

ORGANIZATION: NUCLEAR VALVE DIVISION, BORG WARNER CORPORATION
VAN NUYS, CALIFORNIA

REPORT NO.: 99900289/81-02 INSPECTION DATE(S): 10/5-9/81 INSPECTION ON-SITE HOURS: 28

CORRESPONDENCE ADDRESS: Nuclear Valve Division
Borg Warner Corporation
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7500 Tyrone Ave.
Van Nuys, California 91409

ORGANIZATION CONTACT: Mr. W. Wheaton, QA Director
TELEPHONE: (213) 781-4000

PRINCIPAL PRODUCT: Nuclear Valves - 2" to 24"

NUCLEAR INDUSTRY ACTIVITY: Commercial nuclear production of the Nuclear Valve Division of Borg Warner Corporation totals 70% of the total company production.

ASSIGNED INSPECTOR:

J. W. Sutton
J. W. Sutton, Reactor Engineer
Components Section (CS)

11-23-81
Date

OTHER INSPECTOR(S):

APPROVED BY:

U. Potapovs
U. Potapovs, Acting Section Chief, CS

11-30-81
Date

INSPECTION BASES AND SCOPE:

- A. BASES: 10 CFR Part 50, Appendix B; 10 CFR Part 21; and applicable codes and standards.
- B. SCOPE: Previous inspection findings, Part 21 inspection, welding, review of vendor's activities and review of vendor's action on a reported 10 CFR Part 50.55(e) notification from Duke Power Company pertaining to a binding 8" gate valve problem at Catawba 1-2 plants.

DESIGNATED ORIGINAL

Certified By

Rheanne Jouts

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PDR GA999 EMVBORG
99/00289 PDR

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INSPECTION RESULTS:

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A. VIOLATIONS:

None

B. NONCONFORMANCES:

1. Contrary to Criterion V of Appendix B to 10 CFR Part 50 and paragraph 9.8 "Welding" in Section 9, Revision L of the Nuclear Valve Division QA Manual, a welder was observed not maintaining the approved welding procedures electrical characteristics during a hardfacing operation on Valve No. S012579-3.
2. Contrary to Criterion V of Appendix B to 10 CFR Part 50 and paragraph 15.7 of Section 15, Revision L of NVD's QA Manual and Nuclear Practice Bulletin No. 11-8, Revision 8, a special review board was not convened as required, to review the reported deviation involving 8" gate valves as reported on a Part 50.55(e) report by Duke Power Company.

C. UNRESOLVED ITEMS:

None

D. STATUS OF PREVIOUS INSPECTION FINDINGS:

1. (Open) Potential Construction Deficiency Report (Report No. 80-03, D): The inspector reviewed the corrective action taken by NVD to resolve this problem. All items have been reviewed by NVD and the customer. Action is being taken to finalize the corrective action to be taken within the next 2 months. A final review will be made during the next scheduled inspection.
2. Follow-up Item No. 1 (Closed): NVD Statement of Authority and Policy (81-01):

The inspector reviewed the revised NVD's Statement of Authority and Policy issued April 1, 1981. The statement indicates that the QA Manual meets Part 50, Appendix B requirements for noncode items.
3. Follow-up Item No. 2 (Closed): QA Director's Reporting Channel (81-01): The inspector reviewed Revision L to NVD's QA Manual issued April 1, 1981. The revision now indicates the current reporting channel for use by the Director of QA to management.

E. OTHER FINDINGS OR COMMENTS:

1. Implementation of 10 CFR Part 21: During the review of the corrective action taken by NVD to resolve the binding problem on 8" gate valves as reported by Duke Power Corporation as a Part 50.55(e) report, the inspector noted that a Special Review Board had not been convened to determine

the reportability of a defect to NRC under Part 21 requirements. Section 15 of the QA Manual and NVD's Nuclear Practice Bulletin No. 11-8 have detailed procedures that cover this area of reportability.

One nonconformance was identified (See paragraph B.2).

2. Welding: The inspector reviewed NVD's QA Manual Section 9.8 to determine if a system exists to control the welding operations performed during the manufacturing process.

The inspector reviewed 3 welding procedures, welding controls, welder certifications and controls of materials to determine if the system was being implemented.

During the examination of a valve hardfacing operation it was noted that the welder was performing the operation outside of the designated electrical parameters. Welding Procedure NPS 70046 Revision X indicated a current range for 1/8 rod between 70-100 amps. Contrary to this range the welder was performing the operation at 140 amps.

The hardfacing operation was suspended to resolve this problem. One nonconformance was identified (See paragraph B.1.).

3. 10 CFR Part 50.55(e) Report: A 10 CFR Part 50.55(e) construction deficiency report (CDR) notification was made by Duke Power Corporation to NRC on July 1, 1981, pertaining to 2-8" gate valves used for isolating essential from nonessential loads. The valves were found to be inoperable in a component system at Catawba 1-2 units.

NVD assigned a project engineer to determine the cause of the failure. One valve was returned to NVD for examination. A test procedure was generated and tests were performed on the valve during July and August. NVD determined that the valve in question and similar valves that had been manufactured by NVD prior to January 1979 had sharp edges on the gate guide surfaces and if positioned between $22\frac{1}{2}^{\circ}$ and $157\frac{1}{2}^{\circ}$ of vertical could fail to open or close.

A search of NVD records for all gate valves manufactured prior to January 1979 in sizes 6, 8, 10, 12, 18 and 20 inches was conducted to determine which valves could be suspect as having this defect. In addition a review of customers who had ordered gate valves in these sizes was also conducted. The search identified 109 gate valves of varying sizes which could be suspect as having the identified defect. Eight customers were identified as having ordered gate valves of varying sizes. A letter was prepared for the affected customers outlining steps to be taken by them to determine if any valves had been installed in a safety system and positioned between $22\frac{1}{2}^{\circ}$ and $157\frac{1}{2}^{\circ}$ of vertical.

The customers were requested to transmit all information concerning use and operations of the valves to NVD as soon as possible.

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It was also determined by NVD that there were no operating nuclear plants identified as having questionable valves installed in Safety Systems.

A Part 21 notification was submitted to Region V on October 13, 1981, detailing the conditions found and corrective action to be taken for those gate valves identified by customers and installed in safety-related systems and positioned as described in the customers letter.

Follow-up by Region V will continue. One nonconformance was identified. (see paragraph B.2)

Company Nuclear Valve Division
Borg Warner Corp.

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Inspector J. W. Sy How

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J.W. SUTTON	Reactor Engineer (Components)	USNRC
*WARREN R. WHEATON	CHIEF ENGR/DIR. OF QUALITY	BORG WARNER - NVD
NORMA J. MOORE	MGR. QUAL. ENGR.	BORG WARNER - NVD
*C.P. SPIEGEL	VICE PRESIDENT-OPERATIONS	BORG WARNER - NVD
M.B. DIANA	ANI - LUMBERMEN'S MUTUAL	KEMPER GROUP
*CHUCK BRALEY	MGR. DESIGN ENGR.	BORG WARNER - NVD
M. Reilly	Project Engineer	BORG WARNER - NVD.
D. Kellough	QC INSPECTOR	BORG WARNER - NVD
P.L. Melinazzo	Manager - Fabrication	Borg Warner - NVD.
D. white.	welder -	Borg Warner - NVD.
R.A. Broerman	Sales	Borg Warner - NVD.

* Attended Exit meeting

Inspector J. Sullivan.
 Scope/Module 10CFR Part 50: 55(c) Rept.

DOCUMENTS EXAMINED

1	2	TITLE/SUBJECT	3	4
1	2	50:55(c) Duke Power Corp- SD 413-414/81-11		
2	1	Drawing 73494. 8" Gate Valve	12-80-	Rev. H
3	2	Drawing 73494 8" Gate Valve.	5-Oct-79	Rev D
4	2	" 76645 12" " "	7-25-80	Rev D.
5	2	" 75714 20" " "	2-4-80	Rev C
6	2	" 76705 10" " "	- 80	Rev F
7	8	Change order- 76705-	12-22-78	
8	8.	MEq outLine - 76705	8-16-77	
9	8.	" " 75714-	8-16-77	
10	8	" " 76645-	5-8-78	
11	8	Change order. 76905-	1-16-81	Rev F
12	8	MEq Outline 73494	8-1-77	
13	3.	Test Procedure- for Guide Performance.	7-29-81	Rev A.
14	6.	Rept on Valve appraised.	10-8-81	
15	7.	Part 21 Rept - Region V- 781-247-UM.	10-13-81	
16	8	QA Certification PN 76110. -		

Document Types:

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

Columns:

1. Sequential Item Number
2. Type of Document
3. Date of Document
4. Revision (If applicable)

Scope/Module 10CFR Part 50.55(e) Rent.

DOCUMENTS EXAMINED

[illegible]

Document Types:

1. Drawing
2. Specification
3. Procedure
4. QA Manual

Columns:

- | 1. Sequential Item Number | 2. Type of Document | 3. Date of Document | 4. Revision (If applicable) |
|---------------------------|---------------------|---------------------|-----------------------------|
| 1 | Technical Report | 1998-01-01 | 1 |
| 2 | Technical Report | 1998-01-01 | 1 |
| 3 | Technical Report | 1998-01-01 | 1 |
| 4 | Technical Report | 1998-01-01 | 1 |
| 5 | Technical Report | 1998-01-01 | 1 |
| 6 | Technical Report | 1998-01-01 | 1 |
| 7 | Technical Report | 1998-01-01 | 1 |
| 8 | Technical Report | 1998-01-01 | 1 |
| 9 | Technical Report | 1998-01-01 | 1 |
| 10 | Technical Report | 1998-01-01 | 1 |
| 11 | Technical Report | 1998-01-01 | 1 |
| 12 | Technical Report | 1998-01-01 | 1 |
| 13 | Technical Report | 1998-01-01 | 1 |
| 14 | Technical Report | 1998-01-01 | 1 |
| 15 | Technical Report | 1998-01-01 | 1 |
| 16 | Technical Report | 1998-01-01 | 1 |
| 17 | Technical Report | 1998-01-01 | 1 |
| 18 | Technical Report | 1998-01-01 | 1 |
| 19 | Technical Report | 1998-01-01 | 1 |
| 20 | Technical Report | 1998-01-01 | 1 |
| 21 | Technical Report | 1998-01-01 | 1 |
| 22 | Technical Report | 1998-01-01 | 1 |
| 23 | Technical Report | 1998-01-01 | 1 |
| 24 | Technical Report | 1998-01-01 | 1 |
| 25 | Technical Report | 1998-01-01 | 1 |
| 26 | Technical Report | 1998-01-01 | 1 |
| 27 | Technical Report | 1998-01-01 | 1 |
| 28 | Technical Report | 1998-01-01 | 1 |
| 29 | Technical Report | 1998-01-01 | 1 |
| 30 | Technical Report | 1998-01-01 | 1 |
| 31 | Technical Report | 1998-01-01 | 1 |
| 32 | Technical Report | 1998-01-01 | 1 |
| 33 | Technical Report | 1998-01-01 | 1 |
| 34 | Technical Report | 1998-01-01 | 1 |
| 35 | Technical Report | 1998-01-01 | 1 |
| 36 | Technical Report | 1998-01-01 | 1 |
| 37 | Technical Report | 1998-01-01 | 1 |
| 38 | Technical Report | 1998-01-01 | 1 |
| 39 | Technical Report | 1998-01-01 | 1 |
| 40 | Technical Report | 1998-01-01 | 1 |
| 41 | Technical Report | 1998-01-01 | 1 |
| 42 | Technical Report | 1998-01-01 | 1 |
| 43 | Technical Report | 1998-01-01 | 1 |
| 44 | Technical Report | 1998-01-01 | 1 |
| 45 | Technical Report | 1998-01-01 | 1 |
| 46 | Technical Report | 1998-01-01 | 1 |
| 47 | Technical Report | 1998-01-01 | 1 |
| 48 | Technical Report | 1998-01-01 | 1 |
| 49 | Technical Report | 1998-01-01 | 1 |
| 50 | Technical Report | 1998-01-01 | 1 |
| 51 | Technical Report | 1998-01-01 | 1 |
| 52 | Technical Report | 1998-01-01 | 1 |
| 53 | Technical Report | 1998-01-01 | 1 |
| 54 | Technical Report | 1998-01-01 | 1 |
| 55 | Technical Report | 1998-01-01 | 1 |
| 56 | Technical Report | 1998-01-01 | 1 |
| 57 | Technical Report | 1998-01-01 | 1 |
| 58 | Technical Report | 1998-01-01 | 1 |
| 59 | Technical Report | 1998-01-01 | 1 |
| 60 | Technical Report | 1998-01-01 | 1 |
| 61 | Technical Report | 1998-01-01 | 1 |
| 62 | Technical Report | 1998-01-01 | 1 |
| 63 | Technical Report | 1998-01-01 | 1 |
| 64 | Technical Report | 1998-01-01 | 1 |
| 65 | Technical Report | 1998-01-01 | 1 |
| 66 | Technical Report | 1998-01-01 | 1 |
| 67 | Technical Report | 1998-01-01 | 1 |
| 68 | Technical Report | 1998-01-01 | 1 |
| 69 | Technical Report | 1998-01-01 | 1 |
| 70 | Technical Report | 1998-01-01 | 1 |
| 71 | Technical Report | 1998-01-01 | 1 |
| 72 | Technical Report | 1998-01-01 | 1 |
| 73 | Technical Report | 1998-01-01 | 1 |
| 74 | Technical Report | 1998-01-01 | 1 |
| 75 | Technical Report | 1998-01-01 | 1 |
| 76 | Technical Report | 1998-01-01 | 1 |
| 77 | Technical Report | 1998-01-01 | 1 |
| 78 | Technical Report | 1998-01-01 | 1 |
| 79 | Technical Report | 1998-01-01 | 1 |
| 80 | Technical Report | 1998-01-01 | 1 |
| 81 | Technical Report | 1998-01-01 | 1 |
| 82 | Technical Report | 1998-01-01 | 1 |
| 83 | Technical Report | 1998-01-01 | 1 |
| 84 | Technical Report | 1998-01-01 | 1 |
| 85 | Technical Report | 1998-01-01 | 1 |
| 86 | Technical Report | 1998-01-01 | 1 |
| 87 | Technical Report | 1998-01-01 | 1 |
| 88 | Technical Report | 1998-01-01 | |

Inspector J. W. Sutton.

Scope/Module Follow up Items.

Action on Previous Inspection Findings

DOCUMENTS EXAMINED

Docket No. *99-00289*

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1	2	TITLE/SUBJECT	3	4
1	4	NVD STATEMENT OF Authority and Policy	4-10-81	Rev L
2	4	NVD. Section 1- 1.2.1. Quality Assurance Director		
■	■	Reporting Channel.	4-10-81	Rev L.
3	8	Report- Corrective Action on Previous NRC		
		Rept.-(80-03, D)		
4.	b.	NVD MEMO- Status of Valve Stem Nut Repairs.	10-31-80	—

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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Inspector J. W. Sutton

Scope/Module Part 21.

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1	2	TITLE/SUBJECT	3	4
1	3.	Nuclear Practice Bulletin, No 11-8, Revision B, 5-20-1980. Reporting of Defects and Non Compliance to the Nuclear Regulatory Commission	5-20-8	RNB.
2.	4.	Nuclear Valve Division, (NVD) Section 15-15.7.	4-10-81	Rev L

Document Types:

1. Drawing
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3. Procedure
4. QA Manual
5. Purchas Order
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Inspector J.W. SuttonScope/Module Welding.

DOCUMENTS EXAMINED

Docket No. 9900259
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1	2	TITLE/SUBJECT	3	4
1	8	manufacturing outline operation sequence 80		
2	4	QA Section 9.8 Welding	1980	Revised L.
3	3	Nuclear Process Specification 70046 Hard facing	1-16-79	Rev X
4	8	Plant Release 50450-		
5	8	Client approved Generic Procedures index	9-21-81	
6	8	Eng Change order. Drawing 77644 -		Rev A.
7	1	Drawing 77644.		
8	8	Shipping form #48070		
9	8	welder qual. #337.		
10	8	weld rod material withdrawal log.	10-8-81	
11	3	Procedure 5-54 Hard Surfacing	10-18-81	Rev B.
12	3	Procedure 5-53	10-18-81	Rev C.
13	8	filler material Heat #5462- PO 85083. 1/8"	9-21-81.	

Document Types:

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|------------------|---------------------------------|
| 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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