DAVE BAXTER
Vice President
Oconee Nuclear Station

Duke Energy Corporation
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Seneca, SC 29672

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864-885-4208 fax
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September 25, 2008

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555-0001

Subject: Duke Energy Carolinas, LLC
Oconee Nuclear Site, Units 1, 2, and 3
Docket Numbers 50-269, 50-270, and 50-287
Request for Additional Information associated with the License Amendment Request (LAR) for Approval to Mitigate Alloy 600 Concerns in the Oconee Pressurizer
LAR No. 2008-08

In accordance with 10 CFR 50.90, Duke Energy Carolinas, LLC (Duke) proposes to amend the licensing basis for Renewed Facility Operating Licenses Nos. DPR-38, DPR-47, and DPR-55. A LAR was submitted on August 1, 2008 to the Nuclear Regulatory Commission (NRC) seeking review and approval of a design change that serves to mitigate Alloy 600 concerns in the Oconee Unit 2 Pressurizer. In concert with this change is a revision to Section 5.2.3.2 of the Updated Final Safety Analysis Report (UFSAR) to account for small areas of carbon steel and low alloy steel that are exposed to the reactor coolant system.

In an e-mail dated September 4, 2008, Duke received a request for additional information (RAI) associated with the repair and corrosion calculations. Enclosure 2 contains Duke's responses to those RAIs.

Approval of the proposed amendment is requested by October 25, 2008 to support the Unit 2 fall refueling outage. Duke will implement the amendment immediately upon receipt of NRC approval.

A110
NRR

Inquiries on this proposed amendment request should be directed to Sandra Severance of the Oconee Regulatory Compliance Group at (864) 885-3466.

Sincerely,

Dave Baxter, Vice President
Oconee Nuclear Site

Enclosures:
1. Notarized Affidavit
2. Requests For Additional Information

Attachments:
1. OM 201-3232.001, Rev 0 - ONS 1, 2 & 3 Pressurizer Vent Nozzle Modification
2. OM 2201-3212.001, Rev D01 - ONS3 1.5" Pressurizer Thermowell Repair Design
3. OM 1201-858.001, Rev D9 - Unit 2 Pressurizer General Arrangement
4. Corrosion Rate Calculation - AREVA Document ID 51-9001050-001 (Proprietary) - Summary Results
5. Corrosion Rate Calculation - SIA SIR-07-006, Rev 0, Appendix B (Proprietary) - Summary Results
6. Westinghouse WCAP-2855, "Yankee Vessel Cladding Penetrations." - Selected Excerpts

bc w/enclosures and attachments:

Mr. Luis Reyes, Regional Administrator
U. S. Nuclear Regulatory Commission - Region II
Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, Georgia 30303

Mr. Lenny Olshan, Project Manager
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Stop O-8 G9A
Washington, D. C. 20555

Mr. Andy Hutto
Senior Resident Inspector
Oconee Nuclear Site

Mrs. Susan E. Jenkins, Manager
Infectious and Radioactive Waste Management Section
Department of Health & Environmental Control
2600 Bull Street
Columbia, SC 29201

ENCLOSURE 1

NOTARIZED AFFIDAVIT

AFFIDAVIT

Dave Baxter, being duly sworn, states that he is Vice President, Oconee Nuclear Site, Duke Energy Carolinas, LLC that he is authorized on the part of said Company to sign and file with the U. S. Nuclear Regulatory Commission this revision to the Renewed Facility Operating License Nos. DPR-38, DPR-47, and DPR-55; and that all statements and matters set forth herein are true and correct to the best of his knowledge.

Dave Baxter, Vice President
Oconee Nuclear Site

Subscribed and sworn to before me this 26th day of SEPTEMBER 2008

Notary Public

My Commission Expires:

OCTOBER 13, 2015
Date

SEAL

ENCLOSURE 2

REQUESTS FOR ADDITIONAL INFORMATION

Enclosure 2 – Evaluation of Proposed Change
RAI for License Amendment Request No. 2008-08
September 25, 2008

1.0 REQUESTS FOR ADDITIONAL INFORMATION (RAI)

RAI #1

Please provide marked-up drawings of the Pressurizers showing the exposed areas of the material that is subject to corrosion.

ANSWER:

As noted in the original LAR package, these repairs have already been completed on two units and are scheduled for implementation on Unit 2 in the fall of 2008. The drawings provided in Attachments 1, 2, and 3 are representative of the repairs on all three units. Attachments 1, 2, and 3 contain the mark-ups requested. Attachments 1 and 2, included in the original LAR, are provided in a larger format. Attachment 3 shows the physical location of the repairs in the Unit 2 pressurizer. These locations are representative for all three units.

RAI #2

Clarify whether you have considered any means of preventing corrosion on the affected carbon steel areas.

ANSWER:

The corrosion calculations developed by the vendors in support of the vent nozzle and thermowell repairs result in conservative, acceptable corrosion rates. The tight gaps and the inaccessibility of the exposed carbon or low alloy steel surfaces did not support options for further lowering of these acceptable corrosion rates with coating or other surface conditioning methods. In addition, continued Oconee Reactor Coolant System (RCS) chemistry control will ensure that the existing calculated corrosion rates remain conservative. Finally, any extension to the existing 18 month fuel cycles will improve (i.e. lower the calculated overall corrosion rate) since the ONS plants will operate in a lower corrosion rate environment for a longer period of time than that used in the current, conservative corrosion evaluations.

RAI #3:

Please provide a copy of the corrosion rate calculations stated in your letter dated August 1, 2008, for the affected areas.

ANSWER:

AREVA was contracted for the Pressurizer vent nozzle component replacement. The corrosion evaluation for the Pressurizer vent nozzle is documented in Oconee calculation OSC-8745, Revision D5, Attachment 2C (Proprietary AREVA Document 51-9001050-001, "Oconee 1, 2 & 3 Pressurizer Vent Nozzle MOD Corrosion Evaluation").

Structural Integrity Associates (SIA) was contracted for the Pressurizer thermowell component replacement. The corrosion evaluation for the Pressurizer thermowell is documented in OSC-8745, Revision D5, Attachment 7G, Appendix B, (SIA Proprietary Appendix titled "Corrosion of Carbon Steel and Low Alloy Steel in PWR Primary Water").

As noted, both of these vendor calculations are proprietary in nature, so only the details of the calculations were outlined in the LAR. Permission was received from both vendors to include the information as stated in the LAR. During a September 8, 2008 phone conversation with the PM and the technical reviewer, the request was clarified as requesting the summary of the results from these calculations. The cover sheet and the non-proprietary summary for each are included in Attachments 4 and 5. These calculations are being submitted to aid in the staff's review and approval of this LAR. However, these calculations and the governing Oconee calculation may be subject to change and will be evaluated and controlled through normal station processes.

RAI #4:

Please provide a copy of the Westinghouse WCAP-2855, "Yankee Vessel Cladding Penetrations.

ANSWER:

Attachment 6 contains the Cover Page and Table of Contents for WCAP-2855, "Evaluation of Yankee Vessel Cladding Penetrations", dated October 15, 1965. The document is over 60 pages in length and contains an evaluation of possible failure mechanisms resulting from damage caused to the Yankee Reactor Vessel when one material irradiation capsule broke up.

Duke has reservations about sending additional portions of this document due to the stamp stating "Not approved for Public Release. Available to the AEC and its Contractors Only." The significance of the stamp is indeterminate due to the age of the document. Additionally, the rules for use established at the time of its origination are unclear. Based on the stamp, it is believed that this document is available in the NRC/AEC archives.

ATTACHMENT 1

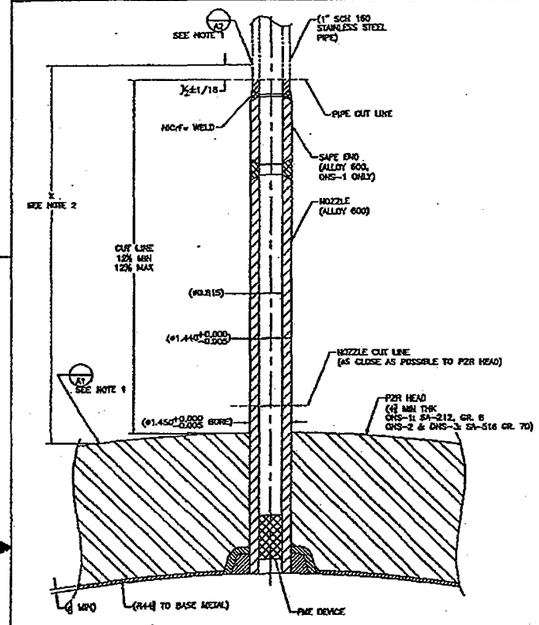
OM 201-3232.001, Rev 0 - ONS 1, 2 & 3 Pressurizer Vent Nozzle Modification

FRAMATOME ANP, INC., AN AREVA AND SIEMENS COMPANY

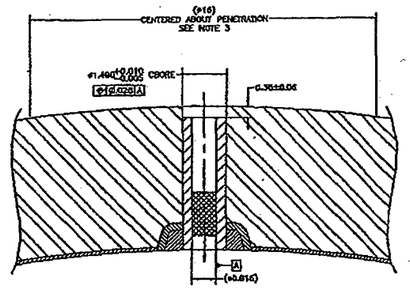
AREVA

REVISIONS (ALL SHEETS SAME REV LEVEL)

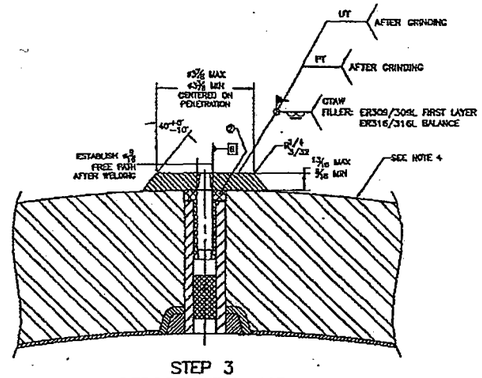
REV	DESCRIPTION	DATE	APPROVED



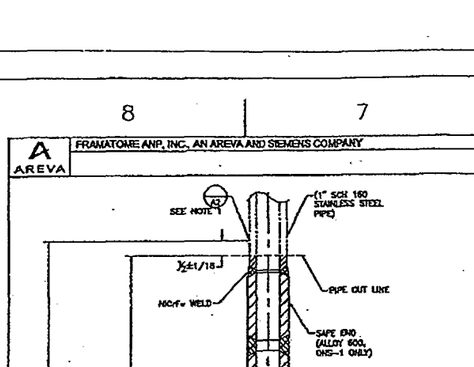
STEP 1
REMOVE NOZZLE



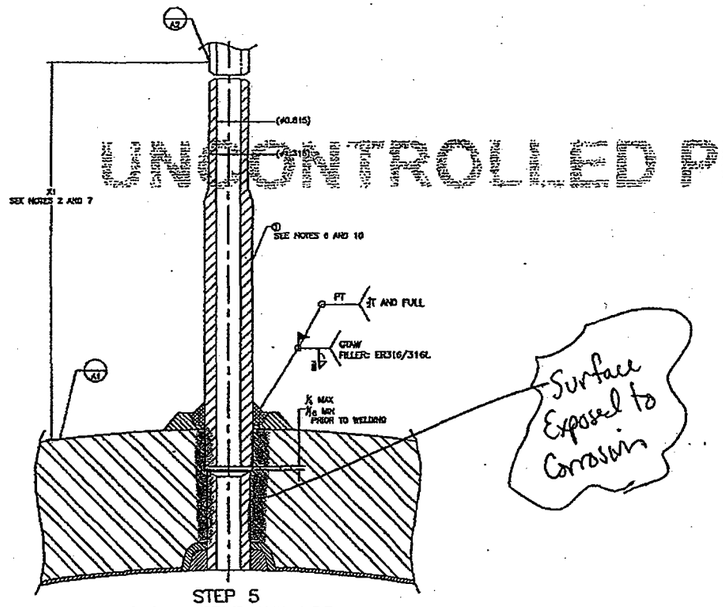
STEP 2
CBORE PENETRATION
AND NDE



STEP 3
DEPOSIT WELD PAD
AND NDE



STEP 4
MACHINE BORE, FORM
WELD PREP, AND NDE



STEP 5
WELD NOZZLE AND NDE

BILL OF MATERIAL

ITEM	QTY	PART NO.	OS	F/P	DESCRIPTION	MATL SPEC
1	1	5066928-001	B	F	REPLACEMENT VENT NOZZLE	SEE NOTE 11
2	1	5066929-001	B	F	WELD DAM	SEE NOTE 12

NOTES:

1. USING A LOW STRESS MARK, CREATE DATUM TARGET A1 ON THE PRESSURIZER HEAD OUTSIDE OF THE 16 INCH DIAMETER REPAIR AREA, AND DATUM TARGET A2 ON THE VENT PIPE.
2. MEASURE AND RECORD DISTANCE BETWEEN DATUM TARGETS A1 AND A2.
3. PT OR MT AND UT THE REPAIR AREA.
4. PT OR MT AND UT THE 6" RADIAL BAND BEYOND THE WELD PAD.
5. MEASURE AND RECORD BORE DIAMETER FOR USE IN CALCULATING REPLACEMENT NOZZLE OUTSIDE DIAMETER. SEE NOTE 6.
6. OD OF REPLACEMENT NOZZLE WITHIN PENETRATION SHALL BE FINAL MACHINED PER FANP DOCUMENT 02-50669288 (LATEST REVISION). FINAL MACHINED NOZZLE SHALL HAVE A .020 MAXIMUM DIAMETRICAL CLEARANCE WITH THE MACHINED BORE OF THE PENETRATION.
7. POSITION PIPE SO THAT THE DIFFERENCE BETWEEN X AND X1 IS LESS THAN ½".
8. DIMENSIONAL INFORMATION FOR THE EXISTING CONFIGURATION IS TAKEN FROM DOCUMENTS REFERENCED IN FANP DOCUMENT 51-5069853 (LATEST REVISION).
9. ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE SPECIFIED.
10. WITH PIPE IN POSITION, DETERMINE REPLACEMENT NOZZLE LENGTH AND FINAL MACHINE NOZZLE IN ACCORDANCE WITH FANP DOCUMENT 02-50669288 (LATEST REVISION).
11. MATERIAL SHALL MEET THE REQUIREMENTS OF SA-479, TYPE 316 WITH A MAXIMUM CARBON CONTENT OF 0.03 WT % AND A MAXIMUM COBALT CONTENT OF 0.2 WT % AND A MINIMUM TENSILE STRENGTH OF 75 KSI.
12. MATERIAL SHALL MEET THE REQUIREMENTS OF SA-479, TYPE 316.

ONS-1, ONS-2, AND ONS-3
PRESSURIZER
VENT NOZZLE
MODIFICATION

DRAWING NUMBER: 5066927 D | REV: 0 | SCALE: NONE | SHEET 1 OF 1

Attachment 1 to LAR 2008-08 RAI

OM 201.-3232.001

QA CONDITION 1

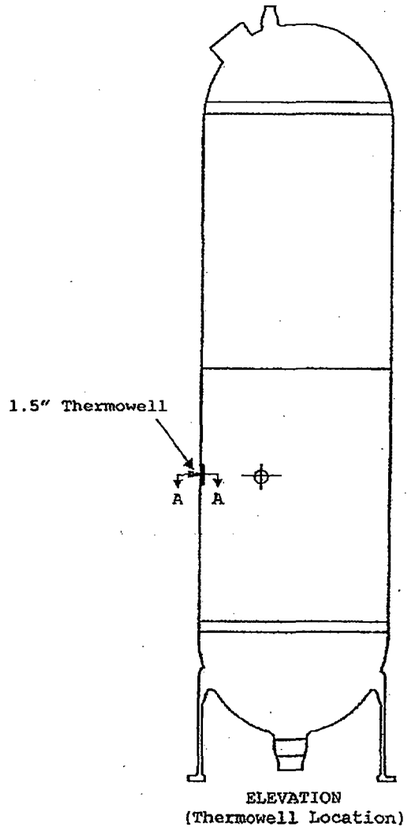
ERN: 0X009IZ6

STATUS	NO.	REVISIONS	DRN	DATE	CHKD	DATE	APPR	DATE
A	0	VENDOR ISSUED PER QE500497					RDD	3-16-05

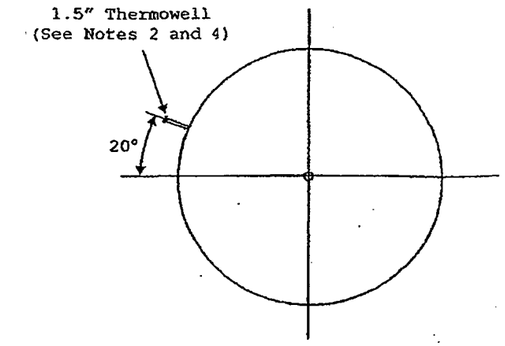
CIVIL	ELEC.	MECH.	OTHER
OWP	-W-	JAS	-
INSPECTED			

ATTACHMENT 2

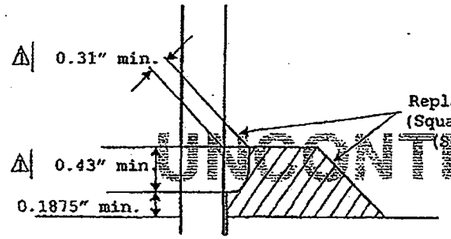
OM 2201-3212.001, Rev D01 - ONS3 1.5" Pressurizer Thermowell Repair Design



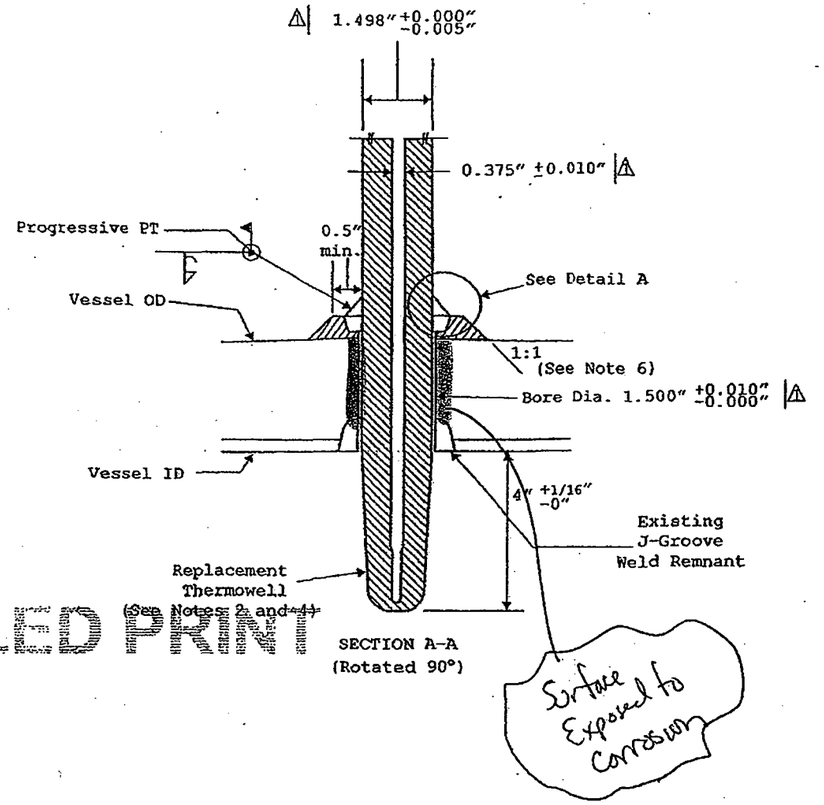
ELEVATION
(Thermowell Location)



TOP VIEW
(Thermowell Location)



DETAIL A



SECTION A-A
(Rotated 90°)

Notes:
1. Break all sharp corners to leave a smooth transition.
2. Replacement thermowell is Alloy 690 material.
3. Replacement weld metal is Alloy 52M/152M.
4. Replacement thermowell dimensions per WSI Drawing No. 401795, Revision 2.
5. There is no requirement as to the radius of the replacement weld connecting the pad to the replacement thermowell.
6. The slope of the replacement weld shown is a maximum slope. Other slopes, such as 1:3, where the first dimension is the pad thickness, are acceptable.
7. Maximum diametrical gap is 0.020".
8. Duke Purchase Order No. DS 2058.

05053A1

Rev.	Date	Drawn By	Checked By	Engineer	Approved By
1	09/06/06	A. Vanichsarn	R. Mattson	G. Mukhim	M. Taylor

Structural Integrity Associates, Inc.

TITLE
Pressurizer 1.5" Thermowell
Repair Design

Oconee Nuclear Station, Unit 3

D01

Drawn by: A. Vanichsarn	Date: 08/08/06	DRAWING NO. ONS-15Q-05	PROJECT NO. ONS-15Q
Checked by: R. Mattson	Date: 08/08/06	NUCLEAR SAFETY RELATED YES [X] NO [ ]	FILE NO. ONS-15Q-550
Engineer: G. Mukhim	Date: 08/08/06		
Approved by: M. Taylor	Date: 08/08/06	CODE: ASME, III, NB	SCALE: None / SHEET: 1 of 1 / REV: 1

OM 2201.-3212.001

Attachment 2 to LAR 2008-08 RAI

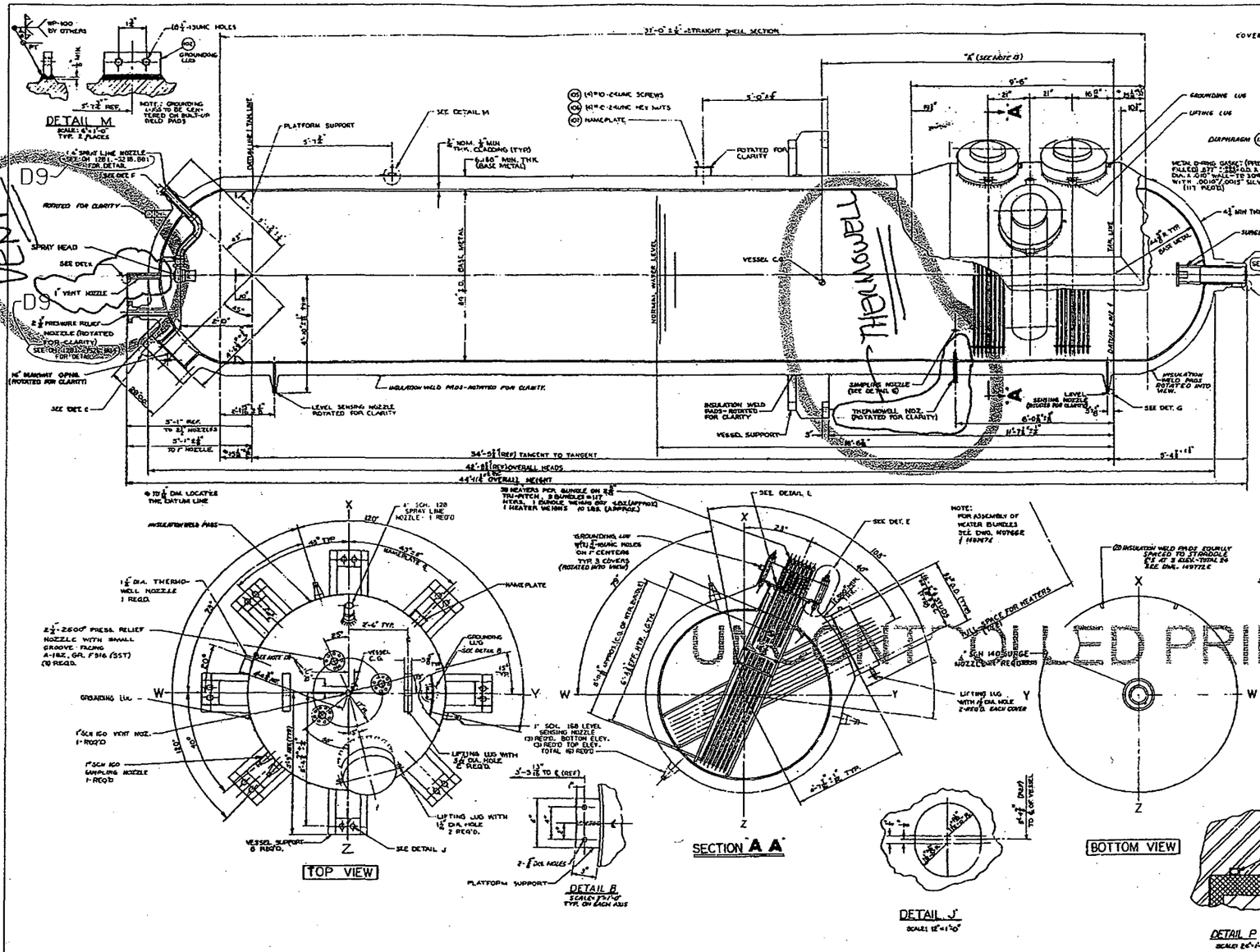
QA CONDITION-1

STATUS	NO.	REVISIONS	DRN	DATE	CHKD	DATE	APPR	DATE	CIVIL	ELEC.	MECH.	OTHER
A	D01	REVISED PER CD301377	FWP	1/9/08	LSW	1/9/08	DAK	1/15/08	-W-	-W-	-W-	---
									INSPECTED			

ERN: 0X0091.MV

ATTACHMENT 3

OM 1201-858.001, Rev D9 - Unit 2 Pressurizer General Arrangement



REVISIONS

ZONE	DESCRIPTION	DATE	APPROVAL
1.	(B-8) ADDED 3" DIM. — (A-18) & (C-9) 8" WAS 6'-10" — (C-8) ADDED, DWG. NO. 1497187 E TO NOTE — (DET. P) DELETED NRS-1E 286 (TOL. ON .125 DIA.) WAS .005" — (SECT. A-A) CLEANED STR. GUIDE ASS'Y CONFIGURATION — (C-6) 5'-11 7/8" (C.G. OF STR. BUNDLE) WAS 6'-1 3/8" — (DET. P&N) REVISED WELD PREPS FOR E&E WITH E.B. INSERTS — (GENERAL NOTE 5) (AND 2) 3612 PSIG WAS 3940 PSIG — (NO. 6) (ORV) 72000 WAS 78,000 LBS. (OPERATING) 333,400 WAS 318,000 LBS. (FLOODED) 349,700 WAS 345,000 LBS. — REVISED NO. 10 — ADDED NO. 11 & 12 — (C-4) 4 (SIDE PLATES) WAS 16 — (C-12) (C-11) 1/4 (SIDE PLATES) WAS 1/8 — (C-11) 5 WAS 10 — (C-10) 2 1/4" — (A-16) 54 TOP HEAD REVISED VESSEL SUPPORTS — (DET. L) 1.12 LWT WAS 1.0 LWT, 1.007 LBS. WAS 2.2 — (D-13) 3/4" DIA. WAS 3/4" — (GEN. NOTES) ADDED NOTE 12. LOCA/LW	4/4	CLM
2.	(A-1) REVISED DET. L TO SHOW HEATER SHIELDED TO DIAPHRAGM — (DET. P) (M-13) WAS 112, 20.004" WAS 20.004", .150" WAS .187" — (N-2) WAS .025" WAS .010, INCONEL 718 WAS TP-304 ST. / .005" WAS .003" — (GEN. NOTE) REVISED NOTES 7 & 12. LOCA/LW	5/4	CLM
3.	(C-9) ADDED JAMNUTS (M-13) — (C-2) DELETED REF TO NOTE 18 — (D-2) REVISED NOTE 13. 6.46/TMW	7/23	CLM

GENERAL NOTES

1. VESSEL IS DESIGNED, FABRICATED, INSPECTED, & TESTED IN ACCORDANCE WITH ASME CODE, SECTION III, 1965 EDITION AND:
   A. ADDENDA AS IDENTIFIED BY THE CERTIFIED BASIC SPECIFICATION
   B. CERTIFIED DESIGN SPECIFICATION.
   C. CERTIFIED STRESS REPORT
2. DESIGN CONDITIONS:

PRESSURE	2500 PSIG
TEMPERATURE	670° F
HYDROSTATIC TEST PRESSURE	3125 PSIG
HYDROSTATIC TEST TEMPERATURE	60° F MIN.

3. ALL WELDING, POST WELD HEAT TREATMENT AND NON-DESTRUCTIVE TESTING OF WELDS IS IN ACCORDANCE WITH APPLICABLE WELD SPECIFICATION NUMBERS AS SHOWN ON DETAIL DRAWINGS.
4. ALL CLADDING & MACHINED SURFACES TO HAVE A 250 RMR FINISH OR BETTER EXCEPT AS NOTED ON DETAIL DWGS. EXTERNAL SURFACES TO HAVE A 500 RMR FINISH EXCEPT AS NOTED ON DETAIL DWGS.
5. VESSEL TO BE CLEANED PRIOR TO SHIPMENT IN ACCORDANCE WITH APPROVED CLEANING PROCEDURE.
6. WEIGHTS (CALCULATED) (APPROXIMATE)
   DRY - 305,000 LBS.
   OPERATING - 333,400 LBS.
   FLOODED - 349,700 LBS.
7. ALL OPERATIONS TO FOLLOW "INSPECTION & PROCESS OUTLINE" INCLUDING LATEST REVISIONS. (FOR SHOP USE ONLY)
8. HEATERS TO BE INSTALLED IN VESSEL PRIOR TO HYDROSTATIC TEST.
9. LIST OF DRAWINGS 79914 A.
10. ALL EXPOSED CARBON STEEL SURFACES, EXCEPT BOTTOM SURFACE OF SEISMIC SUPPORT PLATE, TO RECEIVE TWO COATS OF MIL-P-24758 B HIGH HEAT ALUMINUM PAINT OR EQUAL.
11. THESE PARTS TO HAVE METAL TAGS ATTACHED FOR IDENTIFICATION.
12. TORQUE VALUES — MAXIMUM STRESS — OPERATING 2100 FT/LBS — HYDROTEST 2700 FT/LBS
13. CENTER OF GRAVITY DIMENSIONS.

	DRY	OPERATING	FLOODED
X	191 3/8"	189 5/8"	192"
Y	2 3/8"	2 5/8"	2 1/8"
Z	2 5/8"	2 5/8"	2 1/8"

14. SA-479 .316SS IS AN ACCEPTABLE REPLACEMENT FOR ALLOY 600. BASED ON PRIMARY WATER STRESS CORROSION CRACKING. SA-479, 316SS IS THE PREFERRED MATERIAL. SEE OM 201.-3228.001 AND OM 201.-3231.001. SEE OM 1201.-1122.001 FOR AS-BUILT DIMENSIONS.
15. SA-479 .316SS IS AN ACCEPTABLE REPLACEMENT FOR ALLOY 600. BASED ON PRIMARY WATER STRESS CORROSION CRACKING. SA-479, 316SS IS THE PREFERRED MATERIAL. SEE OM 201.-3229.001 AND OM 201.-3232.001. SEE OM 1201.-1122.001 FOR AS-BUILT DIMENSIONS.

No. OF DWGS.	UNIT 2 PRESSURIZER GENERAL ARRANGEMENT
620-0004-59	25482 F — REV. D9

LEG. CERT. FULL SIZE ONLY

OM 1201. -0858 001

QA CONDITION 1

A	D9	REV. PER OD201085, OD201086	DLR	6-1-07	LER	6-1-07	RBC	7-9-07	-W-	-W-	WWF	---
-	-	& OD201087	---	---	---	---	---	---	---	---	---	---
A	ORIG	ORIGINAL DRAWING RETIRED	RLS	3/11/03	---	---	---	---	---	---	---	---
STATUS	NO.	REVISIONS	DRN	DATE	CHKD	DATE	APPR	DATE	CIVIL	ELEC.	MECH.	OTHER
									INSPECTED			

Attachment 3 to LAR 2008-08 RAI

ERN: 0X001A0G

ATTACHMENT 6

Westinghouse WCAP-2855, "Yankee Vessel Cladding Penetrations" - Selected Excerpts

WCAP-2855

(c ✱)

EVALUATION OF YANKEE VESSEL CLADDING PENETRATIONS

October 15, 1965

WESTINGHOUSE ELECTRIC CORPORATION
Atomic Power Division
P. O. Box 355
Pittsburgh 30, Pennsylvania

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