Station Support Department

IEB 80-13

PECO NUCLEAR
A UNIT OF PECO ENERGY

PECO Energy Company
Nuclear Group Headquarters
965 Chesterbrook Boulevard
Wayne, PA 19087-5691

September 3, 1996

Docket No. 50-277

License No. DPR-44

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

Subject: Peach Bottom Atomic Power Station, Unit 2
Core Spray In-Vessel Piping

References:

1) Letter from J. F. Stolz (U.S. Nuclear Regulatory Commission (USNRC)) to G. A. Hunger, Jr. (PECO Energy Company), dated October 13, 1995

2) Letter from G. A. Hunger, Jr. (PECO Energy Company) to USNRC, dated October 12, 1995

3) Letter from G. A. Hunger, Jr. (PECO Energy Company) to USNRC, dated August 6, 1996

Dear Sir:

In the Reference 1 letter, the U. S. Nuclear Regulatory Commission (USNRC) concluded that operation of the Peach Bottom Atomic Power Station (PBAPS), Unit 3 with cracked but clamped core spray downcomers was acceptable. As part of this review, the modification to the core spray piping was submitted to the USNRC for your review. This information was submitted in the Reference 2 letter. As discussed in the Reference 3 letter, for the upcoming PBAPS, Unit 2 outage scheduled to begin September, 1996, Core Spray downcomer welds at the spigot/sleeve joint connecting the downcomer to the sparger inlet elbow (welds P6 and P7, and the Heat Affected Zone of weld P5) will be examined. If indications are identified, PBAPS is prepared to install repairs similar to those installed during the past PBAPS, Unit 3 outage (3R10). As a part of the pre-planning process, PECO Energy Company is submitting the repair package for the core spray piping. This information is being submitted now in order to expedite the review schedule of the repair package if it becomes necessary to install the repair. If this repair is necessary, the USNRC will be verbally notified and a review requested.

A001

If you have any questions, please contact us.

Very truly yours,

G. A. Hunger, Jr.

G. A. Hunger, Jr.
Director - Licensing

Attachment

cc: H. J. Miller, Administrator, Region I, USNRC
W. L. Schmidt, USNRC Senior Resident Inspector, PBAPS

ECR Printout

ECR NUMBER: PB 95-04972 000 ECR TYPE: MOD

ASSIGNED ORG: PEDM
ASSIGNED INDV: DELOWERY, MR
INITIATOR: DELOWERY, MR
REQUEST ORG: PEDM
A/R NO: A0968878
PROJECT NO: PB 2 P00335

PRINT DATE/TIME: 08/08/96 13:31
REQUIRED DATE: 01/23/96
ECR STATUS: APPVD
STATUS DATE: 01/23/96
INIT. DATE: 11/02/95
A/R STATUS: ROUTED

A/R SUBJECT: UNIT 2 MOD P00335 - CORE SPRAY DOWNCOMER REPAIRS

==========

A. IDENTIFICATION:

SYSTEM: 04 COMP ID: PB 2 04 F MISC SYSTEM-04
INIT OPER: Y QA CLASS: P POTL REPT: N
TECH SPEC: N REQD IN MODES:
PAGES ATTACHED: Y NO. OF PAGES: 77 ID/DATE: ARP1 01/22/96

PROBLEM DESCRIPTION and PROPOSED DISPOSITION:

FABRICATE REPAIR CLAMPS TO BE INSTALLED ON THE UNIT 2 CORE SPRAY DOWNCOMERS AS A CONTIGENCY FOR REFUELING OUTAGE 2R11. CLAMPS WERE PREVIOUSLY DESIGNED, FABRICATED AND INSTALLED IN UNIT 3 UNDER ECR'S PB 94-11881 AND 95-04532.

.

NOTE - NO CRACKING HAS BEEN IDENTIFIED IN THE UNIT 2 CORE SPRAY DOWNCOMERS TO DATE. THIS MOD IS CURRENTLY A CONTINGENCY ONLY.

B. EVALUATION:

50.59 REVIEW REQD: Y ORIG 50.59 REVIEW AFFECTED: N 50.59 SE REQD: Y
POTL REPT: DATE/TIME:
STATION PROC/PROGRAM REVIEW COMPLT: Y CAUSE: I
FINAL OPERABILITY: COMP: Y SYSTEM: Y PLANT: Y
SSV NAME: SSV DATE/TIME:
SCHED CODE/WINDW: 2R11 CWW1 11/02/95
WORK AT RISK: N FINAL DISP: INTERIM DISP:

APPROVED DISPOSITION:

THIS MODIFICATION PROVIDES A CONTINGENCY REPAIR FOR THE CORE SPRAY DOWNCOMER PIPES LOCATED AT AZIMUTHS 7.5, 172.5, 187.5 AND 352.5 OF THE UNIT 2 REACTOR PRESSURE VESSEL (RPV). THE REPAIR ADDRESSES POTENTIAL CRACKING IN THE SPIGOT/SLEEVE JOINTS WHICH ATTACH EACH DOWNCOMER TO THE CORE SPRAY SPARGER INLET PIPE. THE REPAIR METHOD WILL BE A MECHANICAL CLAMP. THE CLAMP IS CONSIDERED A PERMANENT REPAIR FOR POTENTIAL CRACKING IN THE WELDED SLEEVE CONNECTING THE DOWNCOMER (WELD 1)

E C R Printout

ECR NUMBER: PB 95-04972 000 ECR TYPE: MOD

APPROVED DISPOSITION:

TO THE CORE SPRAY PIPING ENTERING THE SHROUD AS FOUND PREVIOUSLY IN UNIT 3. THE CLAMP DESIGN ALSO ALLOWS FOR CRACKING (360 DEG. THROUGH WALL) AT THE SLEEVE/SPIGOT WELD, THE SPIGOT/PIPE WELD, BELOW THE PIPE/SLEEVE WELD (UNIT 3 CRACK LOCATION) AND THE PIPE/ELBOW WELD JUST ABOVE THE SHROUD PENETRATION (WELDS 2 THROUGH 4).

.

A. BASIS

DURING PBAPS UNIT 3 1993 AND 1995 REFUELING OUTAGES (3R09 AND 3R10), INSPECTIONS PERFORMED IN RESPONSE TO USNRC IE BULLETIN NO. 80-13, IDENTIFIED CRACK INDICATIONS ON ALL FOUR CORE SPRAY LINE DOWNCOMERS (ECR'S PB 94-11881 AND 95-04532). THE CRACK INDICATIONS WERE LOCATED IN THE VERTICAL SECTION (DOWNCOMER) OF THE CORE SPRAY LINE OUTSIDE THE SHROUD, BUT INSIDE THE RPV WHERE TWO SECTIONS OF PIPING MEET AND ARE CONNECTED BY TWO CIRCUMFERENTIALLY WELDED SLEEVES. REPAIRS WERE AFFECTED ON ALL FOUR CORE SPRAY LINE DOWNCOMER SECTIONS FOR UNIT 3.

.

ALTHOUGH PAST IE BULLETIN NO. 80-13 INSPECTIONS HAVE NOT IDENTIFIED CRACKS IN THE UNIT 2 CORE SPRAY DOWNCOMERS, AN EQUIVALVENT REPAIR HAS BEEN PREPARED TO ADDRESS THE POTENTIAL FOR SIMILAR CRACKING IN THE UNIT 2 CORE SPRAY DOWNCOMERS.

.

B. ENGINEERING EVALUATION

THE COMPLETE ENGINEERING EVALUATION FOR THE CLAMP DESIGN IS PROVIDED IN THE ATTACHED GENERAL ELECTRIC COMPANY DESIGN DOCUMENTATION. IN SUMMARY, THE CLAMPS WILL PREVENT SEPARATION OF THE CORE SPRAY DOWNCOMER FROM THE SHROUD INLET PIPING. THE ESTIMATED LEAKAGE RESULTING FROM THE WORST CASE CRACKING IN THE REGION IS WITHIN MARGINS REQUIRED TO MAINTAIN ADEQUATE CORE SPRAY FLOW TO THE REACTOR CORE DURING ALL REQUIRED DESIGN BASIS ACCIDENTS (DBA'S).

.

THE MODIFICATION DESIGN ADDS TWO LONG CLAMPS (SIMILAR IN DESIGN TO THE CLAMP USED FOR THE 172.5 DEG. CORE SPRAY LINE IN UNIT 3) TO THE 7.5 AND 172.5 DEGREE AZIMUTH DOWNCOMERS (LOOP B) AND TWO SHORTER CLAMPS DESIGNED FOR THE 187.5 AND 352.5 DEGREE AZIMUTH DOWNCOMERS (LOOP A). ATTACHMENT PAGE 59 SHOWS THE CLAMP DESIGNS. THE UPPER CLAMP BEARS ON THE TOP OF THE COLLAR THAT ATTACHES THE CORE SPRAY LINE TO THE CORE SPRAY SPARGER INLET PIPE. THE LOWER CLAMP IS CENTERED OVER THE INLET PIPE TO ELBOW JOINT. SEPARATION OF THE CLAMP PAIRS IS USED TO PROPERLY ADJUST THE CLAMPS TO ENSURE THAT EACH OF THE CLAMPS ARE POSITIONED CORRECTLY OVER THE WELD AREAS. THE PRIMARY DIFFERENCE BETWEEN THE TWO DESIGNS IS THE MEANS BY WHICH THE UPPER AND LOWER CLAMPS ARE SEPARATED: THE LONG CLAMP DESIGN SEPARATES THE PAIR THROUGH THE USE OF AN ADJUSTABLE TIE ROD AND THE SHORT CLAMP'S SEPARATION IS

E C R Printout

ECR NUMBER: PB 95-04972 000 ECR TYPE: MOD

APPROVED DISPOSITION:

FIXED. THE SHORT CLAMP IS ADJUSTABLE IN THAT THE UPPER CONTACT PAD WAS LENGTHENED TO ENSURE PROPER CONTACT. A U-BOLT THAT ATTACHES TO THE UPPER CLAMP PROVIDES AXIAL RESTRAINT BETWEEN THE COLLAR AND ELBOW, SPANNING THE CRACK LOCATION. THE MODIFICATION IS DESIGNED TO NOT INTERFERE WITH THE SHROUD STABILIZER INSTALLATION OR WITH NORMAL REACTOR SERVICING ACTIVITIES.

.

THE MODIFICATION REPAIR IS PERMANENT. THE REPAIR IS DESIGNED FOR THE REMAINDER OF THE PLANT LIFE, INCLUDING EXTENSIONS, USING THE ASME BOILER AND PRESSURE VESSEL CODE, SECTION NG (1989 EDITION) AS A GUIDE FOR DESIGN ANALYSIS. CLAMP HARDWARE IS CLASSIFIED AS SAFETY RELATED, & IS DESIGNED TO CURRENT ACCEPTED STANDARDS. THEREFORE, IT CAN WITHSTAND THE SAME DESIGN BASIS LOADS AS THE CURRENT CSL DOWNCOMER UNDER NORMAL AND ABNORMAL OPERATING CONDITIONS. THE INSTALLATION OF THIS HARDWARE WILL NOT AFFECT (DEGRADE) THE OTHER RPV INTERNALS.

.

PROVISIONS FOR ADDITIONAL CRACKING IN THE CORE SPRAY DOWNCOMER (I.E. ABOVE THE PIPE/SLEEVE WELD) WERE NOT INCORPORATED INTO THE DESIGN DUE TO ADDITIONAL COST, IMPACT ON INSTALLATION SCHEDULE, THE LOW PROBABILITY CRACKS WOULD DEVELOP IN THIS REGION (REFERENCE 12) AND THE ACCEPTABLE CONDITION OF THE UNIT 3 DOWNCOMER PIPES AS DETERMINED THROUGH UT INSPECTION (REFERENCE 13).

.

C. APPLICATION
THE TWO CLAMP DESIGNS ARE DESIGNED SPECIFICALLY FOR EITHER UPPER (187.5 & 352.5 DEGREE AZIMUTHS) OR LOWER (7.5 & 172.5 DEGREE AZIMUTH) SHROUD PENETRATIONS AS SHOWN ON ATTACHMENT PAGES 62 AND 63.

.

D. IE BULLETIN 80-13 INSPECTIONS
UPON INSTALLATION OF THE CLAMP, THE EXISTING INDICATION, THE SLEEVE/SPIGOT WELD, THE SPIGOT/PIPE WELD & THE PIPE/ELBOW WELD WILL NO LONGER REQUIRE VISUAL INSPECTION EACH OUTAGE. VISUAL INSPECTIONS SHALL STILL INCLUDE THE PIPE/SLEEVE WELD (& ABOVE). IN-VESSEL
VISUAL INSPECTION SHALL ALSO INCLUDE A GENERAL INSPECTION FOR CLAMP INTEGRITY IN ACCORDANCE WITH ATTACHMENT PAGES 66 THROUGH 68.

.

E. INSTALLATION INSTRUCTIONS
THE CLAMP WILL BE INSTALLED REMOTELY FROM THE REFUELING BRIDGE IN ACCORDANCE THE GE NUCLEAR ENERGY FIELD DISPOSITION INSTRUCTION NO. 184-71067-1 (SEE ATTACHMENT PAGES 66 THROUGH 68).

.

ALL WORK WILL BE PERFORMED BY GE NUCLEAR ENERGY (OR AUTHORIZED REPRESENTATIVE) IN CONJECTION WITH NMD FOR

E C R Printout

ECR NUMBER: PB 95-04972 000 ECR TYPE: MOD

APPROVED DISPOSITION:

COORDINATION OF REFUELING FLOOR ACTIVITIES.
.
PREVIOUS UNIT 3 INSTALLATIONS COMPLETED UNDER WORK ORDERS C0165783, C0165784 AND C0165785.
.
F. MATERIAL/IPC CHANGES
ALL MATERIALS WILL BE SUPPLIED BY GENERAL ELECTRIC COMPANY..
.
CREATED SCN 116-40606 FOR THE UPPER SHROUD PENETRATION CLAMPS (PART NO. 148C7225G002, AZIMUTHS 187.5 & 352.5).
.
REVISED THE PART NUMBER FOR SCN 116-21740 FOR THE LOWER SHROUD PENETRATION CLAMPS (PART NO. 148C7225G001, AZIMUTHS 7.5 & 172.5) BASED ON THE LATEST VENDOR DRAWINGS (ATTACHMENT PAGE 59).
.
THE TECHNICAL AND QUALITY REQUIREMENTS FOR THESE ITEMS ARE IDENTICAL TO THOSE EVALUATED UNDER REFERENCE 15. THEREFORE, A NEW MATERIAL EVALUATION IS NOT REQUIRED.
.
G. DYNAMIC QUALIFICATION
SEISMIC ASSESSMENT OF THE CORE SPRAY LINE IS PROVIDED IN GENE 771-01-0196 REV.0(ATTACHMENT PAGES 31-34).
.
H. DRAWING CHANGES
THE FOLLOWING DOCUMENTS HAVE BEEN CREATED PER THIS MODIFICATION.
1. M-1-B-425, GE NUCLEAR ENERGY DWG. NO. 148C7225 REV.1 (ATTACHMENT PAGE 59)
   * SHEETS 2 THROUGH 4 OF GE DRAWING ARE NOT INCLUDED, THE INFORMATION IS CONSIDERED PROPIETARY FOR FABRICATION.
2. M-1-B-426, (SHTS 1&2) PARTS LIST FOR REACTOR, CSL REPAIR PL148C7225,REV.0 (ATTACHMENT PAGES 60-61)
3. M-1-B-427, (SHTS 1&2) GE NUCLEAR ENERGY DWG. NO. 148C7226 REV.1 (ATTACHMENT PAGES 62 AND 63)
4. M-1-B-428, (SHTS 1&2) PARTS LIST FOR REACTOR, CSL MODIFICATION PL148C7226,REV.1 (ATTACHMENT PAGES 64-65)
.
REVISE THE FOLLOWING DOCUMENTS PER THIS MODIFICATION:
1. ISI-203-RV-07 (ATTACHMENT PAGE 22)
2. DBD P-S-44 (ATTACHMENT PAGES 69 THROUGH 73)
3. DBD P-T-18 (ATTACHMENT PAGES 74 THROUGH 76)
.
I. PROCEDURE CHANGES
A0968878 E01 HAS BEEN CREATED TO REVISE PROCEDURE MAG-CG-408 WHICH WILL PROVIDE CLAMP DETAILS FOR FUTURE IN-VESSEL VISUAL INSPECTIONS.
.
J. SPECIFICATION REVISION
A0968878 E02 HAS BEEN CREATED TO REVISE SPECIFICATION

E C R Printout

ECR NUMBER: PB 95-04972 000 ECR TYPE: MOD

APPROVED DISPOSITION:

M-733 TO INCORPORATE THE CLAMP UNDER APPENDIX B-3.
THE SCOPE OF THE CHANGE SHOULD SIMPLY REFERENCE THIS
MODIFICATION IN SECTION B-3.

.
K. PLANT LABELLING
NO PLANT LABELLING IS REQUIRED FOR THIS MODIFICATION.

.
L. SIMULATOR/TRAINING
THIS MODIFICATION DOES NOT IMPACT THE SIMULATOR NOR
TRAINING.

.
M. UFSAR CHANGES
THERE ARE NO UFSAR CHANGES RESULTING FROM THIS
MODIFICATION.

.
N. FIRE PROTECTION REVIEW CHECKLIST (FPRC)
A FIRE PROTECTION REVIEW CHECKLIST HAS BEEN PREPARED FOR
THIS MODIFICATION AND IS PROVIDED AS ATTACHMENT PAGES
20 AND 21.

.
O. ALARA REVIEW
THE ALARA REVIEW SHEET FOR THIS MODIFICATION IS
PROVIDED AS ATTACHMENT PAGE 77. SEE A0968878 E03.

.
P. WALKDOWN
A PLANT WALKDOWN COULD NOT BE PERFORMED FOR THIS
MODIFICATION DUE TO LOCATION OF THE DOWNCOMER INSIDE
THE RPV. HOWEVER, FULL SCALE MOCK UP TESTING WILL BE
PERFORMED BY GE NUCLEAR ENERGY PRIOR TO MOD INSTALLATION.

.
REPAIRS HAVE BEEN SUCCESSFULLY INSTALLED IN UNIT 3 DURING
3R10 UNDER ECR'S PB 94-11881 AND 95-04532.

.
Q. MODIFICATION ACCEPTANCE TESTING/CRITERIA
PROPER CLAMP INSTALLATION SHALL BE VERIFIED BY
SATISFACTORY REPAIR EXAMINATION PER SECTION 3.0 OF THE
FIELD DISPOSITION INSTRUCTION, ATTACHMENT PAGE 67.

.
R. NPRDS
THERE ARE NO CHANGES TO NPRDS ASSOCIATED WITH THIS
MODIFICATION.

.
S. 10CFR50.59 REVIEW
A 10CFR50.59 REVIEW HAS BEEN PREPARED IN SUPPORT OF THIS
MODIFICATION AND IS PROVIDED AS ATTACHMENT PAGES 10
THROUGH 19.

.
THE 10CFR50.59 WAS PORC APPROVED ON 1/16/96, PORC
MTG. NO. 96-002.

.
T. REFERENCES/SCOPE OF REVIEW
1 DRAWINGS M-362, M-1-B-149, M-1-B-39, M-1-B-137,

E C R Printout

ECR NUMBER: PB 95-04972 000 ECR TYPE: MOD

APPROVED DISPOSITION:

ISI-203-RV-23, M-1-B-47 & M-1-P-38 SHT.83, ISI-203-RV-7
2 SPECIFICATION M-733, NE-163 & M-1-U-429 (GE SPEC. 22A2233AB)
3 UFSAR SECTIONS 3.9.4.7, 6.4.3, 6.5.3.3, 6.1, 6.2, 6.3 7.4, 14.0, APPENDIX A AND TABLE 6.3.1
4 TECH SPECS 2.0, 3.4.9, 3.4.10, 3.5.1, 3.5.2 AND BASES.
5 GE NUCLEAR ENERGY REPORT NEDC-32163P CLASS III JANUARY 1993, "PBAPS UNITS 2&3 SAFER/GESTR-LOCA LOSS-OF-COOLANT ANALYSIS"
6 IE BULLETIN 80-13 AND NUMEROUS PECO/USNRC CORRESPONDANCE.
7 GE I&SE INSTALLATION COMPLETION NOTICE FOR CORE SPRAY HEADER PIPING SLEEVE TO SPIGOT DATED 9/24/73
8 LTR FROM G.A. HUNGER TO USNRC DATED DECEMBER 8, 1993
9 ATTACHED GE NUCLEAR ENERGY DESIGN DOCUMENTATION
10 SPECIFICATION FOR P.O. #PB263885
11 DBD'S P-T-18 AND P-S-44
12 GENE-523-A101-0995, RESIDUAL STRESS ANALYSIS FO THE PB UNIT 3 CORE SPRAY PIPE TO SLEEVE FILLET WELD
13 ECR/NCR PB 95-04136
14 ECR'S PB 95-04532, 95-04817, 95-11881
15 ECR PB 95-03858

.

U. AG-123 REVIEW

THE AG-123 REVIEW FOR THIS MODIFICATION (UNIT 2) IS DOCUMENTED ON THE FOLLOWING EVALUATIONS:

A0968878 E04 DESIGN CHECKLIST
A0968878 E05 INSTALLATION PLANNING CHECKLIST
A0968878 E06 TEST AND TURNOVER CHECKLIST

.

THE PREVIOUS AG-123 REVIEW FOR THIS MODIFICATION IS DOCUMENTED IN A0902703 E05/06/07.

.

V. ANI REVIEW

THE CORE SPRAY DOWNCOMER PIPING DOES NOT FALL WITHIN THE JURISDICTIONAL BOUNDARIES OF M-679 AS DESCRIBED IN THE ATTACHED DID AND A0902703 E04. THEREFORE, ANI REVIEW IS NOT REQUIRED.

.

W. LIST OF ATTACHMENTS

PAGES	DESCRIPTION
1-9	DID FOR MODIFICATION P00335, REV.2
10-19	10CFR50.59 REVIEW FOR MODIFICATION P00335 UNIT 2, REV. 0
20-21	FIRE PROTECTION REVIEW CHECKLIST FOR MODIFICATION P00335 UNIT 2, REV.0
22	ISI-203-RV-07 MARK-UP
23-30	STRESS ASSESSMENT REPORT, GENE-771-01-1295
31-34	SEISMIC REPORT SUMMARY, GENE-771-01-0196, REV.0
35-48	DESIGN SPECIFICATION, 25A5821 REV.1

ECR Printout

ECR NUMBER: PB 95-04972 000 ECR TYPE: MOD

APPROVED DISPOSITION:

49-58	FABRICATION SPECIFICATION, 25A5822 REV.0
59	M-1-B-425, CORE SPRAY LINE REPAIR DRAWING
60-61	M-1-B-426, PARTS LIST FOR CORE SPRAY LINE REPAIR
62-63	M-1-B-427, CORE SPRAY LINE MODIFICATION DWG
64-65	M-1-B-428, PARTS LIST FOR CORE SPRAY LINE MODIFICATION
66-68	FIELD DISPOSITION INSTRUCTION. HE2-0261-71067
69-73	DBD P-S-44 MARK UP
74-76	DBD P-T-18 MARK UP
77	ALARA REVIEW SHEET FOR MOD P00335 UNIT 2

IND. DESIGN REVIEW COMMENTS:

REVIEWED DISPOSITION, REFERENCES, ORIGINAL MOD P00335 PACKAGE (ECR 94-11881), AND GE DESIGN SPECS, AND ATTACHMENTS. ECR IS TECHNICALLY ADEQUATE, COMPLETE, AND ACCURATE. CONCUR WITH ECR CONCLUSIONS.

C. DOCUMENT CHANGES:

DOC CHANGES REQUIRED: Y DOC SCREEN STATUS: _____

AFFECTED DOCUMENTS:

F	Type	Document ID	Sheet	As-Built Type	Cat	Incorp Due Date	Dwg Inc Date	Inc Rev	Resp Orgn
PB	DBD	P-S-44	00000	4.25	C2				SEEM
PB	DBD	P-T-18	00000	4.25	C2				SEEQ
PB	DWG	ISI-203-RV-07	0001	4.03	A2				SEMP
PB	SDOC	M-1-B-425	0001	4.18	D				SEMP
PB	SDOC	M-1-B-426	0001	4.18	D				SEMP
PB	SDOC	M-1-B-426	0002	4.18	D				SEMP
PB	SDOC	M-1-B-427	0001	4.18	D				SEMP
PB	SDOC	M-1-B-427	0002	4.18	D				SEMP
PB	SDOC	M-1-B-428	0001	4.18	D				SEMP
PB	SDOC	M-1-B-428	0002	4.18	D				SEMP
PB	SPEC	M-00733		4.29	S3				PECE

ECR Printout

ECR NUMBER: PB 95-04972 000 ECR TYPE: MOD

D. APPROVALS:

	Name	User ID	Date
INTERFACING GROUPS:	SEE ECR'S PB 94-11881 &	MRD3	01/22/96
	95-04532 FOR INTERFACE REV.	MRD3	01/22/96
CAQ: ___ PEP NBR:			
RESP ENGINEER:	DELOWERY, MR 4371	MRD3	01/16/96
IND REVIEWER:	PIHA, ALBERT R. 3328	ARP1	01/22/96
MANAGER:	MOORE T A	TAM1	01/23/96

E. ECR WORK COMPLETION NOTIFICATION:

WORK REQUIRED: Y
AUTO CLOSE: N MRD3

FILM ID: _____ BLIP NBR: _____ BOX NBR: _____

==========

A/R NUMBER EVAL STATUS DATE

========== END OF PRINT ==========

Effective Date:

Exhibit NE-C-205-2. Rev. 1

PB ECR 95-4972 REV. 0
ATTACHMENT PAGE 1 OF 77
DWG. NO. _____ REV. ___

PORC	NO
SQR	NO
QR	YES
50.59	NO
RESP. MGR	YES

PECO Energy Company
Nuclear Generation Group

ORIGINAL IN RED

DOCTYPE 155

ECR No. ~~95-04972~~ IH
Page 1 of 9

DID COVER SHEET

REV DATE : 8/95

MOD# P00335

MOD DESCRIPTION: REPAIR OF CORE SPRAY DOWNCOMER CRACKS

STATION: PEACH BOTTOM UNIT: 2&3

SYSTEM/TOPIC NO(s): 14&04

REASON FOR CHANGE(s) (N/A FOR REV. 0): ADDITION OF CONTINGENCY MODIFICATION FOR UNIT 2

ORGANIZATION	EVALUATOR	DATE	INDEPENDENT REVIEWER	DATE	DEPTH OF REVIEW	
					EXHIBIT MOD-C-9-3	OTHER (ATTACH)
ORIGINATING ORGANIZATION	MK Delaney	1/5/96	Paul Kistler	1/19/96	✓	
INTERFACING BRANCH						
INTERFACING BRANCH						
INTERFACING BRANCH						
INTERFACING BRANCH						
INTERFACING BRANCH						

PECO REVIEW OF EOC PREPARED DID: N/A DATE: _____

BRANCH MANAGER: [signature] DATE: 1/23/96

REV. NO. 2

NOTE: SECTIONS NOT SPECIFICALLY LISTED IN THIS DESIGN INPUT DOCUMENT ARE EITHER NOT APPLICABLE OR OVERLAP WITH SECTIONS ALREADY LISTED. SECTIONS NOT INCLUDED ARE INDICATED ON THE ATTACHED DESIGN INPUT REQUIREMENTS CHECKLIST.

1.0 BASIC FUNCTIONS

This modification will repair cracks found in all four Core Spray Downcomers within the Unit 3 Reactor Pressure Vessel (RPV). The crack indications are located in the vertical sections (downcomers) of the core spray piping (azimuths 352.5°, 7.5°, 187.5° and 172.5° for the 'A', 'B', 'C' and 'D' downcomers respectively) in the annulus region of the RPV, where two sections of piping meet and are connected by two circumferentially welded sleeves. There are a total of four downcomers in the vessel, two per each core spray loop. The indications are oriented circumferentially in the Heat Affected Zone (HAZ) of the pipe sleeve where the sleeve is welded to the downcomer line.

The crack indication in the 'D' downcomer was originally identified in October 1993 during refueling outage 3R09 in vessel visual inspections. Analysis performed in 1993 (NCR PB 93-00754) provided justification for continued operation through the subsequent operating cycle. This analysis was reviewed and approved by the USNRC as documented in USNRC SER dated November 16, 1993.

The crack indications in the 'A' and 'C' downcomers were identified by augmented visual inspections performed during refueling outage 3R10 (October 1995). Following visual inspections, ultrasonic examinations were performed on all four downcomers in which the 'B' downcomer indications were discovered.

The intent of each repair is to restore the structural integrity of the spigot/sleeve joint. Therefore, the repair will prevent separation of the downcomer piping under normal and Design Basis Accident (DBA) conditions. 2

Revision 2 of this DID has been created to add a contingency repair for the Unit 2 Core Spray downcomers. The design inputs associated with this modification are not unit specific. Therefore, no further changes are required to this document, except as identified in section 14.1.

2.0 DETAILED DESIGN REQUIREMENTS

2.1 ASME SECTION XI BOUNDARIES

The downcomer piping is located in the Reactor Pressure Vessel (RPV) and is designed to channel flow from the RPV inlet nozzle to the core spray sparger. The downcomer piping is not shown on any ASME Section XI P&ID and is not considered a pressure boundary component nor a core support structure. Therefore, the installation of the downcomer clamps does not fall within the jurisdictional boundaries of an ASME Section XI repair rules, as described in Specification M-679 Rev.2.

2.5 ASME SECTION XI ISI PROGRAM

The downcomer piping and any associated repair are subject to augmented inspection under the ISI Program (Specification M-733). Any additional supports or clamping devices required for repair will be included into the ISI Program as augmented inspection requirements. (2.4)

2.8 CODES, STANDARDS, UFSAR, REGULATORY REQUIREMENTS

The following codes, standards, specifications, regulatory requirements and licensing commitments will be used for the design, analysis, installation and testing of this modification. The latest revision, including addenda, of the subject documents at the time of the DID issue will be used unless otherwise noted.

- ASME Section II, Material Specifications
- ASME Section III, Boiler and Pressure Vessel Code, Nuclear Power Plant Components, 1965 Edition and Addenda including Winter 1965 Addenda
- ASME Section V, Nondestructive Examination
- ASME Section IX, Welding and Brazing Qualification
- ANSI/ASME N45.2.2 - 1978, Packaging, Shipping, Receiving, Storage and Handling of Items for Nuclear Power Plants

- PBAPS UFSAR Sections 3.3, 6.4.3, 6.5.3.3, 6.1, 6.2, 6.3, 7.4, 14.5, 14.6, Appendix A, Appendix C, Appendix G and Table 6.3.1
- PBAPS Technical Specifications 3.2, 3.5, 4.2, 4.5 and bases
- USNRC IE Bulletin 80-13, Cracking in Core Spray Spargers, dated May 12, 1980
- Regulatory Guide 1.44, Control of the use of Sensitized Stainless Steel
- General Electric Specification 21A1111, Rev.9, Reactor Pressure Vessel
- General Electric Specification 22A1321, Rev.3, Core Spray System
- General Electric Specification 22A2233AB, Rev.3, Reactor Assembly
- GE Nuclear Energy GENE-637-040-1193, Rev.1, Core Spray Crack Analysis for Peach Bottom Unit 3
- PECO Energy NE-163-1, GE Nuclear Energy NEDC-32183P, Class III May 1993, Power Rerate SAR for Peach Bottom 2&3
- PECO Energy NE-163-3, GE Nuclear Energy NEDC-32230P, DRF A00-05334 Class III, March 1994, Peach Bottom Power Rerate Project - Engineering Report
- GE Nuclear Energy NEDC-32163P Class III January 1993, PBAPS Units 2&3 SAFER/GESTR-LOCA Loss of Coolant Analysis
- Specification NE-088, Engineering Services Supplier Interface Specification
- Specification NE-163, PBAPS Power Rerate Operating Conditions
- Specification M-733, Inservice Inspection Program

- NUREG-0612, Control of Heavy Loads at Nuclear Power Plants

- Specification M-679, Rev.2, ASME Section XI Repair and Replacement Programs at PBAPS Units 2&3 LGS Units 1&2

- DBD P-T-18, Reactor Vessel Internals

Drawings (Latest Revision)

M-362	M-1-B-147
M-1-B-39	M-1-B-149
M-1-B-47	M-1-P-38
M-1-B-137	ISI-203-RV-23

2.11 PERFORMANCE REQUIREMENTS

The Core Spray System consists of two redundant loops designed to provide a minimum flow of 5,000 GPM @ 105 psid (RPV to Drywell pressure) per loop to the core under a DBA. Run out flow per loop is 6,250 GPM @ 0 psig. Analysis of any downcomer repairs shall verify sufficient coolant flow will be maintained to the core. This analysis shall incorporate cumulative system leakage from each downcomer, the T-Box, vent hole and any leakage through the thermal sleeve.

2.12 DESIGN CONDITIONS

The 'A', 'B', 'C' and 'D' downcomers are located at azimuths 352.5°, 7.5°, 187.5° and 172.5° respectively within the annulus region of the RPV. The piping and any repair will be subject to Power Rerate RPV conditions described in PECO Specification NE-163 and GE Nuclear Energy NEDC-32230P. (7.1)

The repair design(s) shall be permanent and acceptable for a forty year service life.

2.15 SYSTEM INTERFACES

The impact of any attachments to reactor internals for structural support will be evaluated under this modification. Piping stress and seismic analysis shall consider worst case loading associated with installation of the core shroud stabilizers.

2.17 LAYOUT AND ARRANGEMENT

Separate repair designs may be required to accomodate the upper (downcomers 'A' & 'C') and lower (downcomers 'B' & 'D') shroud penetrations. Similarity in hardware between designs shall be maintained to the greatest extent possible.

The repair design(s) shall not impact other in-vessel maintenance activities to the maximum extent possible (e.g. RPV core shroud repair, jet pump inlet mixer removal, In-vessel Visual Inspection, RPV Belt Line Weld Inspection from Vessel ID). The repair shall allow for all normal refueling operations without removal or modification.

The repair design shall minimize the changes to in-vessel flow characteristics. Analysis will be performed to show changes that might affect in-vessel flow characteristics will not adversely affect the safe operation or power generation characteristics of the reactor.

2.18 EXAMINATION REQUIREMENTS

Core Spray piping within the RPV is subject to periodic visual examination per IE Bulletin 80-13.

Materials and methods associated with the fabrication of any repair device are subject to NDE per ASME Section V and testing per Regulatory Guide 1.44.

3.0 RELIABILITY & FAILURE IMPACT REQUIREMENTS

3.2 FAILURE EFFECT REQUIREMENTS

The repair design(s) shall maintain the integrity of the spigot/sleeve joint assuming 360° through wall cracking in the sleeve HAZ below the pipe/sleeve weld. Additional downcomer cracking that may be accommodated in the design(s) shall be clearly identified in design output documents. The integrity of the spigot/sleeve joint shall be maintained following a design basis earthquake and any DBA requiring Core Spray System actuation.

4.0 MATERIALS SELECTION

4.1 SPECIAL MATERIAL REQUIREMENTS

Materials associated with the repair design shall be compatible with existing reactor internals as described in General Electric Specification 21A1111.

4.2 SPECIAL PART REQUIREMENTS

The repair design(s)/configuration shall minimize their susceptibility to cracking (e.g. crevices). Use of stainless steel material shall be in accordance with Reg. Guide 1.44.

The repair design shall have features which ensure that no parts become loose and enter the core during installation and operation.

5.0 MATERIALS HANDLING

5.1 HANDLING, SHIPPING & STORAGE REQUIREMENTS

Handling, shipping and storage of modification material shall be performed in accordance with ANSI/ASME N45.2.2.

6.0 PERSONNEL ISSUES

6.3 SPECIAL PERSONNEL REQUIREMENTS

Installation personnel shall be trained and qualified in the use of any special tooling required for installation of the repair.

Tooling/equipment used for installation of repair components shall be evaluated in accordance with NUREG-0612 as applicable.

10.0 CIVIL/MECHANICAL ENGINEERING

10.1 SEISMIC/DYNAMIC LOADS

The repair design shall consider the effects of the repair on the seismic response of the reactor vessel and internals. Changes in response which would affect loads on the core spray line or other internal components shall be addressed. Seismic analysis will be performed to validate the repair design. (10.2, 10.3 & 10.4)

Seismic analysis of the repair shall consider the potential displacement of the shroud associated with the failure of shroud welds H1 through H7 with the shroud stabilizer modification installed.

The design shall consider any vibrational loads during operation and account for fatigue as required.

10.5 THERMAL EXPANSION CONSIDERATIONS

The repair design shall consider the effects of thermal movement on the repair components and the existing vessel and internals.

10.6 PIPE SUPPORTS & HANGERS

Hangers and supports for reactor internals will be evaluated for any additional weight added by the repair design.

10.7 PIPE STRESS CALCULATIONS

Installation methods/processes shall minimize the susceptibility of the core spray line and supports to cracking. Increased loads on the core spray line and supports shall be analyzed and documented in the design.

14.0 RADIATION PROTECTION

14.1 ACCESS TO RADIATION AREAS

Repair work will be performed from the refuel floor/bridge above the RPV during refueling outage 3R10. An ALARA Review will be performed in accordance with HP-C-301. (14.7)

Unit 2 repair work will also be performed during a future refueling outage, dependent on results of IE Bulletin 80-13 inspections. 2

All activities related to this modification shall be done in accordance with applicable station procedures to keep worker exposure as low as reasonably achievable.

10CFR50.59 REVIEW for MODIFICATION P00335 INSTALLATION of CORE SPRAY LINE DOWNCOMER CLAMPS in Peach Bottom Atomic Power Station Unit 2

I. SUBJECT

This 10CFR50.59 Review addresses the contingency repair of the Unit 2 core spray line downcomers at the 7.5, 172.5, 187.5 and 352.5 degree azimuth shroud penetration locations.

During Peach Bottom Unit 3 1993 and 1995 refueling outages (3R09 & 3R10) inspections performed in response to USNRC IE Bulletin No. 80-13, identified crack indications on all four core spray line downcomers, Reference 1. The crack indications were located in the vertical section (downcomer) of the core spray line outside the shroud but inside the Reactor Pressure Vessel (RPV) where the downcomer pipe is connected to a welded sleeve. The indications ran circumferentially in the Heat Affected Zone (HAZ) of the pipe sleeve where the sleeve is welded to the downcomer line. The location of the indications are shown in Figure 1. Repairs were affected on all four core spray line downcomers for Unit 3.

Although past IE Bulletin No. 80-13 inspections have not identified cracks in the Unit 2 core spray downcomers, an equivalent repair has been prepared to address the potential for similar cracking in the Unit 2 core spray downcomers.

The function of the modification is to ensure the structural integrity of the Core Spray (CS) downcomer even if cracking were to develop around the full circumference anywhere from the HAZ below weld 1 through weld 4. The proposed change adds two long clamps (similar to the clamp used for the 172.5 degree core spray line in Unit 3) to the 7.5 and 172.5 degree azimuth downcomers (Loop B) and two shorter clamps designed for the 187.5 and 352.5 degree azimuth downcomers (Loop A). The design concepts are illustrated in Figure 2. The upper clamp bears on the top of the sleeve that attaches the core spray downcomer to the core spray sparger inlet pipe. The lower clamp is centered over the inlet pipe to elbow weld joint. Separation of the clamp pairs is used to properly adjust the clamps to ensure that each of the clamps are positioned correctly over the weld areas. The primary difference between the two designs is the means by which the upper and lower clamps are separated: the long clamp design separates the pair through the use of an adjustable tie rod and the short clamp's separation is fixed. The short clamp is

adjustable in that the upper contact pad was lengthened to ensure proper contact. A U-bolt that attaches to the upper clamp provides axial restraint between the collar and elbow, spanning the crack location. The proposed modification is designed so as not to interfere with the shroud stabilizer installation or with normal reactor servicing activities.

The proposed change is permanent. The change is designed for the remainder of the plant life, including extensions, using the ASME Boiler and Pressure Vessel Code, Section NG (1989 Edition) as a guide for design and analysis. The repair clamp hardware is classified as safety-related, and is designed to current accepted standards. Therefore, it can withstand the same design bases loads as the current core spray line downcomer under normal and abnormal operating conditions. The installation of this hardware will not affect (degrade) the other RPV internals.

This review demonstrates that the clamp can be installed without impacting previously evaluated conditions of the SAR and it has no impact on the bases of the Technical Specification and does not involve any unreviewed safety question.

II. DETERMINATION

1. Does the activity require a Technical Specification (TS) change or other Facility Operating License amendment?

   No. The clamp repairs ensure the integrity of each core spray downcomer line inside the RPV. There is no unacceptable effect to any ECCS system. Subsystem operability requires a flowpath taking suction from the suppression pool and transferring the water to the spray sparger in the RPV. The leakage assumed with the various 360 degree through-wall cracks in the downcomers does not render the flowpaths inoperable, since the core spray pumps are still capable of delivering design basis flow. Therefore, a change to the Technical Specification or other Facility Operating License is not required. TS sections 2.0, 3.4.9, 3.4.10, 3.5.1, 3.5.2 and bases were reviewed in making this determination.

2. Does the activity make changes to the facility as described in the SAR?

   Yes. Although installation of the repair clamps does not involve a change in the manner in which the core spray line responds to design basis loadings, and the repairs evaluated under this 10CFR50.59 are not discussed in the SAR, the estimated leakage from the core spray piping in the vessel exceeds the original design allowable for the both the "A" and "B" loops. Therefore, installation of the clamp repair constitutes a change to the facility as described in the SAR.

The function of the modification is to ensure the structural integrity of the CS downcomer even if the possible defects were to grow to the full circumference of the weld #1 heat affected zone of the sleeve. The modification will also ensure the structural integrity of the downcomers in the event additional cracking develops at weld locations 2 through 4 of Figure 1. The repair clamps the area where the core spray downcomer and the core spray sparger inlet pipe join. The repairs are shown in Figure 2. The upper clamp mechanically grips the downcomer, and bears on the top of the sleeve that attaches the downcomer to the core spray sparger inlet pipe. A rod is used to support and locate the lower clamp from the upper on the larger clamp design and the contact area has been lengthened on the shorter clamp. The lower clamp is centered over the inlet pipe to inlet elbow weld joint. A U-bolt that attaches to the upper clamp provides axial restraint between the downcomer joint collar and the riser elbow, spanning the crack location. No other modification to the CS downcomer piping welds 1 through 4 will be required.

The maximum leakage evaluated for the 'B' loop of core spray (658 GPM) and the 'A' loop (445 GPM) exceeds the original design allowable of 100 GPM. However, the leakage margin evaluation is well within margins established by the SAFER/GESTR-LOCA analysis.

UFSAR sections 3.0, 6.0, 6.5, and 14.6 were reviewed in making this determination.

3. Does the activity make changes to procedures as described in the SAR?

No. The modification does not change any reactor or system operation, does not involve any new mode of operation, and does not involve any new change/new sequence of events. If the potential cracking grows to a sufficient size, the remaining connector sleeve material will no longer be capable of holding the downcomer to the riser during a core spray system injection. However, lateral restraint will remain. The clamps hold the core spray downcomer and riser together and therefore no change in procedures is required. The review of the UFSAR sections 3.0, 6.0, 6.5, 14.6 determined that the modification will not require a change to a procedure in the UFSAR.

4. Does the activity involve tests or experiments not described in the SAR?

No. The modification involves the installation of clamp hardware on the core spray line downcomer. No tests or experiments are required to validate the

design. The review of the UFSAR sections 3.0, 6.0, 6.5, 14.6 determined that the modification will not require a change to the UFSAR.

III. SAFETY EVALUATION

A. Accident and transient analyses potentially negatively impacted by this change include:

1. ECCS-LOCA
2. UFSAR Chapter 14 Transients
3. LOCA-Radiological
4. Main Steamline Break (MLSB)
5. Earthquake

In all cases, installing the core spray downcomer clamps has no or negligible effect on these plant safety analyses.

1. May the possibility of occurrence of an accident previously evaluated in the SAR be increased?

No. Plant systems and components will be capable of performing their intended functions with the clamp installed. The possibility of occurrence of an accident previously identified in UFSAR section 14.6 is not increased. Clamp installations will not adversely effect any code requirements imposed on the core spray system. The possibility of component failure is not increased. If cracks propagate to 360 degrees, the separate portions of the downcomer are captured and there will be no possibility of loose parts resulting from the failure. The modification design incorporates provisions (i.e. crimping assembly bolts) to ensure the clamp hardware does not come loose and thus preventing any loose parts concerns.

2. May the consequences of an accident previously evaluated in the SAR be increased?

No. Systems and components used to mitigate the (radiological) consequences of the accidents in the UFSAR are not degraded by the modification. All of the events in the Peach Bottom UFSAR were examined to determine if the consequences of any of these events is increased by the installation of the repair clamps. Consequences (i.e. radiological dosed) associated with the design basis

accidents are evaluated in the UFSAR. The existing core spray downcomer and repair clamps do not function to mitigate the consequences of any UFSAR event except the design basis LOCA event. No UFSAR dose calculation will be impacted by this change. For the design basis LOCA event discussed in the UFSAR, the core spray line and downcomer provide the flow path inside the RPV for the ECCS flow to the core spray spargers. Maintaining this flow path is required to ensure that core reflooding capability is maintained following the design basis LOCA. This repair design, through its restraint of the joint, ensures the integrity of the core spray downcomers, with 360 degree through-wall cracks in locations from the HAZ below weld 1 through weld 4 of Figure 1, under DBA conditions.

An assessment of the leakage through the crack in the downcomer coupling sleeve was performed to confirm that this leakage has no significant effect on the existing ECCS analyses. The cumulative leakage for the "A" and "B" core spray loops are 445 GPM and 658 GPM respectively. The greater leakage value for the 'B' loop is based the larger crack openings resulting from the longer clamp geometry. These leakage rates are within the margins allowed for the core spray injection under the SAFER/GESTR-LOCA analysis.

The SAFER/GESTR-LOCA analysis demonstrated that 5,000 GPM @ 105 psig (with an associated run out flow of 6,250 GPM @ 0 psig) of core spray flow is sufficient to maintain adequate core cooling. Existing system requirements maintain a pump supply flow of 6,250 GPM @ 105 psig with an associated runout flow of 7,825 GPM at 0 psig per loop. Therefore, the estimated cumulative leakage for each loop remains within the established margins for ECCS-LOCA requirements.

Variations in piping stresses associated with the additional weight of the repair hardware and with multiple downcomer cracking have been evaluated and found acceptable.

Radiological consequences of the previously identified accidents are not increased. Therefore, is concluded that the repair clamps installation ensures that the consequences of a design basis LOCA will not be increased.

The clamps impose a negligible change to the plant operating conditions, and thus, the ECCS-LOCA and transient systems remain valid.

3. May the possibility of an accident of a different type than any previously evaluated in the SAR be created?

No. The clamps are designed to the structural criteria specified in the UFSAR. All of the loads and load combinations specified in the SAR relevant to the core spray line have been evaluated and are within design allowables. The clamp does not add any new operational / failure mode or create any new challenge to safety related equipment or other equipment whose failure could cause a new type of accident.

B. The components important to safety which are impacted by the modification are the core spray system and the RPV internals.

1. May the probability of occurrence of a malfunction of equipment "Important to Safety" previously evaluated in the SAR be increased?

No. The clamp is designed and constructed as a safety related component. No adverse equipment interactions will be created by installing the clamps. Therefore, the probability of equipment malfunctions is not increased.

The design of the modification assumes the postulated cracks at location from the HAZ below weld 1 through weld 4 of Figure 1 will grow to 360 degree through wall. The installation of the downcomer repairs will limit the separation between downcomer and riser to 0.062 inch for the "B" loop downcomers and 0.041 inch for the "A" loop downcomers. This maximum separation results from the temporary cooling of the CS riser relative to the newly installed U-bolt. It is conservatively assumed that the U-bolt is still at 550 degrees F when the CSS riser is cooled to 310 degrees F. average temperature. by the injected water from the torus (240 degree F water temperature difference). After a few minutes of post LOCA core spray system injection. the riser pipe and U-bolt temperatures will reach an equilibrium. However, due to anticipated displacement of a loose spool piece of pipe in the multiple crack situation. the total width of the cracks may remain at to 0.062 inch for the "B" loop and 0.041 inch for the "A" loop.

2. May the consequences of a malfunction of equipment "Important to Safety" previously evaluated in the SAR be increased?

No. The installation of the clamp ensures that the core spray line. even if cracked. will perform its safety function to ensure adequate core cooling by limiting separation between the downcomer and riser. The clamps perform passive functions that do not interfere with any equipment that is used to mitigate any abnormal operating occurrence or the radiological consequences of a malfunction described in the UFSAR. Thus. the consequences of a malfunction of equipment important to safety is not increased.

The cumulative leakage from each core spray loop will not prohibit the loops from providing adequate core cooling during a design basis LOCA. The cumulative leakage values of 445 GPM for loop "A" and 658 GPM for loop "B" are within the 1250 GPM flow margin established for each core spray loop in the SAFER/GESTR-LOCA analysis.

3. May the possibility of a different type of malfunction of equipment "Important to Safety" other than any previously evaluated in the SAR be created?

No. All equipment assumed to operate in the transient analysis, and the safety related structures, systems and components will not be adversely affected by the clamps. All components interacting with the clamps will perform their intended functions of ensuring adequate core cooling to protect the fuel. The clamps do not increase challenges to or create any new challenge to equipment. The clamps do not create any new sequence of events that lead to a new type of malfunction. Therefore, the possibility of a different type of component malfunction than evaluated in the UFSAR is not created.

C. The applicable TS Bases reviewed were 2.0, 3.4, and 3.5. These bases do not contain any margin of safety that is affected by this modification.

1. Is the margin of safety as defined in the Bases of any Technical Specification reduced?

No. The Technical Specifications and their Bases are not affected by the installation of the clamps. No safety analysis referenced in a Bases will change. Therefore, the installation of the clamps will not affect the margin of safety of any Technical Specification Bases.

D. **CONCLUSION**

This evaluation has investigated the installation of one or more clamps on the core spray lines at PBAPS Unit 2. The plant licensing bases have been reviewed. This review demonstrates that a clamps can be installed (1) without an increase in the probability or consequences of an accident or malfunction previously evaluated, (2) without creating the possibility of an accident or malfunction of a new or different kind from any previously evaluated, (3) and without reducing the

margin of safety in the bases of a Technical Specification. Therefore. installation of the core spray line clamp does not involve any unreviewed safety question.

IV. REFERENCE

1. Peach Bottom. Unit 3 10CFR50.59 Review. Rev. 1. Modification P00335.

2. GENE-771-01-1295, Rev 0, Dated December. 1995, Core Spray Line Downcomer Repair Hardware Stress Assessment Report

3. GENE-771-01-0196. Rev. 0. Dated January. 1996. Core Spray Line Downcomer Seismic Report Summary

V. APPROVALS

Prepared by: T.E. Gleason — General Electric Nuclear Energy — Date: 1-10-96

Reviewed by: PT Raw — General Electric Nuclear Energy — Date: 1-10-96

Peer Review: Michael R Lawrence — PECO. PB Design Engineering — Date: 1/11/96

Interface Review: N/R — PECO. PB Component Engineering — Date: _____

Approval: _____ — PECO. ~~Nuclear~~ Site Engineering Division — Date: 1-16-96 TAC 1-16-96

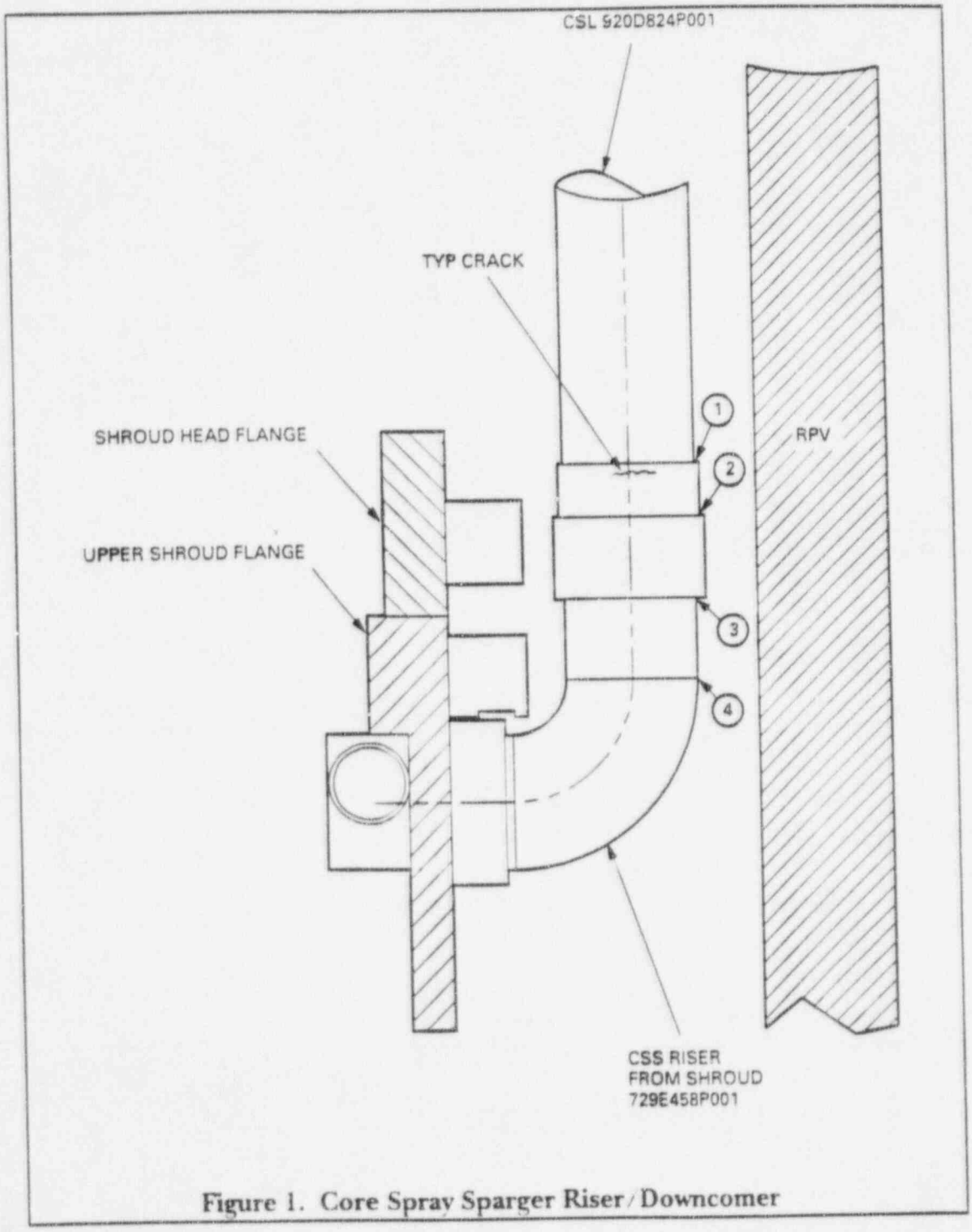

Figure 1. Core Spray Sparger Riser / Downcomer

FIGURE 1

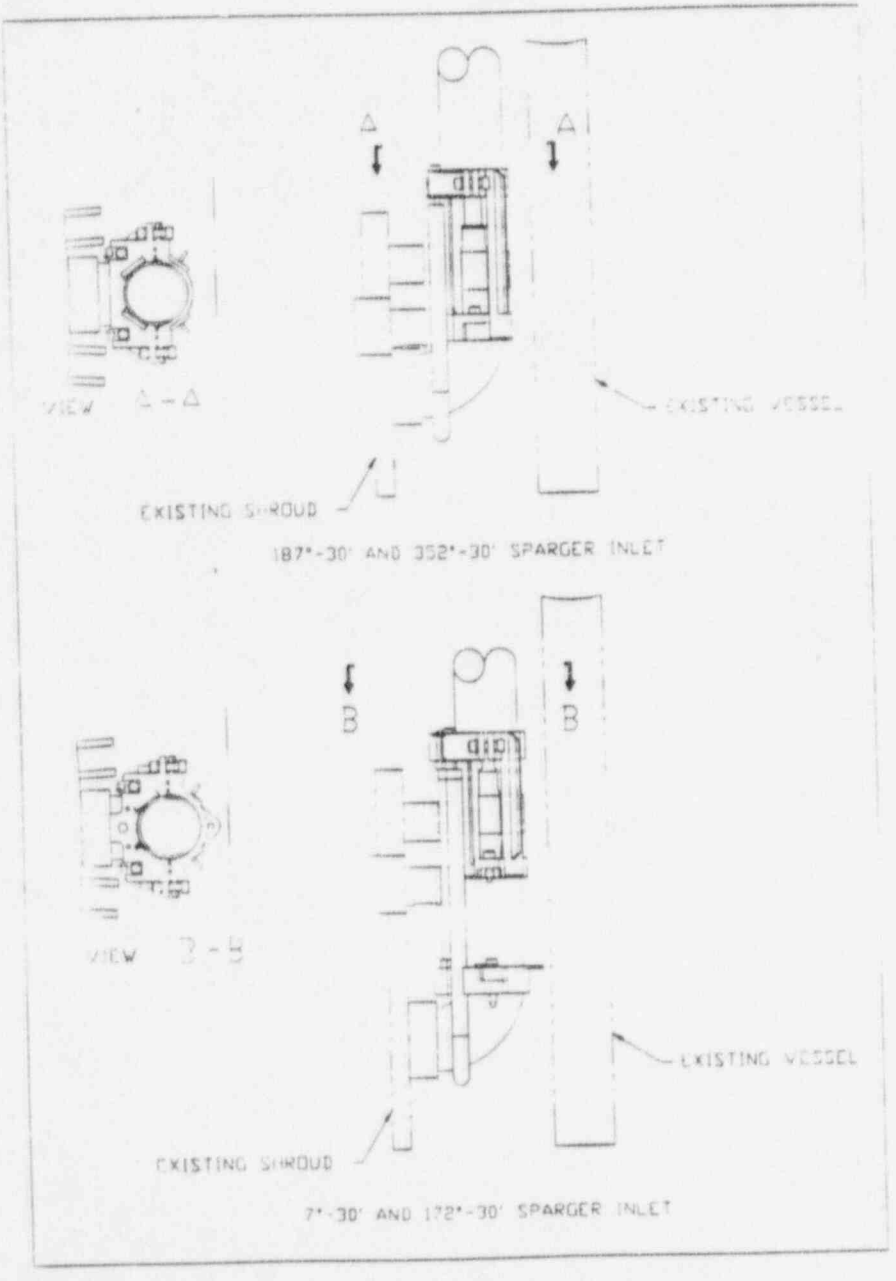
A
A
VIEW A-A
EXISTING VESSEL
EXISTING SHROUD
187°-30' AND 352°-30' SPARGER INLET
B
B
VIEW B-B
EXISTING VESSEL
EXISTING SHROUD
7°-30' AND 172°-30' SPARGER INLET

FIGURE 2

Effective Date:

PB ECR 95-4977 REV 0
ATTACHMENT PAGE 20 OF ____
DWG # ____
SHT # ____ REV ____

PORC	NO
SQR	YES
NQA	NO
50.59	YES
RESP MGR	YES

Rev.0, 11/94 **FIRE PROTECTION REVIEW CHECKLIST** Page 1 of 2

DOCTYPE 197 FPRC REVISION: 0

MOD P00335

Station: PB Unit #: 2 Mod, ECR ~~or NCR~~ #: ECR PB95-4977

Task No.: ____

Mod/Change Description: UNIT 2 CORE SPRAY DOWNCOMER REPAIR

FPRC INITIATOR: MIKE DELOWERY PHONE: 4371 PB

SECTION I

1. Does the modification or change add or impact a fire rated assembly (e.g., fire doors, fire dampers, fire walls/floors, encapsulation, structural steel fire proofing)?

Yes ____ No ✓

Describe each affected assembly and its location by room number:

2. Does the modification or change make a "major change" to the combustible loading? A "minor change"?

Major change ____ Minor change ____ No ✓

List type, quantity (pounds and/or gallons), and location by room number:

3. Does the modification or change add any combustible materials within established "combustible free zones"? (Cable routed in conduit is acceptable)

Yes ____ No ✓

List each type of added combustible, its quantity (in pounds and/or gallons), and its location by room number:

PB ECR 95-4977 REV 0
ATTACHMENT PAGE 21 OF ____
DWG # ____
SHT # ____ REV ____

Station: PB Unit: 2 Page 2 of 2

Mod, ECR or NCR Number: MOD P00335, ECR PB 95-4977 FPRC Revision: 0

4. Does the modification or change affect the operability or maintainability of any fire detection or suppression system (e.g., smoke and heat detectors, sprinkler discharge patterns, fire suppression water supply, access to fire detection and suppression equipment)?

Yes ____ No ✓

If yes, explain: ____

5. Does the modification or change install or remove walls, doors, structures, equipment, etc., that are reflected on the site general arrangements drawings?

Yes ____ No ✓

If yes, explain: ____

6. Does the modification or change relocate or add any safety-related equipment, component, or cabling?

Yes ____ No ✓

If yes, provide a description of the affected items and their locations by room number:

7. Does the modification or change add or relocate any components or cables identified as supporting safe-shutdown systems or equipment as delineated in the PBAPS FPP, LGS UFSAR Appendix 9A (FPER), or INDMS Cable Management/Safe Shutdown database, or does it change the operational logic or performance parameters of safe-shutdown systems or equipment?

Yes ____ No ✓

If yes, provide a description of the affected items and their locations by room number:

PREPARED BY: Michael R Delaney DATE: 1/16/96

REVIEWED BY: Albert R Pelsa DATE: 1/22/96

SHEET

ISI-203-RV-07

PB ECR 95-4972 REV Ø
ATTACHMENT PAGE 22 OF ____
DWG # ____
SHT # ____ REV ____

RO

TE:

LAMP ADDED TO 'D' DOWNCOMER 172.5°

CLAMP ADDED TO 'A', 'B' & 'C' DOWNCOMERS 352.5°, 7.5° & 187.5°

FROM CORE SPRAY PUMP (N5B)

1. CLAMPS ADDED TO 'A', 'B', 'C' & 'D' DOWNCOMERS (352.5°, 7.5°, 187.5° & 172.5°) PER MOD P00335.
2. UNITS 2 & 3

CORE SPI

CONTROLLED BY DS

ASME SECTION XI

ISI COMPONENT DRAWING

.CTOR PRESSURE VESSEL DETAILS

PEACH BOTTOM A.P.S. UNITS 2 & 3

PHILADELPHIA ELECTRIC CO.

ICN	IGOS	CHECKED	INSPECTED	DATE
5	—	RCB	———	7/1/90

D. RGC 7-1-90
D. ____

ISI-203-RV-07 REV 1

SHEET

ISI-203-RV-07