSULATION ARRANGEMENT:
 LOWER VESSEL SEE DWG NO. 500298002C
 UPPER VESSEL SEE DWG NO. 500298003C
 BOTTOM HEAD PANELS & VESSEL SKIRT FLAT PANELS SEE DWG NO. 500298004C
 STEEL FRAMING:
 SUPPORTING BOTTOM HEAD INSULATION SEE DWG NO. 500298005C
 SUPPORTING VESSEL SHELL INSULATION BELOW ELEV. 18'-8" SEE DWG NO. 500298006C
 VESSEL INSULATION DEVELOPMENT BELOW ELEV. 34'-2" SEE DWG NO. 500298007C
 ELEV. 34'-2 3/4" TO 35'-2" SEE DWG NO. 500298008C
 UPPER HEAD INSULATION BETWEEN HEAD & BELLOW SEAL SEE DWG NO. 500298009S

GENERAL ELECTRIC: PG
 448 2485-2-4
 EP# 2-4

DO NOT SCALE - USE DIMENSIONS ONLY

CUSTOMER ORDER NO. 205-H1190
 CUSTOMER CONTRACT NO. 500298N
 DRAWING NUMBER 500298001C

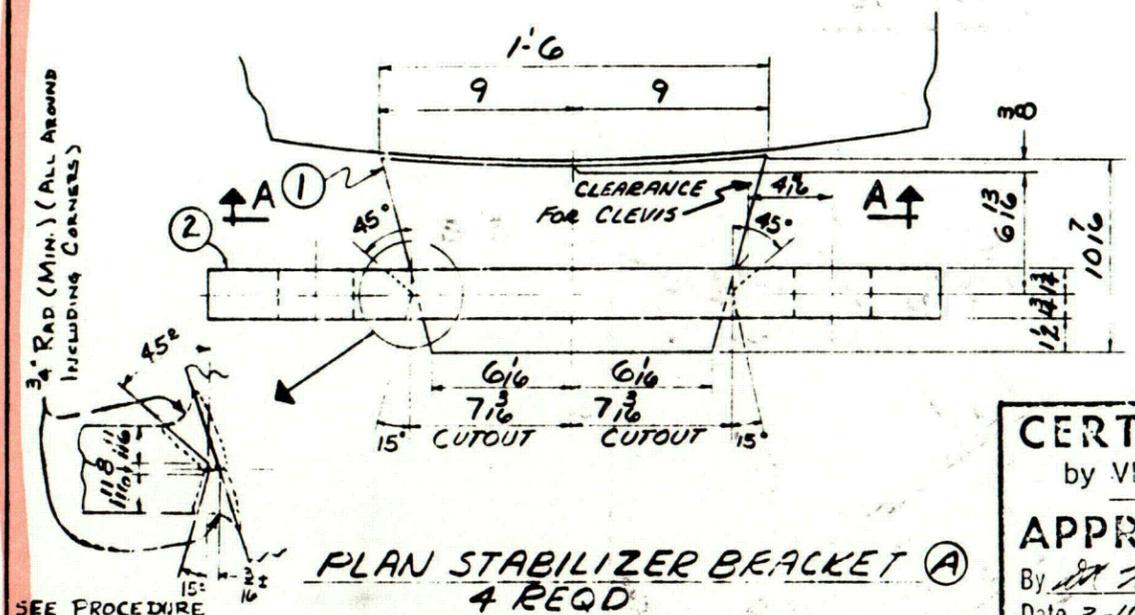
DIAMOND POWER SPECIALTY CORPORATION
 LANCASTER, OHIO

GROUP 1 2 3 4 5
 SIGNIFICANT NUMBER: 8700 -- -- 1
 MONTICELLO NUCLEAR GENERATING PLANT
 MIRROR INSULATION OUTLINE DIMENSIONS

NORTHERN STATES POWER COMPANY
 MINNEAPOLIS

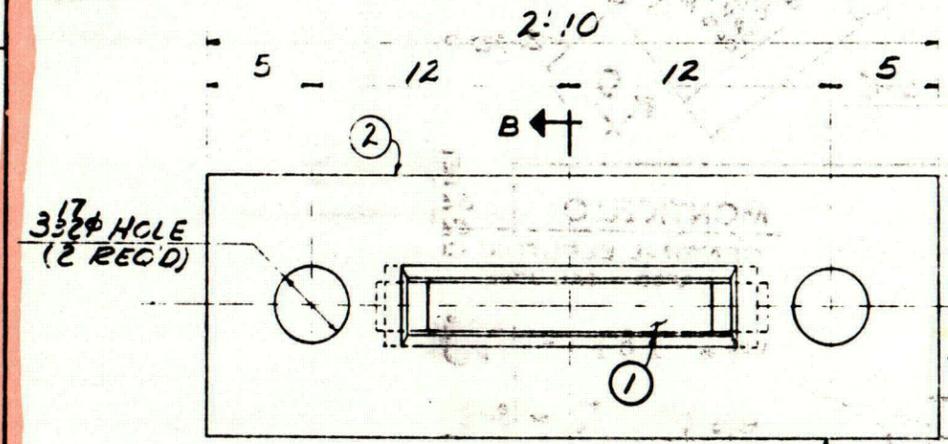
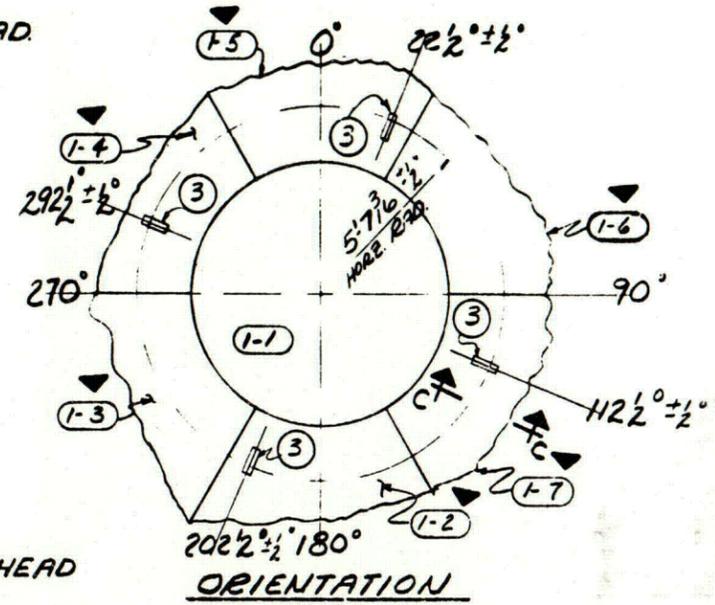
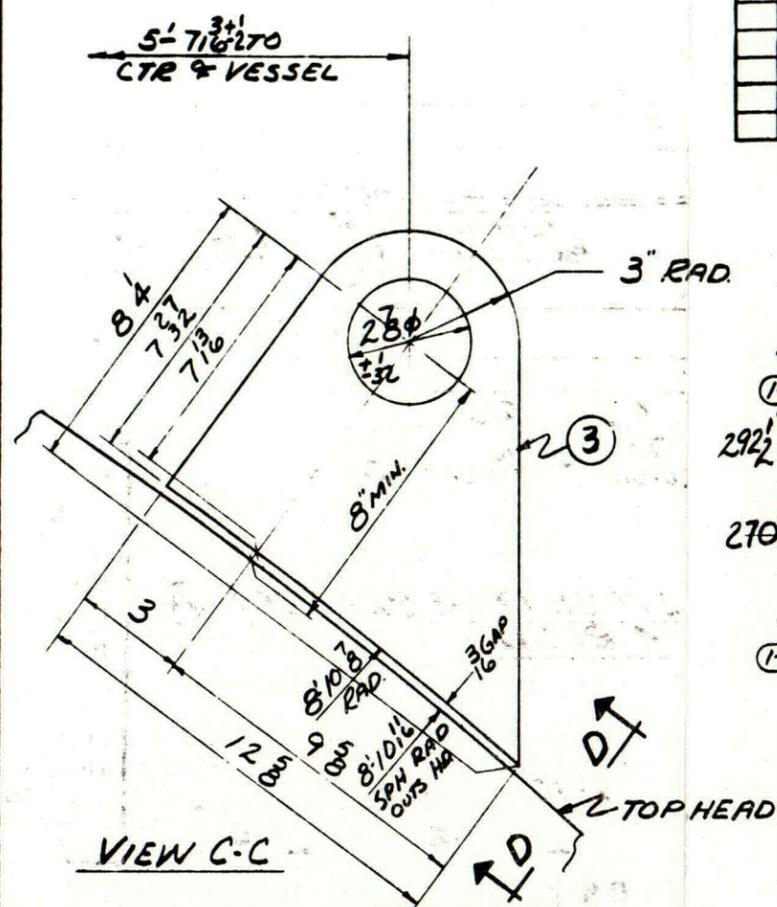
SCALE: 3/8"=1'-0"
 NX-7831-241

QTY	MARK	AMT.	DESCRIPTION	LENGTH	SPEC.
PC		PC		FT.	
ATTACH TO HD RES					
47.3	4	R-3Kx3	(4x L.O. 18" DIA. HOLES) (DRILL 2 3/8" HOLES)		ASST. CL. GR. 2-10
47.A	4	STABILIZER BRACKET			ASST. CL. GR. 2-10
47.1	4	R-5Kx3 1/2	(10 1/2" x 1-6 3/4")		ASST. CL. GR. 2-10
47.2	4	R-12x3 1/2	(W/ HOLES)	2	10 Do

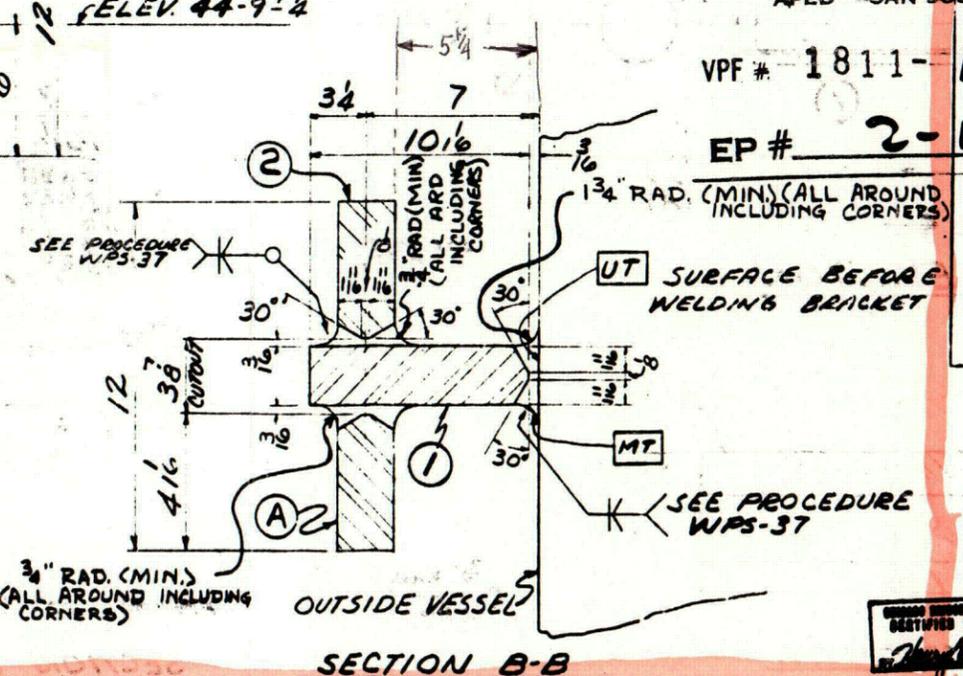
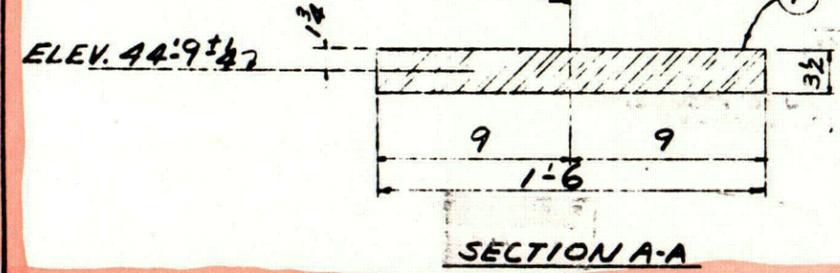


SEE PROCEDURE WPS-37

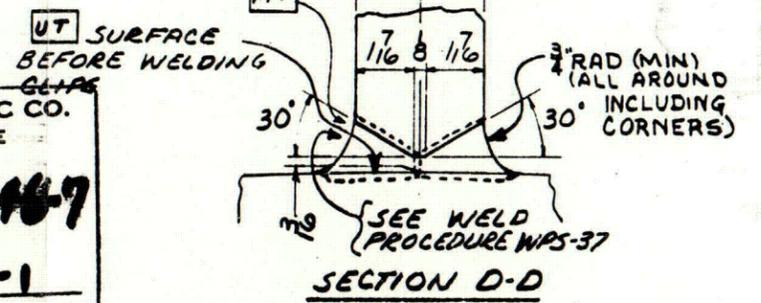
CERTIFIED
by VENDOR
APPROVED
By [Signature]
Date 3-16-68
FOR
ATOMIC POWER EQUIP. DEPT.
SAN JOSE, CALIFORNIA
ENGINEERING PLANNING
ENGINEERING SECTION



NOTE:
AT AZIMUTHS
0°, 90°, 180°, & 270° ± 0.9°
(0.9° = 32% OUTS. & SHELL)



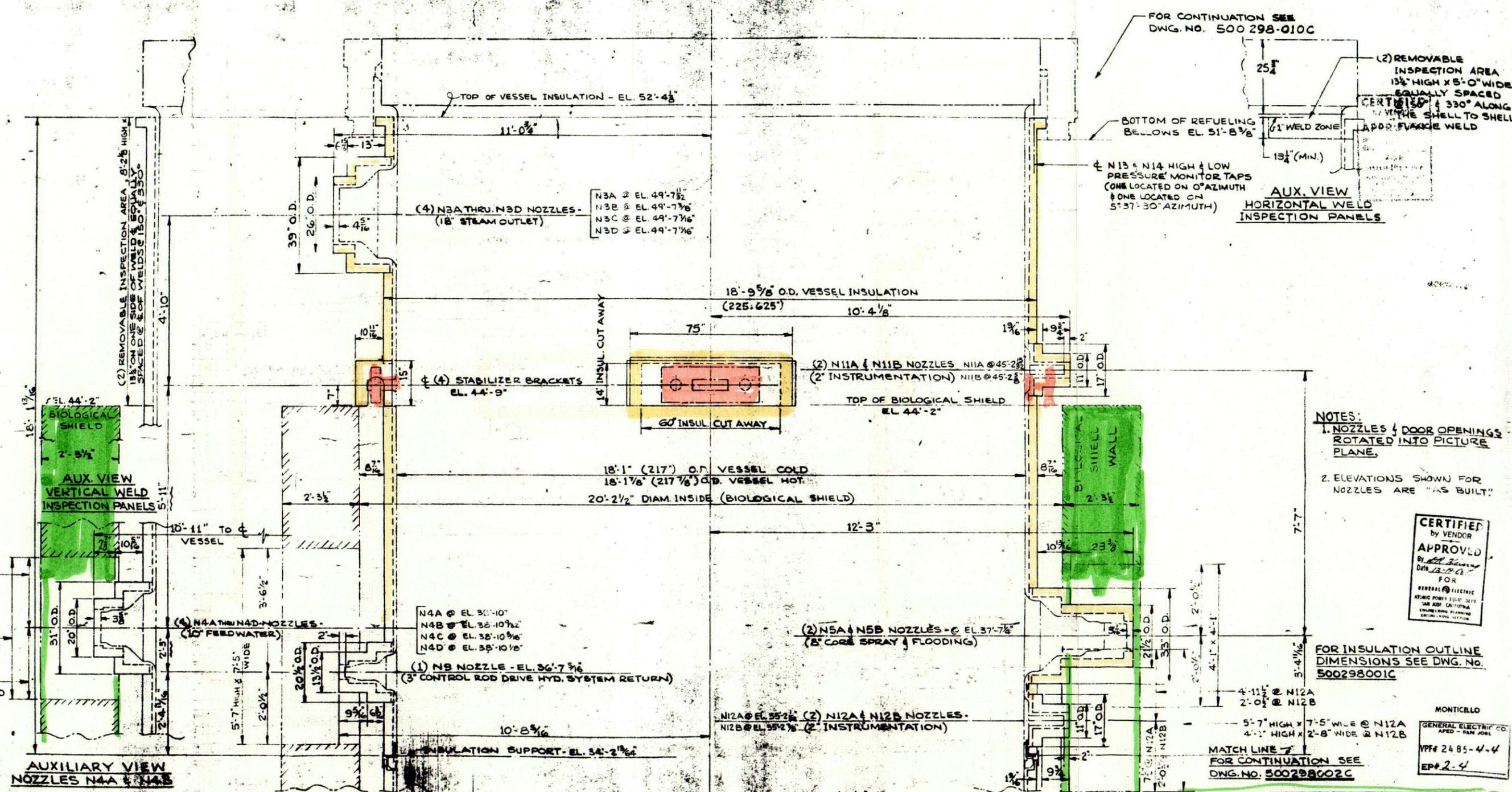
MONTICELLO
GENERAL ELECTRIC CO.
APED - SAN JOSE
VPF # 1811-1167
EP # 2-1-1



TOP HEAD LIFTING LUGS (3)

CHICAGO BRIDGE & IRON COMPANY
BIRMINGHAM, ALA.
STABILIZER BRACKETS
& TOP HEAD LIFTING LUGS
FOR 17.2 I.D. NUCLEAR REACTOR FOR
GENERAL ELECTRIC CO. NORTHERN
STATES POWER CO. MONTICELLO MINN.
PURCHASER'S NO. 808-38310 CONTRACT NO.
DRAWN BY [Signature] DATE 1/25/67 9-5624
CHECKED BY [Signature] DATE 2/10/67
ENGINEERING COORDINATOR [Signature] DWG NO. 47 REV 6

NX 8290-53



FOR CONTINUATION SEE
DWG. NO. 500 298-010C

(2) REMOVABLE INSPECTION AREA
13 1/4\"/>

BOTTOM OF REFUELING BELLOWS EL. 51'-8 3/8\"/>

1\"/>

13 1/4\"/>

AUX. VIEW
HORIZONTAL WELD
INSPECTION PANELS

φ N13 & N14 HIGH & LOW PRESSURE MONITOR TAPS
(ONE LOCATED ON 0° AZIMUTH & ONE LOCATED ON 5°-37'-30\"/>

EL. 44'-2\"/>

BIOLOGICAL SHIELD

AUX. VIEW
VERTICAL WELD
INSPECTION PANELS

NOTES:

1. NOZZLES & DOOR OPENINGS ROTATED INTO PICTURE PLANE.
2. ELEVATIONS SHOWN FOR NOZZLES ARE "AS BUILT"

CERTIFIED
by VENDOR
APPROVED
By *[Signature]*
Date 12-6-60
FOR
GENERAL ELECTRIC
ATOMIC POWER EQUIPMENT
CONSTRUCTION DIVISION
ENGINEERING DEPARTMENT

FOR INSULATION OUTLINE
DIMENSIONS SEE DWG. NO.
500298010C

MONTICELLO
GENERAL ELECTRIC CO.
APED - SAN JOSE
VP# 2485-4-4
EP# 2-4

INSULATION ARRANGEMENT - UPPER VESSEL
FOR
GE NUCLEAR REACTOR - MONTICELLO VESSEL UNIT

CERTIFIED
TO BE CORRECT
FOR MONTICELLO
ORDER 500298N
INSULATION
By *[Signature]*
Date 12-6-60

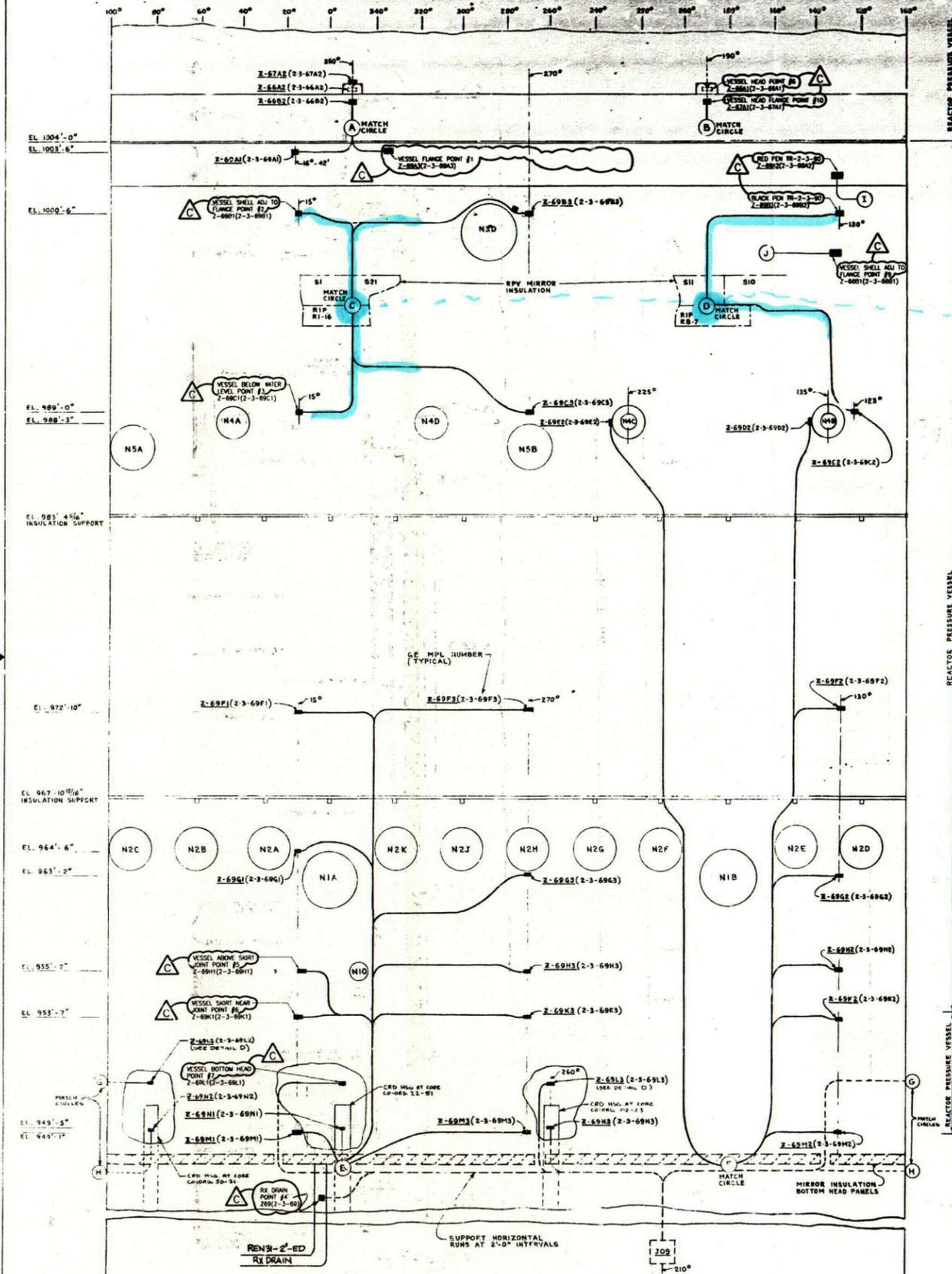
SCHMATIC ELEVATION VIEW

NO.	REVISION	DATE	BY	CHK.	APP.	DATE	REVISIONS	BY	CHK.	APP.
1	ISSUE FOR CONSTRUCTION	12-6-60	[Signature]	[Signature]	[Signature]					
2	REVISED TO SHOW INSULATION SUPPORT	12-6-60	[Signature]	[Signature]	[Signature]					

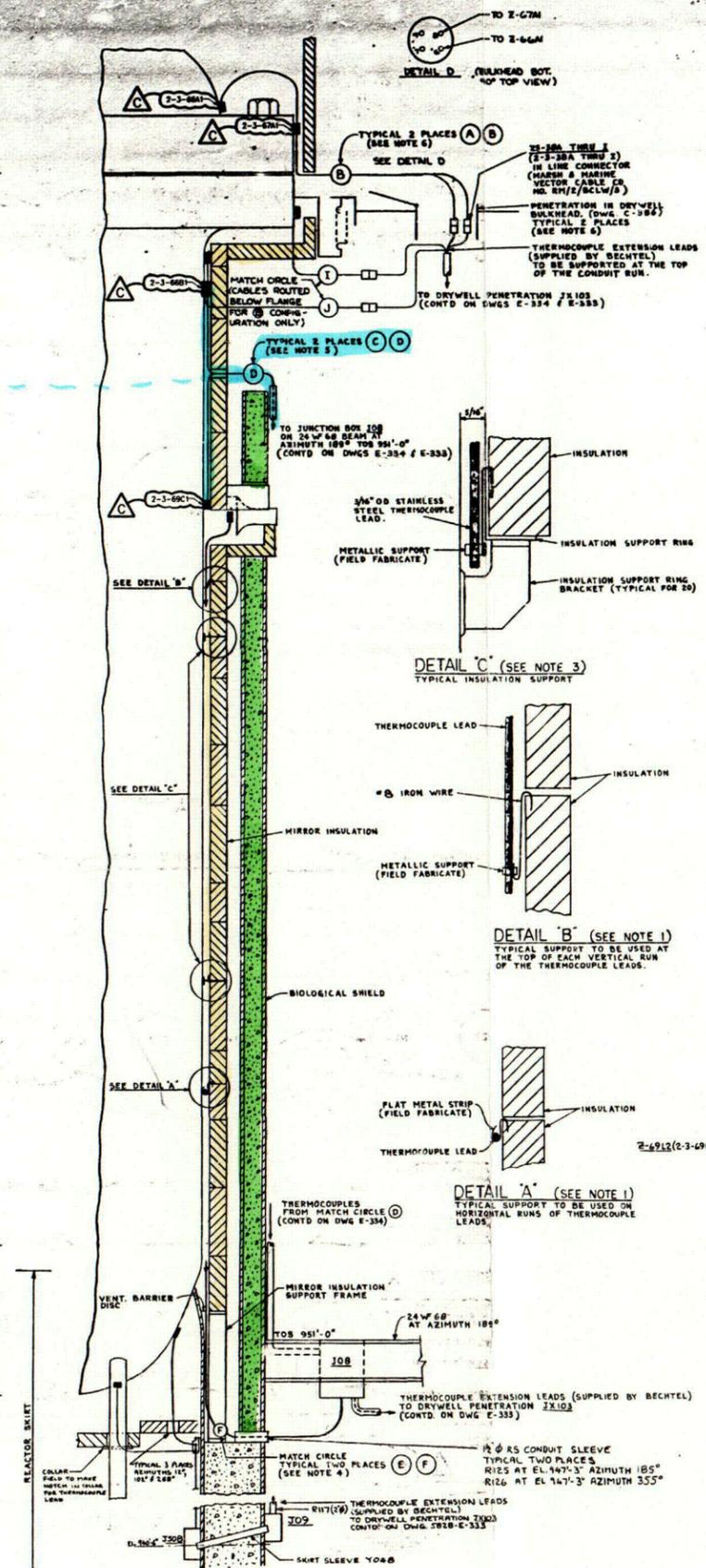
CUSTOMER'S ORDER NO. 205-11190
CUSTOMER'S CONTRACT NO. 500298N
DIAMOND'S ORDER NO. 500298N

DATE: 12-6-60
SCALE: 1/8\"/>

INSULATION
DX-7831-32
POWER SPECIALTY CORPORATION
LABORERS ONLY



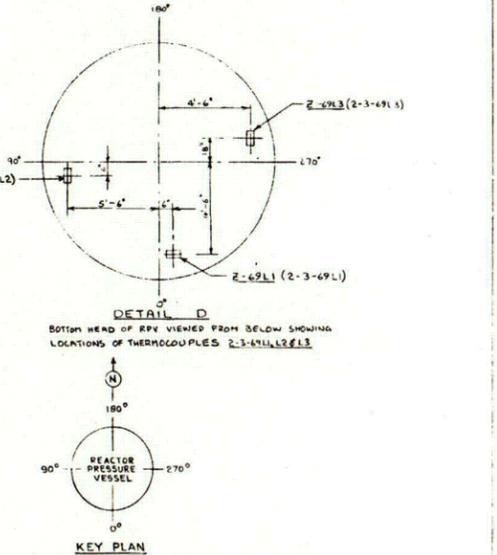
ROLLOUT VIEW
 REACTOR PRESSURE VESSEL THERMOCOUPLE LOCATIONS & EXTENSION LEAD ROUTING
 SCALE - NONE



COMPOSITE SECTION
 SCALE - NONE

- NOTES:**
1. THE SUPPORTS SHOWN IN DETAIL 'A' FOR HORIZONTAL RUNS OF THERMOCOUPLE LEADS ARE TO BE USED AT 2'-0" INTERVALS.
 2. THE SUPPORTS SHOWN IN DETAIL 'B' FOR VERTICAL RUNS OF THERMOCOUPLE LEADS ARE TO BE USED AT THE TOP OF EACH VERTICAL RUN.
 3. ALL THERMOCOUPLES ROUTED BEHIND THE INSULATION SUPPORTS SHOWN IN DETAIL 'C' ARE TO BE SUPPORTED AT THESE POINTS. SUITABLE LAMPS ARE TO BE FABRICATED IN THE FIELD.
 4. THERMOCOUPLES ON FEEDWATER NOZZLES AND BELOW ARE ROUTED IN TWO CONDUITS THROUGH BIOLOGICAL SHIELD WALL. THERMOCOUPLE LEADS AT MATCH CIRCLE (D) PASS THROUGH CONDUIT AT AZIMUTH 355° ELEVATION 947'-3" TO JUNCTION BOX J07. THERMOCOUPLE LEADS AT MATCH CIRCLE (E) PASS THROUGH CONDUIT AT AZIMUTH 185° ELEVATION 947'-3" TO JUNCTION BOX J08.
 5. THERMOCOUPLES ABOVE FEEDWATER NOZZLES BUT BELOW REFUELING BELOWS SEAL ARE ROUTED TO TWO PENETRATIONS IN THE MIRROR INSULATION. THERMOCOUPLE LEADS AT MATCH CIRCLE (C) PASS THROUGH PENETRATION CENTERED IN THE JOINT BETWEEN INSULATION PANELS S21 AND RIP R1-18 AND ARE ROUTED TO JUNCTION BOX J07. THERMOCOUPLE LEADS AT MATCH CIRCLE (D) PASS THROUGH PENETRATION CENTERED ON THE JOINT BETWEEN INSULATION PANELS S12 AND RIP R2-5 TO JUNCTION BOX J08.
 6. THERMOCOUPLES ABOVE REFUELING BELOWS SEAL ARE ROUTED TO TWO PENETRATIONS IN THE DRYWELL BULKHEAD. THERMOCOUPLE LEADS AT MATCH CIRCLE (A) ARE ROUTED TO A PENETRATION LOCATED AT AZIMUTH 190°. THERMOCOUPLE LEADS AT MATCH CIRCLE (B) ARE ROUTED TO A PENETRATION LOCATED AT AZIMUTH 190°.
 7. GROUPS OF EXTENSION LEADS FOLLOWING A COMMON ROUTING SHALL BE BUNDLED TOGETHER FOR MUTUAL SUPPORT. BANDING SHALL BE DONE AT SUITABLE INTERVALS ALONG THE RUN AND AT JUNCTIONS WITH OTHER LEADS.
 8. THE THERMOCOUPLES COMPLETE WITH 3/16" OD STAINLESS STEEL LEADS AND THE IN-LINE CONNECTORS ARE SUPPLIED BY GE. SEE GE MFL # 2-3.
 9. THE STAINLESS STEEL THERMOCOUPLE LEADS ARE FURNISHED CUT TO LENGTH TO DRYWELL BULKHEAD PENETRATIONS AS APPLICABLE.
 10. POINT NUMBERS SHOWN ON THE DRAWING REFER TO INPUTS OF TR-2-3-13.

- REFERENCE DRAWINGS:**
1. CB #1 DWG NO. 46, CONTRACT NO. 9-5624 - THERMOCOUPLE PADS (FP NO. 5828-CBI-CI-56)
 2. CB #1 DWG NO. 38, CONTRACT NO. 9-5624 - SHELL INSULATION SUPPORTS (FP NO. 5828-CBI-CI-52)
 3. CB #1 DWG NO. 39, CONTRACT NO. 9-5624 - GENERAL ARRANGEMENT (FP NO. 5828-CBI-CI-84)
 4. CB #1 DWG NO. 1, CONTRACT NO. 9-5624 - GENERAL PLAN (FP NO. 5828-CBI-CI-1)
 5. E-124, SM-3 SCHEMATIC DIAGRAM, RPV THERMOCOUPLES
 6. E-333 - REACTOR BLOC - DRYWELL CONDUITS & TRAYS ABOVE EL. 931'-6"
 7. E-334 - REACTOR BLOC - DRYWELL CONDUITS & TRAYS ABOVE EL. 951'-6"
 8. GE DWG 729 E 890 - ELEM. DIAG. - REACTOR VESSEL TEMPERATURE MONITOR (FP-5828-APED-ZD-4)
 9. DRAWING POWER DIV. 500298002C - INSULATION AREA BOTTOM HEAD PANELS & RPV (FP-5828-APED-ZD-3)
 10. DRAWING POWER DIV. 500298002L - INSULATION AREA - LOWER VESSEL (FP-5828-APED-ZD-2)



KEY PLAN

REVISIONS

REVISION 1: REVISION TO REFLECT AS FOUND CONDITION. ADDED MORE INFORMATION PER DWH M0 96-75. DWH: H111 b 23-96. CHN: MOD. FILED: *chabe*