Florida
Power
CORPORATION
Crystal River Unit 3
Docket No. 50-302
Operating License No. DPR-72

December 13, 1999
3F1299-03

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

Subject: Modified Large Bore Piping Project Description And Withdrawal Of The Commitment For Performing Reactor Coolant System Class 1 Attachment Piping Fatigue Analysis

References:
(1) FPC letter 3F1197-24, "Plan and Schedule for RCS Attachment Piping Class 1 Fatigue Analyses," dated November 21, 1997.

(2) FPC letter 3F0698-19, "Plan and Schedule for Large Bore Piping Project," dated June 30, 1998.

(3) FPC letter 3F0998-05, "Commitment Change for the Class 1 Fatigue Analysis," dated September 4, 1998.

(4) NRC letter 3N1099-11, "Summary of Meeting on September 27, 1999, concerning Crystal River Unit 3 Large Bore Piping Project," dated October 15, 1999.

Dear Sir:

The purpose of this letter is to provide a written description of the Florida Power Corporation (FPC) Crystal River Unit 3 (CR-3) Large Bore Piping Program (LBPP), to withdraw the specific commitment for performing the Reactor Coolant System (RCS) Class 1 Attachment Piping fatigue analysis, and to provide additional information concerning past RCS Class 1 Attachment Piping non-destructive weld examinations. These subjects were discussed during a meeting held between the NRC staff and representatives of FPC on September 27, 1999. By Reference 4, the NRC staff documented the September 27, 1999, meeting and requested that certain information be provided in writing. This letter provides that information.

The NRC staff requested that FPC provide a written description of the LBPP implementation plan. That description is contained in Attachment A. During the September 27, 1999 meeting, FPC representatives and the NRC staff discussed changes to the LBPP implementation (Reference 2).

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Also presented at the September 27, 1999, meeting was the basis for withdrawing a previous commitment to perform a fatigue analysis for RCS Class 1 Attachment Piping. In November 1997 (Reference 1), FPC committed to perform Class 1 fatigue analysis for RCS Attachment Piping that are in the Core Flood (CF) System from the reactor vessel to the first riser for both CF lines, the Decay Heat (DH) System from the hot leg nozzle up to and including valve DHV-4, and a horizontal segment of the pipe that connects the Auxiliary Pressurizer Spray (APS) line to the main pressurizer spray by July 15, 2000 (Reference 3). These were the segments of piping identified as fatigue sensitive out of a screening of RCS Attachment Piping.

However, resolution of the industry Environmental Assisted Fatigue issue and completion of the Electric Power Research institute (EPRI) Thermal Fatigue work will not be completed by July 15, 2000. In order to avoid re-performance of the RCS Attachment Piping fatigue analysis, FPC is withdrawing that specific commitment. As part of the life cycle management program, FPC will perform fatigue analysis of the RCS Attachment Piping segments using the industry approved methodology for including environmental fatigue factors if it is determined that further analysis is required. The basis for this withdrawal is contained in Attachment B.

This submittal contains no new commitments. If you have any questions regarding this submittal, please contact Mr. Sid Powell, Manager, Nuclear Licensing, at (352) 563-4883.

Sincerely,

D. L. Roderick
Director
Nuclear Engineering and Projects

DLR/dwh
Attachments

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

ATTACHMENT A
MODIFIED LARGE BORE PIPING PROGRAM (LBPP)

Initial Program Approach

FPC plans to perform a comprehensive and rigorous inspection, revalidation and/or requalification of Crystal River Unit 3 (CR-3) safety-related large bore piping and pipe supports. Some of the activities for accomplishing this program are as follows:

Develop a project scoping report that defines the scope and duration of this effort. This effort will address the issue of lack of engineering documentation as well as address the various technical issues associated with the Wais Report.

Develop specific pipe stress and pipe support calculations to support the resolution of these identified issues. These calculations will be controlled by FPC.

Develop a project plan for establishing the programmatic tasks (e.g. computer program purchases, master list development, reviewing licensing commitments, project staffing, etc.).

Current Program Approach

The comprehensive and rigorous inspection, revalidation and/or requalification program, as identified in Reference 2, will be accomplished using a "focused approach." The focused approach will resolve a number of identified technical and administrative issues that may challenge CR-3's licensing basis. This process will ensure these issues are adequately dispositioned in a retrievable manner. This approach accomplishes resolution of these issues utilizing a generic resolution strategy wherever practical and limits the need to perform new rigorous analysis for the majority of large bore Seismic Category I piping systems. Additionally, this approach utilizes historical configuration data from the NRC Bulletin 79-14, "Seismic Analysis For As-Built Safety-Related Piping Systems," program walkdowns rather than recreating this data from new walkdown information. Field verification of those lines requiring detailed analysis will be performed only if the existing information is inadequate or not retrievable.

The LBPP will be accomplished in two phases. In Phase 1, each issue will be evaluated to determine if a potential deviation from the plant licensing basis exists. This is accomplished by retrieving and reviewing current design and licensing documentation, including documentation supporting closure of the NRC Bulletin 79-14 piping validation effort. An engineering evaluation (EE) will be performed to generically assess each issue and establish whether or not it is in conflict with the CR-3 licensing basis. Each EE will be design-verified in accordance with FPC's commitment to ANSI N45.2.11 and processed in accordance with applicable plant procedures. Should adequate basis be established for closure of the issue, the EE will be utilized to update CR-3 design criteria for future guidance. It is anticipated that selected issues will require supplemental technical justification for closure in this phase of the program.

In Phase 2, a more detailed evaluation will be performed for those issues remaining open from Phase 1. A basis will be provided for resolving those issues for which current licensing documentation requires further clarification and/or justification to ensure compliance. Methodologies for resolving these issues may include, but not be limited to:

1. Evaluation Utilizing Recognized Industry Practices

   This method would involve performing industry literature searches and reviews, or generic calculations to establish the effect the issue has on the bounding technical requirements previously established for CR-3. It may be necessary to purchase technical reports from third parties or perform sensitivity analyses as a basis for closure of the issue.

2. Critical Characteristics Evaluation

   This method would establish the critical characteristics associated with a given issue and involve a review and/or limited analyses of specific isometrics and/or supports that have the potential to exhibit these characteristics. The evaluations associated with this method will provide the objective evidence of compliance with the licensing basis or recommend corrective measures, including modifications if required, to achieve compliance.

3. Evaluation By Analysis

   Some issues may require detailed evaluation by analysis to demonstrate design basis compliance. One or more issues may be addressed utilizing this methodology.

Issues requiring further corrective actions following the completion of Phase 2 will be addressed in the CR-3 Corrective Action Program. It is anticipated this will result in specific piping and pipe support modifications that will be developed and worked to bring the system into conformance with the licensing basis. It is not anticipated that any of these issues will challenge the current assessment of system operability.

Reasons For Program Modification

The focused approach accomplishes the same objective as the original program (i.e., development of adequate documentation to support the licensing basis of safety related large bore piping and supports). It surfaces problem areas early in the program for nearer term resolution. It eliminates issue-free piping from the program, thereby reducing the population requiring evaluation. With walkdowns focused on specific issues, the impact on plant resources and radiological dose is reduced. The program is issue driven and provides a more direct path for identification and resolution of compliance problems. Upon completion of the program, the criteria for the systems design basis will reflect the results of these evaluations, enhancing the retrievability of the documentation supporting the licensing basis.

ATTACHMENT B
REACTOR COOLANT SYSTEM CLASS 1 FATIGUE ANALYSES

Current Commitment Description

FPC will perform Class 1 fatigue analysis for the Reactor Coolant System (RCS) attachment piping that are in the Core Flood (CF) System from the reactor vessel to the first riser for both CF lines, the Decay Heat (DH) System from the hot leg nozzle up to and including valve DHV-4, and a horizontal segment of the pipe that connects the Auxiliary Pressurizer Spray (APS) line to the main pressurizer spray by July 15, 2000.

Justification For Commitment Withdrawal

There are no safety concerns associated with withdrawal of this commitment. The subject piping is qualified for a 40 year life in accordance with the FPC licensing basis. CR-3 is licensed to USAS B31.1-1967 for the subject piping lines. USAS B31.1-1967 requires a conservative, simplified fatigue evaluation. FPC has piping analyses on file demonstrating CR-3 code qualification. Additionally, the attached piping nozzles have rigorous fatigue evaluations which demonstrate sufficient design margin for each of the nozzles. Since these components already have fatigue evaluations with low fatigue usage (significantly less than 1.0) and CR-3 is approximately halfway through its design life, no design limits are at risk of being approached. In addition, FPC has performed selective inspections of the CF System, DH System and the APS piping in accordance with the Inservice Inspection (ISI) Program (see Attachment C). To date, no flaws or defects of concern have been found.

Performing the Class 1 analysis under the current criteria would invoke traditional USAS B31.7 or ASME Section III fatigue evaluations using the fatigue curves provided in these NRC approved codes. However, these lines, and possibly others, may require re-evaluation for the inclusion of environmental fatigue factors. Preliminary indications of the results of Generic Safety Issue (GSI) 190, "Fatigue Evaluation of Metal Components for 60-Year Plant Life," indicate that the NRC will continue to review the fatigue monitoring programs on a plant specific basis until an industry consensus is established and endorsed by the NRC. It is FPC's understanding that for critical Class 1 locations, the NRC staff would expect that an environmental factor would be accounted for in the process by which licensees decide when to take corrective action in their fatigue monitoring programs. However, until an industry consensus is established, there will be uncertainty in the evaluation methodology applied to these lines. Completing these analyses under the current commitment schedule would be prior to establishment of a consistent criteria and evaluation methodology. Therefore, in the absence of any safety issues, it is prudent to wait until this criteria is established and endorsed by the NRC. As part of the life cycle management program, FPC will perform fatigue analysis of the RCS Attachment Piping segments using the industry approved methodology for including environmental fatigue factors if it is determined that further analysis is needed.

Details On Which Welds Were Inspected, Dates Inspected, And Inspection Results

The above commitment withdrawal is justified based on the qualification of the RCS nozzles and the performance of non-destructive evaluations of the lines performed with no indications found. The NRC staff requested that FPC include details on which welds were inspected on these lines, dates inspected, and the results of the inspections (Reference 4). That information is contained in Attachment C and four attached Sketches.

ATTACHMENT C
ISI INSPECTION HISTORY

Core Flood Line 'A': Isometric PI-305-805 / ISI Sketch SK-3 Sheet 1

Weld Location	Inspected	Method	Comments
B1.6.1/B1.6.2	1985	UT	Acceptable; bi-metallic weld
B1.6.1/B1.6.2	1996	UT	Acceptable; bi-metallic weld
B4.5.266	1996	UT	Acceptable
B4.5.64	1983	UT	Acceptable
B4.5.63	1983	UT	Acceptable
B4.5.62	1985	UT	Acceptable
B4.5.138	1990	UT	Acceptable
B4.5.139	1994	UT	Acceptable

Core Flood Line 'B': Isometric PI-305-805 / ISI Sketch SK-3 Sheet 2

Weld Location	Inspected	Method	Comments
B1.6.3/B1.6.4	1985	UT	Acceptable; bi-metallic weld
B1.6.3/B1.6.4	1996	UT	Acceptable; bi-metallic weld
B4.5.271	1996	UT	Acceptable
B4.5.143	1992	UT	Acceptable
B4.5.142	1992	UT	Acceptable
B4.5.141	1992	UT	Acceptable

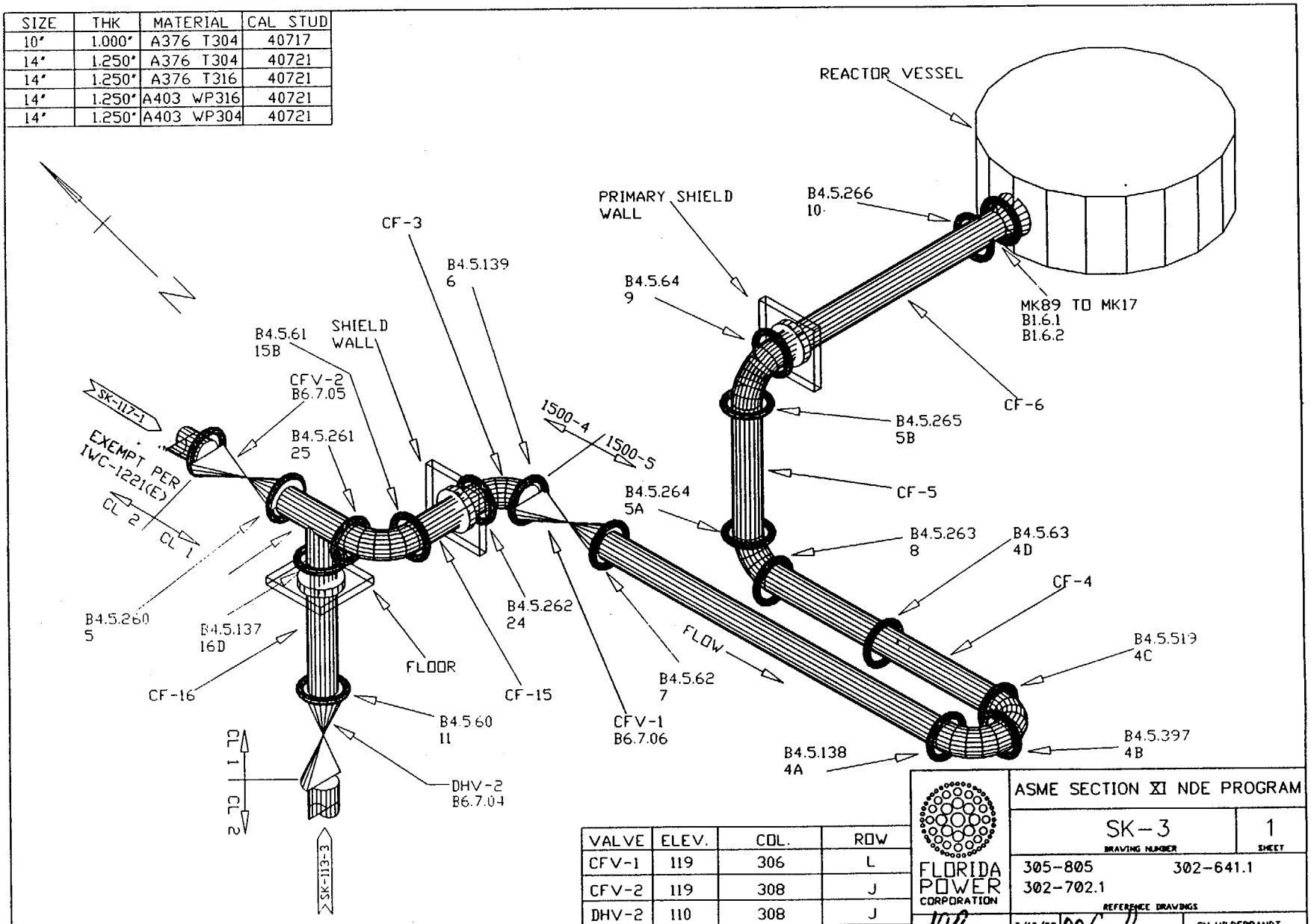
Decay Heat Drop Line: Isometric PI-305-806 / ISI Sketch SK-1 Sheet 1

Weld Location	Inspected	Method	Comments
B4.5.56	1978	UT	Acceptable
B4.5.255	1999	UT	Acceptable
B4.5.132	1990	UT	Acceptable
B4.5.132	1999	UT	Acceptable
B4.5.257	1999	UT	Acceptable
B4.5.134	1992	UT	Acceptable
B4.5.58	1983	UT	Acceptable
B4.5.58	1999	UT	Acceptable

Auxiliary Pressurizer Spray Line: Isometric CR-3-P-8091-RC / ISI Sketch SK-19 Sheet 1

Weld Location	Inspected	Method	Comments
B4.5.55	1983	UT	Small Bore Butt Weld; Acceptable
B4.5.55	1996	PT	Small Bore Butt Weld; Acceptable
B4.5.392	1990	PT	Small Bore Butt Weld; Acceptable
B4.5.391	1990	PT	Small Bore Butt Weld; Acceptable
B4.5.54.1	1983	UT	Small Bore Butt Weld; Acceptable
B4.5.54.1	1996	PT	Small Bore Butt Weld; Acceptable
B4.5.54	1985	UT	Small Bore Butt Weld; Acceptable
B4.5.390	1992	PT	Small Bore Butt Weld; Acceptable
B4.5.395	1996	PT	Small Bore Butt Weld; Acceptable

SIZE	THK	MATERIAL	CAL STUD
10"	1.000"	A376 T304	40717
14"	1.250"	A376 T304	40721
14"	1.250"	A376 T316	40721
14"	1.250"	A403 WP316	40721
14"	1.250"	A403 WP304	40721



VALVE	ELEV.	COL.	ROW
CFV-1	119	306	L
CFV-2	119	308	J
DHV-2	110	308	J

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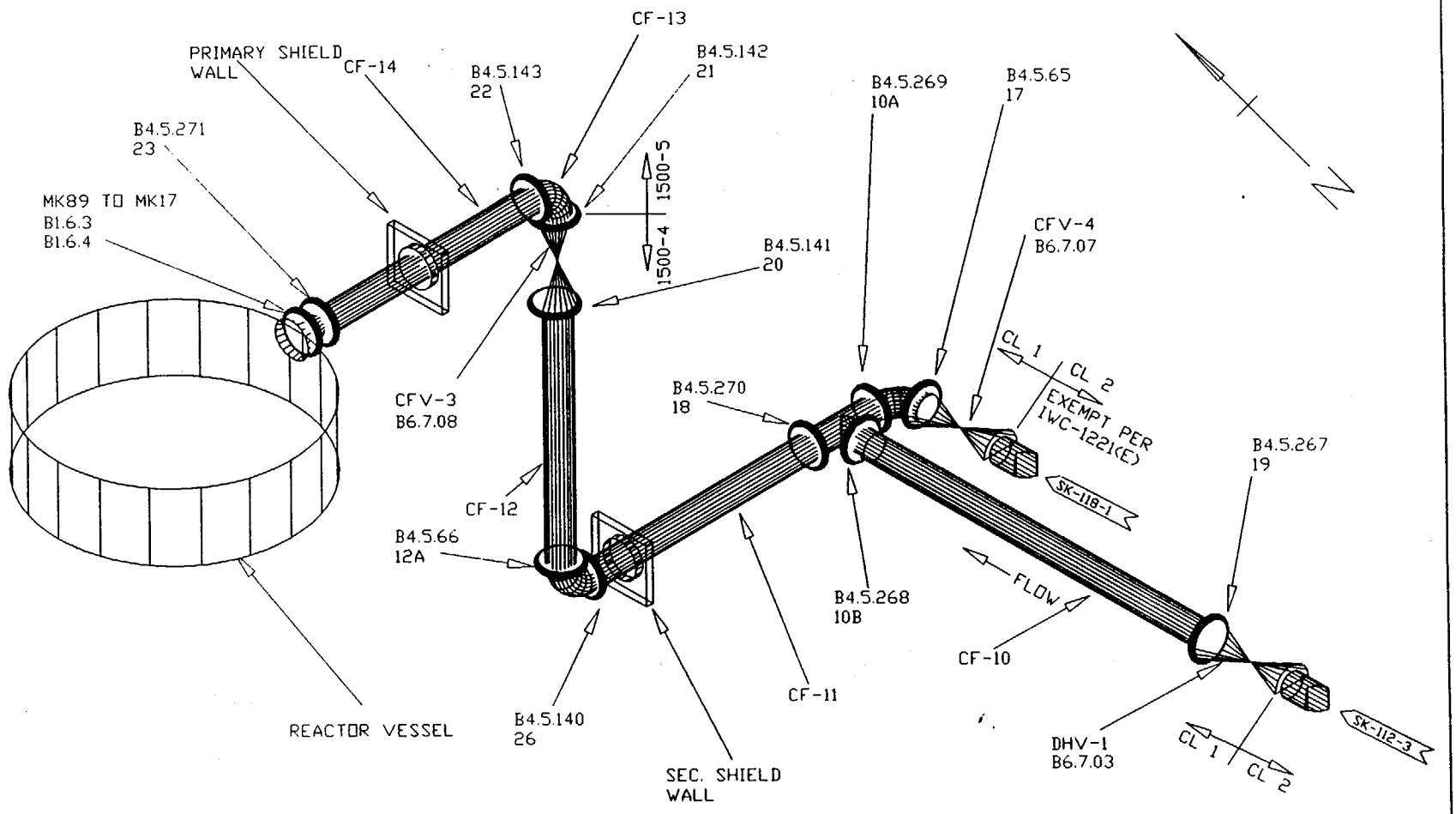
ASME SECTION XI NDE PROGRAM

SK-3 (DRAWING NUMBER) | 1 (SHEET)

305-805 302-641.1
302-702.1
REFERENCE DRAWINGS

VERIFIED | 3/19/98 APPRVD. | GV HILDEBRANDT DRAWN BY

ISI DISCP. | 1 REV. | 10" & 14" CORE FLOOD SVG. DESCRIPTION



SIZE	THK	MATERIAL	CAL STUD
10"	1.000"	A376 T304	40717
14"	1.250"	A376 T304	40721
14"	1.250"	A376 T316	40721
14"	1.250"	A403 WP316	40721

VALVE	ELEV.	COL.	ROW
CFV-3	95	306	L
CFV-4	95	305	L
DHV-1	95	305	L

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ASME SECTION XI NDE PROGRAM

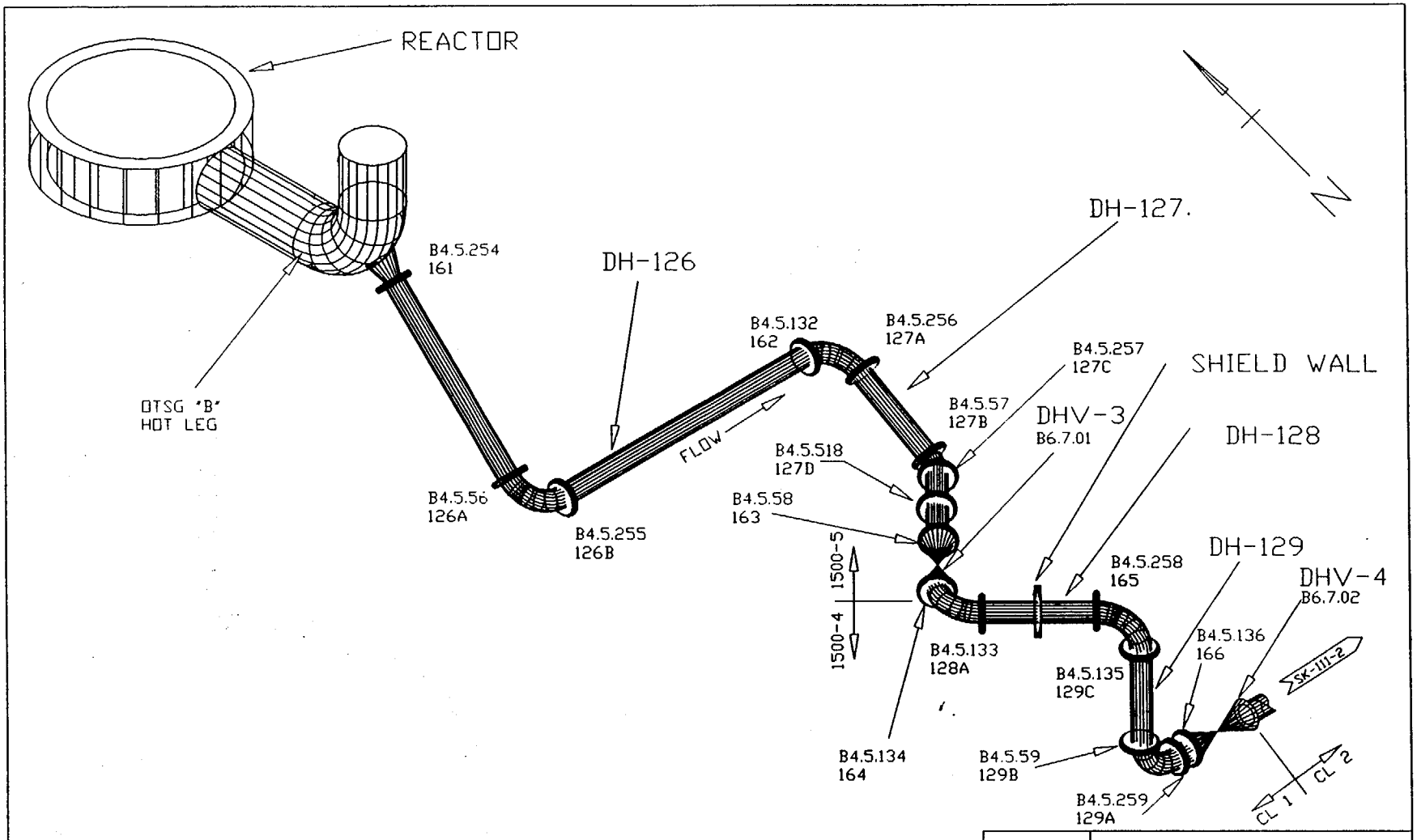
SK-3 (DRAWING NUMBER) | 2 (SHEET)

305-805 302-641.1
302-702.1
REFERENCE DRAWINGS

VERIFIED | 3/19/98 APRVD. | GV HILDEBRANDT DRAWN BY

ISI DISCP. | 1 REV.

10" & 14" CORE FLOOD
DWG DESCRIPTION



SIZE	THK	MATERIAL	CAL STD.
12"	1.312"	A376 T316	40720
12"	1.312"	A403 WP316	40720
12"	1.312"	A376 T304	40720
12"	1.312"	A403 WP304	40720

VALVE	ELEV.	COL.	ROW
DHV-3	115	306	L
DHV-4	106	306	N

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ASME SECTION XI NDE PROGRAM

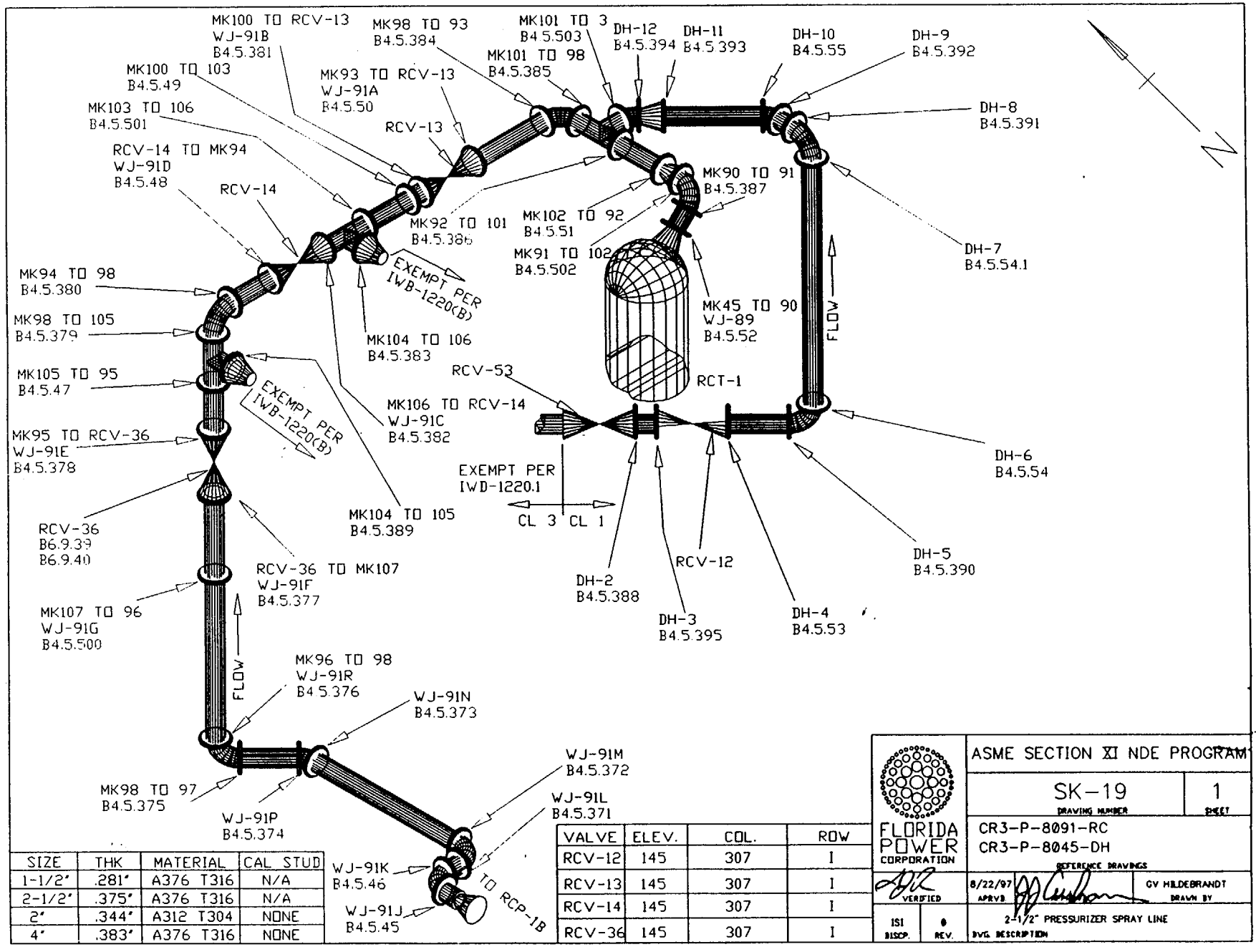
SK-1 (DRAWING NUMBER) | 1 (SHEET)

305-806 302-651.1
302-641.2
REFERENCE DRAWINGS

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

ISI DISCP. | 0 REV.

12" DECAY HEAT
DWG. DESCRIPTION



SIZE	THK	MATERIAL	CAL STUD
1-1/2"	.281"	A376 T316	N/A
2-1/2"	.375"	A376 T316	N/A
2"	.344"	A312 T304	NONE
4"	.383"	A376 T316	NONE

VALVE	ELEV.	COL.	ROW
RCV-12	145	307	I
RCV-13	145	307	I
RCV-14	145	307	I
RCV-36	145	307	I

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ASME SECTION XI NDE PROGRAM

SK-19 (DRAWING NUMBER) | 1 (SHEET)

CR3-P-8091-RC
CR3-P-8045-DH
REFERENCE DRAWINGS

VERIFIED

8/22/97 APRVD. | GV HILDEBRANDT DRAWN BY

ISI DISCP. | 0 REV.

2-1/2" PRESSURIZER SPRAY LINE
DWG. DESCRIPTION