NUREG/CR–5284

Closeout of IE Bulletin 79–03A: Longitudinal Weld Defects in ASME SA–312 Type 304 Stainless Steel Pipe

Prepared by W. J. Foley, R. S. Dean, A. Hennick

PARAMETER, Inc.

Prepared for
U.S. Nuclear Regulatory Commission

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Closeout of IE Bulletin 79–03A: Longitudinal Weld Defects in ASME SA–312 Type 304 Stainless Steel Pipe

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Prepared by
W. J. Foley, R. S. Dean, A. Hennick

PARAMETER, Inc.
13380 Watertown Plank Road
Elm Grove, WI 53122

Prepared for
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555
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ABSTRACT

Documentation is provided in this report for the closeout of IE Bulletin 79-03A, on the subject of faulty fusion welded austenitic stainless steel pipe (without filler metal) used or planned for use in safety-related systems. The investigation found that the bulletin has been closed administratively for all of the 121 facilities for which responses were required. The bulletin asked licensees for information only and did not include any requirement for corrective action. It is concluded that the concerns of the bulletin have been resolved at all except four facilities (two locations), and a recommendation is given for followup. This bulletin was issued by the NRC on April 4, 1980 as a followup to Bulletin 79-03 (closeout report NUREG/CR-5283). The purpose of the followup bulletin was to obtain further information about the impact of centerline lack of weld penetration (CLP) on the subject pipe. The NRC's concern was based on the finding from responses and investigations for initial Bulletin 79-03 that the ASME Code requirements for volumetric examination of piping were insufficient for detection of CLP. The problem with SA-312/A312 Type 300 Series fusion welded material was found to apply to all manufacturers, not just to the one mentioned in the initial bulletin.

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CLOSEOUT OF IE BULLETIN 79-03A: LONGITUDINAL WELD DEFECTS IN ASME SA-312 TYPE 304 STAINLESS STEEL PIPE

INTRODUCTION

This report provides documentation for the closeout status of IE Bulletin 79-03A in accordance with the Statement of Work in Task Order 37 under NRC Contract 05-85-157-02. The documentation is based on the records obtained from the NRC Document Control System.

IE Bulletin 79-03A was issued on April 4, 1980 as a followup to IE Bulletin 79-03 issued on March 12, 1979. Results of investigations required for the earlier bulletin showed that conventional volumetric examination techniques for piping were not adequate to detect centerline lack of weld penetration (CLP). The problem was considered generic to all fusion welded SA-312/A-312 Type 300 Series material. More details of the circumstances leading to issuance of the bulletin are given in Appendix A, starting on Page A-1. Closeout of initial Bulletin 79-03 is recorded in Report NUREG/CR-5283.

Licensees and holders of construction permits were to determine if any of the subject piping was in use or planned for use in their plants in safety-related systems subject to design pressure stresses greater than 85 percent of the ASME Code allowable stresses. For power reactors with such piping installed, the information requested was limited to identifying the applications and providing information on the design of the piping components. For those facilities under construction and where access permitted, ends of fusion welds were to be etched to determine if CLP existed. Findings were to be reported in writing to the NRC. These required actions are presented for reference in Appendix A of this report, starting on Page A-2.

Evaluation of utility responses and NRC/Region inspection reports is documented in Appendix B as the basis for bulletin closeout. Abbreviations used in this report and associated documents are listed in Appendix C.

SUMMARY

1. The bulletin has been closed out for the following six (6) facilities because the required reporting has been completed satisfactorily for the subject piping which exceeds 85% of the allowable stress for design pressure (Criterion 1, see Page B-8):

   Comanche Peak 1,2 South Texas 1,2 Surry 1,2

2. The bulletin has been closed out for Waterford 3 because the material of bulletin concern has been replaced (Criterion 2, see Page B-8).

3. The bulletin has been closed out for the following 114 facilities because the subject piping is stressed less than 85% of the allowable for design pressure or is not used (Criterion 3, see Page B-8):

Arkansas 1,2	Ginna	Prairie Island 1,2
Beaver Valley 1,2	Grand Gulf 1	Quad Cities 1,2
Bellefonte 1,2	Haddam Neck	Rancho Seco 1
Big Rock Point 1	Harris 1	River Bend 1
Braidwood 1,2	Hatch 1,2	Robinson 2
Browns Ferry 1,2,3	Hope Creek 1	Salem 1,2
Brunswick 1,2	Indian Point 2,3	San Onofre 1,2,3
Byron 1,2	Kewaunee	Seabrook 1,2
Callaway 1	LaSalle 1,2	Sequoyah 1,2
Calvert Cliffs 1,2	Limerick 1,2	Shoreham
Catawba 1,2	Maine Yankee	St. Lucie 1,2
Clinton 1	McGuire 1,2	Summer 1
Cook 1,2	Millstone 1,2,3	Susquehanna 1,2
Cooper Station	Monticello	TMI 1
Crystal River 3	Nine Mile Point 1,2	Trojan
Davis-Besse 1	North Anna 1,2	Turkey Point 3,4
Diablo Canyon 1,2	Oconee 1,2,3	Vermont Yankee 1
Dresden 2,3	Oyster Creek 1	Vogtle 1,2
Duane Arnold	Palisades	WNP 2
Farley 1,2	Palo Verde 1,2,3	Watts Bar 1,2
Fermi 2	Peach Bottom 2,3	Wolf Creek 1
FitzPatrick	Perry 1,2	Yankee-Rowe 1
Fort Calhoun 1	Pilgrim 1	Zion 1,2
Fort St. Vrain	Point Beach 1,2	

4. The following seven (7) facilities are excluded from Table B.1 of this report, because they are shut down indefinitely or permanently or have construction halted indefinitely:

Dresden 1	Indian Point 1	TMI 2
Humboldt Bay 3	La Crosse	WNP 1,3

CONCLUSION

Investigations made in accordance with the bulletin indicated that the problem of centerline lack of penetration (CLP) in SA-312 or A-312 fusion welded piping components was not generic.

- Investigations documented in utility responses showed that design stresses for the subject SA-312 piping components were less than 85% of the Code allowable stress at all facilities except Comanche Peak 1,2; South Texas 1,2; and Surry 1,2 (see Summary Item 1). Therefore, with the exception of the plants mentioned, the possible presence of piping components with CLP does not constitute a concern affecting safety.

- The bulletin requirement for making the examinations of piping component ends by etching was interpreted to apply only to cases where design stresses exceeded 85% of the Code allowable for design pressure and temperature. This interpretation was confirmed by NRC memorandum to the regional directors from Harold Thornburg, Director, Division of Reactor Construction Inspection, on April 9, 1980.

- 698 examinations of piping component ends by etching according to Bulletin Action Item 3 were conducted for Comanche Peak 1,2. These examinations showed no evidence of CLP. From this action, the concerns of the bulletin can be considered resolved at this location.

- Examination by etching was not possible at Surry and South Texas since components were already installed. The bulletin did not call for further action in this situation, so the bulletin was considered closed administratively. No NRC documentation approving this situation has been found, so an area of concern remains, even though it is beyond the scope of bulletin requirements.

REMAINING AREA OF CONCERN

For South Texas 1,2 and Surry 1,2, design stresses of identified components of SA-312 or A-312 fusion welded material exceed 85% code allowable. No approved examination for CLP was made of these components to fully resolve concerns raised by the bulletin.

RECOMMENDATION

Research into the records should be made to determine if the concerns have been resolved at the two locations sited above. If no such record is found, a request should be issued for written justification to the effect that there is no threat to public safety from this situation.

APPENDIX A

Background Information and Required Actions

SSINS No: 6820
Accession No.:
8002280644

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

April 4, 1980

IE Bulletin No. 79-03A

LONGITUDINAL WELD DEFECTS IN ASME SA-312, TYPE 304 STAINLESS STEEL PIPE

Description of Circumstances:

IE Bulletin No. 79-03 required the licensee to determine if ASME SA-312, Type 304 pipe manufactured by Youngstown Welding and Engineering Company is in use or planned for use in safety-related systems. Since the issuance of IE Bulletin 79-03 on March 12, 1979, subsequent findings indicate additional information and clarification is needed to resolve the SA-312 issue.

It has been determined that conventional ultrasonic testing (UT) and radiographic testing (RT) techniques (as required by ASME Section III) are not adequate to detect centerline lack of weld penetration (CLP). Conventional radiography and UT examinations may detect the presence of CLP under special conditions, but neither can be considered reliable enough to detect CLP even when significant percentages exist.

Based upon the above and previous findings during inspections at Youngstown it has been determined that the Youngstown Welding and Engineering Company did comply with the ASME Code requirements, but that the Code NDE requirements are deficient. Consequently any manufacturers' SA-312, Type 300 Series, austenitic stainless steel fusion welds may contain undetected CLP. This problem is generic to all welded SA-312/A-312 material and is not restricted to material manufactured by the Youngstown Welding and Engineering Company.

The NRC has verified that the CLP condition also exists in the SA-312 and/or A-312 fusion welded pipe manufactured by ARMCO's Advanced Materials Division, the SWEPCO Tube Corporation and Crucible's Trent Tube Division. These companies are known to have supplied SA-312 and/or A-312 material for nuclear applications and are now included within the scope of this Bulletin.

Several Licensee's responses to the IE Bulletin 79-03 were inadequate. The responses were inadequate because they were based on the purchase order NDE requirements rather than the information requested in the Bulletin. An actual example of an inadequate response was as follows: Radiography of a circumferential weld seam revealed CLP in the longitudinal seam of a section of SWEPCO fusion welded pipe. The licensee did not believe the case was reportable if the original NDE requirements for the SWEPCO pipe did not require volumetric examination.

This CLP problem is considered by the NRC to be a significant deficiency which requires extensive evaluation and could result in repair or replacement of pipe and/or fittings.

The information requested in this revised Bulletin is to be provided without regard to the purchase order NDE requirements or any subsequent NDE performed for or by the licensee. The information requests in this Bulletin supersede the requests for information in the IE Bulletin 79-03.

The NRC staff position on this issue and any other case where defects or deficiencies are discovered in safety-related components is as follows: Regardless of the circumstances under which potential deficiencies or potential defects in safety-related components are discovered the matter shall be identified, evaluated, dispositioned documented and reported in strict accordance with the appropriate Federal Regulations. Although the ASME Code rules and requirements may be used when appropriate to evaluate defects or deficiencies and to justify and accept the existence of a defect or deficiencies, the Code can not be used as justification for not reporting the defect, deficiency and circumstances to the NRC when that defect or deficiency has been identified by the NRC as a potential generic problem. When the licensee, his agent or vendor discovers a defect or deficiency that may be a generic problem or a significant lone deficiency a conservative position shall be adopted regarding the reporting of the situation to the NRC.

For those power reactor facilities that have the subject pipe installed the action identified in this Bulletin is limited to identifying the specific applications and providing information related to the structural integrity of the piping components. Additional guidance related to NDE's and/or precautionary or corrective actions will be provided in a later Bulletin revision if necessary.

Revised action to be taken by Licensees and Permit Holders:

For all power reactor facilities with an operating license or a construction permit:

1. Determine whether SA-312 or A-312, Type 300 Series fusion welded pipe is in use or planned for use in safety-related systems subject to design stresses greater than 85 percent of the Code allowable stresses. For the purpose of this check the actual wall thickness of the piping products will be considered adequate if the code requirements for pressure design of the piping products are satisfied using 85 percent of the maximum allowable stress at the design temperature.

2. For those piping components using greater than 85 percent of the allowable stresses identify the application of the piping including the system, pipe location, pipe size, pipe configuration (elbow, tee), design pressure/ temperature requirements and the manufacturer.

3. For those facilities under construction and where access permits, the ends of all safety-related SA-312 and A-312 fusion welds should be etched to determine if CLP exists. Identify the manufacturer and the degree of CLP as a percentage of the pipe wall thickness.

4. For facilities with an operating license, a report of the above information shall be submitted within 120 days of receipt of this Bulletin.

5. For facilities with a construction permit, a report of the above information shall be submitted within 120 days of receipt of this Bulletin.

Reports should be submitted to the Director of the appropriate NRC Regional Office and a copy should be forwarded to the NRC Office of Inspection and Enforcement, Division of Reactor Construction Inspection, Washington, D.C., 20555.

Approved by GAO, B180225 (R0072); clearance expires 7/31/80. Approval was given under a blanket clearance specifically for identified generic problems.

APPENDIX B

Documentation of Bulletin Closeout

TABLE B.1 BULLETIN CLOSEOUT STATUS

Facility	Utility	Docket	Facility Status 1988	Facility Status 1979	NRC Region	NSSS	A/E	Utility Response Date	Inspection Report and Date	Closeout Status and Criterion
Arkansas 1	AP&L	50-313	OL	OL	IV	B&W	Bechtel	07-31-80		Closed 3
Arkansas 2	AP&L	50-368	OL	OL	IV	C-E	Bechtel	07-31-80		Closed 3
Beaver Valley 1	DLC	50-334	OL	OL	I	W	S&W	09-05-80	82-06(04-07-82)	Closed 3
Beaver Valley 2	DLC	50-412	OL	CP	I	W	S&W	07-07-80	82-01(04-02-82)	Closed 3
Bellefonte 1	TVA	50-438	CP	CP	II	B&W	TVA	08-05-80 03-04-81 07-02-81		Closed 3
Bellefonte 2	TVA	50-439	CP	CP	II	B&W	TVA	08-05-80 03-04-81 07-02-81		Closed 3
Big Rock Point 1	CPC	50-155	OL	OL	III	GE	Bechtel	11-18-80		Closed 3
Braidwood 1	CECO	50-456	OL	CP	III	W	S&L	08-07-80 10-10-80	81-08(07-17-81)	Closed 3
Braidwood 2	CECO	50-457	OL	CP	III	W	S&L	08-07-80 10-10-80	81-08(07-17-81)	Closed 3
Browns Ferry 1	TVA	50-259	OL	OL	II	GE	TVA	08-06-80		Closed 3
Browns Ferry 2	TVA	50-260	OL	OL	II	GE	TVA	08-06-80		Closed 3
Browns Ferry 3	TVA	50-296	OL	OL	II	GE	TVA	08-06-80		Closed 3
Brunswick 1	CP&L	50-325	OL	OL	II	GE	UE&C	07-15-80 10-10-80		Closed 3
Brunswick 2	CP&L	50-324	OL	OL	II	GE	UE&C	07-15-80 10-10-80		Closed 3
Byron 1	CECO	50-454	OL	CP	III	W	S&L	07-07-80 10-10-80		Closed 3
Byron 2	CECO	50-455	OL	CP	III	W	S&L	07-07-80 10-10-80		Closed 3

See notes and closeout criteria at end of table.

TABLE B.1 BULLETIN CLOSEOUT STATUS (contd)

Facility	Utility	Docket	Facility Status 1988	Facility Status 1979	NRC Region	NSSS	A/E	Utility Response Date	Inspection Report and Date	Closeout Status and Criterion
Callaway 1	UE	50-483	OL	CP	III	W	Bechtel	08-20-80 11-26-80 01-26-81		Closed 3
Calvert Cliffs 1	BG&E	50-317	OL	OL	I	C-E	Bechtel	05-20-80		Closed 3
Calvert Cliffs 2	BG&E	50-318	OL	OL	I	C-E	Bechtel	05-20-80		Closed 3
Catawba 1	DUPCO	50-413	OL	CP	II	W	DUPCO	08-05-80	80-32(11-17-80)	Closed 3
Catawba 2	DUPCO	50-414	OL	CP	II	W	DUPCO	08-05-80	80-32(11-17-80)	Closed 3
Clinton 1	IP	50-461	OL	CP	III	GE	S&L	08-12-80	81-26(10-02-81)	Closed 3
Comanche Peak 1	TUGCO	50-445	CP	CP	IV	W	G&H	07-28-80 09-08-80 10-07-80	84-12(06-21-84)	Closed 1
Comanche Peak 2	TUGCO	50-446	CP	CP	IV	W	G&H	07-28-80 09-08-80 10-07-80	84-06(06-21-84)	Closed 1
Cook 1	IMECO	50-315	OL	OL	III	W	AEPSCO	08-08-80	81-10(05-27-81)	Closed 3
Cook 2	IMECO	50-316	OL	OL	III	W	AEPSCO	08-08-80	81-07(05-27-81)	Closed 3
Cooper Station	NPPD	50-298	OL	OL	IV	GE	B&R	07-23-80	80-12(08-29-80)	Closed 3
Crystal River 3	FPC	50-302	OL	OL	II	B&W	Gilbert	08-04-80	80-33(11-24-80)	Closed 3
Davis-Besse 1	TECO	50-346	OL	OL	III	B&W	Bechtel	06-18-80	81-08(04-22-81)	Closed 3
Diablo Canyon 1	PG&E	50-275	OL	CP	V	W	PG&E	09-15-80 01-23-81		Closed 3
Diablo Canyon 2	PG&E	50-323	OL	CP	V	W	PG&E	09-15-80 01-23-81		Closed 3
Dresden 2	CECO	50-237	OL	OL	III	GE	S&L	08-07-80	81-12(05-05-81)	Closed 3
Dresden 3	CECO	50-249	OL	OL	III	GE	S&L	08-07-80	81-10(07-16-81)	Closed 3
Duane Arnold	IELPCO	50-331	OL	OL	III	GE	Bechtel	08-06-80		Closed 3

See notes and closeout criteria at end of table.

TABLE B.1 BULLETIN CLOSEOUT STATUS (contd)

Facility	Utility	Docket	Facility Status 1988	Facility Status 1979	NRC Region	NSSS	A/E	Utility Response Date	Inspection Report and Date	Closeout Status and Criterion
Farley 1	APCO	50-348	OL	OL	II	W	SS	08-01-80		Closed 3
Farley 2	APCO	50-364	OL	CP	II	W	SS	08-01-80		Closed 3
Fermi 2	DECO	50-341	OL	CP	III	GE	DECO	08-26-80 09-15-80	81-07(06-26-81)	Closed 3
FitzPatrick	PASNY	50-333	OL	OL	I	GE	S&W	07-29-80		Closed 3
Fort Calhoun 1	OPPD	50-285	OL	OL	IV	C-E	G&H	08-04-80		Closed 3
Fort St. Vrain	PSCC	50-267	OL	OL	IV	GA	S&L	04-23-80		Closed 3
Ginna	RG&E	50-244	OL	OL	I	W	Gilbert	08-05-80	85-12(08-23-85)	Closed 3
Grand Gulf 1	MP&L	50-416	OL	CP	II	GE	Bechtel	08-06-80 09-15-80		Closed 3
Haddam Neck	CYAPCO	50-213	OL	OL	I	W	S&W	07-11-80		Closed 3
Harris 1	CP&L	50-400	OL	CP	II	W	Ebasco	08-05-80		Closed 3
Hatch 1	GPC	50-321	OL	OL	II	GE	Bechtel	08-05-80	81-09(05-06-81)	Closed 3
Hatch 2	GPC	50-366	OL	OL	II	GE	Bechtel	08-05-80	81-09(05-06-81)	Closed 3
Hope Creek 1	PSE&G	50-354	OL	CP	I	GE	Bechtel	07-30-80		Closed 3
Indian Point 2	ConEd	50-247	OL	OL	I	W	UE&C	08-06-80		Closed 3
Indian Point 3	PASNY	50-286	OL	OL	I	W	UE&C	07-29-80		Closed 3
Kewaunee	WPS	50-305	OL	OL	III	W	PS&E	08-07-80	81-08(05-19-81)	Closed 3
LaSalle 1	CECO	50-373	OL	CP	III	GE	S&L	08-07-80	81-13(04-16-81)	Closed 3
LaSalle 2	CECO	50-374	OL	CP	III	GE	S&L	08-07-80	81-08(04-16-81)	Closed 3
Limerick 1	PECO	50-352	OL	CP	I	GE	Bechtel	07-16-80	84-36(08-14-84)	Closed 3
Limerick 2	PECO	50-353	CP	CP	I	GE	Bechtel	07-16-80	84-10(08-14-84)	Closed 3
Maine Yankee	MYAPCO	50-309	OL	OL	I	C-E	S&W	07-30-80		Closed 3
McGuire 1	DUPCO	50-369	OL	CP	II	W	DUPCO	08-05-80	80-33(12-11-80)	Closed 3
McGuire 2	DUPCO	50-370	OL	CP	II	W	DUPCO	08-05-80	80-18(12-11-81)	Closed 3

See notes and closeout criteria at end of table.

TABLE B.1 BULLETIN CLOSEOUT STATUS (contd)

Facility	Utility	Docket	Facility Status 1988	Facility Status 1979	NRC Region	NSSS	A/E	Utility Response Date	Inspection Report and Date	Closeout Status and Criterion
Millstone 1	NNECO	50-245	OL	OL	I	GE	Ebasco	07-11-80		Closed 3
Millstone 2	NNECO	50-336	OL	OL	I	C-E	Bechtel	07-11-80		Closed 3
Millstone 3	NNECO	50-423	OL	CP	I	W	S&W	08-06-80		Closed 3
Monticello	NSP	50-263	OL	OL	III	GE	Bechtel	08-06-80	81-06(05-19-81)	Closed 3
Nine Mile Point 1	NMP	50-220	OL	OL	I	GE	NMP	06-24-80		Closed 3
Nine Mile Point 2	NMP	50-410	OL	CP	I	GE	S&W	08-06-80		Closed 3
North Anna 1	VEPCO	50-338	OL	OL	II	W	S&W	08-08-80	81-11(04-29-81)	Closed 3
North Anna 2	VEPCO	50-339	OL	CP	II	W	S&W	08-08-80	81-07(04-29-81)	Closed 3
Oconee 1	DUPCO	50-269	OL	OL	II	B&W	Bechtel	06-24-80		Closed 3
Oconee 2	DUPCO	50-270	OL	OL	II	B&W	and	06-24-80		Closed 3
Oconee 3	DUPCO	50-287	OL	OL	II	B&W	DUPCO	06-24-80		Closed 3
Oyster Creek 1	JCP&L	50-219	OL	OL	I	GE	B&R	08-01-80		Closed 3
Palisades	CPC	50-255	OL	OL	III	C-E	Bechtel	04-22-80		Closed 3
Palo Verde 1	APSCO	50-528	OL	CP	V	C-E	Bechtel	07-10-80 10-01-80		Closed 3
Palo Verde 2	APSCO	50-529	OL	CP	V	C-E	Bechtel	07-01-80 10-01-80		Closed 3
Palo Verde 3	APSCO	50-530	OL	CP	V	C-E	Bechtel	07-10-80 10-01-80		Closed 3
Peach Bottom 2	PECO	50-277	OL	OL	I	GE	Bechtel	08-01-80	84-15(06-21-84)	Closed 3
Peach Bottom 3	PECO	50-278	OL	OL	I	GE	Bechtel	08-01-80	84-13(06-21-84)	Closed 3
Perry 1	CEI	50-440	OL	CP	III	GE	Gilbert	08-04-80 09-08-80 09-29-80	83-02(03-07-83)	Closed 3
Perry 2	CEI	50-441	CP	CP	III	GE	Gilbert	08-04-80 09-08-80 09-29-80	83-02(03-07-83)	Closed 3

See notes and closeout criteria at end of table.

TABLE B.1 BULLETIN CLOSEOUT STATUS (contd)

Facility	Utility	Docket	Facility Status 1988	Facility Status 1979	NRC Region	NSSS	A/E	Utility Response Date	Inspection Report and Date	Closeout Status and Criterion
Pilgrim 1	BECO	50-293	OL	OL	I	GE	Bechtel	07-24-80	82-25(10-05-82)	Closed 3
Point Beach 1	WEPCO	50-266	OL	OL	III	W	Bechtel	08-07-80	80-23(01-07-81)	Closed 3
Point Beach 2	WEPCO	50-301	OL	OL	III	W	Bechtel	08-07-80	80-23(01-07-81)	Closed 3
Prairie Island 1	NSP	50-282	OL	OL	III	W	FPI	08-05-80	80-12(09-23-80)	Closed 3
Prairie Island 2	NSP	50-306	OL	OL	III	W	FPI	08-05-80	80-12(09-23-80)	Closed 3
Quad Cities 1	CECO	50-254	OL	OL	III	GE	S&L	08-07-80	80-23(11-19-80)	Closed 3
Quad Cities 2	CECO	50-265	OL	OL	III	GE	S&L	08-07-80	80-25(11-19-80)	Closed 3
Rancho Seco 1	SMUD	50-312	OL	OL	V	B&W	Bechtel	07-30-80 12-03-80	81-01(02-11-81)	Closed 3
River Bend 1	GSU	50-458	OL	CP	IV	GE	S&W	08-05-80 09-19-80	85-12(04-08-85)	Closed 3
Robinson 2	CP&L	50-261	OL	OL	II	W	Ebasco	08-06-80 09-22-80	80-39(03-19-81)	Closed 3
Salem 1	PSE&G	50-272	OL	OL	I	W	PSE&G	07-14-80		Closed 3
Salem 2	PSE&G	50-311	OL	CP	I	W	PSE&G	07-14-80		Closed 3
San Onofre 1	SCE	50-206	OL	OL	V	W	Bechtel	06-30-80		Closed 3
San Onofre 2	SCE	50-361	OL	CP	V	C-E	Bechtel	08-01-80		Closed 3
San Onofre 3	SCE	50-362	OL	CP	V	C-E	Bechtel	08-01-80		Closed 3
Seabrook 1	PSNH	50-443	CP	CP	I	W	UE&C	07-23-80 08-04-80	82-04(07-07-82)	Closed 3
Seabrook 2	PSNH	50-444	CP	CP	I	W	UE&C	07-23-80 08-04-80	82-04(07-07-82)	Closed 3
Sequoyah 1	TVA	50-327	OL	CP	II	W	TVA	08-05-80 03-04-81 07-02-81		Closed 3
Sequoyah 2	TVA	50-328	OL	CP	II	W	TVA	08-05-80 03-04-81 07-02-81		Closed 3

See notes and closeout criteria at end of table.

TABLE B.1 BULLETIN CLOSEOUT STATUS (contd)

Facility	Utility	Docket	Facility Status 1988	Facility Status 1979	NRC Region	NSSS	A/E	Utility Response Date	Inspection Report and Date	Closeout Status and Criterion
Shoreham	LILCO	50-322	LPTL	CP	I	GE	S&W	08-04-80	82-01(01-26-82)	Closed 3
South Texas 1	HL&P	50-498	OL	CP	IV	W	Bechtel	08-05-80 08-06-80 10-27-80	81-32(11-12-81)	Closed 1
South Texas 2	HL&P	50-499	CP	CP	IV	W	Bechtel	08-05-80 08-06-80 10-27-80	81-32(11-12-81)	Closed 1
St. Lucie 1	FPL	50-335	OL	OL	II	C-E	Ebasco	08-06-80		Closed 3
St. Lucie 2	FPL	50-389	OL	CP	II	C-E	Ebasco	07-24-80		Closed 3
Summer 1	SCE&G	50-395	OL	CP	II	W	Gilbert	06-09-80		Closed 3
Surry 1	VEPCO	50-280	OL	OL	II	W	S&W	08-08-80		Closed 1
Surry 2	VEPCO	50-281	OL	OL	II	W	S&W	08-08-80		Closed 1
Susquehanna 1	PP&L	50-387	OL	CP	I	GE	Bechtel	08-15-80	80-33(01-05-81)	Closed 3
Susquehanna 2	PP&L	50-388	OL	CP	I	GE	Bechtel	08-15-80	80-20(01-05-81)	Closed 3
TMI 1	Met-Ed	50-289	OL	OL	I	B&W	Gilbert	10-08-80	81-26(11-02-81)	Closed 3
Trojan	PGE	50-344	OL	OL	V	W	Bechtel	08-08-80 02-11-81		Closed 3
Turkey Point 3	FPL	50-250	OL	OL	II	W	Bechtel	08-08-80 10-31-80	81-10(05-29-81)	Closed 3
Turkey Point 4	FPL	50-251	OL	OL	II	W	Bechtel	08-08-80 10-31-80	81-10(05-29-81)	Closed 3
Vermont Yankee 1	VYNP	50-271	OL	OL	I	GE	Ebasco	08-05-80	81-20(01-13-82)	Closed 3
Vogtle 1	GPC	50-424	OL	CP	II	W	SS/Bech	08-05-80 10-06-80 03-20-81 04-02-81		Closed 3

See notes and closeout criteria at end of table.

TABLE B.1 BULLETIN CLOSEOUT STATUS (contd)

Facility	Utility	Docket	Facility Status 1988	Facility Status 1979	NRC Region	NSSS	A/E	Utility Response Date	Inspection Report and Date	Closeout Status and Criterion
Vogtle 2	GPC	50-425	CP	CP	II	W	SS/Bech	08-05-80 10-06-80 03-20-81 04-02-81		Closed 3
WNP 2	WPPSS	50-397	OL	CP	V	GE	B&R	08-08-80 09-09-80 10-31-80 08-19-81	82-06(04-21-82)	Closed 3
Waterford 3	LP&L	50-382	OL	CP	IV	C-E	Ebasco	08-06-80	84-01(03-14-84)	Closed 2
Watts Bar 1	TVA	50-390	CP	CP	II	W	TVA	08-05-80 11-26-80 01-26-81 03-04-81 07-02-81 07-16-81	82-21(07-21-82)	Closed 3
Watts Bar 2	TVA	50-391	CP	CP	II	W	TVA	08-05-80 11-26-80 01-26-81 03-04-81 07-02-81 07-16-81	82-21(07-21-82)	Closed 3
Wolf Creek 1	KG&E	50-482	OL	CP	IV	W	Bechtel	08-20-80 11-26-80 01-26-81	82-09(08-10-82)	Closed 3
Yankee-Rowe 1	YAECO	50-029	OL	OL	I	W	S&W	05-29-80 07-22-80		Closed 3
Zion 1	CECO	50-295	OL	OL	III	W	S&L	08-07-80	82-24(02-15-83)	Closed 3
Zion 2	CECO	50-304	OL	OL	III	W	S&L	08-07-80	82-21(02-15-83)	Closed 3

See notes and closeout criteria on following page.

Notes for Table B.1:

1. Facility status is based on Reference 1 (see below).

2. The following abbreviations apply to facility status:
   CP, construction permit; LPTL, low power testing license; OL, operating license.

CRITERIA FOR CLOSEOUT OF BULLETIN

1. The utility response indicates that (a) the facility has safety-related piping of concern with design pressure stresses greater than 85 percent of the ASME Code allowable, and (b) the required actions have been completed (see Page A-2, Action Item 2).

2. The utility response and an NRC/Region inspection report indicate that piping material of bulletin concern has been replaced.

3. The utility response states that the facility has no piping of bulletin concern in use or planned for use in safety-related systems with design pressure stresses greater than 85 percent of the ASME Code allowable.

REFERENCE

1. United States Nuclear Regulatory Commission, Licensed Operating Reactors, Status Summary Report, Data as of 10-31-88, NUREG-0020, Volume 12, Number 11, November 1988.

APPENDIX C

Abbreviations

A/E	Architect/Engineer
AEPSCO	American Electric Power Services Corporation
APCO	Alabama Power Company
AP&L	Arkansas Power and Light Company
APSCO	Arizona Public Service Company
ASME	American Society of Mechanical Engineers, The
Bech	Bechtel Power Corporation
BECO	Boston Edison Company
BG&E	Baltimore Gas and Electric Company
B&R	Burns & Roe, Inc.
B&W	Babcock & Wilcox Company
C-E	Combustion Engineering Incorporated
CECO	Commonwealth Edison Company
CEI	Cleveland Electric Illuminating Company
CFR	Code of Federal Regulations
CLP	Centerline Lack of Weld Penetration
ConEd	Consolidated Edison Company of New York, Inc.
CP	Construction Permit
CPC	Consumers Power Company
CP&L	Carolina Power and Light Company
CR	Contractor Report
CYAPCO	Connecticut Yankee Atomic Power Company
DECO	Detroit Edison Company
DLC	Duquesne Light Company
DUPCO	Duke Power Company
FPC	Florida Power Corporation
FPL	Florida Power & Light Company
FPI	Fluor Pioneer, Inc.
GA	General Atomic
GAO	Government Accounting Office
GE	General Electric Company
G&H	Gibbs & Hill Inc.
GPC	Georgia Power Company
GPUN	GPU Nuclear Corporation
GSU	Gulf States Utilities Company
HL&P	Houston Lighting and Power Company
IE	(See NRC/IE)
IEB	Inspection and Enforcement Bulletin (NRC)
IELPCO	Iowa Electric Light and Power Company

IMECO	Indiana and Michigan Electric Company
IP	Illinois Power Company
IR	Inspection Report (NRC/Region)
KG&E	Kansas Gas and Electric Company
LER	Licensee Event Report
LILCO	Long Island Lighting Company
LP&L	Louisiana Power and Light Company
LPTL	Low Power Testing License
MP&L	Mississippi Power and Light Company
MYAPCO	Maine Yankee Atomic Power Company
NDE	Non-destructive Examination
NMP	Niagara Mohawk Power Company
NNECO	Northeast Nuclear Energy Company
NPPD	Nebraska Public Power District
NRC/IE	Nuclear Regulatory Commission/ Office of Inspection & Enforcement
NRR	Office of Nuclear Reactor Regulation (NRC)
NSP	Northern States Power Company
NSSS	Nuclear Steam Supply System
NU	Northeast Utilities
NYPA	New York Power Authority
OL	Operating License
OPPD	Omaha Public Power District
PECO	Philadelphia Electric Company
PGE	Portland General Electric Company
PG&E	Pacific Gas and Electric Company
PP&L	Pennsylvania Power and Light Company
PSCC	Public Service Company of Colorado
PSE&G	Public Service Electric and Gas Company
PS&E	Pioneer Services & Engineering
PSNH	Public Service Company of New Hampshire
R	Region (NRC)
RG&E	Rochester Gas and Electric Corporation
RT	Radiographic Testing
SCE	Southern California Edison Company
SCE&G	South Carolina Electric and Gas Company
S&L	Sargent & Lundy Engineers
SMUD	Sacramento Municipal Utility District
SNUPPS	Standardized Nuclear Unit Power Plant Systems
SS	Southern Services Incorporated
S&W	Stone & Webster Engineering Corporation

TECO	Toledo Edison Company
TMI	Three Mile Island
TUGCO	Texas Utilities Generating Company
TVA	Tennessee Valley Authority
UE	Union Electric Company
UE&C	United Engineers & Constructors Inc.
VEPCO	Virginia Electric and Power Company
UT	Ultrasonic Testing
VYNP	Vermont Yankee Nuclear Power Corporation
W	Westinghouse Electric Corporation
WEPCO	Wisconsin Electric Power Company
WNP	Washington Nuclear Project
WNSD	Westinghouse Nuclear Service Division
WPPSS	Washington Public Power Supply System
WPS	Wisconsin Public Service Corporation
YAECO	Yankee Atomic Electric Company