



ARKANSAS POWER & LIGHT COMPANY
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December 16, 1980

2-120-19

Mr. Thomas H. Novak
Assistant Director for
Operating Reactors
Division of Licensing
U. S. Nuclear Regulatory Comm.
Washington, D.C. 20555

SUBJECT: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
Fracture Toughness of the Steam Generator
and Reactor Coolant Pump Supports
(File: 2-1510)

Gentlemen:

As committed in our letter of August 19, 1980, the following information is provided to respond to item 1 subtopics 1, 2, 3 and 4 and item 3, subtopic C, of your letter of August 5, 1980.

To address item 1 General Electric Co. (GE), the RCP motor manufacturer was contacted and asked to respond to subtopics 1, 2 and 3. The following, which incorporates GE input, is provided as our response to Item 1.

ITEM 1 SUBTOPIC 1)

Identify the grade of the ASTM A-283 used for these lugs. Provide the mill test report for these members. Indicate supplementary material requirements (if any) specified for these members. Provide any other available data that may be indicative of fracture toughness.

RESPONSE

To date we have been unable to obtain any additional information beyond that which is already available to the Franklin Research Center (FRC) and which further identifies the grade of ASTM A-283 steel used. The mill test reports were not available to

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GE and to date have not been found in AP&L's, or CE's, files. We will continue to search for this information and will inform the NRC of any additional information identified.

ITEM 1 SUBTOPIC 2)

Indicate how the final rolling direction of the plate from which the lugs were cut is related to the direction of principal stress imposed by the snubber mechanism.

RESPONSE

This information is not available.

ITEM 1 SUBTOPIC 3)

Provide geometric details of the seismic lug and of the welding attachment of the RCP motor case.

RESPONSE

This information is available in GE drawings pertaining to the RCP motor. We are in the process of obtaining these drawings and will forward them to you as soon as they are available. We anticipate submittal within approximately 3 to 4 weeks. In GE's response to this question, they stated that there were no welds. A further explanation of this will be provided by the drawings.

ITEM 1 SUBTOPIC 4)

Provide a fracture-toughness evaluation of the lug most highly stressed in tension under the most severe loading any lug experiences.

RESPONSE

To date we have not obtained sufficient information on the RCP motor lug material to perform an adequate fracture toughness evaluation. We will continue to research this matter and will provide the NRC with updates of our progress as appropriate.

To address item 3 subtopic C, Byron Jackson, the RCP manufacturer, was contacted and requested to respond to subtopic C. The following, which incorporates Byron Jackson's input, is provided as our response to item 3 subtopic C.

ITEM 3 SUBTOPIC C)

Byron Jackson Dwg. ZF-1442, Revision 6 (Vertical Reactor Coolant Pump) welds joining lugs 1, 2, 3, 4 on pump Nos. 2P32A and 2P32D. Also joining of seismic lugs on RCP (details on drawings provided unfortunately were not clear).

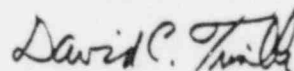
Please furnish the following information:

- a) Welding process(es) used for these joints.
- b) Electrode types, diameters, or other consumable welding materials (such as fluxes, if applicable) used.
- c) Welding conditions used.
- d) The sequences of welding passes used.
- e) Were any of the weldments given a post-weld heat treatment? If so, what were the time and temperatures used? How were the temperatures monitored?
- f) Were the welds inspected during fabrication? What techniques were used? Have subsequent weld inspections been made? When and with what results?

RESPONSE

Attached is Byron Jackson's response which is currently all of the information available to us. We feel this information should be adequate for the purpose of your evaluation. However, should additional information pertaining to the RCP lugs become available we will provide it to you.

Very truly yours,



David C. Trimble
Manager, Licensing

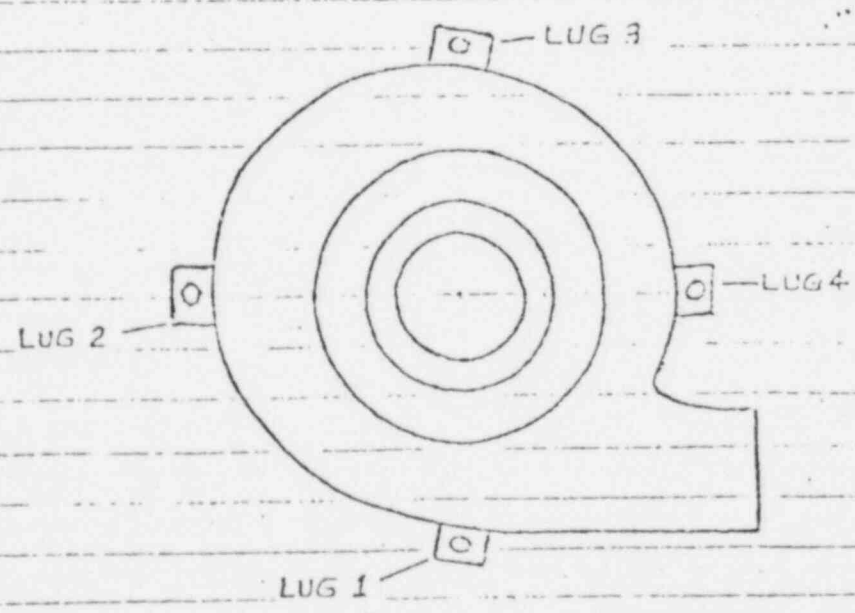
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Attachment



Pump Serial No. 701-N-0595 Part No. 508818
 Weld Map No. _____ Rev. E
 Component PUMP CASE
 Route Card No. 41307

WELD NO.	WELD PROCEDURE	WELD PROCESS	WELDER SYMBOL	DATE WELDED	FILLER METAL			FLUX	PARAMETERS		P.M.H.T.	REMARKS
					HEAT NO.	AWS CLASSIFICATION	SIZE		AVERAGE RANGE	VOLTAGE RANGE		
<u>LUG NO. 1-4</u>												
<u>TACK</u>	<u>IT-3666</u>	<u>SMAW</u>	<u>A</u>	<u>3-5-74</u>	<u>To-5090</u>	<u>316</u>	<u>1/8</u>	<u>N/A</u>	<u>90-120</u>	<u>24-26</u>	<u>N/A</u>	<u>INSPECTED BY B1-4J</u>
<u>ROOT PASS</u>	<u>IT-3666</u>	<u>SMAW</u>	<u>A16</u>	<u>3-7-74</u>	<u>To-5090</u>	<u>316</u>	<u>1/8</u>	<u>N/A</u>	<u>90-120</u>	<u>24-26</u>	<u>N/A</u>	<u>" B1-4J</u>
<u>2 LAYERS AFTER-ROOT PASS</u>	<u>IT-3666</u>	<u>SMAW</u>	<u>A16</u>	<u>3-7-74</u>	<u>To-5090</u>	<u>316</u>	<u>1/8</u>	<u>N/A</u>	<u>90-120</u>	<u>24-26</u>	<u>N/A</u>	<u>" B1-4J</u>
<u>WELD TO 1/2 THICK</u>	<u>IT-3666</u>	<u>SMAW</u>	<u>G1A</u>	<u>3-15-74</u>	<u>6127B</u>	<u>316</u>	<u>3/16</u>	<u>N/A</u>	<u>150-200</u>	<u>25-27</u>	<u>N/A</u>	<u>" B1-4J</u>
<u>WELD TO 1/2 THICK</u>	<u>IT-3666</u>	<u>SMAW</u>	<u>G1A</u>	<u>3-15-74</u>	<u>5830</u>	<u>316</u>	<u>5/32</u>	<u>N/A</u>	<u>110-170</u>	<u>24-26</u>	<u>N/A</u>	<u>" B1-4J</u>
<u>FINISH</u>	<u>IT-3666</u>	<u>SMAW</u>	<u>G1A</u>	<u>3-16-74</u>	<u>6127B</u>	<u>316</u>	<u>3/16</u>	<u>N/A</u>	<u>150-200</u>	<u>25-27</u>	<u>N/A</u>	<u>" B1-4J</u>
<u>FINISH</u>	<u>IT-3666</u>	<u>SMAW</u>	<u>G1A</u>	<u>3-16-74</u>	<u>5830</u>	<u>316</u>	<u>5/32</u>	<u>N/A</u>	<u>110-170</u>	<u>24-26</u>	<u>N/A</u>	<u>" B1-4J</u>

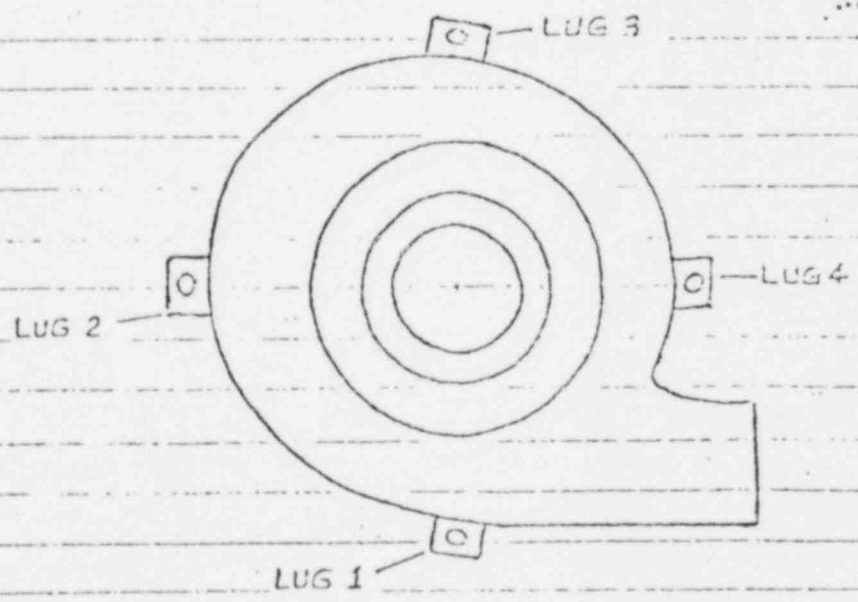


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Pump Serial No. 701-N-0594 Part No. 508913
 Weld Map No. _____ Rev. E
 Component PUMP CASE
 Route Card No. 41256

WELD NO.	WELD PROCEDURE	WELD PROCESS	WELDER SYMBOL	DATE WELDED	FILLER METAL			PARAMETERS		P.W.H.T.	REMARKS	
					HEAT NO.	AWS CLASSIFICATION	SIZE	FLUX	AMPERAGE RANGE			VOLTAGE RANGE
LUG NO. 1-4 TACK	IT-3572	SMAW	E	8-13-77	To-5045	3/16	1/8	N/A	70-120	20-26	N/A	INSPECTED BY BI-4J
ROOT PASS	IT-3572	SMAW	A	8-28-77	To-4045 To-5045	3/16	1/8	N/A	70-120	20-26	N/A	" " BI-4J
2-LAYERS AFTER ROOT PASS	IT-3666	SMAW	E/C	8-28-77	5206	3/16	3/16	N/A	150-200	25-27	N/A	" " BI-4J
WELD TO 1/2" THICK	IT-3666	SMAW	E/A	8-30-77	5206	3/16	3/16	N/A	150-200	25-27	N/A	" " BI-4J
FINISH	IT-3666	SMAW	E/A	8-30-77	5206	3/16	3/16	N/A	150-200	25-27	N/A	" " BI-4J
FINISH	IT-3666	SMAW	L	8-30-77	5635-B	3/16	3/16	N/A	150-200	25-27	N/A	" " BI-4J
FINISH	IT-3666	SMAW	L	8-30-77	5254	3/16	5/32	N/A	110-170	24-26	N/A	" " BI-4J
FINISH	IT-3664	GTAW	R	8-30-77	3930	3/16	5/32	N/A	180-350	12-30	N/A	" " BI-4J

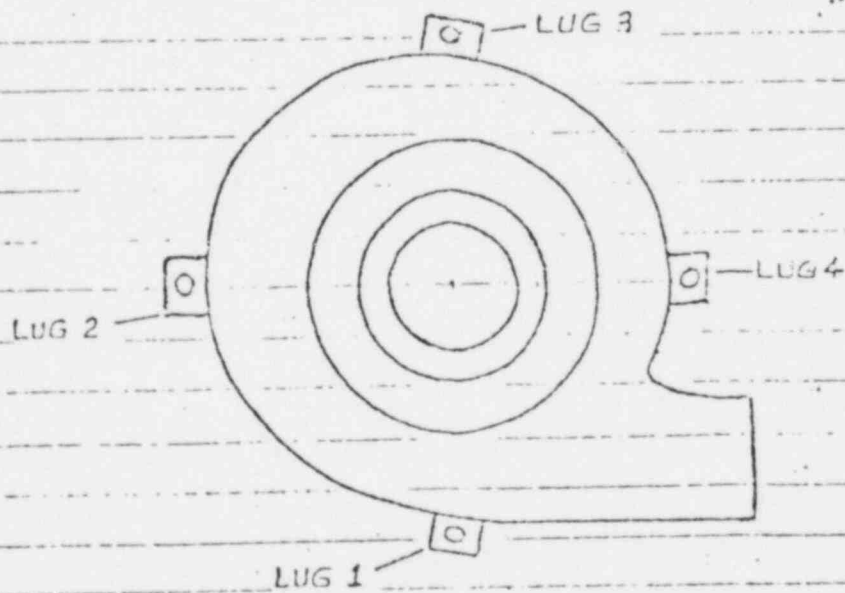


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Pump Serial No. 201-N-0593 Part No. 502997
 Weld Map No. _____ Rev. B
 Component PUMP CASE
 Route Card No. 40503

WELD NO.	WELD PROCEDURE	WELD PROCESS	WELDER	STEEL	DATE WELDED	FILLER METAL			FLUX	PARAMETERS		P.W.H.T.	REMARKS
						HEAT NO.	AVG CLASS-IFICATION	SIZE		AMPERAGE RANGE	VOLTAGE RANGE		
LUG NO. 1-4													
TACK	IT-3572	SMAW	R/E	12/4/72	To-5045	316	1/8	N/A	70-120	20-26	N/A		INSPECTED BY BI-4BJ
ROOT PASS	IT-3572	SMAW	R/E	12/4/72	To-5103	316	5/32	N/A	110-160	20-26	N/A		" " BI-4J
2 LAYERS AFTER ROOT PASS	IT-3572	SMAW	R/E	12/4/72	To-5103	316	5/32	N/A	110-160	20-26	N/A		" " BI-4J
WELD TO 1/2" THICK	IT-3572	SMAW	R/E	12/5/72	To-5103	316	5/32	N/A	110-160	20-26	N/A		" " BI-4J
FINISH	IT-3572	SMAW	R/E	12/20/72	To-5103	316	5/32	N/A	110-160	20-26	N/A		" " BI-4J
FINISH	IT-3572	SMAW	R/E	12/27/72	To-5103	316	5/32	N/A	110-160	20-26	N/A		" " BI-4J



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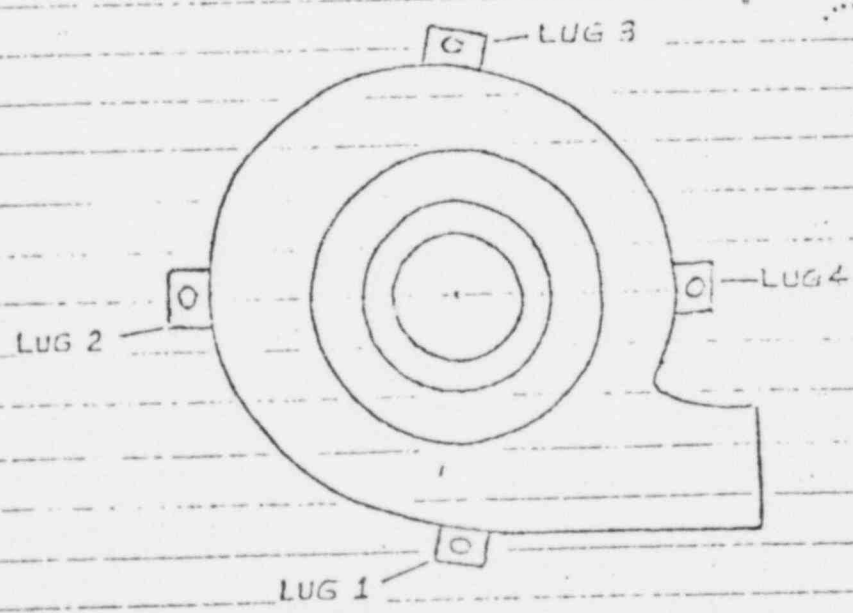
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Pump Serial No. 701-N-0592 Part No. 603799
 Weld Map No. _____ Rev. B
 Component PUMP CASE
 Route Card No. 37526

WELD NO.	WELD PROCEDURE	WELD PROCESS	WELDER SYMBOL	DATE WELDED	HEAT NO.	FILLER METAL			FLUX	PARAMETERS		P.V.H.T.	REMARKS
						AWS CLASSIFICATION	SIZE	SIZE		AMPERAGE RANGE	VOLTAGE RANGE		
LUG NO 1-4													
TACK	IT-3572	SMAW	E	16-73	To-5045	316	1/8	N/A	70-120	20-26	N/A	INSPECTED BY B1-4J	
ROOT PASS	IT-3572	SMAW	C	1-6-73	To-4175	316	5/32	N/A	110-160	20-26	N/A	" " B1-4J	
2 LAYERS AFTER ROOT PASS	IT-3572	SMAW	C	1-6-73	To-4275	316	5/32	N/A	110-160	20-26	N/A	" " B1-4J	
WELD TO 1/2" THICK	IT-3572	SMAW	C/G	1-8-73	To-5206	316	3/16	N/A	140-200	24-30	N/A	" " B1-4J	
F	IT-3572	SMAW	C/G	1-13-73	To-5206	316	3/16	N/A	140-200	24-30	N/A	" " B1-4J	



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