

ORGANIZATION: BERGEN PATERSON PIPESUPPORT CORPORATION
PITTSBURGH, PENNSYLVANIA

REPORT NO.:	99900777/82-01	INSPECTION DATE(S)	4/12-15/1982	INSPECTION ON-SITE HOURS:	24
CORRESPONDENCE ADDRESS: Bergen Paterson Pipesupport Corporation ATTN: Mr. E. E. Nilson, Branch Manager 2247 Babcock Road Pittsburgh, Pennsylvania 15237					
ORGANIZATIONAL CONTACT: R. H. Stephens, Manager of Quality Assurance TELEPHONE NUMBER: (603) 524-1990					
PRINCIPAL PRODUCT: Pipesupports. NUCLEAR INDUSTRY ACTIVITY: Bergen Paterson Pipesupport Corporation's Pittsburgh, Pennsylvania, Branch Office contribution to the nuclear industry represents approximately 85 percent of its total work load.					
ASSIGNED INSPECTOR: <u><i>I. Barnes</i></u> <i>for</i> Wm. D. Kelley, Reactive & Component Program Section (R&CPS)				<u>7-23-82</u> Date	
OTHER INSPECTOR(S):					
APPROVED BY: <u><i>I. Barnes</i></u> I. Barnes, Chief, R&CPS				<u>7-23-82</u> Date	
INSPECTION BASES AND SCOPE: A. <u>BASES</u> : 10 CFR Part 21 and 10 CFR Part 50, Appendix B B. <u>SCOPE</u> : This inspection was made as a result of the issuance of a 10 CFR Part 50.55(e) report by Louisiana Power and Light Company concerning the discovery that the stress analysis had not been performed prior to the fabrication of pipesupports that had been furnished to Waterford Generating (cont. on next page)					
PLANT SITE APPLICABILITY: 50-382					
DESIGNATED ORIGINAL Certified By <u><i>Kheanne Jouts</i></u>					

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SCOPE: (Cont.) Station, Unit 3. Additional areas selected for inspection included design and document control.

A. VIOLATIONS:

None

B. NONCONFORMANCES:

None

C. UNRESOLVED ITEMS:

None

D. OTHER FINDINGS OR COMMENTS:

1. Construction Deficiency Report by Louisiana Power and Light Company (LP&L) - Problem reported was the discovery that stress analysis had not been performed prior to the fabrication of pipesupports that were furnished to the Waterford Generating Station, Unit 3.

- a. Background

In an August 10, 1981, letter LP&L notified Region IV by providing copies of an Interim Report of Significant Construction Deficiency No. 32, "Stress Analysis for Welded Pipe Support Attachments Was Not Performed Prior to Fabrication," in accordance with paragraph 50.55(e) of 10 CFR Part 50. In an August 11, 1981, meeting, which was attended by Ebasco Service, Inc., Dravo Corp., and Bergen Paterson Pipesupport Corp. (BPPC) personnel, the following status of the 718 pipesupport analyses was provided:

- (1) 55 pipesupports had been identified as failing analysis;
- (2) 120 pipe support analyses were on hold at Bergen Paterson Technical Support, Inc., (BPTS) awaiting mean nominal stress from Ebasco;
- (3) 29 pipesupports were on hold at BPPC; and
- (4) 514 pipesupports were awaiting completion of the stress analysis.

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b. Findings

The pipe supports for the Waterford Generating Station, Unit 3, were purchased from BPPC by Dravo on their Purchase Order Number E2804-1, dated October 5, 1973, which specified the Ebasco Specification Number LOU-1564.100 as the applicable design specification.

The Dravo purchase order did not address applicability of 10 CFR Part 50, Appendix B to the contract, but the Ebasco design specification did include Ebasco Specification 860-72 which states in part, ". . . In addition for all safety related equipment, materials and services, the Vendor's Quality Control Program shall comply with the requirements of Title 10, Part 50, Appendix B" BPPC did have a Quality Assurance and Control Manual that was applied to the Dravo purchase order, but the manual did not provide for: (1) measures for the identification and control of design interfaces and coordination among participating design organizations; (2) measures that assured required documents were distributed and used at the location where the prescribed activity was performed; (3) source evaluation and selection; and (4) a comprehensive system of planned and periodic audits.

Since subsection NF of Section III of the ASME Code was not in effect at the time of the Dravo contract, ASME Code requirements for design and stress analysis of welded attachments to piping systems were not addressed. BPPC, in conjunction with Ebasco selected Welding Research Council Bulletin 107 "Local Stresses in Spherical and Cylindrical Shells Due to External Loading" and Bulletin 198 "Secondary Stress Indices at Lug Supports on Piping Systems" to be used for designing the welded pipe attachments.

Since the contract documents did not define who had the specific responsibility for the stress analysis of the welded pipe attachments, there has been disagreement between Ebasco and BPPC as to who has this responsibility. BPPC's position has been that since the design of the piping system is performed by others and the welding of the piping attachments was performed by Dravo and Ebasco's mechanical contractor, it was Ebasco's responsibility to perform the stress analysis.

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The inspection established that detail pipesupport drawings had been submitted to Ebasco for review and then released, with Ebasco's concurrence, for fabrication of the pipesupports concurrently and prior to completion of all required stress analysis at BPTS, Cambridge, Massachusetts.

The NRC inspector reviewed the documentation of the 55 pipesupports and verified that none were installed in Ebasco Category I safety systems; 38 were installed in Categories 2 and 3 safety systems.

There was no documentary evidence that from the placement of the contract (October 5, 1973) to the time of this inspection, that Dravo had performed a vendor audit of the BPPC Pittsburgh branch office to verify compliance with Appendix B to 10 CFR Part 50.

c. 10 CFR Part 21

Ebasco notified BPPC by letter dated October 18, 1977, that 10 CFR Part 21 became effective for all safety-related items supplied to the Waterford Generating Station, Unit 3, on August 10, 1977. The NRC inspector verified that BPPC had posted the appropriate documents to meet the requirements of 10 CFR Part 21.

d. Followup Item

The resolution of the disagreement between Ebasco and BPPC concerning responsibility for performing and approving the stress analyses of the welded attachments will be reviewed on a subsequent inspection.

2. Design and Document Control - The ASME accepted BPPS Corporate QA Manual and four engineering procedures were reviewed. The BPPC Pittsburgh Branch Office does not have and has not had a contract in house for pipesupport systems that specifies Subsection NF to Section III of the ASME Code.

Inspector Wm D. Kelley
 Scope 10CFR 50.55(a) Report
by LPL concerning pipe supports.

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Item No.	Doc. Type	TITLE/SUBJECT	Doc Date	Doc Rev.
01	2	Ebasco Specification 865-73Ta Documentation Requirements for Piping Systems	1/29/74	
02	2	Ebasco Specification No. LOU-1564.100 Station Piping, Hangers and Supports - Nuclear and Non-Nuclear...	5/18/73	RZ
03	5	Dravo - Pipe Fabrication Div. P.O. No. E3223-1	3/19/79	
04	5	Dravo - Pipe Fabrication Div. P.O. No. E2803-1	3/4/81	C.O.G
05	5		1/14/81	C.O.P
06	5		2/13/80	C.O.O
07	5		11/7/79	C.O.N
08	5		11/7/79	C.O.M
09	5		10/31/79	C.O.L
10	5		10/5/79	C.O.K
11	5		8/1/79	C.O.J
12	5		6/7/79	C.O.I
13	5		11/3/78	C.O.H
14	5		6/30/78	C.O.G
15	5		5/26/78	C.O.F

Document Types:

- | | |
|------------------|---------------------------------|
| 1. Drawing | 5. Purchas Order |
| 2. Specification | 6. Internal Memo |
| 3. Procedure | 7. Letter |
| 4. QA Manual | 8. Other (Specify-if necessary) |

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Item No.	Doc. Type	TITLE/SUBJECT	Doc Date	Doc Re
16	5	Draw - Pipe Fabrication Div. P.O. No E 32723-1	4/28/78	C.O.E
17	5		8/25/77	C.O.D
18	5		8/5/77	C.O.C
19	5		10/28/76	C.O.B
20	5		1/21/74	AD-#1
21	5		10/7/73	Original
22	5	Draw - Pipe Fabrication Div. P.O. No E 2804-1	9/15/81	C.O.1
23	5		9/9/81	C.O.1
24	5		8/24/81	C.O.H
25	5		11/3/78	C.O.G
26	5		8/7/78	C.O.F
27	5		6/30/78	C.O.'E
28	5		4/28/78	C.O.D
29	5		6/29/77	C.O.C
30	5		10/28/76	C.O. B
31	5		12/15/75	C.O.A
32	5		1/21/74	Original

- Document Types:
1. Drawing
 2. Specification
 3. Procedure
 4. QA Manual
 5. Purchas Order
 6. Internal Memo
 7. Letter
 8. Other (Specify-if necessary)

Inspector Wm B. Kelley
 Scope LOGER 50:55(a) Report
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Item No.	Doc. Type	TITLE/SUBJECT	Doc Date	Doc Rev.
33	1	BRPE Drawing C55H-312 Containment Spray		3
34	1	CSA-384		4
35	1	SIA-860 Safety Injection		1
36	1	SIRR-868		1
37	1	SIRR-936		3
38	1	SIA-993		3
39	1	CSRR-49 Containment Spray		1
40	1	CSRR-113		2
41	1	CCRR-1234 Component Cabling		5
42	1	CCRR-1438		3
43	8	Summary - Sys. Misc. Material Problems		-
44	8	Ebasco: WPA Analysis for MK TCRH63		1
45	8	BRTS - Integral Welded Attachment Analysis MK CCRR-1234		2
46	8	BRTS		2
47	8			2
48	8			3
49	8			1

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Item No.	Doc. Type	TITLE/SUBJECT	Doc Date	Doc Rev
50	B	BPTS Integral Welded Attachment Analysis		1
51	B	MK 51RP-936		3
52	B	MK 51A-933		2
53	B	Welding Research Council Bulletin #198 - Secondary Stress Indices for Integral Structural Attachments to Straight Pipe - Stress Indices at Lug Supports on Piping Systems	Sept 1974	-
54	B	Welding Research Council Bulletin #107 - Local Stresses in Spherical and Cylindrical Shells due to External Loadings	April 1972	3
55	4	BPFG - Quality Assurance and Control Manual	Sept 10, 1971	
56	7	BPFG-Pitt to NRC Subject: Fabrication History for Fire Supports	4/16/82	
57	7	ESI to DC Subject: Minutes of Aug 16, 1981 Meeting	8/26/81	
58	7	ESI to DC Subject: June 30 and July 1, 1981 Meeting Minutes	7/13/81	
59	7	ESI to BPPS-Laconia Subject: Minutes of May 14, 1981 Meeting	6/5/81	-
60	7	ESI to BPPS-Pitt Subject: Work Priorities	4/28/81	
61	7	ESI to BPPS-Pitt Subject: Minutes of March 10, 1981 Meeting	3/25/81	

Document Types:

1. Drawing
2. Specification
3. Procedure
4. QA Manual
5. Purchas Order
6. Internal Memo
7. Letter
8. Other (Specify-If necessary)

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 Scope 10CFR 50.55E) Report
 by LPL concerning pipesupports

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Item No.	Doc. Type	TITLE/SUBJECT	Doc Date	Doc Rev
62	7	ESI to BPPC-Boston Subject Notification of 10CFR 21	10/18/77	
63	8	BPPC-Boston Subject: Meeting Notes	8/31/77	
64	8	BPPC-Boston Subject: Meeting Notes	3/29/77	
65	8	BPPC-Boston to ESI - Subject: Integrated Welded Attachment Analysis	3/24/77	
66	6	BPPC-Pitt to BPPC Boston Subject: QA Engineering Audit by ESI	2/24/77	
67	6	BPPC-Boston to BPPC Pitt Subject: Ebasco Spec	10/23/74	
68	6	BPPC-Boston to BPPC Pitt Subject: Ebasco-Transmittal Analysis	5/2/74	
69	8	ESI to Dravo Corp Subject: Safety Injection System Anchor SIA - 461	5/9/74	
70	8	BPPC-Pitt to ESI Subject: Safety Injection System Anchor	4/23/74	
71	8	DC to ESI Subject: Transmittal of Meeting Minutes	3/21/74	
72	8	BPPC-Pitt to DC Transmittal of Meeting Notes	2/6/74	
73	6	BPPC-Pitt Minutes of Job Coordination Meeting	1/31/74	
74	8	ESI to Dravo Transmittal of Meeting Minutes	7/6/73	

Document Types:

1. Drawing
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- Document Types:
1. Drawing
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Inspector Wm D. Kelley
Scope Design & Document
Control

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Item No.	Doc. Type	TITLE/SUBJECT	Doc Date	Doc Re
01	4	BPPC Quality Assurance Manual "NPT" and "Quality Systems Requirements"	10/23/81	1
02	3	BPPC - BPE 200-1 Internal Document Control Procedure		0
03	3	BPPC - BPE 200-3 External Document & Drawing Control Procedure		0
04	3	BPPC - BPE 200-3 Design Analysis & Calculation Procedure		0
05	3	BPPC - BPF 200-5 Engineering Office Training Program		0

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