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February 7, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

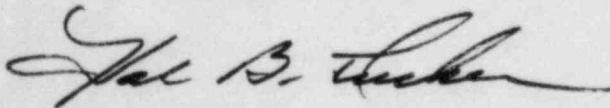
Attention: Ms. E. G. Adensam, Chief
Licensing Branch No. 4

Re: Catawba Nuclear Station
Docket Nos. 50-413 and 50-414

Dear Mr. Denton:

Ms. Elinor G. Adensam's letter of March 3, 1983 requested additional information on Environmental Qualification of Equipment at Catawba. Attached is a response to Item 9 concerning the qualification of safety-related mechanical equipment. Environmental qualification of safety-related electrical equipment is addressed in a separate submittal.

Very truly yours,



Hal B. Tucker

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Attachment

cc: Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

NRC Resident Inspector
Catawba Nuclear Station

Mr. Robert Guild, Esq.
Attorney-at-Law
P. O. Box 12097
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2135½ Devine Street
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Mr. Jesse L. Riley
Carlina Environmental Study Group
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Mr. Harold R. Denton, Director
February 7, 1964
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cc: Mr. Richard Boborgen
EG&G, Idaho
1520 Sawtelle Street
P.O. Box 1625
Idaho Falls, Idaho 83401

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Containment Isolation Valves
(See Attachment For Valve List)

2. MANUFACTURER: Fisher Controls, Inc.

3. MODEL OR ID. NUMBER: 24" Type 9220

4. ACCIDENT ENVIRONMENT:

TEMP: 330 DURATION AT ELEVATED TEMP: 10 min @330 followed by 300
RAD: 1.1×10^8 PRESS: 15 psig REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: 8.6 ppm Boron: 2000

5. QUALIFIED ENVIRONMENT:

MAT'L	TEMP	RAD	PRESS	RH	pH	ppm
Valve:						
Graphite	1000°F	1×10^{10}	NA	NA	NA	NA
Asbestos	800°F	1×10^{10}	NA	NA	NA	NA
EPT	300°F	1×10^7	22.5 psig	(Acceptable w/Boron Solin)		
Operator:						
Buna N	225°F	1×10^6	NA	NA	NA	NA
Molythane	NA	NA	NA	NA	NA	NA
Molybdenum	354	1.4×10^8	NA	NA	NA	NA
Disulfide (lubricant)						

6. QUALIFICATION REPORT: NA-See attached summary

Summary of Environmental Qualification
24" Fisher Containment Isolation Valves

1. Valve List:

OVP1B	OVP4A	OVP8B	OVP11B	OVP15A
OVP2A	OVP6B	OVP9A	OVP12A	OVP16B
OVP3B	OVP7A	OVP10A	OVP13B	

2. Valve Qualification:

The valve qualification is limited by the EPT seat, which is acceptable for 300°F continuous service and a radiation dose of 10^7 Rads. However, the seat material is acceptable for limited exposure at higher temperatures, such as the accident condition of 330°F for 10 minutes.

Compression set occurs in the EPT seat after a dose of 10^7 rads. This dose is received four hours into the accident. However, the valves will close and remain shut three seconds after accident initiation. Compression set should not affect the valves tight shut-off capability. Further, per FSAR Figure 6.2.1-5, Containment pressure reduces to 0 psig after 4.6 days, eliminating any force for air to move past the valves.

3. Operator Qualification:

The elastomers listed are piston seals. However, since the operator closes by the action of a mechanical spring, seal integrity is not required for the valve to perform its safety related function.

CATAMBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Containment Isolation Valves 1,2VX1A; 1,2VX2B

2. MANUFACTURER: Fisher Controls, Inc.

3. MODEL OR ID. NUMBER: 12" Type 9220

4. ACCIDENT ENVIRONMENT:

TEMP: 180°F DURATION AT ELEVATED TEMP: 1 day (min)
RAD: 1.1×10^8 Rads PRESS: 15 psig REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: 8.6 ppm Boron: 2000

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Teflon	500°F	1.5×10^4 rads	NA	NA	NA	NA
EPT	300°F	1×10^7 rads	22.5 psig	100%	(Acceptable w/Boric Acid)	
Graphite	1000°F	1×10^{10} rads	NA	NA	NA	NA
Asbestos	800°F	1×10^{10} rads	NA	NA	NA	NA

6. QUALIFICATION REPORT: NA-See attached summary

Summary of Environmental Qualification
12" Fisher Containment Isolation Valves
OVX1A and OVX2B

1. Valve Qualification:

Reference the summary attached to the qualification of the 24" Containment Isolation Valves. The 12" Containment Isolation Valves OVX1A and OVX2B are similar to the 24" valves except for a teflon outboard bushing. Integrity of the bushing is not required for the valve to perform its safety function.

2. Operator Qualification:

Valves OVX1A and OVX2B have class IE Electric Motor Operators qualified for inside containment service.

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Valve Item 5B-250*

2. MANUFACTURER: Pacific Valves

3. MODEL OR ID NUMBER: 3"5-153G-7-CC-LS-wE-X

4. ACCIDENT ENVIRONMENT:

TEMP: 330°F DURATION AT ELEVATED TEMP: One year
RAD: 1.1E8Rads PRESS: 15 PSI REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: 6 to 8.5 ppm Boron: 2000

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Buna-N	225°F	10 ⁶ rads				
Asbestos	1200°F	10 ¹⁰ rads				

6. QUALIFICATION REPORT: See Attached Summary

CATAWBA NUCLEAR STATION
Environmental Review
Pacific Valve Item 5B-250*

1. The Buna-N noted on the summary sheet serves as a piston seal in the air operator for this valve. Since this valve is returned to its safety position by a mechanical spring in the operator, integrity of the piston seal is not required for the valve to perform its safety-related function.

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Boric Acid Transfer Pumps 1A, 1B

2. MANUFACTURER: Crane Chempump through Westinghouse NSSS

3. MODEL OR ID NUMBER: 2x1 GVH-10K

4. ACCIDENT ENVIRONMENT:

TEMP: 212°F DURATION AT ELEVATED TEMP: 2 hrs.
RAD: 1.8×10^3 PRESS: 0 psig REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA
No DBA radiation exposure.

5. QUALIFIED ENVIRONMENT:

Below are specified design parameters.

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Pump Assembly	250°F	15Rads/yr	150 psig	NA	NA	4% H_3BO_3

Pump is a "canned pump". Motor and other parts are cooled by the pumpage; therefore, pump parts are not exposed to the external temperature environment. Motor insulation is Class H rated for continuous duty at 100°C.

6. QUALIFICATION REPORT: _____

CATAMBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Residual Heat Removal Pumps 1A, 1B

2. MANUFACTURER: Ingersoll-Rand through Westinghouse NSSS

3. MODEL OR ID. NUMBER: 8x20 WDF

4. ACCIDENT ENVIRONMENT:

TEMP: 212°F DURATION AT ELEVATED TEMP: 2 hrs
RAD: 1.8×10^6 PRESS: 1.37 psig REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

MAT'L	TEMP	RAD	PRESS	RH	pH	ppm
Compressed Asbestos Gasket	1000°F	1×10^{10}	Per Design Spec.	NA	Inert	Inert
Mechanical Seal Durametalllic Type Modified HPTO-0-Rings and gasket are EPT	300°F	2×10^7	Per Design Spec.	NA	Per Design Spec.	Per Design Spec.

Pump is close-coupled to motor. There are no bearings in the pump. Mechanical Seal is cooled by a water to water seal injection cooler ASME Sec. III; therefore, seal is not exposed to the external temperature environment. Circulation is by shaft driven pumping ring.

6. QUALIFICATION REPORT: NA

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Safety Injection Pump 1A, 1B

2. MANUFACTURER: Pacific through Westinghouse NSSS

3. MODEL OR ID NUMBER: _____

4. ACCIDENT ENVIRONMENT:

TEMP: 212°F DURATION AT ELEVATED TEMP: 2 hrs.
RAD: 1.0×10^6 PRESS: 0 psig REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

MAT'L	TEMP	RAD	PRESS	RH	pH	ppm
John Crane Mechanical Seal-Elastomeric Parts are *Crane last (EPT)	300°F	2×10^7	Per Design Spec.	NA	Per Design Spec.	Per Design Spec.

Bearings and oil are cooled by safety related oil to water heat exchanger; therefore, these parts are not exposed to external temperature environment. Heat exchanger and piping are furnished with the pump and are ASME Sec. III. Source of cooling water is safety related, KC System. Oil is circulated by a shaft driven oil pump.

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Centrifugal Charging Pumps 1A, 1B

2. MANUFACTURER: Pacific Pumps through Westinghouse NSSS

3. MODEL OR ID NUMBER: _____

4. ACCIDENT ENVIRONMENT:

TEMP: 212°F DURATION AT ELEVATED TEMP: 2 hrs.
RAD: 6.1×10^5 PRESS: 0 psig REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
John Crane	300°F	2×10^7	Per Design	NA	Per Design	Per Design
Mechanical Seal			Spec.		Spec.	Spec.

Bearings and oil are cooled by safety related oil to water heat exchangers; therefore, these parts are not exposed to external environmental temperature. Heat exchangers and piping in oil cooling system are furnished with the pump and are ASME Sec. III. Source of cooling water is safety related, KC system. Oil is circulated by a shaft driven oil pump.

6. QUALIFICATION REPORT: NA

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Control Area Chilled Water Pumps

2. MANUFACTURER: Goulds Pumps, Inc.

3. MODEL OR ID NUMBER: 4x6-13 3196 MT

4. ACCIDENT ENVIRONMENT:

TEMP: Ambient DURATION AT ELEVATED TEMP: NA
RAD: 4.1×10^4 PRESS: 0 REL. HUM.: Ambient
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

MAT'L TEMP RAD PRESS RH pH ppm

Since environments are not harsh, environmental qualification is not required.

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: ITT Grinnell Diaphragm Valves Bought to Mill
Power Order #E66449

2. MANUFACTURER: ITT Grinnell Valve Company

3. MODEL OR ID NUMBER: 4" Model 2466, 2" Model 2471

4. ACCIDENT ENVIRONMENT:

TEMP: 330°F DURATION AT ELEVATED TEMP: 330°F for 10 minutes followed by 300°F
RAD: 1.1E8 PRESS: 15 psig REL. HUM.: 100% continuous
CHEM. SPRAY (INSIDE CONT. ONLY) pH: 8.6 ppm Boron: 2000

5. QUALIFIED ENVIRONMENT:

MAT'L	TEMP	RAD	PRESS	RH	pH	ppm
EPT	300 intermittent 330 continuous	3.E8	150 psig	100%	Not Exposed To Chemical Spray	

Dow-Corning #111
Silicone Lubricant

This lubricant not necessary for operation,
used only during assembly.

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Butterfly valves-Order #C-23599 Buna-N Elastomers

2. MANUFACTURER: BIF-A Unit of General Signal

3. MODEL OR ID NUMBER: BIF Model 0652

4. ACCIDENT ENVIRONMENT:

TEMP: 212 DURATION AT ELEVATED TEMP: 150 Min.
RAD: 3×10^6 PRESS: 8.85 REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Buna-N	225	1×10^7	150	100%	-	-

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Steam Generator (Main Steam) Power Operated
Relief Valves 1&2SV1, 7, 13, 19

2. MANUFACTURER: Control Components, Inc.

3. MODEL OR ID NUMBER: B3A9-X8-X6BW-31EK02

4. ACCIDENT ENVIRONMENT:

TEMP: 330°F DURATION AT ELEVATED TEMP: 10 min. @ 330 followed by 300
RAD: 8.8E2 Rads PRESS: 8.85 PSIG REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: _____ ppm Boron: _____

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Asbestos	600°F	10 ¹⁰ rads				
Graphite	1300°F	10 ¹⁰ rads				
Viton A277	347°F	10 ⁶ rads				
Viton A119	347°F	10 ⁶ rads				
Viton A452	347°F	10 ⁶ rads				
Viton A325	347°F	10 ⁶ rads				

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Pressurizer Power Operated Relief Valves
Tags 1&2NC32B, 34A, 36B

2. MANUFACTURER: Control Components, Inc.

3. MODEL OR ID NUMBER: C2G0-X2-X3BW-X4BW-41AH43

4. ACCIDENT ENVIRONMENT:

TEMP: 330°F DURATION AT ELEVATED TEMP: one year
RAD: 1.1E8Rads PRESS: 15 PSIG REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: 8 to 8.5 ppm Boron: 2000

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Asbestos	680°F	10 ¹⁰ rads				
Ethylene Propylene EDM (E515-80)	300°F	10 ⁷ rads				
Halar 502 *	356°F	2.5x10 ⁷ rads				
Halar 302	392°F	3x10 ⁷ rads				
Graphite	1300°F	10 ¹⁰ rads				

6. QUALIFICATION REPORT: Proposed test to IEEE standards forthcoming to qualify valve to harsh environments.

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Valve Item 2B-349

2. MANUFACTURER: Pacific Valves

3. MODEL OR ID. NUMBER: 4" 150-7E-CC-WE(40)-X

4. ACCIDENT ENVIRONMENT:

TEMP: 179°F DURATION AT ELEVATED TEMP: 2 1/2 hrs.
RAD: 1.6E5 Rads PRESS: 0 PSIG REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: _____ ppm Boron: _____

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Asbes. os	1000°F	10 ¹⁰				
EPT	300°F	10 ⁷				

6. QUALIFICATION REPORT: _____

CATAMBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Globe Valves (Packless) Items 6J-511, 6J-555,
9J-508, 9J-510, 9J-545, 9J-566*

2. MANUFACTURER: Kerotest Manufacturing Corporation

3. MODEL OR ID NUMBER: 1500 Series Globe Valve

4. ACCIDENT ENVIRONMENT:

TEMP: 330°F DURATION AT ELEVATED TEMP: 11 min. @ 330°F followed by 300°F
RAD: 1.3×10^8 Rads PRESS: 15 PSIG REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: 8.6 ppm Boron: 2000

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Asbestos	800°F	1×10^{10} rads	NA	NA	NA	NA
EPT	330°F	2×10^8 rads	NA	NA	NA	NA

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Globe Valves (Packless) Items 9J-535, 9J-547, 9J-520,
9J-541, 9J-568*

2. MANUFACTURER: Kerotest Manufacturing Corporation

3. MODEL OR ID. NUMBER: 1500 Series Globe Valve

4. ACCIDENT ENVIRONMENT:

TEMP: 330°F DURATION AT ELEVATED TEMP: 11 min. @ 330°F followed by 300°F
RAD: 1.1×10^8 Rads PRESS: 15 PSIG REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: 8.6 ppm Boron: 2000

5. QUALIFIED ENVIRONMENT:

<u>HAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Asbestos	800°F	1×10^{10} rads	NA	NA	NA	NA
EPT	330°F	2×10^8 rads	NA	NA	NA	NA

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Globe Valves (Packless) Items-9J-544, 9J-509,
6J-508*

2. MANUFACTURER: Kerotest Manufacturing Corporation

3. MODEL OR ID. NUMBER: 1500 Series Globe Valves

4. ACCIDENT ENVIRONMENT:

TEMP: 330°F DURATION AT ELEVATED TEMP: 11 min. @ 330°F followed by 300°F
RAD: 1.3×10^8 Rads PRESS: 15 PSIG REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: 8.6 ppm Boron: 2000

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Asbestos	800°F	1×10^{10} rads	NA	NA	NA	NA

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Feedwater Isolation Valves 1,2CF33; 1,2CF42;
1,2CF51; 1,2CF60

2. MANUFACTURER: Borg-Warner NVD

3. MODEL OR ID NUMBER: 18" FIV, part 74040

4. ACCIDENT ENVIRONMENT:

TEMP: 330°F DURATION AT ELEVATED TEMP: 2 1/2 hrs.

RAD: 8.8×10^2 Rads PRESS: 8.85 psig REL. HUM.: 100%

CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Asbestos	800°F	1×10^{10} rads	NA	NA	NA	NA
Graphite	100°F	1×10^{10} rads	NA	NA	NA	NA

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Butterfly Valves-Order #C-23599-EPDM Elastomers

2. MANUFACTURER: BIF-A Unit of General Signal

3. MODEL OR ID NUMBER: 0652

4. ACCIDENT ENVIRONMENT:

TEMP: 147 DURATION AT ELEVATED TEMP: 150 min.
RAD: 1.1×10^6 PRESS: 8.85 REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
EPDM	300	5.5×10^7	150	100%	-	-

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Containment Spray and Residual Heat Removal Pump
Room Sump Pumps

2. MANUFACTURER: Crane Company-Deming Division

3. MODEL OR ID NUMBER: Figure 4521-A Size 1 1/2 L

4. ACCIDENT ENVIRONMENT:

TEMP: 212°F DURATION AT ELEVATED TEMP: 2 1/2 hrs.

RAD: 2.6E5 Rads PRESS: 1.37 PSIG REL. HUM.: 100%

CHEM. SPRAY (INSIDE CONT. ONLY) pH: 9 ppm Boron: ---

Subject to flooding to Elevation 527' ± 9"

5. QUALIFIED ENVIRONMENT:

MAT'L	TEMP	RAD	PRESS	RH	pH	ppm
Asbestos	700°F	10 ¹⁰ rads				
Shell Alvania EPRC (Grease)	250°F	10 ⁶ rads				

NOTE: Pumps are not required to operate while flooded.

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Valve tag no. 1/CA/36, 40, 44, 48, 52, 56, 60, 64

2. MANUFACTURER: Fisher Controls

3. MODEL OR ID NUMBER: 657-ET 4" Body, 60 Actuator

4. ACCIDENT ENVIRONMENT:

TEMP: 212 DURATION AT ELEVATED TEMP: 2 1/2 hours

RAD: 1.6×10^5 PRESS: 0 REL. HUM.: 100

CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Graphite Filament	800	1×10^7	NA	NA	NA	NA
Graphite Laminate	800	1×10^7	NA	NA	NA	NA
Polyethylene UHMW	225	1×10^8	NA	NA	NA	NA

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Valve tag no. 1/KC/57A, 82B and 1/RN/291, 351

2. MANUFACTURER: Fisher Controls Company

3. MODEL OR ID NUMBER: 657-8-U 12" Body, 70 Actuator

4. ACCIDENT ENVIRONMENT:

TEMP: 212 DURATION AT ELEVATED TEMP: 2 1/2 hours
 RAD: 1×10^3 PRESS: 0 REL. HUM.: 100
 CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Graphite Filament	800	1×10^7	NA	NA	NA	NA
Asbestos	1490	1×10^{10}	NA	NA	NA	NA
Armalon	500	5×10^4	NA	NA	NA	NA
Graphite Laminate	800	1×10^7	NA	NA	NA	NA

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Valve tag no. 1/ND/26, 27, 60, 61

2. MANUFACTURER: Fisher Controls Company

3. MODEL OR ID NUMBER: 8" Type 7613 valve with 656-NS actuator

4. ACCIDENT ENVIRONMENT:

TEMP: 212 DURATION AT ELEVATED TEMP: 2 1/2 hours
RAD: 2.8×10^6 PRESS: .67 REL. HUM.: 100
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Asbestos	1490	1×10^{10}	NA	NA	NA	NA
Graphite	800	1×10^7	NA	NA	NA	NA

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Valve tag no. 1/SM/9, 10, 11, 12

2. MANUFACTURER: Fisher Controls Company

3. MODEL OR ID NUMBER: 667-DBQ 2" Body, 50 actuator

4. ACCIDENT ENVIRONMENT:

TEMP: 330 DURATION AT ELEVATED TEMP: 2 1/2 hours
RAD: 8.8×10^2 PRESS: 8.85 REL. HUM.: 100
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RF</u>	<u>pH</u>	<u>ppm</u>
Asbestos	1490	1×10^{10}	NA	NA	NA	NA
Graphite Lam	800	1×10^7	NA	NA	NA	NA

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Valve tag no. 1/YC/26, 58, 100, 150, 196, 203,
208, 214, 264, 270, 274, 281

2. MANUFACTURER: Fisher Controls Company

3. MODEL OR ID NUMBER: YS valve

4. ACCIDENT ENVIRONMENT:

TEMP: 212 DURATION AT ELEVATED TEMP: 2 1/2 hours
RAD: 2.2×10^4 PRESS: 0 REL. HUM.: 100
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

MAT'L	TEMP	RAD	PRESS	RH	pH	ppm
Graphite Laminate	800	1×10^7	NA	NA	NA	NA
Asbestos	1490	1×10^{10}	NA	NA	NA	NA
Nitrite	225	1×10^7	NA	NA	NA	NA

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Valve Contract A-98524; Item no. 9D-203, 9D-204,
9D-207, 9D-211, 9D-213, 9D-214, 9D-215, 9J-205, 9J-209, 9J-211, 9J-213

2. MANUFACTURER: Westinghouse

3. MODEL OR ID NUMBER: 08000GM84FEC510, 18000GM84FEC310, 12000GM84FEC400,
08000GM84FEC500, 12000GM84FEC300, 12000GM84FEC310, 08000GM86FMC410,
10000GM88FME01D, 08000GM88FMC3C0, 12000GM88FME00D

4. ACCIDENT ENVIRONMENT:

TEMP: 330 DURATION AT ELEVATED TEMP: 11 minutes
RAD: 1.1×10^8 PRESS: 15 REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: 8.6 ppm Boron: 2000

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Asbestos	1490	1×10^{10}	NA	NA	NA	NA
Graphite	800	1×10^{10}	NA	NA	NA	NA

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Valve Tag No. 1/RN/244A, 304B

2. MANUFACTURER: Fisher Controls Company

3. MODEL OR ID NUMBER: EWT valve

4. ACCIDENT ENVIRONMENT:

TEMP: 179 DURATION AT ELEVATED TEMP: 2 1/2 hours
RAD: 8×10^6 PRESS: 0 REL. HUM.: 100
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Graphite Filament	800	1×10^7	NA	NA	NA	NA
Asbestos	1490	1×10^{10}	NA	NA	NA	NA
Ethylene Propylene	300°	1×10^7	NA	NA	NA	NA
Polyethylene UHMW	225°	1×10^8	NA	NA	NA	NA

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Nuclear Service Water Strainers-1A, 1B, 2A, 2B

2. MANUFACTURER: R. P. Adams Company

3. MODEL OR ID NUMBER: HDWS-80

4. ACCIDENT ENVIRONMENT:

TEMP: Ambient DURATION AT ELEVATED TEMP: NA
 RAD: 1.75×10^{-4} Rads PRESS: 0 PSIG REL. HUM.: NA
 CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Asbestos	800°F	1×10^{10} rads	NA	NA	NA	NA
Rubber	225°F	2×10^6 rads	NA	NA	NA	NA
Lubricant (mobile #600W) (Spartan EP460)	225°F	1×10^6 rads	NA	NA	NA	NA

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Component Cooling Pumps-1A1, 1A2, 1B1, 1B2

2. MANUFACTURER: Goulds Pumps, Inc.

3. MODEL OR ID NUMBER: Model #3405

4. ACCIDENT ENVIRONMENT:

TEMP: 187°F DURATION AT ELEVATED TEMP: 2 1/2 hrs.
RAD: 8.8×10^2 Rads PRESS: 0 PSIG REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
GL/Nylon	435°F	8.7×10^4 rads	NA	NA	NA	NA
Syn. Rubber	225°F	1×10^6 rads	NA	NA	NA	NA
Asbestos	800°F	1×10^{10} rads	NA	NA	NA	NA
Tag Paper	300°F	1×10^5 rads	NA	NA	NA	NA
Buna(N) Rubber	225°F	1×10^6 rads	NA	NA	NA	NA
Teflon	500°F	1.5×10^4 rads	NA	NA	NA	NA
Machine Oil	180°F	1×10^6 rads	NA	NA	NA	NA

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Auxiliary Feedwater Pumps-Turbine Driven

2. MANUFACTURER: Bingham-Willamette Company

3. MODEL OR ID NUMBER: 4 x 8 x 10 1/2B MSD-D

4. ACCIDENT ENVIRONMENT:

TEMP: AMB DURATION AT ELEVATED TEMP: 2 1/2 hrs.
RAD: 400 PRESS: N/A REL. HUM.: N/A
CHEM. SPRAY (INSIDE CONT. ONLY) pH: N/A ppm Boron: N/A

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
EPT	300°F	1x10 ⁶				
Bunan	225°F	1x10 ⁶				
Asbestos	1490°F	1x10 ¹⁰				

6. QUALIFICATION REPORT: _____

1. EQUIPMENT IDENTIFICATION: Main Steam PORV Isolation Valves
162SV25, 26, 27, 28

3. MODEL OR ID. NUMBER: 6 Fig 1711 (WCC) FJMNPQTY

TEMP: 330°F DURATION AT ELEVATED TEMP: 2 1/2 Hrs.
RAD: 8.8E2 Rad/s PRESS: 8.85 PSIG REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: _____ ppm Boron: _____

MAT'L	TEMP	RAD	PRESS	RH	pH	ppm
Graphite	1300°F	10 ¹⁰ rads				
Asbestos	1200°F	10 ¹⁰ rads				

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Pressurizer PORV Isolation Valves
1&2NC31B, 33A, 35B

2. MANUFACTURER: Rockwell International

3. MODEL OR ID NUMBER: 3 Fig. 12511 (CF8M) FJMNPQTY

4. ACCIDENT ENVIRONMENT:

TEMP: 330°F DURATION AT ELEVATED TEMP: One Year
RAD: 1.1E8 rads PRESS: 15 PSIG REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: 8 to 8.5 ppm Boron: 2000

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Graphite	1300°F	10 ¹⁰ rads				
Asbestos	1200°F	10 ¹⁰ rads				

6. QUALIFICATION REPORT: _____

1. EQUIPMENT IDENTIFICATION: Motor Driven or Steam Turbine Driven Aux. FWP
Pit Sump Pumps
2. MANUFACTURER: Crane Company-Deming Division
3. MODEL OR ID NUMBER: Figure 4511 Size 1 1/2 M
4. ACCIDENT ENVIRONMENT:

TEMP: AMB DURATION AT ELEVATED TEMP: 2 1/2 hrs.
RAD: 4F2 Rads PRESS: 0 PSIG REL. HUM.: 100%
CHEM. SPPAY (INSIDE CONT. ONLY) pH: _____ ppm Boron: _____
Subject to flooding to Elevation 544' + 4"

MAT'L	TEMP	RAD	PRESS	RH	pH	ppm
Veibuna	200°F	10 ⁶ rads				
Veliutex	200°F	10 ⁶ rads				
Asbestos	700°F	10 ¹⁰ rads				
SBR Rubber	200°F	10 ⁵ rads				

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: EMO Valves on MPSCo Order C12520

2. MANUFACTURER: Pacific Valves

3. MODEL OR ID NUMBER: Various

4. ACCIDENT ENVIRONMENT:

TEMP: 330°F DURATION AT ELEVATED TEMP: One Year
RAD: 1.3E8 Rads PRESS: 15 PSIG REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: 8 to 8.5 ppm Boron: 2000

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Asbestos	1200°F	10 ¹⁰ rads				

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: EMO Valves on MPS Co Orders A-98523 and A-98529

2. MANUFACTURER: Walworth

3. MODEL OR ID NUMBER: Various

4. ACCIDENT ENVIRONMENT:

TEMP: 330°F DURATION AT ELEVATED TEMP: One Year

RAD: 1.1E8 Rads PRESS: 15 PSIG REL. HUM.: 100%

CHEM. SPRAY (INSIDE CONT. ONLY) pH: 8 to 8.5 ppm Boron: 2000

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Asbestos	1200°F	10 ¹⁰ Rads				

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Duke Items: 2D-617, 2D-618, 5D-609, 5D-620

2. MANUFACTURER: Tufline

3. MODEL OR ID NUMBER: Model 0366SW & 0366 BW

4. ACCIDENT ENVIRONMENT:

TEMP: AMB. DURATION AT ELEVATED TEMP: N/A
RAD: 175 Rads PRESS: 0 PSIG REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ON "Y") pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
UHMW Polyethylene	200°F	1x10 ⁸	400 PSIG	100%	N/A	N/A

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: ITT Grinnell 2" S. S. Ball Valve

2. MANUFACTURER: ITT Grinnell Dia-Flo Division

3. MODEL OR ID NUMBER: Duke Item 5D-706

4. ACCIDENT ENVIRONMENT:

TEMP: AMB. DURATION AT ELEVATED TEMP: NA
RAD: 175 Rads PRESS: 0 PSIG REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Ethylene- Propylene	300°F	1x10 ⁶	100 PSIG	100%	NA	NA

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: 12 inch. 1500 lb. Hydraulic Operated Gate Valve with
a Hiller Hydraulic Spring Cylinder and Limitorque
SMB-00 Operator
2. MANUFACTURER: Anchor/Darling Valve Company
3. MODEL OR ID NUMBER: Valve ID. NO. 12-GX78SJW
4. ACCIDENT ENVIRONMENT:

TEMP: AMB DURATION AT ELEVATED TEMP: _____
RAD: 8.8E2 PRESS: 0.85 psig REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

MAT'L TEMP RAD PRESS RH pH ppm

Note: No evaluation necessary due to mild environment.

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Nuclear Service Water Pumps Purchase Order #A-63036

2. MANUFACTURER: Bingham-Willamette

3. MODEL OR ID NUMBER: 30x44 CT VM

4. ACCIDENT ENVIRONMENT:

Pumps not exposed to harsh environment.

TEMP: _____ DURATION AT ELEVATED TEMP: _____

RAD: _____ PRESS: _____ REL. HUM.: _____

CHEM. SPRAY (INSIDE CONT. ONLY) pH: _____ ppm Boron: _____

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
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6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: 48" ASME III ACTIVE BUTTERFLY VALVES TO C-12519

2. MANUFACTURER: Allis-Chalmers

3. MODEL OR ID NUMBER: Tag Nos: 1RN1A, 1RN2B, 1RN3A, 1RN4B, 1RN5A, 1RN6B

4. ACCIDENT ENVIRONMENT:

Valves located in NSW Pumphouse-No harsh environment

TEMP: _____ DURATION AT ELEVATED TEMP: _____

RAD: _____ PRESS: _____ REL. HUM.: _____

CHEM. SPRAY (INSIDE CONT. ONLY) pH: _____ ppm Boron: _____

5. QUALIFIED ENVIRONMENT:

 MAT'L TEMP RAD PRESS RH pH ppm

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL

1. EQUIPMENT IDENTIFICATION: Active Gate and Globe Valve pur MPSCo
Orders A-98528 & A-98521

2. MANUFACTURER: Borg-Warner Corporation, Nuclear Valve Division

3. MODEL OR ID NUMBER: Carbon & Stainless Steel Gate and Globe Valves

4. ACCIDENT ENVIRONMENT:

TEMP: 330 DURATION AT ELEVATED TEMP: 10 minutes
RAD: 1.3×10^8 PRESS: 15 psig REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: 8-9 ppm Boron: 2000

5. QUALIFIED ENVIRONMENT:

MAT'L	TEMP	RAD	PRESS	RH	pH	ppm
Packing Crane 187-1 Asbestos-inconel- Graphite	330°F	1×10^{10}	NA	100%	8-10	2000
Gasket 321 Cres & Asbestos	330°F	1×10^{10}	NA	100%	8-10	2000
Neolube Graphite in isopropyl Alcohol	330°F	1×10^{10}	NA	100%	8-10	2000

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Auxiliary Feedwater Pump Turbine

2. MANUFACTURER: Terry Turbine Company

3. MODEL OR ID. NUMBER: _____

4. ACCIDENT ENVIRONMENT:

TEMP: Ambient DURATION AT ELEVATED TEMP: NA
RAD: 4.5×10^2 PRESS: 0 PSIG REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

MAT'L TEMP RAD PRESS RH pH ppm

The accident environment is not considered to be harsh.

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Auxiliary Feedwater Pumps--Motor Driven

2. MANUFACTURER: Bingham-Willamette Company

3. MODEL OR ID. NUMBER: 3x6x9E MSD

4. ACCIDENT ENVIRONMENT:

TEMP: AMB DURATION AT ELEVATED TEMP: 2 1/2 hrs.
RAD: 400 PRESS: NA REL. HUM.: NA
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

MAT'L	TEMP	RAD	PRESS	RH	pH	ppm
Buna N	225°F	1x10 ⁶				
EPT	300°F	1x10 ⁶				
G. F. Duraflon	450°F	1.5x10 ⁴				
Asbestos	1490°F	1x10 ¹⁰				

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Fuel Pool Cooling Pumps 1A & 1B

2. MANUFACTURER: Ingersoll-Rand

3. MODEL OR ID NUMBER: 6x18 SE

4. ACCIDENT ENVIRONMENT:

TEMP: 163 DURATION AT ELEVATED TEMP: 2 1/2 hrs.
RAD: 5.3×10^3 PRESS: NA REL. HUM.: NA
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Neoprene	225°F	8×10^5				
Ethylene Propylene	300°F	1×10^6				
Asbestos	1490°F	1×10^{10}				

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Containment Spray Pumps 1A & 1B

2. MANUFACTURER: Bingham-Willamette Company

3. MODEL OR ID. NUMBER: 8 x 10 x 21 CVI

4. ACCIDENT ENVIRONMENT:

TEMP: 212°F DURATION AT ELEVATED TEMP: 2 1/2 hrs.
RAD: 5.3×10^5 PRESS: 1.37 psig REL. HUM.: NA
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Ethylene Propylene	300°F	1×10^6	1.37 psig			

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Main Steam Safety Valves-1,2SV2-6; 1,2SV8-12;
1,2SV14-18; 1,2SV20-24

2. MANUFACTURER: Dresser Industries

3. MODEL OR ID NUMBER: Type 3787WA

4. ACCIDENT ENVIRONMENT:

TEMP: 330°F DURATION AT ELEVATED TEMP: 2 1/2 hrs.
RAD: 8.8×10^2 Rads PRESS: 8.85 psig REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
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(No non-metallics in this valve)

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Main Steam Isolation Valves 1,2SM1; 1,2SM3;
1,2SM5; 1,2SM7

2. MANUFACTURER: Atwood & Morrill

3. MODEL OR ID NUMBER: 34" MSIV.

4. ACCIDENT ENVIRONMENT:

TEMP: 330°F DURATION AT ELEVATED TEMP: 2 1/2 hrs.
RAD: 8.8×10^2 Rads PRESS: 8.85 psig REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: NA ppm Boron: NA

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Asbestos	800°F	1×10^{10} rads	NA	NA	NA	NA
Graphite	800°F	1×10^{10} rads	NA	NA	NA	NA

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Containment Isolation Valves OVPI7A; OVPI8B;
OVPI9A; OVP20B

2. MANUFACTURER: Fisher Controls, Inc.

3. MODEL OR ID NUMBER: 12" Type 9220

4. ACCIDENT ENVIRONMENT:

TEMP: 330 DURATION AT ELEVATED TEMP: 10 min @ 330 followed by 300
RAD: 1.1×10^6 PRESS: 15 psig REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: 8.6 ppm Boron: 2000

5. QUALIFIED ENVIRONMENT:

MAT'L TEMP RAD PRESS RH pH ppm

Refer to Environmental Qualification Summary of 24" Containment Isolation Valves.

6. QUALIFICATION REPORT: _____

CATAWBA NUCLEAR STATION-UNITS 1 AND 2
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED MECHANICAL EQUIPMENT

1. EQUIPMENT IDENTIFICATION: Pressurizer Safety Valves 1, 2NC1; 1, 2NC2;
1, 2NC3

2. MANUFACTURER: Dresser Industries

3. MODEL OR ID NUMBER: Type 6-31749A

4. ACCIDENT ENVIRONMENT:

TEMP: 330°F DURATION AT ELEVATED TEMP: 11 min 330°F followed by 300°F
RAD: 1.1×10^8 Rads PRESS: 15 PSIG REL. HUM.: 100%
CHEM. SPRAY (INSIDE CONT. ONLY) pH: 8.6 ppm Boron: 2000

5. QUALIFIED ENVIRONMENT:

<u>MAT'L</u>	<u>TEMP</u>	<u>RAD</u>	<u>PRESS</u>	<u>RH</u>	<u>pH</u>	<u>ppm</u>
Asbestos	800°F	1×10^{10} rads	NA	NA	NA	NA
(Blue)Asbestos	1200°F	1×10^{10} rads	NA	NA	NA	NA

6. QUALIFICATION REPORT: _____