Progress Energy

Crystal River Nuclear Plant
Docket No. 50-302
Operating License No. DPR-72

Ref: 10 CFR 50.55a

June 5, 2008
3F0608-05

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

Subject: Crystal River Unit 3 – Response to Request for Additional Information Regarding Relief Requests #07-001-SS, Revision 0, Alternate Examination Criteria for the Reactor Vessel Support Skirt to Perform Limited VT-3 Visual Examination on 3 areas 120 Degrees Apart on the Inside Surface in Accordance with 10 CFR 50.55a(a)(3)(i), TAC No. MD7737

Reference: Crystal River Unit 3 to NRC letter, 3F1207-04, dated December 21, 2007, "Crystal River Unit 3 – Inservice Inspection Program Plan, Ten Year Update," Accession No. ML073650362

Dear Sir:

Pursuant to 10 CFR 50.55a(a)(3)(i), Florida Power Corporation (FPC) doing business as Progress Energy Florida, Inc., Crystal River Unit 3 (CR-3) is hereby submitting the response to a Nuclear Regulatory Commission (NRC) request for additional information (RAI) received by email on May 14, 2008. This request for additional information is based on Relief Request #07-001-SS, Revision 0.

In addition, Attachment 3 is providing a revised page 7-14 of the Ten Year Inservice Inspection (ISI) Program Plan for the Fourth Interval, as line item E1.30 was discovered missing during a review subsequent to the referenced submittal.

Regulatory commitments are identified in Attachment 4.

If you have any questions regarding this submittal, please contact Dennis Herrin, Acting Supervisor, Licensing and Regulatory Programs at (352) 563-4633.

Sincerely,

B.J. Foster (acting)

Stephen J. Cahill
Engineering Manager

SJC/par

Attachments:
1. Response to Request For Additional Information
2. Drawings
3. Revised Page 7-14 of the Ten Year ISI Inspection Program Plan
4. List of Regulatory Commitments

xc: NRR Project Manager
Regional Administrator, Region II
Senior Resident Inspector

A047
NRR

Progress Energy Florida, Inc.
Crystal River Nuclear Plant
15760 W. Powerline Street
Crystal River, FL 34428

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50 - 302 / LICENSE NUMBER DPR - 72

ATTACHMENT 1

Response to Request for Additional Information

Response to Request for Additional Information

NRC Request
(1) Relief Request #07-001-SS, Revision 0

The American Society of Mechanical Engineers (ASME) Code, Section XI, Examination Category F-A, Item F.130 requires a 100% VT-3 visual examination of weld and mechanical connections at intermediate joints in multi-connected integral and non-integral supports, as defined by Figure IWF-1300-1. The licensee has proposed performing an alternative VT-3 visual examination on 10% of the reactor vessel (RV) support skirt for the fourth 10-year inspection interval for CR3. The proposed approach utilizes the identical approach from previous inspection intervals. The RR (98-003-II) for the third CR3 10-year ISI interval was authorized in the Safety Evaluation Report dated August 5, 1999. Relief was requested based on the radiation conditions below the RV, which would result in significant radiation exposure to inspection and support personnel. Because there have been substantial improvements in inspection techniques since the previous inspection interval, the staff requests that the licensee address the potential for increase in visual examination of the RV skirt through the use of improved state-of-the-art inspection techniques.

FPC Response

Even with the improvements in the inspection techniques since the last inspection period, there are dose and other limitations, due to the physical configuration of under vessel area, which prevent a 100% VT-3 visual inspection from being performed. The area under the reactor vessel is a high radiation area, and the Crystal River Unit 3 (CR-3) commitment to ALARA requires minimization of time spent in this area.

The outside surface of the weld is restricted from access by a welded seal plate in the refueling cavity. This plate would have to be removed and a person would have to be lowered down between the reactor vessel and the shield wall to remove the insulation and perform the inspection of the support skirt weld. An optional access point for the inspection would be to remove the concrete plug allowing access from below. This option involves the removal of 42 cubic feet of 5000 psi concrete, which is further complicated by the fact that the plug is overhead and there is insufficient room for jackhammers to be used. Therefore, only the inside surface of the support skirt weld is reasonably accessible, which automatically limits the examination to no more than 50%.

Additionally, removing the insulation panels on the bottom of the reactor vessel is not easily performed due to the number of incore monitoring tubing interferences in the bottom head. The panels are 30 inches in length and the physical shape of each panel is such that there would be significant difficulty in maneuvering them in the cramped area without potentially impacting one or more of the thin wall incore monitoring tubing. Since any leakage in one of these thimbles would be un-isolable, any activity that could potentially cause potential leakage at this location should be avoided.

The areas inspected are reviewed each time to note any trends of degradation. Any mechanism which could damage the vessel would be evident at these three locations examined and not confined to small areas around the vessel. If the entire vessel shifted, then the damage to the bolting, support skirt or associated weld would be visible over a majority of the examination area.

It is expected that more than 10% of the inside support skirt weld is inspected during the required VT-3 visual examination, but there is no accurate method of measurement. Therefore, CR-3 cannot commit to a larger percentage of the inspection area. The area is too confined to get a measurement device in place. The last time this examination was performed was in conjunction with the bare metal visual inspection of the bottom reactor vessel head during Refuel Outage 13 in 2003.

CR-3 will perform a VT-3 examination of the reactor vessel support skirt weld, to the extent practical, when maintenance or other activities remove the insulation covering the support skirt weld. This can be performed in conjunction with the bare metal visual inspection of the bottom reactor vessel head. The inspection is performed with a pole mounted camera and enables a long reach around the circumference of the support skirt.

In summary, Florida Power Corporation recognizes that inspection and examination techniques have improved in the last ten years, but considers the relief request as valid due to the same concerns that were the basis for the previous interval relief requests from this requirement. It is expected that shifts in the reactor vessel, due to undetected cracks in the support skirt weld, would be noted in the VT-3 examination of those areas within the inspection scope.

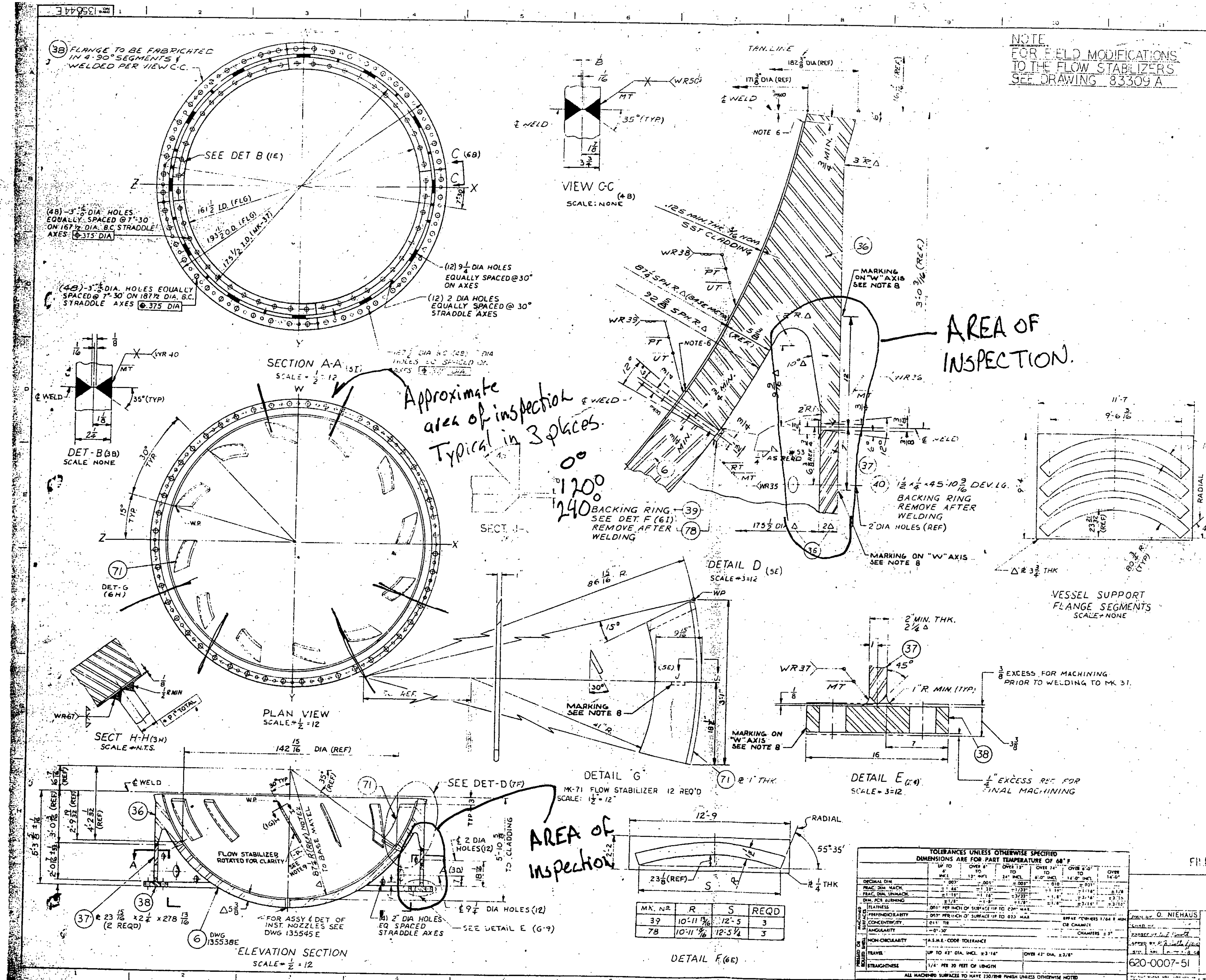
PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50 - 302 / LICENSE NUMBER DPR - 72

ATTACHMENT 2

Drawings



MK. NO	R	S	REQD
39	10'-11 13/16	12'-5	3
78	10'-11 13/16	12'-5¼	3

REVISIONS

	DESCRIPTION	DATE	APPROVAL
1	CHANGED DESIGN OF MK-71. MOVED DET. G FROM (11-C) TO (7-H); MOVED SECT. J-J TO (5-E). ADDED (48) 1" DIA. HOLES IN SECT. A-A & PLAN VIEW. IN (4-I) ADDED (4) 2" DIA HOLES. JMF/SGS	7/8/68	O.S.B.
2	[illegible] SEE NOTE 2 DDF/SGS	7/14/68	O.S.B.
3	(1-8 E&C) 3"+1/16-0 WAS 3" DETAIL D & DETAIL F ADDED MK-78. TWK/SGS	[illegible]	O.S.B.
4.	ADDED NOTE 8 & RELATIVE MARKING LOCATIONS IN ZONES (G-7&8)(C&E-8) DAK/SGS	10/29/69	BWH
5.	(PLAN VIEW) CHANGED PICTURE OF FLOW STABILIZERS & ADDED W.P. ~(SECT. H-H) ADDED [⊥ P 1" TOTAL] ~(ELEVATION VIEW) ADDED W.P., [-P-] SEE NOTE 9 & FLOW STABILIZER ROTATED FOR CLARITY ~(DET D) 182⅜" DIA (REF) WAS 182⅜" DIA & ADDED 171⅜" DIA (REF) ~(NOTES) ADDED NOTE 9. KEC/JST	4/14/71	BWH
6.	(4-10) ADDED FIELD MODIFICATION NOTE GH/DEF	11/22/72	BWH

NOTES

1. LIST OF DWGS 102968C
2. VESSEL IS DESIGNED, FABRICATED, INSPECTED & TESTED IN ACCORDANCE WITH:
   A) ASME BOILER & PRESSURE VESSEL CODE SECTION III 1965 EDITION
   B) ADDENDA & CODE CASE RULINGS IN EFFECT AT DATE OF ORDER
   C) EQUIPMENT SPEC CS-3-22 LATEST REVISION
3. SYMBOL DESIGNATION:
   WR - WELD SPECIFICATION NO.
   MT - MAGNETIC PARTICLE INSPECTION
   PT - LIQUID-PENETRANT INSPECTION
   RT - RADIOGRAPHIC INSPECTION
   UT - ULTRASONIC INSPECTION
   Δ - INDICATES AS ORDERED DIM.
4. ALL WELDING TO BE IN ACCORDANCE WITH INSTRUCTIONS FROM QUALITY CONTROL.
5. ALL MACHINED & CLAD SURFACES TO HAVE 250/ FINISH UNLESS OTHERWISE NOTED.
6. CLADDING EDGE TO BE SUITABLE FOR SUBSEQUENT WELDING.
7. WELD PADS FOR INSULATION ATTACHMENT TO BE ADDED PER DWG 135558E.
8. ALL PERMANENT IDENTIFICATION MARKINGS ARE TO BE APPLIED USING "INTERRUPTED-DOT" DIE STAMPS PER SECTION III ASME CODE, PARAGRAPH N-512. THE MARKINGS ARE TO BE INSPECTED AND, IF NECESSARY, RE-APPLIED AFTER EACH OPERATION AND AFTER FINAL STRESS RELIEF.
9. DATUM [-P-] IS DEFINED AS A PLANE, 30° OFF VERTICAL & PASSING THROUGH THE WORK POINT & THE SPHERICAL RADIUS.

GILBERT ASSOCIATES, INC.
R. E. Vaughn
Reg: RCRE-7
10/8/25

FLORIDA POWER CORP.
CRYSTAL RIVER PLANT UNIT 3

FILE COPY

TOLERANCES UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE FOR PART TEMPERATURE OF 68° F

	UP TO 6" INCL	OVER 6" TO 12" INCL	OVER 12" TO 24" INCL	OVER 24" TO 6'-0" INCL	OVER 6'-0" TO 14'-0" INCL	OVER 14'-0"
DECIMAL DIM	±.003"	±.005"	±.005"	±.010	±.031"	—
FRAC. DIM. MACH.	±1/64"	±1/32"	±1/32"	±1/16"	±1/16"	±1/8
FRAC. DIM. UNMACH.	±1/16"	±1/16"	±3/32"	±1/8"	±3/16"	±3/16
DIM. FOR BURNING	±1/8"	±1/8"	±1/8"	±1/8"	±3/16"	±3/16"
MACHINED SURFACES: FLATNESS	.001" PER INCH OF SURFACE UP TO .020" MAX.					
MACHINED SURFACES: PERPENDICULARITY	.002" PER INCH OF SURFACE UP TO .020 MAX				BREAK CORNERS 1/64 R MIN OR CHAMFER	
MACHINED SURFACES: CONCENTRICITY	.011" TIR					
MACHINED SURFACES: ANGULARITY	±0°-30'				CHAMFERS ±5°	
PRESSED OR ROLLED SHELL: NON-CIRCULARITY	A.S.M.E. CODE TOLERANCE					
PRESSED OR ROLLED SHELL: TRAVEL	UP TO 42" DIA. INCL. ±3/16"			OVER 42" DIA. ±3/8"		
PRESSED OR ROLLED SHELL: STRAIGHTNESS	1/4" PER 20 FEET OF LENGTH					

ALL MACHINED SURFACES TO HAVE 250/RHR FINISH UNLESS OTHERWISE NOTED

FLORIDA POWER CORP.
CRYSTAL RIVER UNIT #3

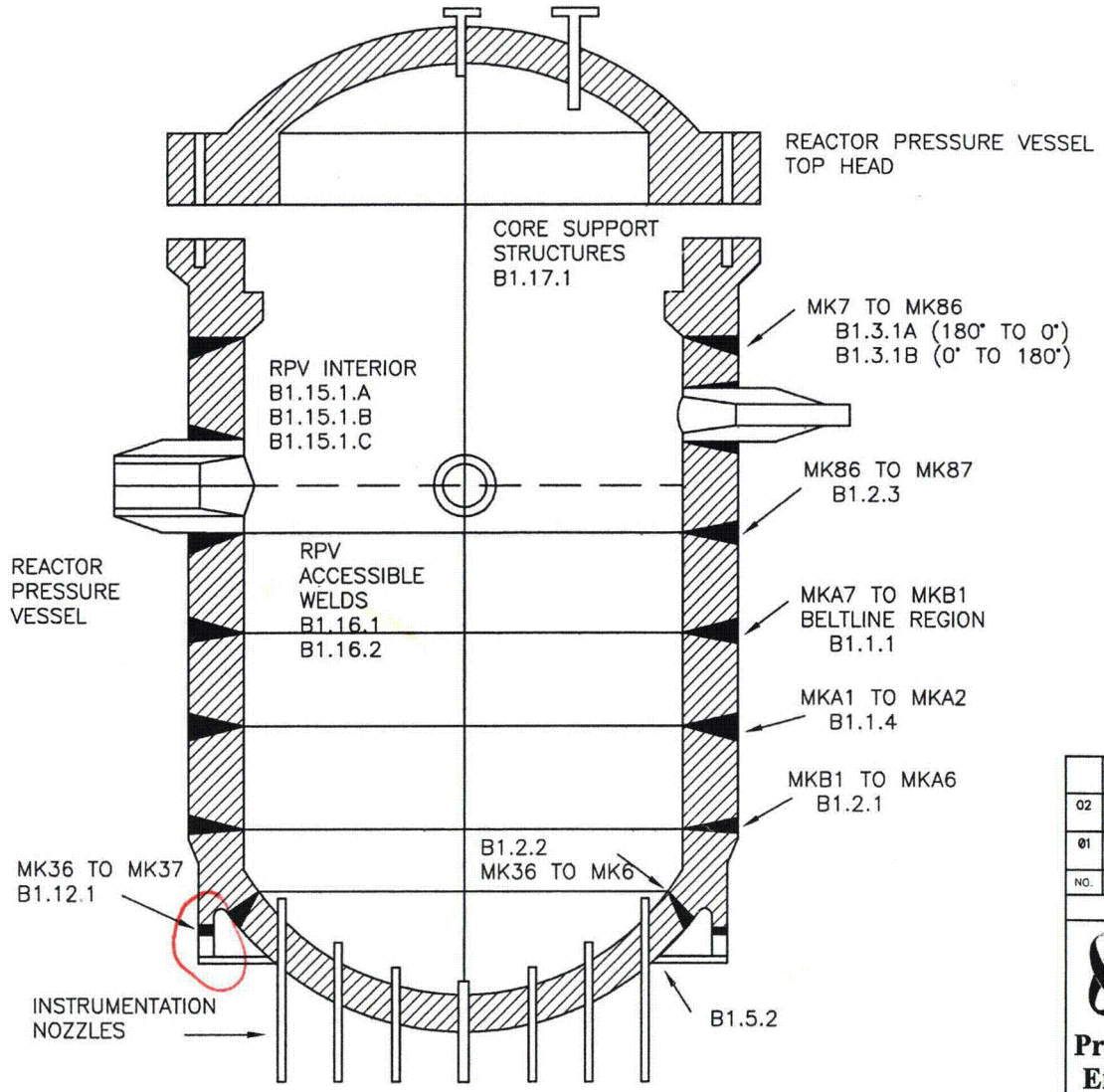
DWN BY O. NIEHAUS
CHKD BY
PASSED BY [illegible]
APPVD BY [illegible]

620-0007-51

VESSEL HD & SUPPT ASSY & DET

SCALE NOTED

DWG. NO. 135544E



NO.	DESCRIPTION	DRAWN	CHKD	APPR.	DATE
02	AS BUILT PER EC 50220	TDF	LDL	KRW	11/21/01
01	ISSUED PER DCN 00-176J	MAD	JWH	MFD	8/16/00

REVISIONS

Progress Energy

ASME SECTION XI NDE PROGRAM

CR3-P-SK-1AC (DRAWING NUMBER) | 2 (SHEET)

N/A (REFERENCE DRAWINGS)

VERIFIED	8/22/97 APRVD.	APPROVAL	GV HILDEBRANDT DRAWN BY

ISI DISCP.	2 REV.	REACTOR PRESSURE VESSEL DWG. DESCRIPTION

FILE: CR3PSK-1AC2.DWG

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CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50 - 302 / LICENSE NUMBER DPR - 72

ATTACHMENT 3

Revised Page 7-14 of the Ten Year ISI Inspection Program Plan

TABLE 7.1-1
INSERVICE INSPECTION SUMMARY TABLE

Examination Category (with Examination Category Description)	Item Number	Description	Exam Requirements	Total Number of Components	Relief Request/ TAP Number	Notes
E-A Containment Surfaces	E1.11	Containment Vessel Pressure Retaining Boundary Accessible Surface Areas	General Visual	Liner Plates: 26 Penetrations: 155 Attachments: 867		4
	E1.11	Containment Vessel Pressure Retaining Boundary Bolted Connections, Surfaces	Visual, VT-3	7		4
	E1.12	Containment Vessel Pressure Retaining Boundary Wetted Surfaces of Submerged Areas	Visual, VT-3	Sump: 1 Penetrations: 2 Attachments: 0		5
	E1.30	Moisture Barriers	General Visual	1		
E-C	E4.11	Containment Surface Areas -Visible Surfaces	Visual, VT-1	0		6
Containment Surfaces Requiring Augmented Examination	E4.12	Containment Surface Areas -Surface Area Grid Grid Line Intersections and Minimum Wall Thickness Locations	Volumetric (Thickness)	0		7

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CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50 - 302 / LICENSE NUMBER DPR - 72

ATTACHMENT 4

List of Regulatory Commitments

LIST OF REGULATORY COMMITMENTS

The following table lists regulatory commitments identified by Florida Power Corporation (FPC), in this document. Any other actions discussed in the submittal represent intended or planned actions by FPC. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Supervisor, Licensing and Regulatory Programs of any questions regarding this document.

Regulatory Commitments	Due Date
CR-3 will perform a VT-3 examination of the reactor vessel support skirt weld, to the extent practical, when maintenance or other activities remove the insulation covering the support skirt weld.	09/30/2008