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Closeout of IE Bulletin 79-03: Longitudinal Weld Defects in ASME SA-312 Type 304 Stainless Steel Pipe Spools Manufactured by Youngstown Welding and Engineering Co.

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 79-03: Longitudinal Weld Defects in ASME SA-312 Type 304 Stainless Steel Pipe Spools Manufactured by Youngstown Welding and Engineering Co.

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ABSTRACT

Documentation is provided in this report for the closeout of IE Bulletin 79-03, on the subject of fusion welded austenitic stainless steel pipe (without filler metal) manufactured by the Youngstown Welding and Engineering Company. Only pipe used or planned for use in safety-related systems is considered. The bulletin is closed out on the basis of definite criteria for all of the 121 facilities for which actions were required. This bulletin was issued by the NRC on March 12, 1979 to require certain actions by all holders of operating licenses and construction permits for power reactors. The NRC's concern was based on the discoveries of faulty longitudinal welds at Palo Verde and San Onofre. The investigations for Bulletin 79-03 led to the finding that volumetric examination of the fusion welds per the ASME Code requirements did not assure detection of centerline lack of penetration (CLP). Therefore, the problem of faulty welds applied to all manufacturers of SA-312/A-312 Type 300 Series welded steel pipe. Bulletin 79-03A was issued on April 4, 1980 to supersede the required actions of Bulletin 79-03, and to collect information on all of the subject pipe and fittings in safety-related systems. Refer to NUREG/CR-5284 for the companion closeout report on IE Bulletin 79-03A, "Longitudinal Weld Defects in ASME SA-312 Type 304 Stainless Steel Pipe". Background information is provided in the Introduction and Appendix A of this report as well as NUREG/CR-5284.

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CLOSEOUT OF IE BULLETIN 79-03:
LONGITUDINAL WELD DEFECTS IN ASME SA-312 TYPE 304
STAINLESS STEEL PIPE SPOOLS MANUFACTURED BY
YOUNGSTOWN WELDING AND ENGINEERING COMPANY

INTRODUCTION

This report provides documentation for the closeout status of IE Bulletin 79-03 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 79-03 was issued on March 12, 1979 to determine the generic extent of defects in the longitudinal welds (without filler metal) of ASME Section III Class 2 austenitic stainless steel pipe. The pipe was manufactured by the Youngstown Welding and Engineering Company and supplied to nuclear plants for use in safety-related systems. A description of the circumstances leading up to the issuance of the bulletin is included in Appendix A of this report, starting on Page A-1.

The bulletin required licensees and holders of construction permits to determine if their power plants contained any of the subject piping in safety-related systems, to identify the applications, to develop a program for volumetric examination of the longitudinal welds in the piping, to plan corrective actions if acceptance criteria were not met, and to report findings in writing to the NRC. These required actions are presented for reference in Appendix A of this report, starting on Page A-2.

The required actions of Bulletin 79-03 were superseded in April of 1980 by the actions required by followup Bulletin 79-03A. 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. As a result, some facilities are closed out for Bulletin 79-03 on the basis of closeout of Bulletin 79-03A. The closeout report for Bulletin 79-03A is NUREG/CR-5284.

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 for the following 23 facilities because the required actions for Bulletin 79-03 have been completed satisfactorily, and have been verified in an NRC/Region inspection report (Criterion 1, see Page B-9):

Calvert Cliffs 1,2	Palo Verde 1,2,3	Susquehanna 1,2
Comanche Peak 1,2	Prairie Island 1,2	TMI 1
Limerick 1,2	San Onofre 2,3	Turkey Point 3,4
Millstone 2	Seabrook 1,2	Wolf Creek 1
Nine Mile Point 2		

2. The bulletin has been closed for the following 74 facilities which did not have the subject piping in use or planned for use in safety-related systems (Criterion 2, see Page B-9):

Beaver Valley 1,2	Ginna	Perry 1,2
Bellefonte 1,2	Grand Gulf 1	Pilgrim 1
Big Rock Point 1	Haddam Neck	Point Beach 1,2
Braidwood 1,2	Harris 1	Quad Cities 1,2
Browns Ferry 1,2,3	Hope Creek 1	Rancho Seco 1
Brunswick 1,2	Indian Point 2,3	River Bend 1
Byron 1,2	Keweenaw	Salem 1,2
Clinton 1	LaSalle 1,2	San Onofre 1
Cook 1,2	Maine Yankee	Sequoiah 1,2
Cooper Station	Millstone 1	St. Lucie 1,2
Diablo Canyon 1,2	Monticello	Summer 1
Dresden 2,3	Nine Mile Point 1	Trojan
Duane Arnold	North Anna 1	Vermont Yankee 1
Farley 1,2	Oconee 1,2,3	Waterford 3
FitzPatrick	Oyster Creek 1	WNP 2
Fort Calhoun 1	Palisades	Yankee-Rowe 1
Fort St. Vrain	Peach Bottom 2,3	Zion 1,2

3. The bulletin has been closed on the basis of closeout of superseding Bulletin 79-03A for the following 24 facilities (Criterion 3, see Page B-9):

Arkansas 1,2	Hatch 1,2	Shoreham
Callaway 1	McGuire 1,2	South Texas 1,2
Catawba 1,2	Millstone 3	Surry 1,2
Crystal River 3	North Anna 2	Vogtle 1,2
Davis-Besse 1	Robinson 2	Watts Bar 1,2
Fermi 2		

4. The following seven (7) facilities are excluded from Table B.1, 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

Findings subsequent to the issuance of Bulletin 79-03 regarding volumetric examination of pipe spools indicated the need for additional information and clarification to resolve the SA-312 issue. Bulletin 79-03A was issued to accomplish this need (see NUREG/5284).

APPENDIX A

Background Information and Required Actions

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

IE Bulletin No. 79-03
Date: March 12, 1979
Page 1 of 3

LONGITUDINAL WELD DEFECTS IN ASME SA-312 TYPE 304 STAINLESS STEEL
PIPE SPOOLS MANUFACTURED BY YOUNGSTOWN WELDING AND ENGINEERING COMPANY

Description of Circumstances:

On September 27, 1978, the Arizona Public Service Company reported that defects had been discovered in longitudinal welds in ASME Section III class 2 pipe supplied for the Palo Verde Nuclear Generating Station (PVNGS). On November 17, 1978, the Southern California Edison Company reported similar defects in pipe supplied for the San Onofre Nuclear Generating Station, Units 2 and 3.

Pullman Power Products of Los Angeles, California supplies safety-related fabricated piping spools of various diameters for the PVNGS. The defects were discovered by Pullman in ASME SA-312 type 304 stainless steel pipe supplied to Pullman by Youngstown Welding and Engineering Company of Youngstown, Ohio. The pipe is manufactured by rolling plate into cylinders and then fusion welding the longitudinal seam without filler metal.

Pullman discovered defects in the longitudinal welds while radiographing their circumferential shop welds. Further radiographic examination of the longitudinal welds revealed rejectable porosity and lack of fusion.

Pullman then performed ultrasonic examination of the full length of the longitudinal welds and discovered indications exceeding the acceptance criteria of ASME Section III. Further ultrasonic examination revealed indications in other piping subassemblies where pipe was supplied by Youngstown. Two indications verified by radiography were identified as porosity and measured 0.350 inch by 0.125 inch in one case and 0.300 inch by 0.125 inch in another case in pipe with a nominal wall thickness of 0.375 inch.

The additional examinations revealed that of 103 spools and four pipe supports shipped to PVNGS, 44 spools and one pipe support were found to contain ultrasonic indications exceeding those permitted by the ASME Code. Of 65 partially fabricated piping spools, 30 were found to be similarly defective. The acceptance criteria for the pipe supplied by Youngstown includes 100 percent ultrasonic examination of the longitudinal

welds in accordance with ASME Section III. The documentation provided with the pipe indicated that the required ultrasonic examination had been performed by Youngstown but the rejectable indications were not identified.

A special inspection was performed at Youngstown by NRC inspectors during the week of January 22, 1979. It was determined that the apparent cause of the identified defects was inadequate control of welding parameters although no specific ASME Code violations could be identified. Youngstown has recently hired a consultant to reevaluate the fusion welding parameters and revised their welding procedures to provide better control of welding current, voltage and travel speed for all material thickness ranges.

Ultrasonic examinations of the pipe welds were performed by a subcontractor to Youngstown. The reason why this subcontractor's ultrasonic testing did not detect indications exceeding ASME Code acceptance criteria was not determined. The piping was known to have been tested in the heat treated condition, prior to the removal of surface oxides. However, a comparison of attenuation of the pipe in as heat treated vs. heat treated and pickled condition did not reveal a discernible difference.

The NRC inspectors could not determine a definite time period during which the welding and ultrasonic testing problems are thought to have existed. All type 304 or 316 SA 312 pipe manufactured before mid-November, 1978 may have been shipped in similar condition. As a large supplier, Youngstown is known to have supplied piping for nuclear applications to the Dravo Corporation, Chicago Bridge and Iron, Flowline Corporation and ITT Grinnell Industrial Piping Inc. In addition, piping was also supplied to material warehousing operations including Albert Pipe Supply, Guyon Alloys Inc., and Allegheny Ludlum Steel Corporation which may have eventually been used in safety-related nuclear applications.

Action to be Taken by the Licensees and Permit Holders:

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

1. Determine whether ASME SA-312, type 304 or other welded (without filler metal) pipe manufactured by Youngstown Welding and Engineering Company is in use or planned for use in safety-related systems at your facility.

2. For those safety-related systems where the subject piping is in use or planned for use, identify the application of the piping including system, pipe location, pipe size and design pressure/temperature requirements.
3. Develop a program for volumetric examination of the longitudinal welds including acceptance criteria for the piping identified in Item 2 above. Describe planned corrective actions if acceptance criteria are not met. If a sampling program is utilized explain the basis for the sample size.
4. For facilities with an operating license, a report of the above actions, including the date(s) when they will be completed shall be submitted within 30 days of receipt of this Bulletin.
5. For facilities with a construction permit, a report of the above actions, including the date(s) when they will be completed shall be submitted within 60 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 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	04-12-79 05-14-79 06-22-79 08-31-79		Closed 3
Arkansas 2	AP&L	50-368	OL OL	IV	C-E	Bechtel	04-12-79 05-14-79 06-22-79 08-31-79		Closed 3
Beaver Valley 1	DLC	50-334	OL OL	I	W	S&W	04-11-79	82-06(04-07-82)	Closed 2
Beaver Valley 2	DLC	50-412	OL CP	I	W	S&W	05-17-79		Closed 2
Bellefonte 1	TVA	50-438	CP CP	II	B&W	TVA	05-14-79 07-13-79 09-13-79 11-29-79	80-02(02-05-80)	Closed 2
Bellefonte 2	TVA	50-439	CP CP	II	B&W	TVA	05-14-79 07-13-79 09-13-79 11-29-79	80-02(02-05-80)	Closed 2
Big Rock Point 1	CPC	50-155	OL OL	III	GE	Bechtel	04-16-79 05-30-79 07-30-79	80-17(11-25-80)	Closed 2
Braidwood 1	CECO	50-456	OL CP	III	W	S&L	05-08-79 08-10-79 09-05-79 09-20-79	81-13(12-01-81)	Closed 2

See notes and closeout criteria at end of table.

TABLE B.1 BULLETIN CLOSEOUT STATUS (contd)

Facility	Utility	Docket	Facility Status			NRC Region	NSSS	A/E	Utility Response Date	Inspection Report and Date	Closeout Status and Criterion
			1988	1979							
Braidwood 2	CECO	50-457	OL	CP	III	W	S&L		05-08-79 08-10-79 09-05-79 09-20-79	81-13(12-01-81)	Closed 2
Browns Ferry 1	TVA	50-259	OL	OL	II	GE	TVA		04-12-79		Closed 2
Browns Ferry 2	TVA	50-260	OL	OL	II	GE	TVA		04-12-79		Closed 2
Browns Ferry 3	TVA	50-296	OL	OL	II	GE	TVA		04-12-79		Closed 2
Brunswick 1	CP&L	50-325	OL	OL	II	GE	UE&C		04-12-79		Closed 2
Brunswick 2	CP&L	50-324	OL	OL	II	GE	UE&C		04-12-79		Closed 2
Byron 1	CECO	50-454	OL	CP	III	W	S&L		05-08-79 08-10-79 09-05-79 09-20-79	83-07(03-22-83)	Closed 2
Byron 2	CECO	50-455	OL	CP	III	W	S&L		05-08-79 08-10-79 09-05-79 09-20-79	83-03(03-22-83)	Closed 2
Callaway 1	UE	50-483	OL	CP	III	W	Bechtel		05-11-79 10-05-79 08-20-80		Closed 3
Calvert Cliffs 1	BG&E	50-317	OL	OL	I	C-E	Bechtel		04-16-79 05-29-79	83-13(07-13-83)	Closed 1
Calvert Cliffs 2	BG&E	50-318	OL	OL	I	C-E	Bechtel		04-16-79 05-29-79	83-13(07-13-83)	Closed 1

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See notes and closeout criteria at end of table.

TABLE B.1 BULLETIN CLOSEOUT STATUS (contd)

Facility	Utility	Docket	Facility Status		NRC Region	NSSS	A/E	Utility Response Date	Inspection Report and Date	Closeout Status and Criterion
			1988	1979						
Catawba 1	DUPCO	50-413	OL	CP	II	W	DUPCO	04-20-79	80-32(11-17-80)	Closed 3
Catawba 2	DUPCO	50-414	OL	CP	II	W	DUPCO	04-20-79	80-32(11-17-80)	Closed 3
Clinton 1	IP	50-461	OL	CP	III	GE	S&L	08-20-79	80-02(02-22-80)	Closed 2
Comanche Peak 1	TUGCO	50-445	CP	CP	IV	W	G&H	05-07-79	88-57(09-21-88)	Closed 1
Comanche Peak 2	TUGCO	50-446	CP	CP	IV	W	G&H	05-07-79	88-53(09-21-88)	Closed 1
Cook 1	IMECO	50-315	OL	OL	III	W	AEPSCO	04-17-79		Closed 2
Cook 2	IMECO	50-316	OL	OL	III	W	AEPSCO	04-17-79		Closed 2
Cooper Station	NPPD	50-298	OL	OL	IV	GE	B&R	04-12-79	79-12(08-06-79)	Closed 2
Crystal River 3	FPC	50-302	OL	OL	II	B&W	Gilbert	04-16-79 05-18-79		Closed 3
Davis-Besse 1	TECO	50-346	OL	OL	III	B&W	Bechtel	04-16-79 05-16-79		Closed 3
Diablo Canyon 1	PG&E	50-275	OL	CP	V	W	PG&E	03-27-79		Closed 2
Diablo Canyon 2	PG&E	50-323	OL	CP	V	W	PG&E	03-27-79		Closed 2
Dresden 2	CECO	50-237	OL	OL	III	GE	S&L	04-12-79	81-12(05-05-81)	Closed 2
Dresden 3	CECO	50-249	OL	OL	III	GE	S&L	04-12-79		Closed 2
Duane Arnold	IELPCO	50-331	OL	OL	III	GE	Bechtel	04-16-79		Closed 2
Farley 1	APCO	50-348	OL	OL	II	W	SS	04-11-79 04-26-79	79-26(07-25-79)	Closed 2
Farley 2	APCO	50-364	OL	CP	II	W	SS	04-11-79 04-26-79		Closed 2
Fermi 2	DECO	50-341	OL	CP	III	GE	DECO	05-14-79 08-23-79 01-02-80	81-07(06-26-81)	Closed 3
FitzPatrick	PASNY	50-333	OL	OL	I	GE	S&W	03-29-79	79-06(06-13-79)	Closed 2
Fort Calhoun 1	OPPD	50-285	OL	OL	IV	C-E	G&H	04-10-79		Closed 2
Fort St. Vrain	PSCC	50-267	OL	OL	IV	GA	S&L	04-06-79	79-12(06-28-79)	Closed 2

See notes and closeout criteria at end of table.

TABLE B.1 BULLETIN CLOSEOUT STATUS (contd)

Facility	Utility	Docket	Facility Status		NRC Region	NSSS	A/E	Utility Response Date	Inspection Report and Date	Closeout Status and Criterion
			1988	1979						
Ginna	RG&E	50-244	OL	OL	I	W	Gilbert	04-06-79	85-12(08-23-85)	Closed 2
Grand Gulf 1	MP&L	50-416	OL	CP	II	GE	Bechtel	05-16-79	79-13(07-13-79)	Closed 2
Haddam Neck	CYAPCO	50-213	OL	OL	I	W	S&W	04-16-79	85-01(03-07-85)	Closed 2
Harris 1	CP&L	50-400	OL	CP	II	W	Ebasco	05-17-79	79-10(07-10-79)	Closed 2
Hatch 1	GPC	50-321	OL	OL	II	GE	Bechtel	04-16-79 06-22-79 06-27-79	81-09(05-06-81)	Closed 3
Hatch 2	GPC	50-366	OL	OL	II	GE	Bechtel	04-16-79 06-22-79 06-27-79	81-09(05-06-81)	Closed 3
Hope Creek 1	PSE&G	50-354	OL	CP	I	GE	Bechtel	05-11-79		Closed 2
Indian Point 2	ConEd	50-247	OL	OL	I	W	UE&C	04-13-79	83-11(05-11-83)	Closed 2
Indian Point 3	PASNY	50-286	OL	OL	I	W	UE&C	04-13-79 04-24-79		Closed 2
Kewaunee	WPS	50-305	OL	OL	III	W	PS&E	04-16-79		Closed 2
LaSalle 1	CECO	50-373	OL	CP	III	GE	S&L	05-10-79	79-21(06-22-79)	Closed 2
LaSalle 2	CECO	50-374	OL	CP	III	GE	S&L	05-10-79	79-15(06-22-79)	Closed 2
Limerick 1	PECO	50-352	OL	CP	I	GE	Bechtel	05-07-79	84-36(08-14-84)	Closed 1
Limerick 2	PECO	50-353	CP	CP	I	GE	Bechtel	05-07-79	84-10(08-14-84)	Closed 1
Maine Yankee	MYAPCO	50-309	OL	OL	I	C-E	S&W	03-28-79 09-27-79	79-11(09-06-79)	Closed 2
McGuire 1	DUPCO	50-369	OL	CP	II	W	DUPCO	05-15-79 05-23-79 07-02-79	80-33(12-11-80)	Closed 3
McGuire 2	DUPCO	50-370	OL	CP	II	W	DUPCO	05-15-79 05-23-79 07-02-79	80-18(12-11-80)	Closed 3
Millstone 1	NNECO	50-245	OL	OL	I	GE	Ebasco	04-16-79	80-17(10-27-80)	Closed 2

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See notes and closeout criteria at end of table.

TABLE B.1 BULLETIN CLOSEOUT STATUS (contd)

Facility	Utility	Docket	Facility Status		NRC Region	NSSS	A/E	Utility Response Date	Inspection Report and Date	Closeout Status and Criterion
			1988	1979						
Millstone 2	NNECO	50-336	OL	OL	I	C-E	Bechtel	04-16-79 05-03-79 02-20-80	80-19(10-27-80)	Closed 1
Millstone 3	NNECO	50-423	OL	CP	I	W	S&W	05-15-79 08-02-79		Closed 3
Monticello	NSP	50-263	OL	OL	III	GE	Bechtel	04-12-79		Closed 2
Nine Mile Point 1	NMP	50-220	OL	OL	I	GE	NMP	04-11-79		Closed 2
Nine Mile Point 2	NMP	50-410	OL	CP	I	GE	S&W	05-16-79 06-28-79 07-05-79	81-06(08-19-81)	Closed 1
North Anna 1	VEPCO	50-338	OL	OL	II	W	S&W	04-16-79	79-28(08-07-79)	Closed 2
North Anna 2	VEPCO	50-339	OL	CP	II	W	S&W	05-10-79 06-11-79 07-11-79		Closed 3
Oconee 1	DUPCO	50-269	OL	OL	II	B&W	Bechtel	04-04-79	79-18(08-09-79)	Closed 2
Oconee 2	DUPCO	50-270	OL	OL	II	B&W	and	04-04-79	79-16(08-09-79)	Closed 2
Oconee 3	DUPCO	50-287	OL	OL	II	B&W	DUPCO	04-04-79	79-18(08-09-79)	Closed 2
Oyster Creek 1	JCP&L	50-219	OL	OL	I	GE	B&R	04-11-79	80-07(03-20-80)	Closed 2
Palisades	CPC	50-255	OL	OL	III	C-E	Bechtel	04-16-79 05-30-79		Closed 2
Palo Verde 1	APSCO	50-528	OL	CP	V	C-E	Bechtel	04-03-79	82-31(12-07-82)	Closed 1
Palo Verde 2	APSCO	50-529	OL	CP	V	C-E	Bechtel	04-03-79	82-13(12-07-82)	Closed 1
Palo Verde 3	APSCO	50-530	OL	CP	V	C-E	Bechtel	04-03-79	82-14(12-07-82)	Closed 1
Peach Bottom 2	PECO	50-277	OL	OL	I	GE	Bechtel	04-09-79 06-06-79	84-15(06-21-84)	Closed 2
Peach Bottom 3	PECO	50-278	OL	OL	I	GE	Bechtel	04-09-79 06-06-79	84-13(06-21-84)	Closed 2

See notes and closeout criteria at end of table.

TABLE B.1 BULLETIN CLOSEOUT STATUS (contd)

Facility	Utility	Docket	Facility Status		NRC Region	NSSS	A/E	Utility Response Date	Inspection Report and Date	Closeout Status and Criterion
			1988	1979						
Perry 1	CEI	50-440	OL	CP	III	GE	Gilbert	05-02-79	83-02(03-07-83)	Closed 2
Perry 2	CEI	50-441	CP	CP	III	GE	Gilbert	05-02-79	83-02(03-07-83)	Closed 2
Pilgrim 1	BECO	50-293	OL	OL	I	GE	Bechtel	04-17-79	79-18(10-11-79)	Closed 2
Point Beach 1	WEPCO	50-266	OL	OL	III	W	Bechtel	04-26-79		Closed 2
Point Beach 2	WEPCO	50-301	OL	OL	III	W	Bechtel	04-26-79		Closed 2
Prairie Island 1	NSP	50-282	OL	OL	III	W	FPI	04-10-79	79-19(09-04-79)	Closed 1
Prairie Island 2	NSP	50-306	OL	OL	III	W	FPI	04-10-79	79-16(09-04-79)	Closed 1
Quad Cities 1	CECO	50-254	OL	OL	III	GE	S&L	04-12-79	79-16(08-21-79)	Closed 2
Quad Cities 2	CECO	50-265	OL	OL	III	GE	S&L	04-12-79	79-14(08-21-79)	Closed 2
Rancho Seco 1	SMUD	50-312	OL	OL	V	B&W	Bechtel	04-16-79	79-11(08-20-79)	Closed 2
River Bend 1	GSU	50-458	OL	CP	IV	GE	S&W	05-18-79 11-29-79	85-12(04-08-85)	Closed 2
Robinson 2	CP&L	50-261	OL	OL	II	W	Ebasco	04-13-79	80-39(03-19-81)	Closed 3
Salem 1	PSE&G	50-272	OL	OL	I	W	PSE&G	04-04-79	79-32(02-20-80)	Closed 2
Salem 2	PSE&G	50-311	OL	CP	I	W	PSE&G	04-04-79	79-37(02-20-80)	Closed 2
San Onofre 1	SCE	50-206	OL	OL	V	W	Bechtel	05-08-79	83-01(02-15-83)	Closed 2
San Onofre 2	SCE	50-361	OL	CP	V	C-E	Bechtel	05-04-79	83-01(02-15-83)	Closed 1
San Onofre 3	SCE	50-362	OL	CP	V	C-E	Bechtel	05-04-79	83-01(02-15-83)	Closed 1
Seabrook 1	PSNH	50-443	CP	CP	I	W	UE&C	04-11-79 07-27-79	82-04(07-07-82)	Closed 1
Seabrook 2	PSNH	50-444	CP	CP	I	W	UE&C	04-11-79 07-27-79	82-04(07-07-82)	Closed 1
Sequoyah 1	TVA	50-327	OL	CP	II	W	TVA	05-14-79 06-01-79	79-36(08-02-79)	Closed 2
Sequoyah 2	TVA	50-328	OL	CP	II	W	TVA	05-14-79 06-01-79	79-21(08-02-79)	Closed 2
Shoreham	LILCO	50-322	LPTL	CP	I	GE	S&W	05-16-79 07-30-79	82-01(01-26-82)	Closed 3

See notes and closeout criteria at end of table.

TABLE B.1 BULLETIN CLOSEOUT STATUS (contd)

Facility	Utility	Docket	Facility Status		NRC Region	NSSS	A/E	Utility Response Date	Inspection Report and Date	Closeout Status and Criterion
			1988	1979						
South Texas 1	HL&P	50-498	OL	CP	IV	W	Bechtel	05-14-79 09-17-79		Closed 3
South Texas 2	HL&P	50-499	CP	CP	IV	W	Bechtel	05-14-79 09-17-79		Closed 3
St. Lucie 1	FPL	50-335	OL	OL	II	C-E	Ebasco	04-17-79 06-05-79		Closed 2
St. Lucie 2	FPL	50-389	OL	CP	II	C-E	Ebasco	06-11-79	79-09(07-03-79)	Closed 2
Summer 1	SCE&G	50-395	OL	CP	II	W	Gilbert	05-11-79		Closed 2
Surry 1	VEPCO	50-280	OL	OL	II	W	S&W	04-16-79 06-01-79	79-33(06-29-79)	Closed 3
Surry 2	VEPCO	50-281	OL	OL	II	W	S&W	04-16-79 06-01-79	79-51(06-29-79)	Closed 3
Susquehanna 1	PP&L	50-387	OL	CP	I	GE	Bechtel	06-12-79	79-41(01-30-80)	Closed 1
Susquehanna 2	PP&L	50-388	OL	CP	I	GE	Bechtel	06-12-79	79-22(01-30-80)	Closed 1
TMI 1	Met-Ed	50-289	OL	OL	I	B&W	Gilbert	04-13-79 09-10-79 10-12-79	81-26(11-02-81)	Closed 1
Trojan	PGE	50-344	OL	OL	V	W	Bechtel	04-20-79	80-25(11-03-80)	Closed 2
Turkey Point 3	FPL	50-250	OL	OL	II	W	Bechtel	04-17-79 06-05-79 09-07-79 10-22-79	84-11(04-26-84)	Closed 1
Turkey Point 4	FPL	50-251	OL	OL	II	W	Bechtel	04-17-79 06-05-79 09-07-79 10-22-79	84-11(04-26-84)	Closed 1
Vermont Yankee 1	VYNP	50-271	OL	OL	I	GE	Ebasco	03-30-79 11-26-79	79-21(01-02-80)	Closed 2

See notes and closeout criteria at end of table.

TABLE B.1 BULLETIN CLOSEOUT STATUS (contd)

Facility	Utility	Docket	Facility Status		NRC Region	NSSS	A/E	Utility Response Date	Inspection Report and Date	Closeout Status and Criterion
			1988	1979						
Vogtle 1	GP	50-424	OL	CP	II	W	SS/Bech	05-09-79	85-35(12-11-85)	Closed 3
Vogtle 2	GP	50-425	CP	CP	II	W	SS/Bech	05-09-79		Closed 3
Waterford 3	LP&L	50-382	OL	CP	IV	C-E	Ebasco	05-04-79		Closed 2
Watts Bar 1	TVA	50-390	CP	CP	II	W	TVA	05-14-79 07-13-79 09-13-79 11-29-79	84-35(06-20-84)	Closed 3
Watts Bar 2	TVA	50-391	CP	CP	II	W	TVA	05-14-79 07-13-79 09-13-79 11-29-79	84-33(06-20-84)	Closed 3
WNP 2	WPPSS	50-397	OL	CP	V	GE	B&R	06-06-79		Closed 2
Wolf Creek 1	KG&E	50-482	OL	CP	IV	W	Bechtel	05-11-79 07-30-79 10-05-79 08-20-80	83-01(02-24-83)	Closed 1
Yankee-Rowe 1	YAEKO	50-029	OL	OL	I	W	S&W	04-04-79 09-07-79		Closed 2
Zion 1	CECO	50-295	OL	OL	III	W	S&L	04-12-79		Closed 2
Zion 2	CECO	50-304	OL	OL	III	W	S&L	04-12-79		Closed 2

Notes:

1. Facility status is based on Reference 1, Page B-9.
2. The following abbreviations apply to facility status:
CP, construction permit; LPTL, low power testing license; OL, operating license.
3. Bulletin closeout criteria are listed on Page B-9.

CRITERIA FOR CLOSEOUT OF BULLETIN

1. The bulletin is closed for a facility if the utility response and an NRC/Region inspection report indicate that actions required by the bulletin (see Page A-2) have been completed satisfactorily.
2. The bulletin is closed for a facility if the utility response includes a statement that the facility has no piping of bulletin concern in safety-related systems or planned for such use.
3. The bulletin is closed for a facility on the basis of the closeout of superseding Bulletin 79-03A (see Report NUREG/CR-5284).

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
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
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
PSEG	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
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
VYNP	Vermont Yankee Nuclear Power Corporation
<u>W</u>	
WEPCO	Westinghouse Electric Corporation
WNP	Wisconsin Electric Power Company
WNSD	Washington Nuclear Project
WPPSS	Westinghouse Nuclear Service Division
	Washington Public Power Supply System
WPS	Wisconsin Public Service Corporation
YAECO	Yankee Atomic Electric Company

BIBLIOGRAPHIC DATA SHEET

SEE INSTRUCTIONS ON THE REVERSE

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**NUREG/CR-5283
PARAMETER IE-174**

2. TITLE AND SUBTITLE

**Closeout of IE Bulletin 79-03: Longitudinal
Weld Defects in ASME SA-312 Type 304 Stainless
Steel Pipe Spools Manufactured by Youngstown
Welding and Engineering Company**

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

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MONTH	YEAR
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13380 Watertown Plank Road
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11b. PERIOD COVERED (Include Dates)

12. SUPPLEMENTARY NOTES

13. ABSTRACT (200 words or less)

Documentation is provided in this report for the closeout of IE Bulletin 79-03, on the subject of fusion welded austenitic stainless steel pipe (without filler metal) manufactured by the Youngstown Welding and Engineering Company. Only pipe used or planned for use in safety-related systems is considered. The bulletin is closed out on the basis of definite criteria for all of the 121 facilities for which actions were required. This bulletin was issued by the NRC on March 12, 1979 to require certain actions by all holders of operating licenses and construction permits for power reactors. The NRC's concern was based on the discoveries of faulty longitudinal welds at Palo Verde and San Onofre. The investigations for Bulletin 79-03 led to the finding that volumetric examination of the fusion welds per the ASME Code requirements did not assure detection of centerline lack of penetration (CLP). Therefore, the problem of faulty welds applied to all manufacturers of SA-312/A-312 Type 300 Series welded steel pipe. Bulletin 79-03A was issued on April 4, 1980 to supersede the required actions of Bulletin 79-03, and to collect information on all of the subject pipe and fittings in safety-related systems. Refer to NUREG/CR-5284 for the companion closeout report on IE Bulletin 79-03A, "Longitudinal Weld Defects in ASME SA-312 Type 304 Stainless Steel Pipe". Background information is provided in the Introduction and Appendix A of this report as well as NUREG/CR-5284.

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Stainless Steel Pipe Spools**

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**CLOSEOUT OF IE BULLETIN 79-03: LONGITUDINAL WELD DEFECTS IN
ASME SA-312 TYPE 304 STAINLESS STEEL PIPE SPOOLS
MANUFACTURED BY YOUNGSTOWN WELDING AND ENGINEERING CO.**

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