NMC
Committed to Nuclear Excellence

Kewaunee Nuclear Power Plant
Operated by Nuclear Management Company, LLC

September 30, 2004

NRC-04-115
10 CFR 50.55a

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

KEWAUNEE NUCLEAR POWER PLANT
DOCKET 50-305
LICENSE No. DPR-43

Response To Request For Additional Information Related To Technical Letter Report on Fourth 10-Year Interval In-service Inspection Request for Relief for Nuclear Management Company, LLC

References 1) Letter from Thomas Coutu (NMC) to Document Control Deck (NRC), "In-service Inspection Program for Fourth Inspection Interval", dated December 16, 2003.

2) E-mail from Carl F. Lyon (NRC) to Gerald O. Riste - "Request For Additional Information Regarding Fourth Interval In-service Inspection (ISI) Relief Requests", Dated September 14, 2004.

In reference 2, the Nuclear Regulatory Commission (NRC) staff requested additional information concerning the Fourth 10-Year In-Service Inspection Interval Request for Relief for Nuclear Management Company, LLC (NMC). This letter is NMC's response to the NRC's request for additional information (RAI).

Enclosure 1 to this letter contains the questions, with the responses, the NRC staff requested.

A047

N490 Highway 42 • Kewaunee, Wisconsin 54216-9510
Telephone: 920.388.2560

Summary of Commitments

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

I declare under penalty of perjury that the foregoing is true and correct.
Executed on September 30, 2004.

Thomas Coutu
Site Vice-President, Kewaunee Nuclear Power Plant
Nuclear Management Company, LLC

Enclosure (9)

cc: Administrator, Region III, USNRC
Project Manager, Kewaunee Nuclear Power Plant, USNRC
Senior Resident Inspector, Kewaunee Nuclear Power Plant, USNRC
Electric Division, PSCW

ENCLOSURE 1

# TECHNICAL LETTER REPORT
# REQUEST FOR ADDITIONAL INFORMATION
# ON FOURTH 10-YEAR INTERVAL INSERVICE INSPECTION
# REQUESTS FOR RELIEF
# FOR
# NUCLEAR MANAGEMENT COMPANY, LLC
# KEWAUNEE NUCLEAR POWER PLANT
# DOCKET NUMBER 50-305

## 1. SCOPE

*By letter dated December 16, 2003, the licensee, Nuclear Management Company, LLC, (NMC) submitted several requests for relief from the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI,"Rules for In-service Inspection of Nuclear Power Plant Components". The requests are for the fourth 10-year interval in-service inspection (ISI) program at Kewaunee Nuclear Power Station (Kewaunee), in which NMC adopted the 1998 Edition, through 2000 Addenda, of ASME Section XI as the Code of record.*

*In accordance with 10 CFR 50.55a(a)(3)(i), the licensee has proposed alternatives for certain requirements contained in ASME Section XI. The licensee's proposed alternatives must provide an acceptable level of quality and safety, as compared with Code. For alternatives proposed in accordance with 10 CFR 50.55a(a)(3)(ii), the licensee must show there is a hardship or burden associated with performing the original requirement, and that no compensating increase in quality or safety would occur, even if the original requirement is performed. For requests for relief submitted on the basis of impracticality in accordance with 10 CFR 50.55a(g)(5)(iii), the licensee must provide a basis to demonstrate the impracticality.*

*The staff reviewed the information submitted by the licensee, and based on this review, requires the following information to determine if the licensee's alternatives meet the Regulation and to complete the evaluation.*

## 2. REQUEST FOR ADDITIONAL INFORMATION

### 2.1 Request for Relief RR-1-1, Exemption from Volumetric Testing of Pressurizer Surge Nozzle Inner Radius P-IR7

*2.1(a) In RR-1-1, the licensee requested relief in accordance with 10CFR50.55a(g)(5)(iii); based upon the argument that Code nozzle inner radius volumetric examinations are impractical at their facility. However, the licensee has not presented adequate information to support a determination that the required examinations are impractical (not simply inconvenient) to perform to the extent required by the Code. This information should include drawings, or other physical descriptions, of the component examination areas, including examination coverage(s), weld cross-sections, etc. necessary to support the request. In addition, the licensee should submit argument(s) as to why the use of other methods would not reasonably increase the examination coverage(s). The drawings should show the configuration of the nozzle and the material compositions in this region. In addition, please further clarify why large grains in carbon steel cast material and the presence of inner surface cladding, as cited by the licensee, present difficulties with this examination.*

**NMC Response to 2.1(a):**

The drawing in Enclosure 2, XK100-310-4, shows the configuration of the KNPP pressurizer surge nozzle, insulation and location of the 78 heater penetrations.

The main concern in performing the examination, are those listed on relief request RR-1-1, items 3.c, 3.d, and 3.e, which are:

3.c Access restrictions caused by the pressurizer heater penetrations and associated wiring. Due to the complex work on and around the heater penetrations, there is a possibility of damaging this equipment and a potential to adversely impact the outage duration due to scheduling conflicts.

3.d Difficulty in removal and replacement of insulation around the heater penetrations and wiring.

3.e Increased personnel exposure to radiation and high cost of examination.

*2.1(b) The staff believes, based on the brief description included, that the nozzle is integrally cast into the pressurizer bottom head. If this is the case, there is no nozzle-to-shell weld at this location, which will be a consideration and may mitigate certain regulatory requirements for the examination of the nozzle inner radius. State whether the nozzle is integrally cast or if there is a nozzle-to-shell weld at this location that is also required to be volumetrically examined.*

**NMC Response to 2.1(b):**

KNPP pressurizer surge nozzle is integrally cast with the pressurizer; thus, there is no nozzle to vessel shell weld to be performed. Reference enclosure 3, M-1200 drawing.

In review of industry operability assessments, KNPP has found no examples of pressurizer nozzle inner radius failures.

*2.1(c) Increased personnel exposure is listed as a hardship associated in performing this examination. Clearly define the radiation dose rates near the component, the specific activities required, and the exposures expected for this examination.*

**NMC Response to 2.1(c):**

Exposure in the general area of the pressurizer surge line nozzle inner radius at the bottom of the pressurizer is 50 mR to 300 mR. The estimated time for the examination of pressurizer nozzle inner radius, P-IR7, would include for the area at the bottom of the pressurizer:

| | | | |
|---|---|---|---|
| Insulation removal: | 3 men | X | 8 hours |
| Inner radius prep: | 2 men | X | 1 hour |
| Ultrasonic Examination: | 2 men | X | 1 hour |
| Insulation Replacement: | 3 men | X | 10 hours |
| Total man hours: | | | 58 man hours X 100 mR = 5.8 R |

*2.2 Request for Relief RR-1-3, Modification of Examinations of Welded Pressure Vessel Attachments*

*2.2(a) Provide a diagram showing the placement and configuration of welded attachments, and nearby obstructions, for which relief is requested.*

**NMC Response to 2.2(a):**

The reactor vessel welded attachments are, RV-CS5 located at 88.5° and RV-CS6 located at 268.5°. The KNPP configuration is similar to ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition, 2000 Addenda, Figure IWB-2500-15. Reference KNPP enclosure 4, drawing M-1193; enclosure 5, drawing M-1194; enclosure 6, drawing XK100-930; enclosure 7, drawing XK100-933. Access to the six reactor vessel nozzle safe-end welds is provided by removal of the sand plugs (concrete blocks)

located directly above each nozzle to safe-end, see enclosure 8, a down view photo of the sand plugs and enclosure 9, drawing S-263. However, no access is directly available to RV-CS5 and RV-CS6, which are restricted by the reactor vessel insulation and bioshield. A partial visual examination can be performed on RV-CS5 and RV-CS6 due to sand plug removal for the two to four inch reactor vessel safe-ends.

*2.2(b) To properly evaluate the effectiveness of the proposed alternative examination, it is important to understand details about the UT technique(s) to be performed from the inner diameter of the pressure vessel. Please provide information about the ultrasonic parameters to be used and the areas to be scanned. Also state the type of degradation this alternative is expected to detect, and why this alternative method will provide reasonable assurance of continued structural integrity of the integrally welded attachments.*

**NMC Response to 2.2(b):**

The ultrasonic technique utilized will be EPRI's Performance Demonstration Initiative (PDI) qualified method for examination of reactor vessel shell welds for Appendix VIII, Supplement 4 and Supplement 6 performed by WesDyne International. The scan volume will be extended to include the integrally welded attachment documented in the WesDyne International scan program for the reactor vessel. Scanning performed will utilize a 45° shear angle beam from the ID of the reactor vessel.

The WesDyne International performance of ultrasonic examinations from the reactor vessel would be expected to locate fabrication type defects in the weld attached to the reactor vessel. Additionally, cracking from the toe of the weld of the integrally welded attachment into the base metal of the reactor vessel could also be detected. Defects would be located and sized based on a C scan presentation of the reflectors in the U-shaped configuration of the integrally welded attachment.

During the 1995 refueling outage, ultrasonic examinations were performed by WesDyne International of integrally welded attachments, RV-CS5 and RV-CS6 from the ID of the reactor vessel. Examinations revealed no recordable indications.

*2.3* *<u>Request for Relief RR-1-4, RR-1-5, and RR-2-1, Modifications of Hydrostatic and Pressure Tests for Pipes and Valves</u>*

*2.3(a) The licensee stated in these relief requests that Category B-P B15.50 and 15.70, and paragraph IWB-5221, stipulate that the system must be pressurized to "not less than the pressure corresponding to 100% rated reactor power," which is interpreted by the utility as normal operating pressure for the reactor coolant*

*system, or approximately 2235 psi. The actual requirement listed in IWB-5221(a), 1998 Edition, 2000 Addenda is:*

> *"The system leakage test shall be conducted at a pressure not less than the nominal operating pressure associated with normal system operation."*

*Therefore, the pressure required for a system leakage test in a given system is the normal pressure in that system, not necessarily the pressure in the reactor coolant system, unless these pressures are normally the same. It is unclear why the licensee feels that certain piping systems need to be pressurized to reactor coolant system pressure, not the normal system pressure in the components being tested. Relief may not be required for these pressure tests, as the alternative tests proposed by the licensee may be in compliance with Section XI requirements. Please provide justification for why, during system leakage and/or hydrostatic tests described in RR-1-4, RR-1-5, and RR-2-1, the test pressure must be at normal reactor coolant system pressure (approximately 2235 psi).*

**NMC Response to 2.3(a):**

The ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition, 2000 Addenda, Section IWB-5221(a) states, "The system leakage test shall be conducted at a pressure corresponding to 100% rated power". For KNPP, this corresponds to 2235 psig. The ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition, 2000 Addenda, Section IWB-5222(b) states, "The pressure retaining boundary during the system leakage test conducted at or near the end of each inspection interval shall extend to all Class 1 pressure retaining components within the system boundary".

Thus, based on the above, KNPP believes relief request RR-1-4, RR-1-5, and RR-2-1 will be required to satisfy requirements of ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition, 2000 Addenda, Sections IWB-5221(a) and IWB-5222(b).

*2.4* *<u>Request for Relief RR-G-2, Modification of inspection Requirements for Insulated Bolted Connections</u>*

*2.4(a) To evaluate the burden imposed by the removal and re-installation of the insulation, it is necessary to know how many man-hours have been involved with previous examinations and what level of radiation exposures to personnel have been accrued during these tests, or are expected for future examinations, if insulation removal is required. The licensee should provide this information.*

**NMC Response to 2.4(a):**

KNPP relief request follows the alternative requirements located in ASME Boiler and Pressure Vessel Code, Section XI, Code Case N-533-1, which was approved for use by the Nuclear Regulatory Commission in Regulatory Guide 1.147 Rev. 13, January 13, 2004, as a conditionally acceptable Section XI code case. An added requirement was "Prior to conducting the VT-2 examination, the provisions of the IWA-5213 'Test Condition Holding Times', 1989 Edition, are to be followed".

KNPP's concern with the code case N-533-1 was the performance of a VT-2 examination of the bolted connection when the insulation is removed each refueling outage. Per ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition, 2000 Addenda, IWA-5211 test description, a VT-2 examination is performed for a system leakage test while the system is in operation, during a system operability test, or while the system is at rest conditions using an external pressurization source. Since the bolted connections in question will not be under pressure, a VT-2 examination cannot be performed. Thus, a VT-3 was suggested under relief request RR-G-2, instead of a VT-2, as required by the ASME Code Case N-533-1. A VT-3 examination will be a more thorough examination, as the lighting requirements, examination angle, and examination distance are more stringent. Additional experience requirements are also necessary for VT-3 examiners' qualifications.

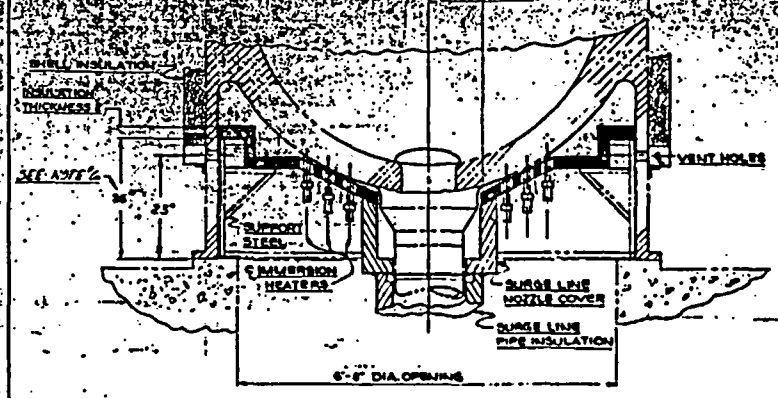
Previous examinations of the bolting performed during the third 10-year in-service inspection interval were performed to that requested in relief request RR-G-2. This is based on the requested relief that was submitted in December 1993, for the third 10-year interval, approved by the Nuclear Regulatory Commission, and incorporated in the in-service inspection program. Thus, no man hours have been involved with previous examinations and no radiation exposure has been accrued by personnel having been accrued during the tests for examinations with the insulation removed, scaffolding in place, and under test conditions of 2235 psig and 547°F prior to reactor startup following a refueling outage.

KNPP is not invoking NRC approved ASME Code Case N-533-1 for relief request RR-G-2. Reference to ASME Code Case N-533-1 was for discussion with NRC reviewers to indicate where KNPP gathered data for relief request RR-G-2 and the current industry practice. The initial relief request RR-G-2 submitted December 16, 2003 is intended as a stand alone relief request which does not reference ASME Code Case N-533-1.

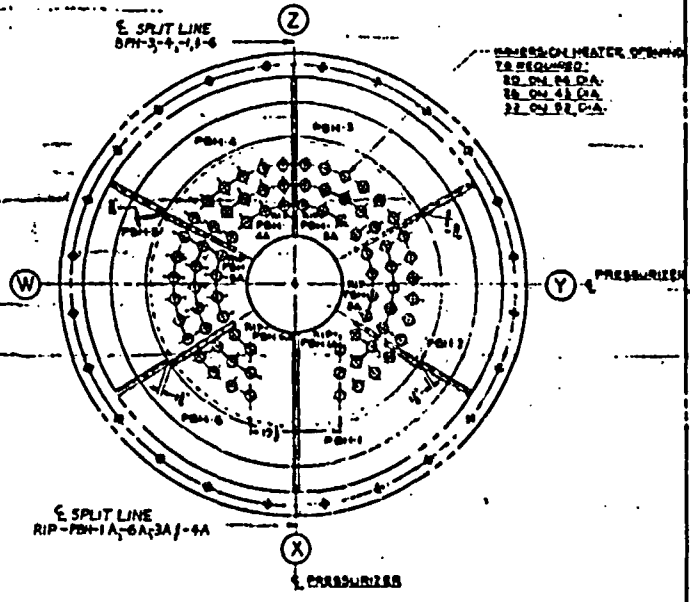
# ENCLOSURE 2

## DRAWING: XK100-310-4

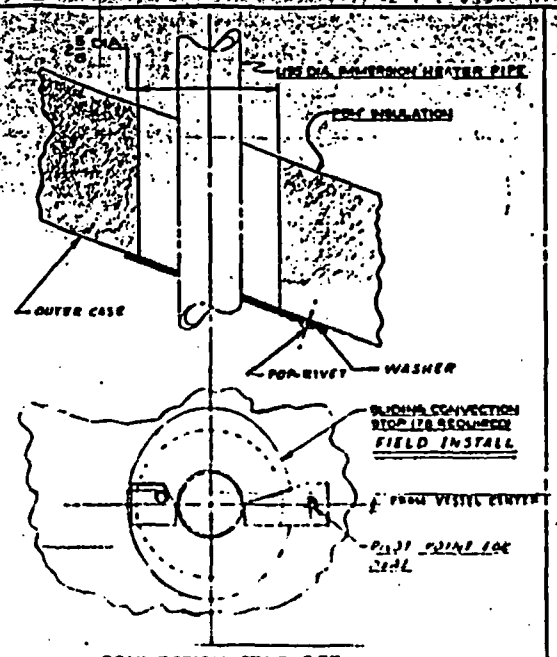
1 page follows




ELEV VIEW



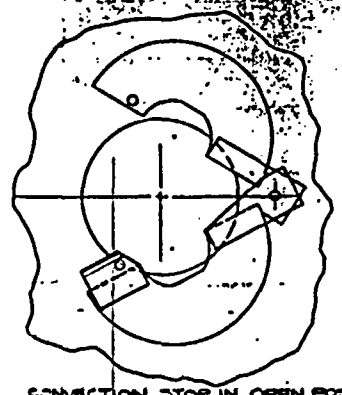

BOTTOM VIEW




CONVECTION STOP DET.

(A) INSTALL SEAL ON IMMERSION HEATER'S PIPE.

(B) CLOSE SEAL AND POP RIVET TO OUTER CASE INSTALLING WASHER BETWEEN SEAL AND OUTER CASE.



CONVECTION STOP IN OPEN POSITION (SEE NOTE 5 B)

NOTES:

1) SUPPORT STEEL FOR BOTTOM HEAD INSULATION IS BY MIRROR.
2) "PBH" IS THE ABBREVIATION FOR "PRESSURIZER BOTTOM HEAD."
3) "PBH-1" THRU "PBH-6" PANELS ARE FASTENED TOGETHER WITH STAINLESS STEEL SCREWS.
4) "PBH-1A" THRU "PBH-6A" PANELS ARE FASTENED TOGETHER WITH BUCKLES AND KEEPERS.
5) "PBH-1A" THRU "PBH-6A" PANELS ARE REMOVABLE. THE SLIDING CONVECTION STOPS MUST BE DISENGAGED AND POSITIONED IN AN UNOBSTRUCTIVE MANNER BEFORE THE PANELS CAN BE UNBUCKLED AND LOWERED FOR INSPECTION OF THE PRESSURIZER BOTTOM HEAD.
6) WHEN INSTALLING STEEL CHECK THIS DIM FOR CORRECT INSULATION ELEVATION.

PRESSURIZER SHELL INSULATION 808441-0140
PBH INSULATION SUPPORT STEEL 808441-0175

PRESSURIZER BOTTOM HEAD INSULATION
ASBESTOS & MAGNESIA MATERIALS COMPANY - CHICAGO, ILLINOIS
FOR: WISCONSIN PUBLIC SERVICE CORPORATION KEWAUNEE UNIT

CERTIFIED DOCUMENT IS FILED AT PSEC CO CHICAGO, ILL.

| | |
|---|---|
| 9835 | |
| 70184 | |
| 808441-R | |

MIRROR INSULATION CO. OF AMERICA
POWER DIVISION CHICAGO, ILL.
808441-0140

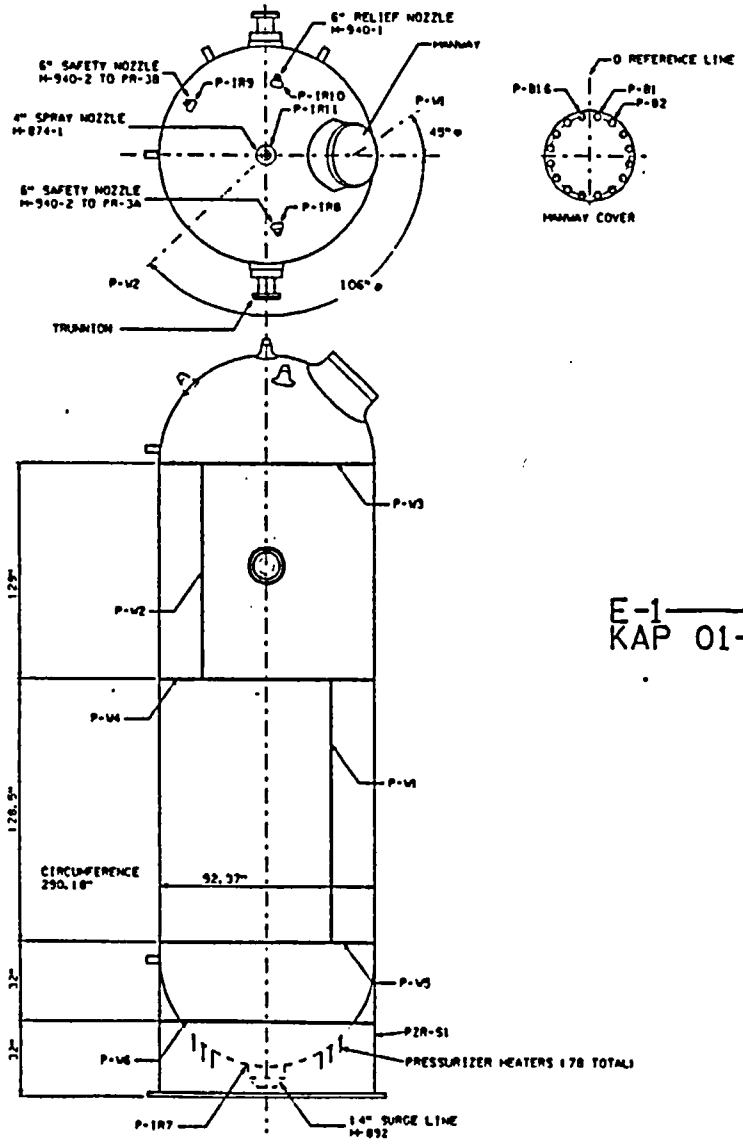
| | | | | |
|---|---|---|---|---|
| | PRESSURIZER BOTTOM HEAD CONCAL SHAPE (VIA STEPHIC) | | | |
| | | | | ADDED PICTURE OF SLIDING SEAL TO SHOW OPEN POSITION. |

# ENCLOSURE 3

## DRAWING: M-1200

1 page follows

M-1200







BOLTING DATA

| BOLTS / DIA. / LGTH | NUTS |
|---|---|
| 16 /1.88" / 8.0" | N/A |

E-1
KAP 01-001639

COMPONENT WELD DATA

| I.D. | THICKNESS | MATERIAL |
|---|---|---|
| P-W1 | 4.5" | SA 533 GR.A CL.1 CS |
| P-W2 | 4.5" | SA 533 GR.A CL.1 CS |
| P-W3 | 4.5" | NOTE 4 |
| P-W4 | 4.5" | SA 533 GR.A CL.1 CS |
| P-W5 | 4.5" | NOTE 4 |
| P-W6 | 1.5" | SA 516 GR.70 CS |
| P-IR7 | INNER RADIUS SECTION | SA 216 GR.WCC CS |
| P-IR8 | INNER RADIUS SECTION | SA 216 GR.WCC CS |
| P-IR9 | INNER RADIUS SECTION | SA 216 GR.WCC CS |
| P-IR10 | INNER RADIUS SECTION | SA 216 GR.WCC CS |
| P-IR11 | INNER RADIUS SECTION | SA 216 GR.WCC CS |

CALIBRATION BLOCK

| I.D. | DIAMETER/SCHEDULE | MATERIAL |
|---|---|---|
| WPS-23 | 5.0"I.D.×8.0"L×5.0"W | SA 533 GR.B CL.1 CS |
| WPS-26 | 1.5"I.D.×3.0"L×2.5"W | SA 516 GR. 70 CS |
| WPS-45 | 18.25"MIN.I.D.×45.72"W | SA 216-92 GR.WCC CS |
| WPS-46 | 8.375"MIN.I.D.×7.68"W | SA 216-92 GR.WCC CS |

E-1
KAP 01-001639

NOTES:

1). DRAWING APPLICABLE FOR 3rd AND 4th ISI INTERVAL

2). ASME BOILER AND PRESSURE VESSEL CODE SECTION XI CLASS 1

3). PZR HEATER PENETRATION ID #S: PZR-P1 THRU PZR-P78

4). MATERIAL - SHELL: SA 533 GRADE A CLASS 1 CARBON STEEL.
HEAD: SA 216 GR.WCC CARBON STEEL

* MEASURED WITHOUT INSULATION.

REVISION

E-1 KAP 01-001639
ADDED 4TH INTERVAL.
REVISED MATERIAL.
BY: NTH 02-12-02
APP'D: PEB 04-05-02

F KAP 01-001639 COMPL.
SEE REVISION E-1.
FILMED(WPS) 04-16-02

B-1
ADD PRESSURIZER HEATERS & REV. NOTES PER ESR 92-177
BY: LNL 10-1-93
CHK'D: RJS 10-4-93
APP'D: CAT 10-07-93

C ESR 92-177 COMPL.
SEE REV. B-1
FILMED(WPS) 10-19-93

C-1 PDR 0149
ADDED CALIBR. DATA WPS-45 , WPS-46 INFO AND PRESS. HEATERS 78 WAS 72 .
BY: JSPICE 2-21-97
APP'D: PCM 02-21-97

D PDR 0149 COMPL.
SEE REV. C-1
FILM'D(WPS) 02-25-97

D-1 RE PUR 0295
ADDED ITEM NO.
BY: BJD 7-19-99
APP'D: DAK 7-26-99

E RE PUR 0295 COMPL.
SEE REV. D-1
FILM'D(WPS) 8-3-99

WISCONSIN PUBLIC SERVICE CORPORATION
KEWAUNEE NUCLEAR POWER PLANT
CARLTON, KEWAUNEE COUNTY, WISCONSIN

# PRESSURIZER
# PZR

DESIGNED BY
WISCONSIN PUBLIC SERVICE CORP.
GREEN BAY, WISCONSIN

DESIGNED
CHECKED D.P.C. 1/13/03
APPROVED PHILLIP E. BUKES 5/13/03
PROJECT APPROVED
DRAWN O.R./D.S. 1/13/03
SCALE NONE
DWG. NO. M-1200
REV. F

LOCATION: CONTAINMENT PRESSURIZER VAULT

163-011

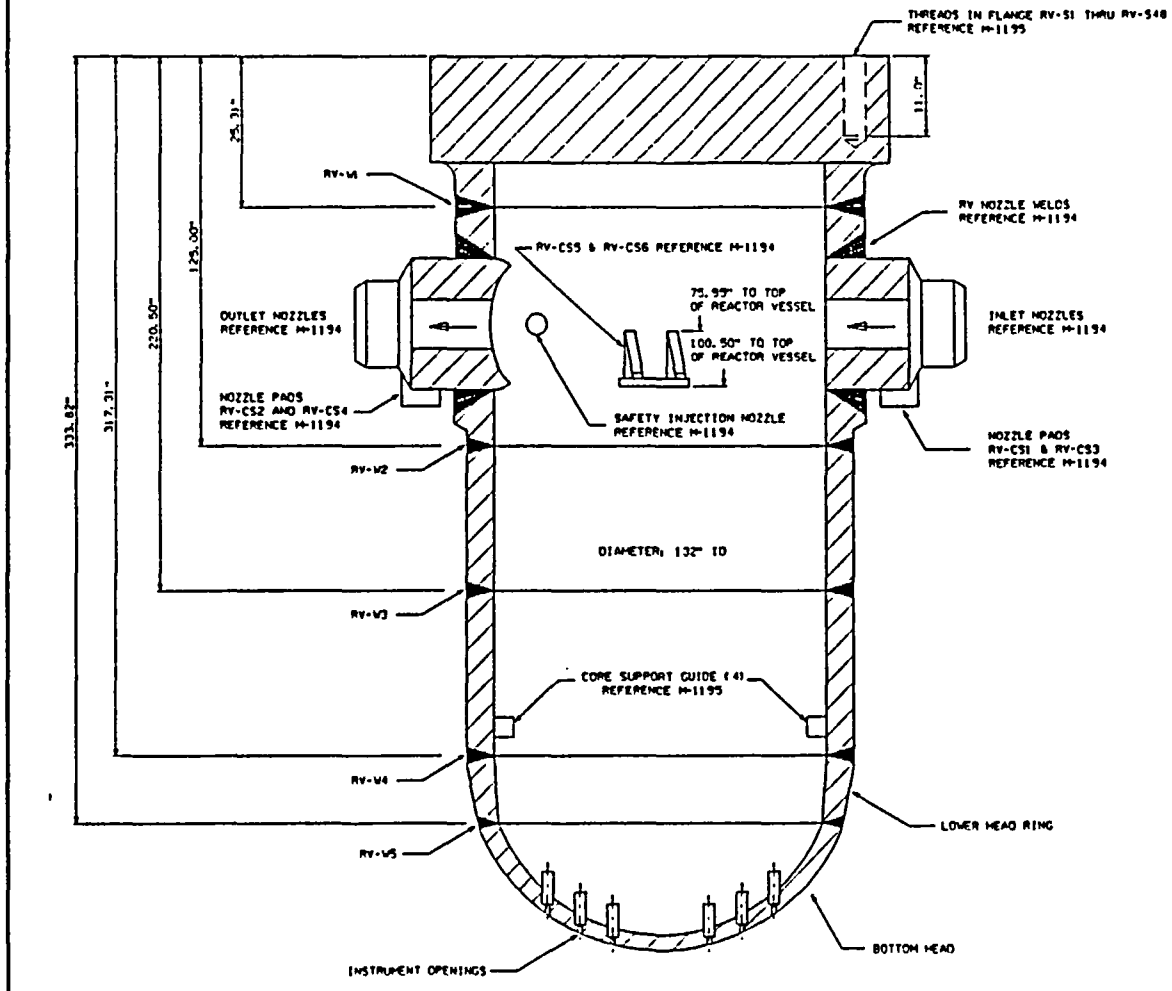
CADD

# ENCLOSURE 4

## DRAWING: M-1193

1 page follows

M-1193




157-011

LOCATION: CONTAINMENT

COMPONENT WELD DATA

| I.D. | THICKNESS | MATERIAL |
|---|---|---|
| RV-W1 | 9.44" | A508-64 CL. 2 CS |
| RV-W2 | 7.0" | A508-64 CL. 2 CS |
| RV-W3 | 7.0" | A508-64 CL. 2 CS |
| RV-W4 | 7.0" | A508-64 CL. 2 CS |
| RV-W5 | 4.12" MIN. | A533 GR. B CL. 1 CS |

CALIBRATION BLOCK

| I.D. | DIAMETER/SCHEDULE | MATERIAL |
|---|---|---|
| WPS-RV-1 | 18"IN x 7"LBS x 6.5"W | SA508 CL. 2 CS |
| WPS-RV-2 | 9.0" I x 32"L x 6.0"W | SA508 CL. 2 CS |
| WPS-RV-3 | 7.0" I x 18"L x 6.0"W | SA508 CL. 2 CS |
| WPS-RV-4 | 5.0" I x 18"L x 6.0"W | SA508 CL. 2 CS |

NOTES:

1). DRAWING APPLICABLE FOR 3rd AND 4th ISI INTERVAL

2). ASME BOILER AND PRESSURE VESSEL CODE SECTION XI CLASS 1

3). RV INSTRUMENT PENETRATION ID #S: RV-P1 THRU RV-P36

D-1
KAP 01-001639

REVISION

| | |
|---|---|
| A | POD 0011 COMPL<br>SEE REV 0-1<br>APP'D: CAT 10/23/39<br>FILM'D: (WPS) 11/7/89 |
| A-1 | REDRAFTED TO CAD<br>PER ESR 92-177<br>DWN: E. SAXTON 4/1/93<br>CHK'D: B. TROTTER 5/12/93<br>APP'D: CAT 7-23-93 |
| B | ESR 92-177 COMPL.<br>SEE REV. A-1<br>FILMED: (WPS) 08-03-93 |
| B-1 | REV. NOTES<br>PER ESR 92-177<br>BY: LML 10-1-93<br>CHK'D: RJS 10-4-93<br>APP'D: CAT 10-07-93 |
| C | ESR 92-177 COMPL.<br>SEE REV. B-1<br>FILMED: (WPS) 10-19-93 |
| C-1 | RE PUR 0295<br>ADDED ITEM NO.<br>BY: BJD 7-19-99<br>APP'D: DAK 7-26-99 |
| D | RE PUR 0295 COMPL.<br>SEE REV. C-1<br>FILMED: (WPS) 8-3-99 |
| D-1 | KAP 01-001639<br>REVISED NOTE 1.<br>BY: ABF 06-03-02<br>APP'D: |
| E | KAP 01-001639<br>COMPLETE<br>SEE REV. D-1.<br>FILMED: (WPS) |

WISCONSIN PUBLIC SERVICE CORPORATION
KEWAUNEE NUCLEAR POWER PLANT
CARLTON, KEWAUNEE COUNTY, WISCONSIN

# REACTOR VESSEL
# RV

DESIGNED BY
WISCONSIN PUBLIC SERVICE CORP.
GREEN BAY, WISCONSIN

| DESIGNED | | APPROVED | |
|---|---|---|---|
| | | PHILLIP E. BUKES | 6/16/93 |
| CHECKED | | PROJECT APPROVED | |
| D.H. | 1/17/93 | | |
| DRAWN ESS | 6/1/93 | DWG. NO. M-1193 | REV. E |
| SCALE NONE | | | |

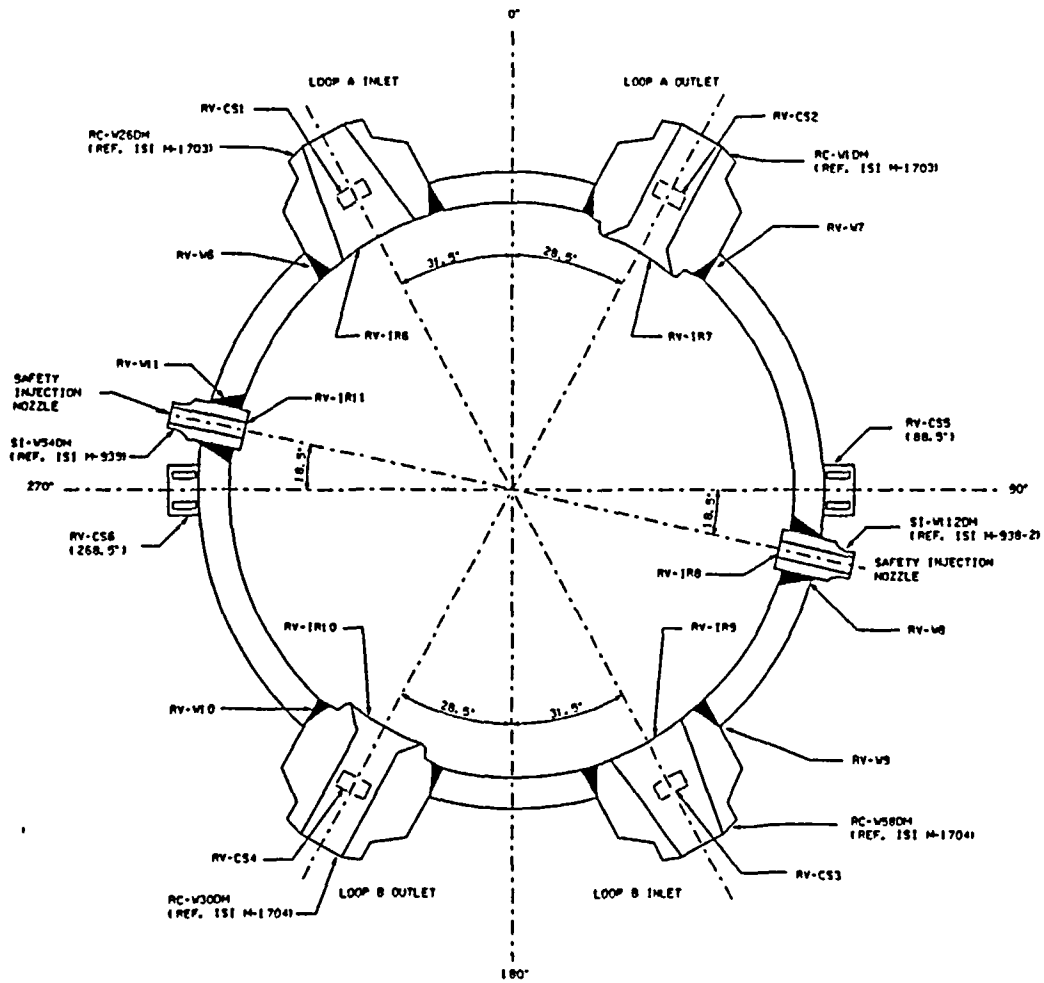
CADD

# ENCLOSURE 5

## DRAWING: M-1194

1 page follows

M-1194




157-011

LOCATION: CONTAINMENT

COMPONENT DATA

| I.D. | THICKNESS | MATERIAL |
|---|---|---|
| RV-W6 | 9.44" | A508-64 CL. 2 CS |
| RV-IR6 | INNER RADIUS SECTION | A508-64 CL. 2 CS |
| RV-W7 | 9.44" | A508-64 CL. 2 CS |
| RV-IR7 | INNER RADIUS SECTION | A508-64 CL. 2 CS |
| RV-W8 | 9.37" | A508-64 CL. 2 CS |
| RV-IR8 | INNER RADIUS SECTION | A508-64 CL. 2 CS |
| RV-W9 | 9.44" | A508-64 CL. 2 CS |
| RV-IR9 | INNER RADIUS SECTION | A508-64 CL. 2 CS |
| RV-W10 | 9.44" | A508-64 CL. 2 CS |
| RV-IR10 | INNER RADIUS SECTION | A508-64 CL. 2 CS |
| RV-W1 | 9.37" | A508-64 CL. 2 CS |
| RV-IR11 | INNER RADIUS SECTION | A508-64 CL. 2 CS |

INTEGRALLY WELDED ATTACHMENT DATA

| I.D. | THICKNESS | MATERIAL |
|---|---|---|
| RV-CS5 | 4.25" | SA 516 GR. 70 CS |
| RV-CS6 | 4.25" | SA 516 GR. 70 CS |

INLET AND OUTLET NOZZLE SUPPORT PADS (WELD BUILDUP)

| I.D. | THICKNESS | MATERIAL |
|---|---|---|
| RV-CS1 | 3.0" | SA 516 GR. 70 CS |
| RV-CS2 | 3.0" | SA 516 GR. 70 CS |
| RV-CS3 | 3.0" | SA 516 GR. 70 CS |
| RV-CS4 | 3.0" | SA 516 GR. 70 CS |

CALIBRATION BLOCK

| I.D. | DIAMETER/SCHEDULE | MATERIAL |
|---|---|---|
| WPS-RV-1 | 16"T.W.=31"L.B.T=0.625"W | SA-508-64 CL. 3 CS |
| WPS-RV-2 | 3.0"T=12"L=6.0"W | SA-508-64 CL. 3 CS |
| WPS-RV-3 | 7.0"T=28"L=6.0"W | SA-508-64 CL. 3 CS |
| WPS-SIS-01 | 6.0"T=15"L=4.0"W | SA-508-64 CL. 3 CS |

NOTES:

1). DRAWING APPLICABLE FOR 3rd AND 4th ISI INTERVAL

2). ASME BOILER AND PRESSURE VESSEL CODE SECTION XI CLASS 1

E-1
KAP 01-001639

REVISIONS

F KAP 01-001639
COMPLETE
SEE REV. E-1.
FILMED: (WPS)

A-1
REDRAFTED TO CAD
PER ESR 92-177
DWN: E. SAXTON 4/1/93
CHK'D: B. TROTTER 5/12/93
APP'D: CAT 7-23-93

B ESR 92-177 COMPL.
SEE REV. A-1
FILMED: (WPS) 08-03-93

B-1
REV. NOTES
PER ESR 92-177
BY: LML 10-1-93
CHK'D: RJS 10-4-93
APP'D: CAT 10-07-93

C ESR 92-177 COMPL.
SEE REV. B-1
FILMED: (WPS) 10-19-93

C-1 PDR 0149
REVISED WELD ATTCH. DATA, ADDED INLET AND OUTLET NOZZEL WELD DATA.
BY: JSPICE 2-21-97
APP'D: PCM 02-21-97

D PDR 0149 COMPL.
SEE REV. C-1
FILM'D: (WPS) 02-25-97

D-1 RE PUR 0295
ADDED ITEM NO.
BY: BJO 7-19-99
APP'D: DAK 7-26-99

E RE PUR 0295 COMPL.
SEE REV. D-1
FILMED: (WPS) 8-3-39

E-1 KAP 01-001639
REVISED NOTE 1.
BY: ABF 06-03-02
APP'D:

WISCONSIN PUBLIC SERVICE CORPORATION
KEWAUNEE NUCLEAR POWER PLANT
CARLTON, KEWAUNEE COUNTY, WISCONSIN

# REACTOR VESSEL NOZZLES AND INTEGRALLY WELDED ATTACHMENTS

DESIGNED BY
WISCONSIN PUBLIC SERVICE CORP.
GREEN BAY, WISCONSIN

| DESIGNED | | APPROVED | |
|---|---|---|---|
| | | PHILLIP E. BUKES | 5/16/93 |
| CHECKED | | PROJECT APPROVED | |
| D.M. | 1/17/83 | | |

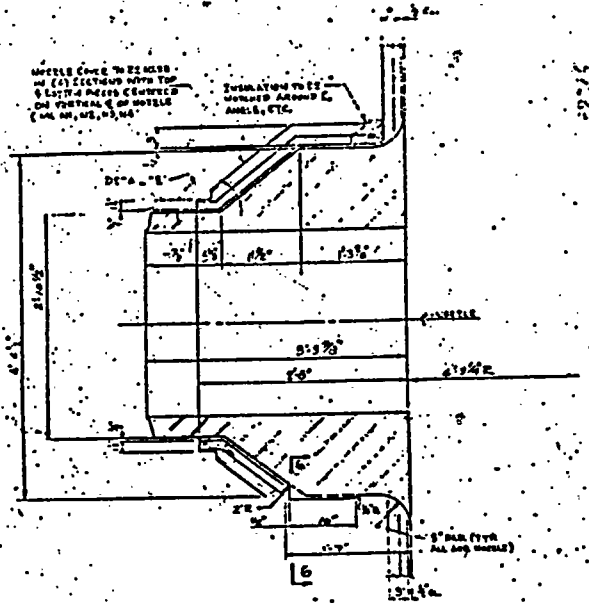
| DRAWN | | DWG. NO. | REV. |
|---|---|---|---|
| ESS | 4/1/93 | M-1194 | F |
| SCALE: NONE | | | |

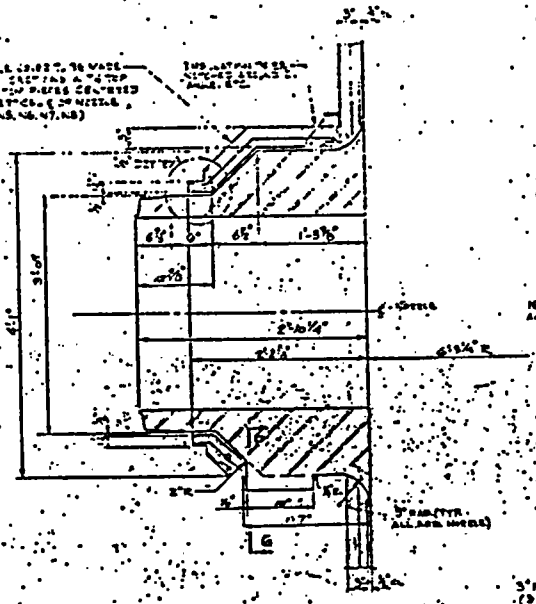
CADD

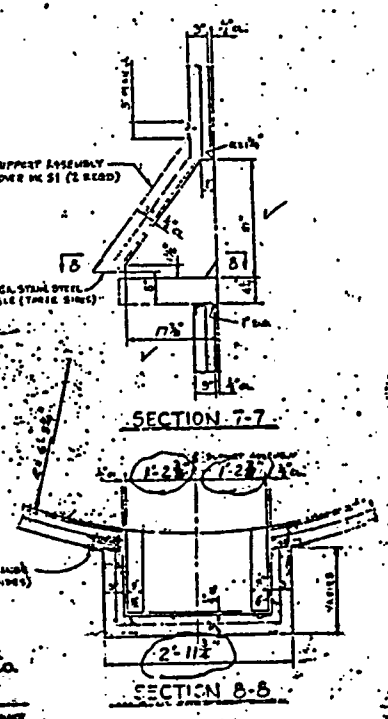
# ENCLOSURE 6

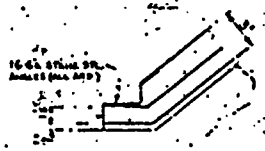
## DRAWING: XK100-930

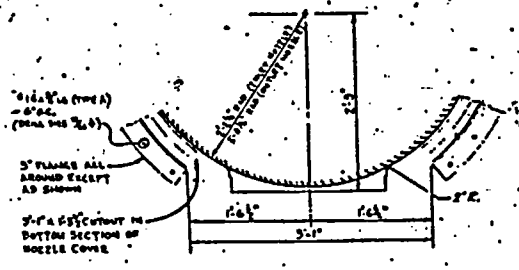
1 page follows




Pioneer Service & Engineering Co.
CHICAGO
APRIL 2, 1971

| DIVISION | DSL ENG. | ENGINEER | DATE |
|---|---|---|---|
| MECH. | R Larson | J Hendricks | 4/2/71 |
| STRUCT. & TYPED | V Robson | D Jungers | 4/2/71 |
| ELECT. | A Weiss | R Cooper | 4/2/71 |

INSTRUCTIONS:
APPROVED & RELEASED FOR FABRICATION
APPROVED EXCEPT AS NOTED & RELEASED FOR FABRICATION
NOT APPROVED — FURTHER APPROVAL REQUIRED
FOR REFERENCE & INFORMATION ONLY
NO APPROVAL REQUIRED

WISCONSIN PUBLIC SERVICE CORP.
K 300
CWPA NO. 23-7127A
PROJECT NO.
TECHNICAL FILE NO. K 300-930

CERTIFIED DOCUMENT IS FILED AT PS&E CO. CHICAGO, ILL.

CUSTOMER: WISCONSIN PUBLIC SERVICE CORP.
LOCATION: KEWAUNEE, WISCONSIN
CUST. ORDER NO. 846-CVO-
TRANSCO INC.
SECTIONS AND DETAILS OF INSULATION PANELS
3790E-3

3-3-73 KK-100-930(C)

-930

PROJECT APPLICABILITY: VPS-105
STATUS: Certified For Const.
PROJECT LTR. NO.: KW-P-1319
PROJECT MGR.: A.B. Cutler
DATE: 3/22/71

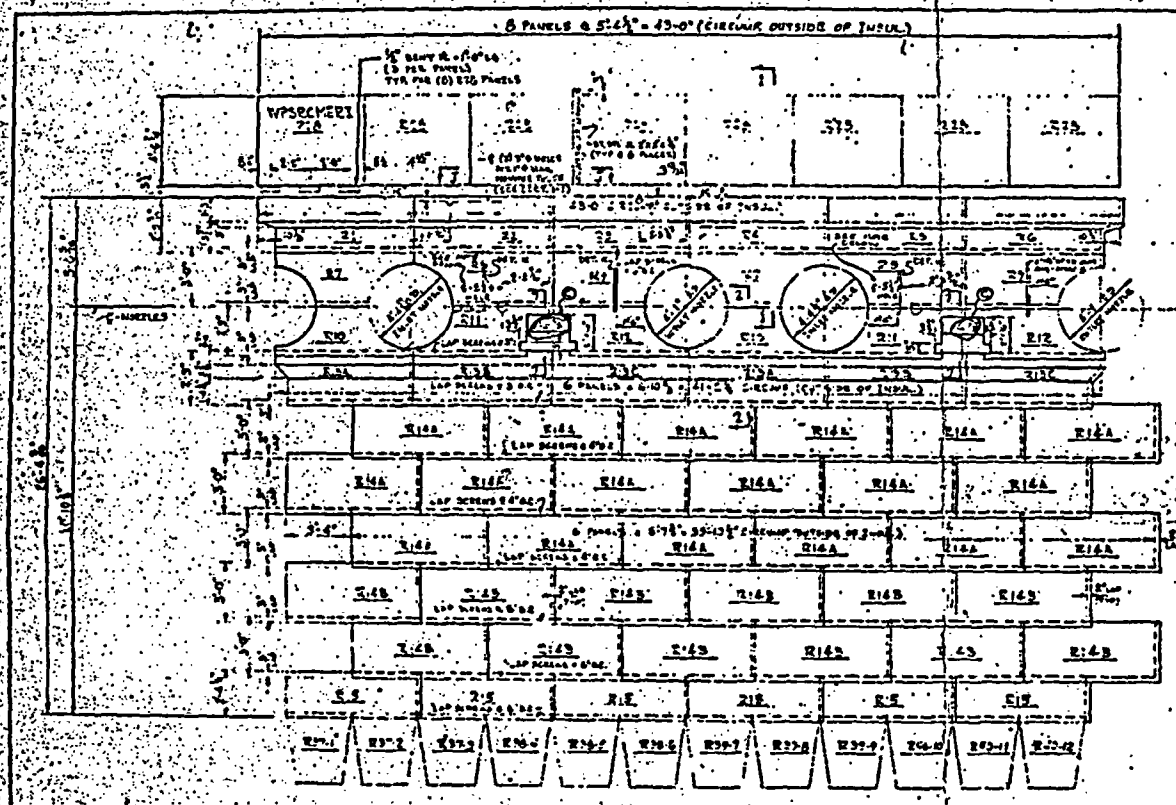
NES

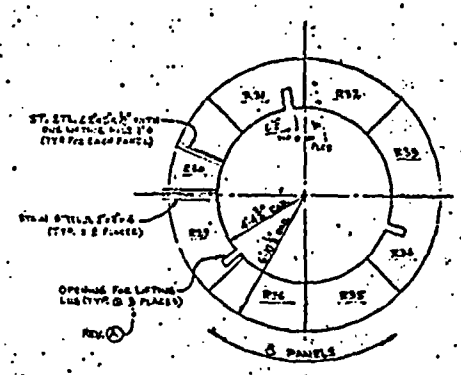
24 C B A A O A A D

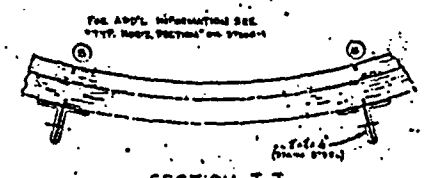
# ENCLOSURE 7

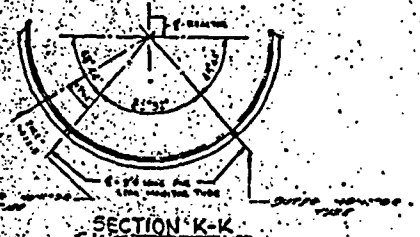
## DRAWING: XK100-933

1 page follows




CERTIFIED DOCUMENT IS FILED AT PS&E CO. CHICAGO, ILL.

CUSTOMER
LOCATION
CUST ORDER NO
TRANSCO INC
PANEL LAYOUTS FOR REACTOR VESSEL
3790E

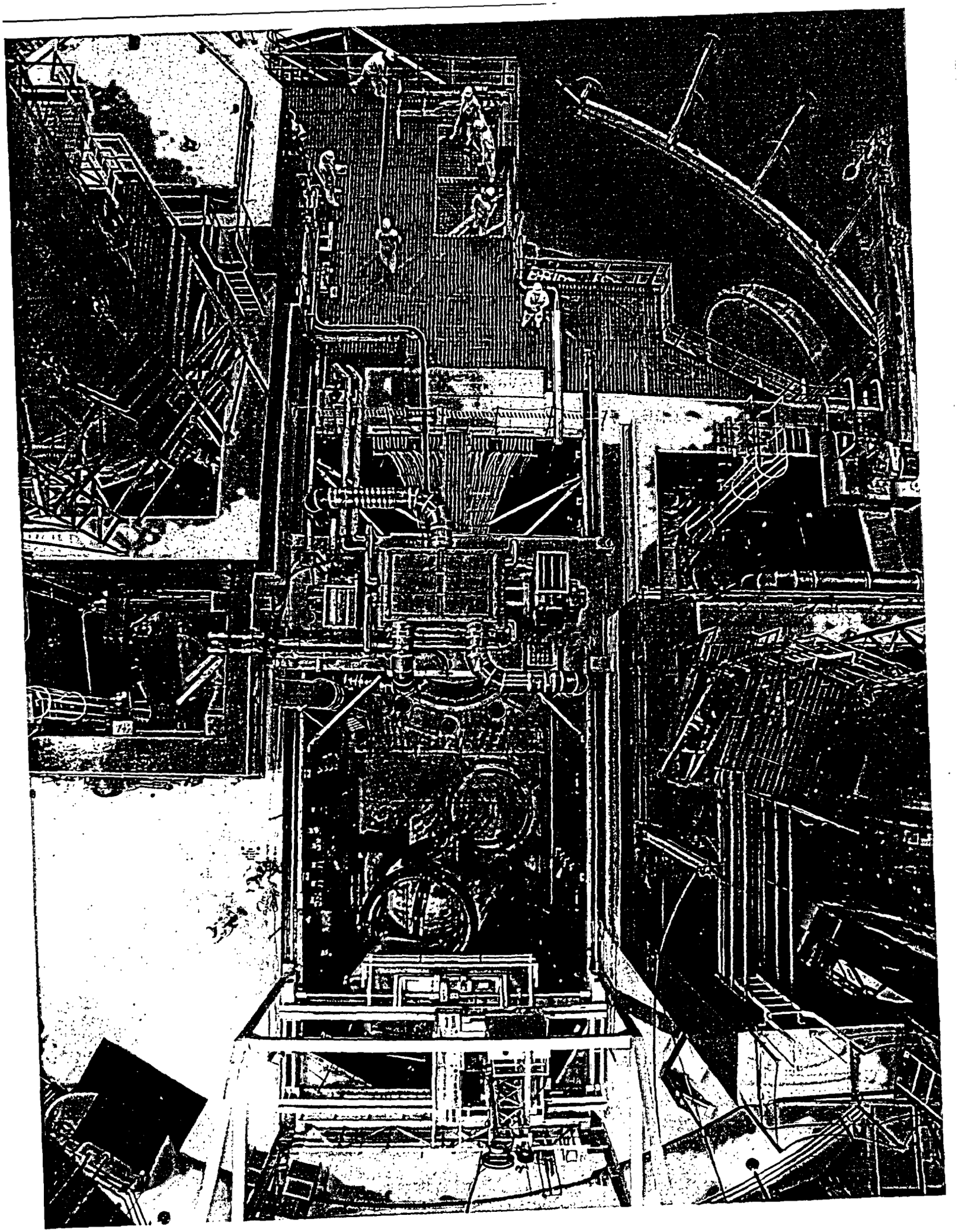
PROJECT APPLICABILITY
STATUS
PROJECT LTR. NO.
PROJECT MGR.
DATE

NES

# ENCLOSURE 8

## PHOTO: DOWN VIEW OF SAND PLUGS

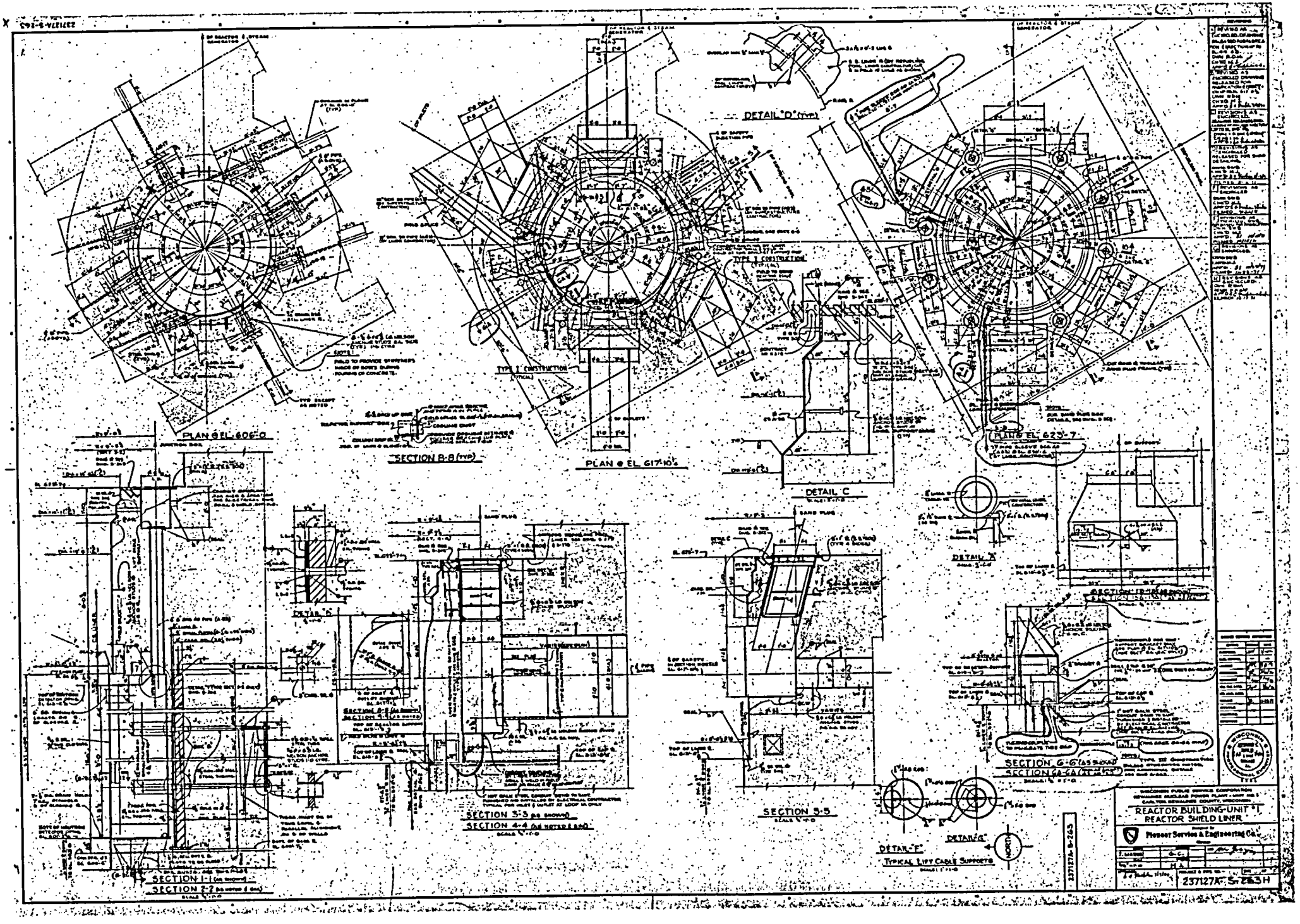
1 page follows



# ENCLOSURE 9

## DRAWING: S-263

1 page follows


PLAN @ EL. 606'-0"
PLAN @ EL. 617'-10½"
PLAN @ EL. 623'-7"
DETAIL "D" (TYP)
TYPE 1 CONSTRUCTION
SECTION B-B (TYP)
DETAIL C
DETAIL "A"
DETAIL "B"
SECTION 1-1
SECTION 2-2
SECTION 3-3
SECTION 4-4
SECTION 5-5
SECTION 6-6
DETAIL "E"
TYPICAL LIFT CABLE SUPPORTS
DETAIL "G"
NORTH
REACTOR BUILDING-UNIT #1
REACTOR SHIELD LINER
Pioneer Service & Engineering Co.
237127A-S-263H