PB ECR 95-4972 REV Ø
ATTACHMENT PAGE 44 OF ____
DWG # ____
SHT # ____ REV ____

GE Nuclea

25A5822 SH NO. 1
REV. 0

REVISION STATUS SHEET

DOC TITLE FABRICATION OF CORE SPRAY LINE DOWNCOMER CLAMP

LEGEND OR DESCRIPTION OF GROUPS

TYPE: FABRICATION SPECIFICATION

FMF: PEACH BOTTOM 2

MPL ITEM NO.: PRODUCT SUMMARY SECTION 7

THIS ITEM IS OR CONTAINS A SAFETY RELATED ITEM YES X NO ☐ EQUIP CLASS CODE P

REVISION		C
0	RM-03252 DEC 1 1 1995	

PRINTS TO

MADE BY	APPROVALS	GENERAL ELECTRIC COMPANY
J.L. TROVATO 11-30-95	T. E. GLEASON 12-8-95	175 CURTNER AVENUE SAN JOSE, CALIFORNIA 95125
CHK BY J.L. TROVATO 11-30-95	ISSUED DEC 1 1 1995 R.J. AHMANN	CONT ON SHEET 2

1. SCOPE

1.1 This specification defines the requirements for fabrication of the core spray downcomer line clamp hardware. These requirements apply as described herein to wrought austenitic stainless steels, types 304, 316, and XM-19 materials.

1.2 Definitions

Buyer – General Electric Nuclear Energy (GENE)

Fabricator – The supplier authorized by GENE to perform fabrication services for the hardware items comprising the downcomer clamp.

2. APPLICABLE DOCUMENTS

2.1 GE Nuclear Energy Documents. The following documents form a part of this specification to the extent specified herein. In case of any conflict between this document and any of the following, the requirements of this document shall govern.

a. P50YP102 Arc Welding of Austenitic Stainless Steels

b. P50YP211 Cleaning and Cleanliness Control of Reactor System Components

c. E50YP20 Determination of Carbide Participation in Wrought Austenitic Stainless Steels

d. E50YPII Examination for Intergranular Surface Attack

e. E50YP22 Liquid Penetrant Examination

f. Y1010A3 Shop Applied Practices

g. PDS-119 Packaging Data Sheet

2.2 Codes and Standards. The following codes and standards (issue in effect at the date of the purchase order, or as specified in this specification or its supporting documents) form a part of this specification to the extent specified herein.

2.2.1 American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code

a. Section III, Subsection NG, Core Support Structure, 1989 Edition

b. Section IX, Welding and Brazing Qualification, Latest Edition

c. Section V, Nondestructive Examination, 1989 Edition

2.2.2 American Welding Society (AWS) Standards

a. AWS-A2.4, Symbols for Welding and Nondestructive Testing

b. AWS-A3.0, Terms and Definitions

2.2.3 American Society for Testing and Materials (ASTM)

a. ASTM A-370, Specification for Mechanical Testing of Steel Products

b. ASTM-A-336, Specification for Steel Forgings, Alloy, for Pressure and High-Temperature Parts.

c. ASTM A-240, Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels

d. ASTM A-276, Specification for Stainless and Heat-Resisting Steel Bars and Shapes

e. ASTM A-479, Specification for Stainless and Heat-Resisting Steel Wire, Bars, and Shapes for Use in Boilers and Other Pressure Vessels

g. ASTM A-262, Detecting Susceptibility to Intergranular Attack in Stainless Steel

h. ASTM E-21, Specification for Test Methods for Elevated Temperature Tests

j. ASTM A-751, Specification for Test Methods, Practices, and Terminology for Chemical Analysis

2.2.4 US Federal Register Code of Federal Regulations (CFR)

a. 10 CFR 50, Title 10, Energy; Chapter 1, Nuclear Regulatory Commission; Part 50, Licensing of Production and Utilization Facilities, Appendix 13, Quality Assurance Criteria for Nuclear Power Plants.

b. 10 CFR 21, Reporting of Defects and Noncompliance

3. REQUIREMENTS

3.1 General. This specification is for use in conjunction with detail product drawings which define the requirements for each part of the downcomer clamp.

3.2 Materials. Parts shall be fabricated from materials specified on the detail product drawings and the additional requirements of this specification. The material for each completed part shall be traceable to its certified material test report (CMTR). Physical and overcheck tests are required for each heat number of material in accordance with ASTM A-370 and A-751 respectively.

3.2.1 Austenitic 300 Stainless Steel. Austenitic 300 series stainless steel shall be in accordance with ASTM A-479, A-336 or A-240 type 304, or 316 with a maximum carbon content of 0.020 percent. The type and applicable ASTM specification shall be as specified on the specific part drawing. High temperature yield testing shall be in accordance with ASTM-E21. Yield strength shall be determined at 550°F and shall be 18,800psi minimum for type 304. Material with a room temperature yield strength of 37,000psi or more is exempted from this requirement. The additional requirements below also apply.

3.2.1.1 Austenitic 300 SST Heat Treatment. Austenitic 300 series stainless steel shall be solution annealed at 2000 ± 100°F (metal temperature) for a minimum of 15 minutes per inch of thickness, but not less than 15 minutes total, immediately followed by quenching in circulating water, gaseous nitrogen (N_2) or other buyer approved method to a temperature below 400°F. The solution anneal shall be performed after completion of final reduction, sizing, and straightening operations. Successful completion of the sensitization testing of Paragraph 3.2.1.2 shall be accepted as evidence of the correct solution heat treatment, if time and temperature charts are not available.

3.2.1.2 Austenitic 300 SST Sensitization. Austenitic 300 series stainless steel shall have sensitization testing performed for each heat and heat treat lot in accordance with the requirements of E50YP20 if welding will be performed, or by ASTM A-262 Practice E if no welding will be performed on the part.

3.2.1.3 Austenitic 300 SST IGA Testing. Intergranular attack (IGA) examination shall be performed for each heat and heat treat lot in accordance with the requirements of E50YP11. IGA examination is not required if a minimum of 0.030 inch of material is removed from all surfaces of the product form after final heat treatment.

3.2.1.4 Austenitic 300 SST Hardness. The maximum hardness of austenitic 300 series stainless steel material and completed parts shall be R_B 90 for type 304, R_B 88 for type 304L, and R_B 92 for types 316 or 316L.

3.2.2 XM-19 Stainless Steel. Type XM-19 stainless steel shall be in accordance with ASTM A-479, A-336, or A-240. The maximum carbon content is limited to 0.040 per cent. The applicable ASTM specification shall be as specified on the specific piece part drawing. The additional requirements below also apply.

3.2.2.1 XM-19 SST Heat Treatment. XM-19 stainless steel shall be solution annealed at 2000°F ± 25°F (metal temperature) for 15 to 20 minutes for each inch of thickness, but for not less than 15 minutes regardless of thickness The material shall be cooled rapidly at 200 degrees per minute minimum in circulating water, gaseous nitrogen (N_2), or other buyer approved method, to a temperature below 800°F. The solution anneal shall be performed after completion of final reduction, sizing, and straightening operations. Successful completion of the sensitization testing of Paragraph 3.2.2.2 shall be accepted as evidence of the correct solution heat treatment, if time and temperature charts are not available.

3.2.2.2 XM-19 SST Sensitization. Each heat and heat treat lot of XM-19 material shall be tested for sensitization in accordance with the requirements of ASTM A-262 Practice E.

3.2.2.3 XM-19 SST IGA Testing. Intergranular attack (IGA) examination shall be performed for each heat and heat treat lot in accordance with the requirements of E50YP11. IGA examination is not required if a minimum of 0.030 inch of material is removed from all surfaces of the product form after final heat treatment.

3.2.2.4 XM-19 SST Hardness. The maximum hardness of XM-19 stainless steel material and completed parts shall be R$_c$ 30.

3.3 Cutting, Forming, and Cleaning

3.3.1 Mechanical Cutting Methods. Methods such as machining, grinding (see also Paragraph 3.6) and sawing are acceptable. Methods such as shearing or punching that form a hardened layer on the metal surface shall not be used, except where the cold-worked material is subsequently and completely removed by machining, grinding, or solution heat treatment.

3.3.2 Thermal Cutting Methods. Plasma arc cutting may be used with the following restrictions: Interpass temperature control shall be in accordance with P50YP102 for stainless steels. If a minimum of 0.12 in. of the cut surface is subsequently removed by machining or grinding, the interpass temperature control is not required. Surfaces shall be machined or ground to a bright metal finish following the cutting operation. Preventive measures shall be taken to assure that spatter will not enter areas that are inaccessible to cleaning operations.

3.3.3 Bending and Forming Control for Stainless Steel. There shall be no cold forming, bending, or cold reduction for austenitic stainless steel, unless otherwise specified in the paragraphs below, or unless the component is subsequently solution heat treated.

3.3.4 Prohibited Processes. Processes such as shot peening, hammering, or power deslagging of final surfaces are prohibited.

3.3.5 Straightening. Straightening or reforming shall be performed in accordance with an approved procedure.

3.3.6 Control of Deformation. For parts that are straightened, reformed, or otherwise subjected to deformation as part of the normal fabrication process, the following controls shall be met: (1) Hardness of any wrought stainless steel in the final fabricated condition shall not exceed the hardness requirements of Paragraphs 3.2.1.4 and 3.2.2.4 as determined by an approved procedure. The buyer approved procedure shall include the specification of locations for hardness testing. The hardness shall be measured with a test device specifically designed to perform Rockwell B measurements for 300 series stainless steel, and with a test device specifically designed to perform Rockwell B or C measurements for XM-19 stainless steel. (2) Cold bending strain, after solution annealing, shall be limited to two and one-half percent maximum.

3.3.7 Cleaning and Control of Miscellaneous Process Materials. Miscellaneous process materials include such things as machining lubricants, liquid penetrants, solvents, tapes, ultrasonic testing couplant, abrasive grit, packing materials, marking materials, weld spatter compounds, and other materials which will be in contact with the part being fabricated. All miscellaneous process materials shall be controlled to prevent contamination of stainless steel and Ni-Cr-Fe materials. The known contaminants of concern are chlorides, fluorides, sulfur, lead, mercury and all metals with low melting points. In addition, when welding or heat treating is involved, all carbonaceous material and phosphates must be considered harmful on stainless steel which can pick up these contaminants. Parts may be cleaned in accordance with P50YP211 as one method to control contamination.

3.4 Heating Control for Stainless Steel. Austenitic stainless steel that has been heated above 800°F by fabrication processes, including welding and thermal cutting shall be re-solution heat treated prior to shipment.

3.5 Solution Heat Treatment. Solution heat treatment of complete 300 series stainless steel parts and assemblies, if required, shall be performed in accordance with qualified procedures approved by the buyer and shall meet the following requirements:

a. Parts and any fixtures used in the heat treatment shall he visibly clean prior to heat treatment.

b. Heat up and cool down rates shall be controlled to prevent distortion.

c. Parts shall be heated from 1900°F to 2100°F (metal temperature) for a minimum of 15 minutes per inch of thickness but not less than 15 minutes regardless of thickness, immediately followed by quenching.

d. Parts shall be cooled from 1900°F to 800°F quickly enough to assure passing the tests required by subparagraph "f" below.

e. All surfaces shall appear reasonably bright and clean after heat treatment and shall meet buyer approved limits for oxide discoloration.

f. Solution heat treated parts shall be tested by demonstrating with a mockup that the temperature is obtainable at a location in the center thickness, farthest from all heated surfaces or perform testing in accordance with E50YP11 and E50YP20.

3.6 Control of Grinding. Where possible, grinding shall be performed prior to any solution heat treatment. Grinding should be restricted to instances required by fit-up or nondestructive testing needs. Where practical, machining should be used in place of grinding (see also Paragraph 4.6.2).

3.7 Repair Not Requiring Welding. Minor surface grinding or machining, without subsequent weld repair, may be performed to remove surface defects or to change contour provided the following conditions are met:

a. The thickness of the section is not reduced to less than minimum required thickness.

b. The depression or ground area is blended uniformly into the surrounding surface with not less than a 4 to 1 taper.

c. After final grinding or machining, examine the surfaces by liquid penetrant to insure that no unacceptable defects remain.

3.8 Electropolishing. When electropolishing is specified by the detail part drawing, a buyer approved procedure shall be used. Electropolishing shall remove 0.0002 to 0.0006 inch of the surface after all mechanical cutting is completed. The process shall use mixed phosphoric/sulfuric acid.

3.9 Final Surfaces. All nicks and scratches are to be removed. Surface finishes shall be uniform in appearance.

3.10 Shop Applied Practices. The buyer's specification Y1010A3, "Shop Applied Practices", shall be considered an integral part of the fabrication drawings, and be so implemented during fabrication and inspection.

3.11 Identification and Marking. Finished parts shall be marked as specified on the detail product drawings. Low stress interrupted dot stamping is an acceptable method of marking. Parts which are too small for practical marking may be identified by individual bagging and tagging.

4.0 WELDING

4.1 General. Welding requirements for 300 series stainless steel are included in this section. Buyer approval shall be obtained prior to making repairs involving welding.

4.2 Welding Filler Materials

4.2.1 Certification. A certified chemical analysis shall be obtained for each heat or lot of welding filler metal to be used.

4.2.2 Weld Filler Material. Welding filler materials shall conform to the requirements of the applicable welding process specification (see Paragraph 4.2.4).

4.2.3 Filler Material Control and Storage. Welding materials shall be controlled in such a manner that it can be proven which heats of material were used for component fabrication. All welding filler materials shall be stored, issued, and handled in a manner that assures that filler materials are dry, clean, identified until consumed, and that the proper filler metal was used. A written procedure shall include procurement, baking, storage, issue, use, and return to storage of unused welding filler materials.

4.2.4 Allowed Filler/Base Metal Combinations. The allowable welding filler metal type for 300 Series Austenitic Stainless Steel shall be in accordance with the welding process specification P50YP102.

4.3 Backing Bars and Straps. All backing materials such as bars and straps shall have the same requirements as the base materials or, where complete removal is assured, backing materials shall meet the chemistry requirements (as a minimum) of the base material.

4.4 Temporary Attachments. Temporary welded attachments shall meet the chemistry requirements of the base material, or shall be carbon or low alloy steel buttered with a minimum of two layers of weld deposit utilizing filler metal in accordance with Paragraph 4.2.2 unless otherwise specified.

4.5 Shielding Gases. Shielding gases shall be welding grade argon or mixtures of argon with helium or hydrogen.

4.6 Qualification for Welding. All welding procedures and welders shall be qualified in accordance with ASME Section IX (the latest edition and addenda).

4.6.1 Fillet and Partial Penetration Welds. Fusion requirements for partial penetration and fillet welds with less than 90° included angle shall be demonstrated by approved test welds.

4.6.2 Control of Grinding. For procedure or welder qualification, the test assembly weld joint shall be welded in strict accordance with the approved welding procedure with no added precautions which will not be used in production. Excessive grinding to overcome poor welding technique shall be unacceptable. Grinding shall be used only for dressing of starts, stops, occasional reshaping of beads for accessibility, smoothing of surfaces prior to required penetrant examinations, and smoothing of final surfaces. Each case of grinding for accessibility shall be specifically approved by the responsible welding engineer and so noted in the records. Adequate supervision shall be provided to assure adherence to these requirements.

4.7 Welding

4.7.1 Weld Symbols and Definitions. Interpretation of weld symbols shall be in accordance with AWS A2.4 and definitions in accordance with AWS A3.0.

4.7.2 Welding Process Specifications. All welding shall be performed to the requirements of this specification and P50YP102.

4.7.3 Welder Identification. A welder identification system shall be employed such that records are available showing the person(s) welding each joint.

4.7.4 Welding Procedures. All welding including temporary attachments and their removal shall be performed in accordance with approved detailed written welding procedures. Welding procedures shall contain all essential and non-essential variables listed in ASME Section IX and shall contain the additional requirements of this specification, as applicable.

4.7.5 Alignment. Unless otherwise specified, alignment of sections shall be such that the maximum offset of the finished joint will not be greater than 1/8-inch or 1/4 T, whichever is less, where T is the thickness of the thinner base material. Alignment of sections at joints for single welded full-penetration groove welds shall be such that the maximum offset at any point shall not exceed 0.045 inch at the root side. All final dimensional requirements for the component or assembly shall be maintained.

4.7.6 Arc Strikes. Arc strikes on stainless steel surfaces shall be removed, verified by visual and penetrant examination, and weld repaired, if necessary. The final surface of weld repairs shall be inspected by liquid penetrant in accordance with Paragraph 5.3.1.

5. QUALITY ASSURANCE

5.1 Submittals. Submittal requirements shall apply to the Fabricator and the Fabricator's subcontractors. The Fabricator shall be responsible for all submittals including those of the Fabricator's subcontractors. If any changes are made to the submittals, the Fabricator shall send revisions to the Buyer for review and approval prior to use. The review and approval will be the same that was applied to the original document.

5.1.1 Required Submittals. The following items shall be submitted to the Buyer for approval prior to use:

a. Bending and forming procedures

b. Heat treating procedures

c. Welding procedures (including repair procedures) and welding procedure performance qualifications

d. Nondestructive examination procedures and personnel certifications

e. Packaging procedure

5.2 Material Control. Material shall be controlled within the fabricator's shops under a quality assurance program which has been determined by survey/audit to meet material traceability and safety grade manufacturing practices as required by the Code of Federal Regulations 10 CFR 50, Appendix B, and 10 CFR, Part 21.

5.3 Inspection and Tests. All materials, part final surfaces, and welds (if any) shall be inspected for quality and cleanliness prior to the last operation which results in inaccessibility. Following such inspection, measures shall be taken to prevent the entry of soils into inaccessible areas during subsequent fabrication steps.

5.3.1 Liquid Penetrant Examination. All final part surfaces, except small inaccessible openings, shall be examined by the liquid penetrant method in accordance with E50YP22A, except that no

cracking is permissible and linear indications shall not exceed 0.06 inch in length. Liquid penetrant materials shall be in accordance with E50YP22 or buyer approved equivalent. Provision shall be made to avoid the entrapment of liquid penetrant materials in any inaccessible areas.

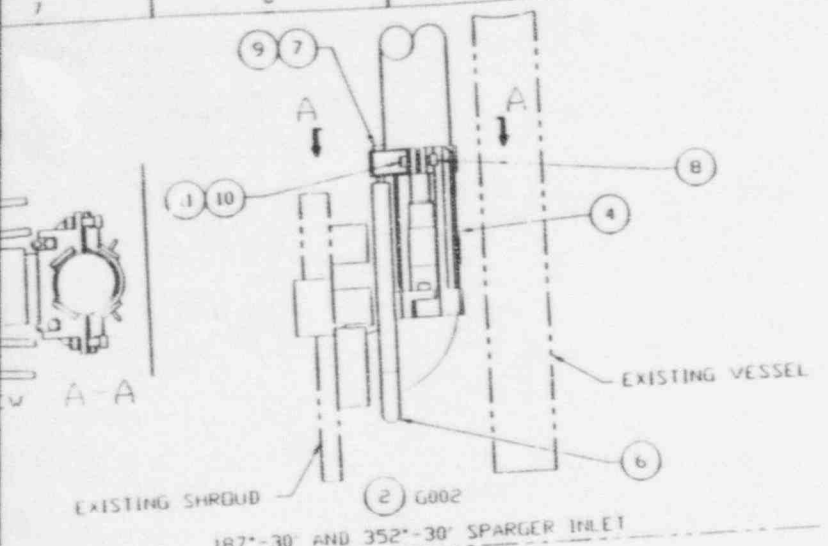
5.3.2 Radiographic Examination. Radiographic examination shall be performed on all structural welds, if any are allowed as a repair, in accordance with the ASME Code, Article NG-5000 and acceptance criteria in accordance with Subarticle NG-5320. Acceptance standards and penetrameters shall be based on the final section thickness.

5.3.3 Ultrasonic Examination. Material shall be ultrasonically examined in accordance with ASME Code Subsection NG, Paragraph NG-2540, or a buyer approved equivalent procedure.

6. PREPARATION FOR SHIPMENT

6.1 General Requirement. Packaging, shipping and storage shall be in accordance with ANSI/ASME N45.2.2 - 1978, as specified in reference 2.1.g.

6.2 Identification. The component(s), when prepared for shipment, shall be identified by the purchase order number and other pertinent information in such a manner that the component(s) identity shall be maintained during shipment. When more than one component is included in a crate or package, the marking on the packaging shall indicate the identity and quantity of all parts.



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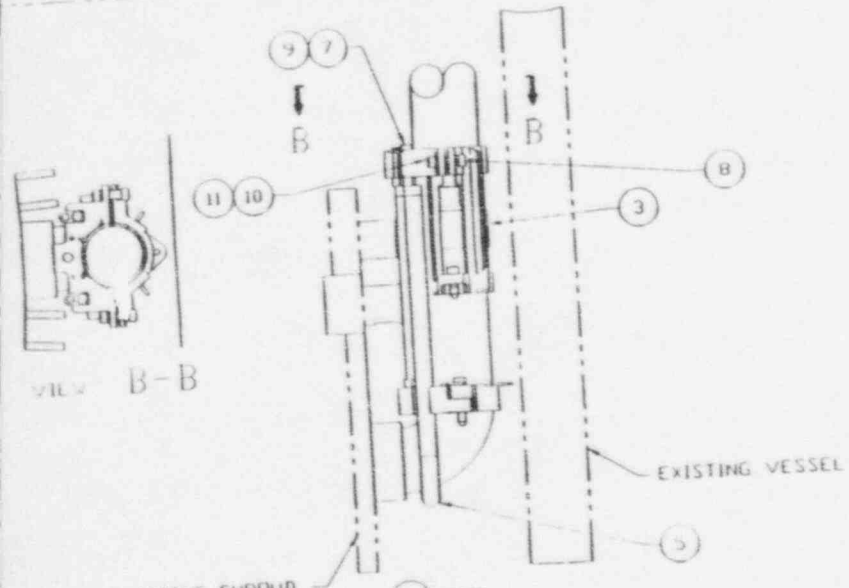


B-B

NOTES:

1. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.
2. FABRICATE PER 25A5708.
3. CLEANING PER PSOYP211.
4. VIBRATORY MARK OR ENGRAVE PART IDENTIFICATION "_____" MATERIAL HEAT NO. "_____" AND SERIAL NO. "SN _____" IN 12± 06 HIGH CHARACTERS.
5. LIQUID PENETRANT EXAMINE ALL ACCESSIBLE SURFACES PER ESOYP22A.
6. SOLUTION ANNEAL PER 25A5822 PARA 3.5 AFTER ALL MACHINING.
7. PRIOR TO FORMING, MATERIAL SHALL BE IN THE ANNEALED (SOLUTION HEAT TREATED) CONDITION PER 25A5822 PARA 3.2.2.1.
8. RE-ANNEAL AFTER FORMING AS FOLLOWS: RAMP TO 1850°F AND HOLD FOR 0.5 HOURS. THEN SOLUTION TREAT AT 1975°F±25°F FOR A MINIMUM OF 15 MINUTES PER INCH OF THICKNESS. COOL RAPIDLY AT 200°F PER MINUTE MINIMUM OR QUENCH IN GASEOUS NITROGEN (N2) OR CIRCULATING WATER. HEAT TREATMENT RECORDS SHALL BE PROVIDED AS PART OF RECORD PACKAGE.
9. DIAMETER MAY BE REDUCED TO 1.54 INCH MINIMUM (12%) IN THE BEND REGION TO REMOVE SURFACE DEFECTS AFTER HOT FORMING.
10. SCREW HEAD SHALL MEET ANSI B18.3 1986 STANDARD FOR .750 DIAMETER HEXAGON SOCKET HEAD CAP SCREWS EXCEPT AS SHOWN.

SHT NO.	REV NO.
1	1
2	0
3	0
4	1

148C7225 REV 1

REVISIONS

1 JAN 03 1996 DH CHAN N/A

GENERAL DOC CHANGE CN03500

CHK BY: B SMITH

ENGR BY: TE GLEASON

STATION: PBAPS

DRAWING NO: M-1-B-4

DESC: INITIAL ISSUE

PROPRIETARY INFORMATION NOTICE

"[boilerplate]"

PL ISSUED

EQUIPMENT CLASS (1E) P

THIS ITEM IS OR CONTAINS A SAFETY RELATED ITEM ☐ YES ☒ NO

ALL CLASS 1E NUCLEAR SAFETY RELATED ☐ YES ☒ NO

APPROVALS	DATE	NO	YR
DH CHAN	26	11	95
B SMITH	19	12	95
RJ AHMANN	19	12	95
TE GLEASON	19	12	95

APPLIED PRACTICES: Y1018A2

UNLESS OTHERWISE SPECIFIED: ±25

TOLERANCES ON: 2 PLACE DECIMALS ± .01 FRACTIONS ± 1/64; 3 PLACE DECIMALS ± .005 ANGLES ± 1°

Nuclear Energy — GENERAL ELECTRIC COMPANY San Jose CA

ASSEMBLY: REACTOR CORE SPRAY LINE REPAIR

ENDPLATE BOTTOM 2

DRAWN: DEC 19, 1995 — 148C7225 REV 1

CHK: RM 02697 — SIZE C — SHT 1 — SCALE 2

AC-B53101

PB ECR 95-4912 REV. 0

ATTACHMENT PAGE 59 OF ___

DWG. NO. M-1-B-425 REV. ___

GE Nuclear Energy

PL148C7225 SH NO 1
REV 0

EIS IDENT

REVISION STATUS SHEET

DOCUMENT TITLE REAC CORE SPRAY LINE RPR

LEGEND OR DESCRIPTION OF GROUPS

TYPE PARTS LIST

FMF PEACH BOTTOM 1 2 3

MPL NO. (S) B13-D023
PRODUCT SUMMARY SECTION 7

THIS ITEM IS OR CONTAINS A SAFETY-RELATED ITEM YES ☒ NO ☐ EQUIP CLASS CODE P

REVISION			C
0	RM-02697 DEC 19 1995		

PRINTS TO

MADE BY
DH CHAN 12/11/95

CHKD BY
NA

APPROVALS
TE GLEASON 12/19/95

ISSUED
RJ AHMANN DEC 19 1995

GENERAL ELECTRIC COMPANY
175 CURTNER AVENUE
SAN JOSE CALIFORNIA 95125

CONT ON SHEET 2

MS WORD (3/28/94)

DISK = 148C7225.DOC TYPE III

STATION PBAPS 2

M-1-B-426, SHT. D01 0

DESCRIPTION

PB ECR 95-4972 REV. 0
ATTACHMENT PAGE 60 OF
DWG. NO. M-1-B-426 REV. 0
SHT 1

PB ECR 95-4972 REV. Ø
ATTACHMENT PAGE 61 OF
DWG. NO. M-1-B-426 REV. Ø
SHT. 2

STATION	UNIT (S)
PBAPS	2
M-1-B-426, SHT. 002	REV Ø
DESCRIPTIC[illegible]	

GE Nuclear Energy

General Electric Company, San Jose, California 95125

TITLE REAC CORE SPRAY [illegible] RPR

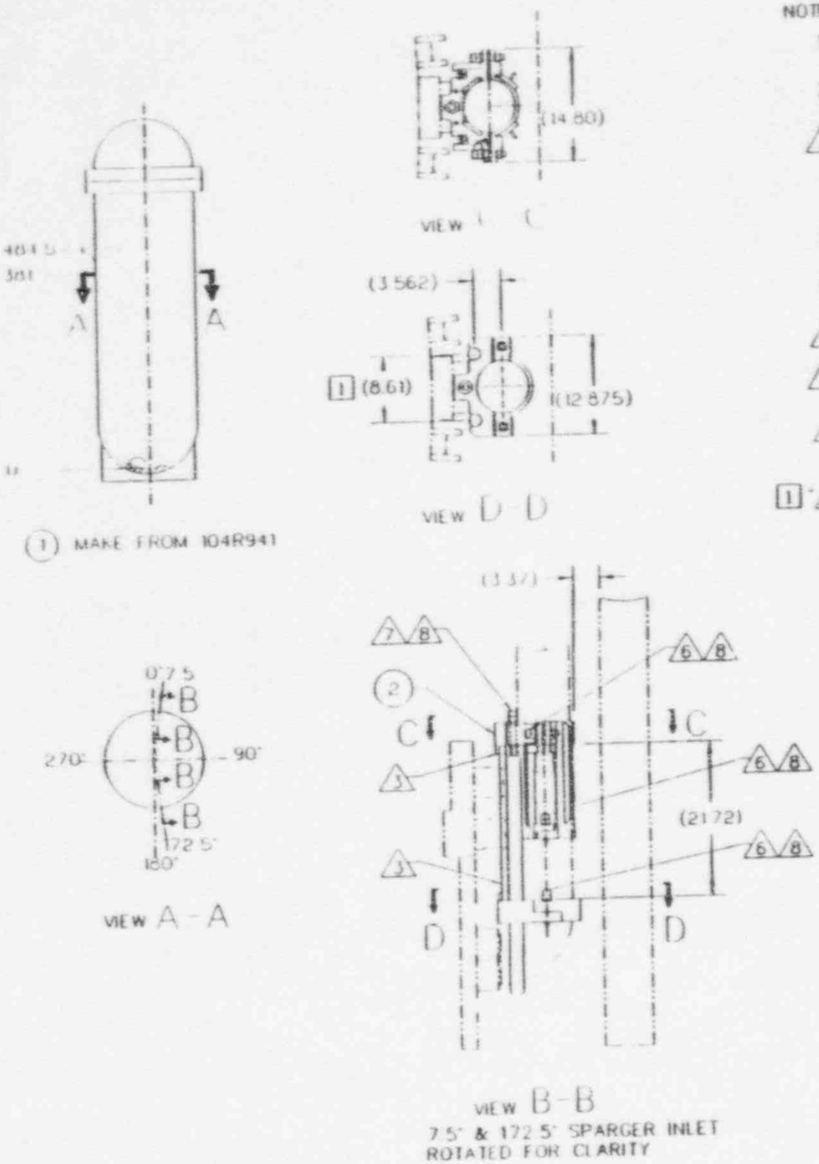
PL 148C7225 — SECT A — REV 00

ITEM NO.	A/T	DOCUMENT TYPE	DESCRIPTION: NAME	DESCRIPTION: IDENTIFICATION	DOC STA	E C	C C	G001	G002							U/M	SRC	ACTION
001			ASSEMBLY		ASM			X										
002			ASSEMBLY		ASM				X									
003		ASSEMBLY	SPARGER SUPT,7 DEG-30 MIN	148C7223G001		P		1										
			SPARGER SUPPORT,															
			7 DEG-30 MIN															
004		ASSEMBLY	SPARGER SP,187 DEG-30 MIN	148C7224G001		P			1									
			SPARGER SUPPORT,															
			187 DEG-30 MIN															
005		ASSEMBLY	REAC CORE SPRAY LINE RPR	148C7225P005				1										
			U-BOLT, 7 DEG-30 MIN															
006		ASSEMBLY	REAC CORE SPRAY LINE RPR	148C7225P006					1									
			U-BOLT, 187 DEG-30 MIN															
007		ASSEMBLY	REAC CORE SPRAY LINE RPR	148C7225P007				2	2									
			U-BOLT, KEEPER															
008		ASSEMBLY	REAC CORE SPRAY LINE RPR	148C7225P008				2	2									
			NUT (SQUARE)															
009		ASSEMBLY	REAC CORE SPRAY LINE RPR	148C7225P009				2	2									
			BOLT, U-BOLT (VERTICAL)															
010		ASSEMBLY	REAC CORE SPRAY LINE RPR	148C7225P010				2	2									
			BOLT, HORIZONTAL															
011		ASSEMBLY	REAC CORE SPRAY LINE RPR	148C7225P011				2										
			KEEPER															
012		MAT&PROC DOC	THREAD LUBRICANT	050VP5			8	AR	AR									
013		MAT&PROC DOC	THREAD LUBRICANT	050VP5			8		AR									

PROPRIETARY INFORMATION NOTICE
[illegible]

MADE BY	YR	MO	DAY			CONT ON SHEET	SH NO		SECT	REV
EDP	95	12	19	LAST ITEM NO. USED - 013	FINAL SECTION	FINAL	2	PL 148C7225	A	00

PB ECR 95-4972 REV. Ø
ATTACHMENT PAGE 67 OF
DWG. NO. M-1-B-427 REV. Ø
SHT. 1



NOTES

1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES.
2. LUBRICATE ALL THREADED FASTENERS PER D50YP5B.
3. (△) ADJUST THE CONNECTING ROD TO CENTER THE LOWER CLAMP OVER THE ELBOW TO RISER WELD WITHIN ± .25 INCH. TORQUE HEX NUT TO 100±25 FT/LB.
4. INSTALL CLAMP HARDWARE. TIGHTEN BOLTS SNUG TIGHT. CHECK FITUP OF ALL HARDWARE.
5. TORQUE BOLTS. TORQUE UPPER CLAMP BOLTS FIRST.
6. (△) TORQUE TO 100 FT/LB±25 FT/LB.
7. (△) TORQUE TO 75 FT/LB±25 FT/LB.
8. (△) CRIMP KEEPERS INTO GROOVES OF BOLTS. VISUALLY EXAMINE ALL BOLTS TO CONFIRM THAT CRIMPING HAS OCCURED.
9. (1 △) IF NECESSARY, MACHINE SURFACES TO CENTER THE LOWER CLAMP OVER THE ELBOW TO RISER WELD TO WITHIN ± .25 INCHES.

SHT NO	REV NO
1	1
2	1

148C7226

	REVISIONS	
A	PRELIMINARY ISSUE	
1	DEC 1 9 1995 DH CHAN	

GENERAL DOC CHANGES
COMPL STAT CHANGED FROM 1 TO C
RM-02697
CHK BY D. SMITH
ENGR BY R. GLEASON

PBAPS		Z		
M-1-B-427, SHT. 001		REV Ø		
DATE	DESCRIPTION	REVD	CHKD	APPD
	INITIAL ISSUE			

PL ISSUED

EQUIPMENT CLASS CODE P
SAFETY RELATED: THIS ITEM IS OR CONTAINS A SAFETY RELATED ITEM ☐ YES ☒ NO
IEEE CLASS 1E: NUCLEAR SAFETY RELATED ☐ YES ☒ NO

APPROVALS			
DH CHAM	08	12	95
R. GUIER	08	12	95
RJ AHMANN	11	12	95
TE GLEASON	08	12	95

APPLIED PRACTICES Y1010A3
UNLESS OTHERWISE SPECIFIED: TOLERANCES ON 2 PLACE DECIMALS ± — FRACTIONS ± — 3 PLACE DECIMALS ± — ANGLES ± —

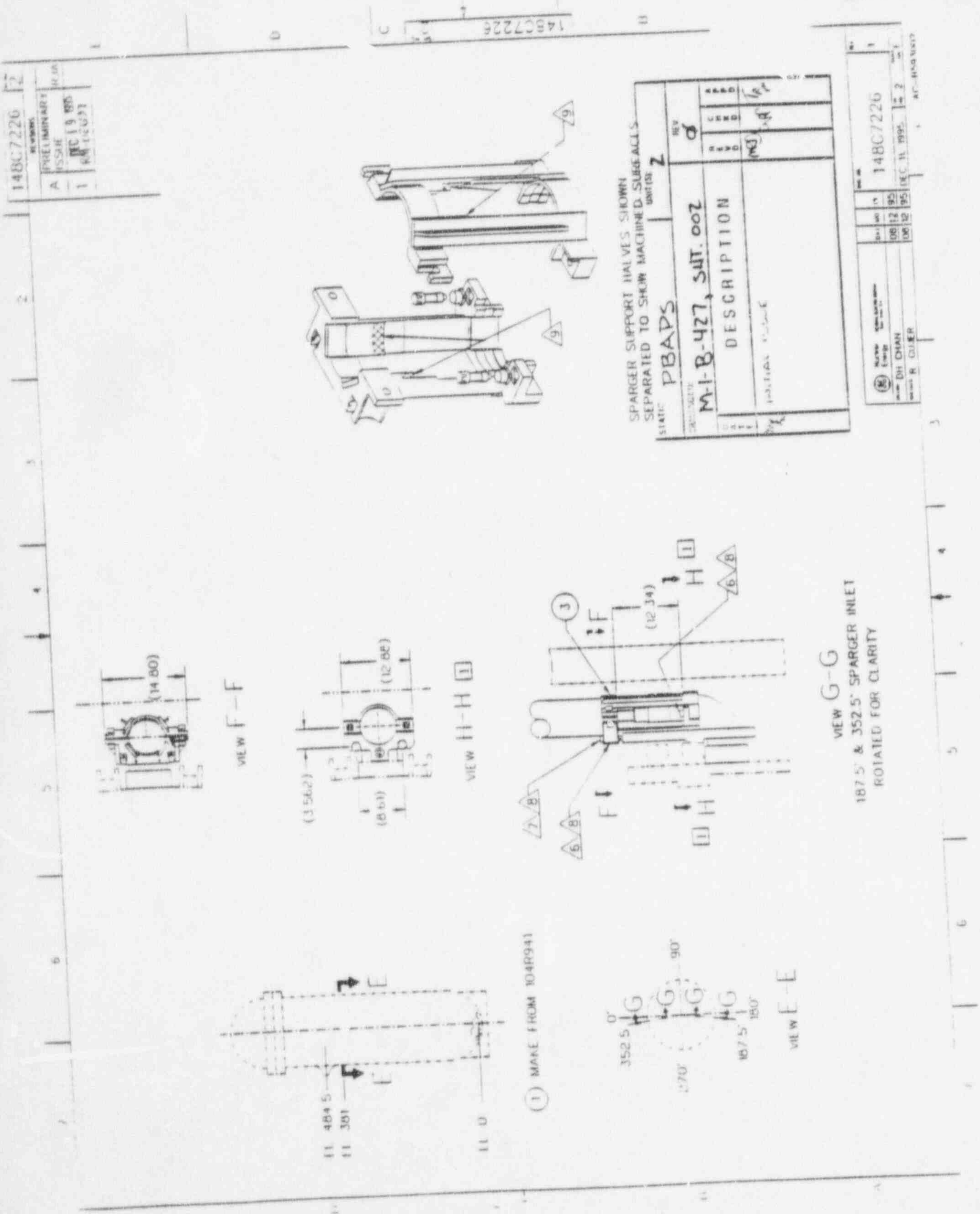
GE Nuclear Energy — GENERAL ELECTRIC COMPANY, San Jose CA

ASSEMBLY
CORE SPRAY LINE MODIFICATION
FOR PEACH BOTTOM 2

DEC 11, 1995 — 148C7226 — SH 1
RM-02698 — C — SCALE 1 — CONT ON SH 2

AC-B593001

PB ECR 95-4977 REV. Ø
ATTACHMENT PAGE 63 OF
DWG. NO. M-1-B-427 REV. Ø
SHT. 2



GE Nuclear Energy

PL148C7226 SH NO. 1
REV 1

(IS IDENT

REVISION STATUS SHEET

DOCUMENT TITLE: CORE SPRAY LINE MOD

LEGEND OR DESCRIPTION OF GROUPS

TYPE: PARTS LIST

FMF: PEACH BOTTOM 2

MPL NO: (S) B13-D023
PRODUCT SUMMARY SECTION 7

THIS ITEM IS OR CONTAINS A SAFETY-RELATED ITEM YES ☒ NO ☐ EQUIP CLASS CODE P

REVISION			C
A	PRELIMINARY ISSUE RM 02698 DEC 11 1995	RJA	
1	DH CHAN DEC 19 1995 RM-02697		

PRINTS TO

MADE BY DH CHAN 12/09/95	APPROVALS TE GLEASON 12/11/95	GENERAL ELECTRIC COMPANY 175 CURTNER AVENUE SAN JOSE CALIFORNIA 95125
CHKD BY N/A	ISSUED DEC 11, 1995 RJ AHMANN	CONT ON SHEET 2

MS WORD (3 28/94) DISK = 148C7226.DOC TYPE III

PBAPS	2
M-1-B428, SHT. 001	Ø
DESCRIPTION	

PB ECR 95-4977 REV. Ø
ATTACHMENT PAGE 64 OF
DWG. NO. M-1-B-428 REV. Ø
SHT. 1

GE Nuclear Energy

General Electric Company, San Jose, California 95125

PL 14BC7226 | SECT A | REV 01

ITEM NO.	A L T	EQUIPMENT TYPE	DESCRIPTION NAME	DESCRIPTION IDENTIFICATION	DOC STA	E C	C C	GROUP NUMBER AND QUANTITY G001	G002	U/M	SRC	ACTION
001			ASSEMBLY		ASM			X	X			
002		ASSEMBLY	REAC CORE SPRAY LINE RPR	14BC7225G001		P		2				CHANGED
003		ASSEMBLY	REAC CORE SPRAY LINE RPR	14BC7225G002		P			2			

												SECT A	REV 01
		EDP	95 12 19	LAST ITEM NO. USED - 003				FINAL	SECTION	FINAL	2	PL 14BC7226	

MADE BY | YR | DATE MO | DAY | COAT OR SHEET | SH NO

STATION PBAPS | UNIT(S) 2

DRAWING NO. M-1-B-42B, SHT. 002 | REV Ø

ITEM	DESCRIPTION	ISSUE	CHKD	APPD
1.	[illegible]	[illegible]	W	[illegible]

PB ECR 95-4977 REV. Ø
ATTACHMENT PAGE 65 OF
DWG. NO. M-1-B-42B REV. Ø

GE Nuclear Energ

Field Disposition Instructic

PB ECR 95-4972 REV Ø
ATTACHMENT PAGE 66 OF ____
DWG # ____
SHT # ____ REV ____

FDI NO. HE2 - 0281 - 71067
REVISION 0
SHEET 1 OF 3

PROJECT PEACH BOTTOM UNIT 2
EQUIPMENT CORE SPRAY DOWNCOMER MODIFICATION
MPL NO. B13-D023

DATE OF ISSUE DEC 22 1995
J TROVATO J Trovato
ECN/IR/DDR/FDDR

CONDITIONAL RELEASE This hardware shall not be installed per Section IV until design verification is complete and the conditional relaease is removed by subsequent revision of this FDI.

Description of Task:

I. Purpose

This FDI documents the design, requirements, and material required to install the repair clamps for the core spray line riser at 7.5°, 172.5°, 187.5° and 352.5° azimuths.

II. Required Documents (Supplied by Engineering)

a. 148C7226,REV.1 Clamp Modification Dwg.
b. PL148C7226,REV.1 Clamp Assembly Parts List
c. 21A2040,REV.1 Cleaning and Cleanliness Control
d. 25A55821,REV.0 Clamp Design Specification
e. QAM-001,REV.4 GE Quality Assurance Manual

III. Material Required (per Paragraph II.a and II.b)

	Qty
a. 148C7225P001, Reactor Core Spray Line Repair	2
b. 148C7225P002, ReactorCore Spray Line Repair	2
Items III.a and III.b consist of the following hardware items.	
d. 148C7223P002, Weldment (Shroud)	2
e. 148C7223P003, Weldment (Vessel)	2
f. 148C7223P009, Elbow Pipe Plate (Shroud)	2

APPROVAL	DATE
T Gleason T.Gleason FDI ORIGINATOR	12-22-95
P. Aschoff QUALITY	12-22-95
L. Finner S. Lyon Tinney MATL APPL ENGR	22 DEC 95
D.W. Smith ENGRG MANAGER	12/22/95
T.E. Gleason RESPONSIBLE ENGR	12-22-95
D.W. Smith PROJECT MANAGER	12/22/95

APPROVALS	DATE

THIS EQUIPMENT IS SAFETY RELATED ☒ YES ☐ NO
SAFETY FUNCTION IS AFFECTED ☐ YES ☒ NO
FIELD WORK ORDER NO.
COMPLETION RECORD REQUIRED BY R.E. YES ☒ NO ☐

DISTRIBUTION CODE

INTERNAL	EXTERNAL

FDI TASK COMPLETED — DATE
SITE QUALITY CONTROL
FIELD MANAGER

NS WORK

DESCRIPTION OF TASK

	Qty.
g. 148C7223P013, Elbow Pipe Plate (Vessel)	2
h. 148C7223P014, Tie Bar	2
i. 148C7223P016, Bolt, Plate Keeper	8
j. 148C7223P018, Bolt, Elbow Pipe Plate	4
k. 148C7223P019, Hex Nut	4
l. 148C7224P002, Weldment (Shroud)	2
m. 148C7224P003, Weldment (Vessel)	2
n. 148C7225P005, U-Bolt, 7°-30'	2
o. 148C7225P006, U-Bolt, 187°-30'	2
p. 148C7225P007, U-Bolt Keeper	8
q. 148C7225P008, Nut (Square)	8
r. 148C7225P009, Bolt, U-Bolt	8
s. 148C7225P010, Bolt, Horizontal	8
t. 148C7225P011, Keeper	16

IV. Repair Procedure

The repair shall be performed remotely, underwater. All work shall be performed in accordance with Paragraph II.a

1.0 Repair Clamp Installation

Install the repair clamp in accordance with the requirements in Paragraph II.a.

2.0 Crimping

After it has been determined that the repair clamp has been correctly installed and all of the bolts torqued, crimp the keepers to the bolts in accordance with Paragraph II.a.

3.0 Repair Examination

A visual examination of the completed repair shall be performed. The television camera shall be capable of resolving a .001 inch diameter wire on a neutral gray background.

a. Examine each crimp per the requirements of Paragraph II.a.
b. Examine the keepers to assure that each is seated in its recess.
c. Examine the upper clamp adjacent to each of the four support feet to assure that at least one of the clamp feet is in contact with the collar / collar weld on the riser.
d. Examine the U-bolt to assure that bolt is in contact with the riser elbow engaged in the slots in the lower clamp.

DESCRIPTION OF TASK

V. Quality Requirements

1.0 GE Site Quality Control Representatives shall provide QC surveillance and document the field work performed, to insure the requirements of this FDI have been met. All work is to be performed in accordance with GE Quality Assurance Manual QAM-001 Rev. 4.

2.0 The following shall be the Minimum Quality Control Documentation Requirements:

a. Video tape of the completed repair in accordance with Paragraph IV.3.0.
b. Measurement and inspection data sheets as applicable.

3.0 The following documents shall be submitted to GE Site QA for review and approval, prior to use. Previously approved GENE procedures may be used in satisfying the requirements of this paragraph.

a. Installation specification /procedure, traveler(s); including sequence data sheets, measurement data sheets, drawings, sketches and instructions,and cleaning and cleanliness control.

b. List of miscellaneous material.

Pages 69 - 76 have been intentionally left blank for this submittal to the USNRC. These pages contain General Electric Nuclear Energy proprietary information.

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ATTACHMENT PAGE 77 OF 77
DWG # ____ SHT # ____ REV ____

Effective Date

REV. 1 of 1

ALARA REVIEW SHEET FOR M

Modification Number: Proj 335 Station: LGS ___ PBAPS ✗ Unit(s): 2

Stage of Modification: ✗ Preliminary ___ Conceptual ___ Intermediate ___ Final

Modification Description: Core Spray Downcomer Repair

System Number(s): CS Room/Area Number(s): RZ-123 & Vessel

ALARA Concerns/Comments: All work for this mod is accomplished underwater so there are no specific ALARA concerns. The installation of the mod should have an effect on station general exposure. The work orders shall be reviewed and added to Rep. 0-98-1 (Rev. 1

Estimated Installation Dose: 0.080 Man-Rem
(attach dose estimate if estimated dose is >0.3 man-rem)

Estimated Additional Annual Dose: N/A Man-Rem/Year
(attach dose estimate if estimated annual dose is >0.3 man-rem/year)

Is Temporary Shielding Recommended? ___ Yes ✗ No
If Yes, Eng. Eval. Initiated? ___ Yes ___ No ECR No, if applicable ____

Is Mock-up or Special Training Recommended? ___ Yes ✗ No
(If Yes, provide details above or on an attached continuation sheet)

Review Status: ✗ (1) Complete - No Further Review Required
___ (2) Follow-up and Resolution of Problem Areas Required
___ (3) Next Stage of Review Required

Reviewed by: _____ Radiological Engineer 1/18/96 Date

Approved by: _____ Manager of Radiological Engineering 1/18/96 Date

Post-it® Fax Note 7671 | Date 1-19-96 | # of pages ▶ 1
To Mike DeLuzerry | From Hoss
Co./Dept. SM&E-3 | Co. Rad Eng
Phone # 4731 | Phone # 4358
Fax # 4043 | Fax #