Consumers Power Company

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September 11, 1970

Dr. Peter A. Morris, Director
Division of Reactor Licensing
United States Atomic Energy Commission
Washington, DC 20545

Re: Docket No 50-155
DPR-6

Regulatory File Cy.

Dear Dr. Morris:

Enclosed are 40 copies of the response to your letter of August 6, 1970.

Listed below are Consumers Power Company's answers to the nine questions asked in your letter of August 6, 1970:

Question 1 - Identify all known sensitized stainless steel components of and within the reactor coolant pressure boundary,* including portions of piping. Include furnace-sensitized components affected by substantial field stress relieving, but not the heat affected zones caused by field welds. State location, type of material and sensitization process.

Answer - Please refer to the attached data sheets, Columns 1, 5, 6 and 7.

Question 2 - Specify the maximum stress levels (calculated or measured, if known) these components receive in service. Indicate whether the calculations or measurements of stress level were based on the "as-built" condition, including effects of "as-installed" piping hangers and restraints. Summarize the results of any field measurements of piping displacement that have been performed, including the system conditions for which the measurements were made.

Answer - Stress level information will be supplied by January 15, 1971.

The acceptance test for the nuclear steam supply system included measuring constant support hanger deflections in the vertical direction, the movement of the steam drum by use of temporary trams at each end of the drum, the horizontal movement of each reactor recirculating pump by use of a plum bob and the movement of the horizontal downcomer headers also by using plum bobs. These measurements were obtained from the cold and empty condition to the filled-with-water 365° condition. The results of these tests are as follows:

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a. <u>Constant Support Hanger Data</u>

Hanger Number	Equipment Supported	Design Travel	Cold & Empty	Travel With Drum Filled to Normal Level							Total Travel-Flooded
				100°	150°	200°	250°	300°	350°	365°	
H-101A	Drum Northwest	2.25"	0.0"	-0.3"	0.0"	0.2"	0.2"	0.6"	0.5"	0.9"	1.2"
H-101B	Drum Northside	2.25"	0.0"	-0.2"	-0.1"	0.2"	0.2"	0.6"	0.8"	0.9"	1.1"
H-101C	Drum Northside	2.25"	0.0"	-0.2"	-0.1"	0.1"	0.2"	0.4"	0.7"	0.8"	1.0"
H-101D	Drum Northeast	2.25"	0.0"	-0.2"	0.0"	0.2"	0.2"	0.6"	0.8"	0.7"	0.9"
H-101E	Drum Southwest	2.25"	0.0"	0.0"	0.2"	0.2"	0.2"	0.7"	0.7"	0.9"	0.9"
H-101F	Drum Southside	2.25'	0.0"	0.1"	0.2"	0.2"	0.3"	0.7"	0.7"	0.9"	0.8"
H-101G	Drum Southside	2.25	0.0"	0.1"	0.3"	0.3"	0.5"	0.9"	1.0"	1.1"	1.0"
H-101H	Drum Southeast	2.25"	0.0"	0.1"	0.3"	0.3"	0.3"	0.7"	0.8"	0.9"	0.8"
H-102	#1 Riser Above	1.63"	0.0"	0.1"	-0.1"	-0.1"	0.2"	0.2"	0.3"	0.2"	0.1"
H-103	#6 Riser Above	1.63"	0.0"	-0.3"	-0.1"	-0.1"	0.2"	0.2"	0.2"	0.3"	0.6"
H-104	#3 Riser Above	1.63"	0.0"	-0.3"	0.1"	0.2"	0.2"	0.5"	0.7"	0.6"	0.9"
H-105	#4 Riser Above	1.63"	0.0"	0.0"	0.3"	0.2"	0.4"	0.6"	0.8"	0.7"	0.7"
H-106	#5 Riser Above	1.63"	0.0"	0.0"	-0.1"	-0.2"	0.0"	0.2"	0.3"	0.3"	0.3"
H-107	#2 Riser Above	1.63"	0.0"	-0.2"	0.0"	0.2"	0.2"	0.5"	0.8"	0.8"	1.0"
H-1A	#1 Pump Suction	1.75"	0.0"	0.1"	0.3"	0.5"	0.6"	0.8"	0.9"	0.9"	0.8"
H-1B	#2 Pump Suction	1.75"	0.0"	0.1"	0.3"	0.5"	0.7"	0.8"	0.9"	0.9"	0.8"
H-2A	#1 Suct Valve	1.69"	0.0"	0.2"	0.5"	0.7"	0.7"	0.8"	1.0"	1.0"	0.8"
H-2B	#2 Suct Valve	1.69"	0.0"	0.2"	0.7"	0.5"	0.7"	1.1"	1.0"	1.2"	1.0"
H-3A	#1 Pump Inlet	1.69"	0.0"	0.6"	0.6"	0.8"	0.8"	1.1"	1.1"	1.1"	0.5"
H-3B	#2 Pump Inlet	1.69"	0.0"	0.3"	0.6"	0.6"	0.7"	1.0"	1.0"	1.0"	0.7"
H-4A	#1 Pump Outlet	1.63"	0.0"	0.7"	0.8"	0.9"	1.0"	1.1"	1.2"	1.4"	0.7"
H-4B	#2 Pump Outlet	1.63"	0.0"	0.6"	0.3"	0.6"	0.7"	0.8"	1.0"	1.0"	0.4"
H-5	#1 Butterfly	1.63"	0.0"	0.6"	0.3"	0.6"	0.7"	0.8	1.1"	1.1"	0.5"

Note: Above travels in vertical direction only, based on position of hanger movement indicators. Negative values indicate overtravel in cold direction upon filling system with water.

Hanger Number	Equipment Supported	Design Travel	Cold & Empty	Travel With Drum Filled to Normal Level 100°	150°	200°	250°	300°	350°	365°	Total Travel-Flooded
H-6A	#1 Disch Valve	1.63"	0.0"	0.2"	0.8"	0.6"	0.9"	1.0"	1.0"	1.2"	1.0"
H-6B	#2 Disch Valve	1.63"	0.0"	0.6"	0.6"	0.7"	0.7"	0.8"	1.0"	1.0"	0.4"
H-7	#2 Butterfly	1.63"	0.0"	0.4"	0.8"	0.8"	0.8"	1.0"	1.2"	1.2"	0.8"
H-8A	#1 Disch Pipe	1.19"	0.0"	0.5"	0.6"	0.7"	0.9"	0.9"	0.9"	1.2"	0.7"
H-8B	#2 Disch Pipe	1.19"	0.0"	0.6"	0.5"	0.7"	0.9"	1.0"	1.2"	1.2"	0.6"
H-9A	#1 Bypass Valve	1.44"	0.0"	0.6"	0.7"	0.7"	0.7"	0.8"	0.9"	0.9"	0.3"
H-9B	#2 Bypass Valve	1.44"	0.0"	0.6"	0.8"	0.6"	0.7"	0.8"	0.9"	0.9"	0.3"
H-10A	#1 Disch Pipe	1.00"	0.0"	0.1"	0.5"	0.5"	0.5"	0.6"	0.6"	0.7"	0.6"
H-10B	#2 Disch Pipe	1.00"	0.0"	0.1"	0.4"	0.4"	0.5"	0.5"	0.6"	0.7"	0.6"
H-11	#1 Bypass Pipe	1.44"	0.0"	0.3"	0.6"	0.7"	0.6"	0.6"	0.9"	0.9	0.6"
H-12	#2 Bypass Pipe	1.44"	0.0"	0.3"	0.1"	0.4"	0.7"	0.7"	0.9"	0.9"	0.6"
H-13A	#1 Pump Mtg	0.0"	0.0"	0.0"	0.0"	0.0"	0.0"	0.0"	0.0"	0.0"	0.0"
H-13B	#2 Pump Mtg	0.0"	0.0"	0.0"	0.0"	0.0"	0.1"	0.1"	0.1"	0.3"	0.3"
H-14A	#1 Pump Mtg	0.0"	0.0"	0.0"	0.0"	0.1"	0.1"	0.1"	0.2"	0.3"	0.3"
H-14B	#2 Pump Mtg	0.0"	0.0"	0.0"	0.0"	0.1"	0.1"	0.1"	0.1"	0.3"	0.3"
H-15A	#3 Riser Below	0.38"	0.0"	0.0"	0.1"	0.2"	0.2"	0.2"	0.2"	0.2"	0.2"
H-15B	#4 Riser Below	0.38"	0.0"	0.2"	0.2"	0.2"	0.2"	0.2"	0.2"	0.2"	0.2"
H-16	#2 Riser Below	0.50"	0.0"	0.1"	0.5"	0.2"	0.0"	0.0"	0.1"	0.2"	0.1"
H-17	#5 Riser Below	0.38"	0.0"	0.1"	0.4"	0.0"	0.0"	0.0"	0.0"	0.0"	-0.1"
H-18A	#1 Riser Below	0.38"	0.0"	0.0"	0.0"	0.0"	0.0"	0.0"	0.1"	0.1"	0.1"
H-18B	#6 Riser Below	0.38"	0.0"	0.0"	0.0"	0.0"	0.1"	0.1"	0.1"	0.2"	0.2"
H-19A	West Downcomers	1.75"	0.0"	-0.3"	0.5"	0.7"	0.7"	0.9"	1.0"	1.0"	1.3"
H-19B	East Downcomers	1.75"	0.0"	0.1"	0.3"	0.4"	0.7"	0.7"	0.7"	0.9"	0.8"
H-20	Suct Crossover	1.87"	0.0"	0.1"	0.7"	0.7"	0.7"	1.1"	1.1"	1.1"	1.0"

Note: Above travels in vertical direction only, based on position of hanger movement indicators. Negative values indicate overtravel in cold direction upon filling system with water.

b. Steam Drum Movement

Condition	West End Movement			East End Movement		
	West	South	Up	East	South	Up
System Cold and Empty	Zero	Zero	Zero	Zero	Zero	Zero
Normal Drum Level, 100°	Zero	0.19"	-.06"	Zero	0.25"	-.06"
Normal Drum Level, 150°	0.06"	0.25"	0.37"	0.12"	0.37"	0.12"
Normal Drum Level, 200°	0.19"	0.37"	0.31"	0.12"	0.50"	0.31"
Normal Drum Level, 250°	0.37"	0.56"	0.50"	0.25"	0.69"	0.56
Normal Drum Level, 300°	0.44"	0.75"	0.75"	0.37"	0.88"	0.69"
Normal Drum Level, 350°	0.50"	0.88"	0.94"	0.50"	1.00"	0.81"
Normal Drum Level, 365°	0.62"	0.88"	1.00"	0.50"	1.00"	0.81"
Design Movement at 600°	-	1.88"	2.25"	-	1.88"	2.25"

c. Recirculating Pump and Downcomer Header Movement

Temperature	No 1 Pump		No 2 Pump		West Pipe		East Pipe	
	West	South	East	South	West	South	East	South
100°	-	0.06"	0.06"	0.06"	-	-	Zero	Zero
150°	0.12"	0.06"	0.12"	-	0.12"	0.12"	Zero	Zero
200°	0.25"	0.12"	0.37"	0.37"	0.25"	0.25"	0.25"	0.12"
200°	0.25"	0.12"	0.37"	0.37"	0.25"	0.25"	0.25"	0.12"
250°	0.50"	0.31"	0.50"	0.43"	0.19"	0.50"	0.19"	0.25"
300°	0.43"	0.56"	0.69"	0.37"	0.19"	0.50"	0.19"	0.37"
350°	0.75"	0.56"	0.50"	0.50"	0.19"	0.50"	0.25"	0.37"
365°	1.00"	0.56"	1.00"	0.50"	0.25"	0.50"	0.25"	0.50"

During the hot function testing program, the constant support hangers and sway braces were inspected to insure that they did not impede piping travel caused by thermal expansion. The results of this inspection were satisfactory.

In addition, linear motion transducers were used in June 1970 to determine the upward movement of the steam drum from the cold condition (no pump flow) to the hot operating condition at 164 MW_t. These transducers indicated an upward motion of 1.75 inches at each end of the drum.

Question 3 - Specify the normal external operating environment of the components listed above. Discuss the probability of external surface contact with corrodents.

Indicate the normal water chemistry that has been maintained within the reactor coolant system during both operating and shutdown conditions, including the range of values for materials whose concentrations have varied appreciably. Include measured values of oxygen and halide concentrations.

Answer - Please refer to Column 8 for the normal external operating environment. As all these nozzles are insulated, the skin temperature should be approximately that of operating temperatures.

A search of the construction records yielded no evidence of external surface contamination by corrodents prior to plant operation. Since plant operation commenced in 1962, there has been no known contamination of these components by corrodents. It is very unlikely that these surfaces will ever become contaminated by corrodents because:

1. They are covered by insulation.

2. No known corrodent source exists in the steam drum and vessel cavities to contaminate them.

3. Most are physically inaccessible.

The normal operating and shutdown water chemistry conditions are summarized as follows:

<u>Operating Conditions</u>

pH	7.1
Conductivity	0.5 μmho/cm^3
Turbidity	<0.1 APHA Units (ppm)
Chloride	<20 ppb
Boron	.25 ppm
Silica	0.15 ppm
*Iodine Activity, μCi/cc	1×10^{-1}
Filtrate, Gross Gamma at 2 Hours, cpm/ml	3×10^{5}
**Crud, Gross Gamma at 2 Hours, cpm/Turbidity Unit	1×10^{8}
Dissolved Oxygen Measured at the Clean-Up Demineralizer Influent	180 ppb

*Based on Efficiency of I-131, 2 Hours After Sampling
**Based on APHA Units (Turbidity) and 500 ml of filtered sample.

Shutdown Conditions

	Minimum	Average	Maximum
pH	6.1	6.8	7.4
Conducticity, µmho/cm^3	0.3	0.6	0.9
Turbidity, APHA Units (ppm)	<0.1	0.2	15.0
Chloride, ppb	<20	<20	40.0
Boron	0.1	0.1	0.1
Silica	0.15	0.2	0.3
*Iodine Activity, µCi/cc	8×10^{-5}	6×10^{-4}	7×10^{-3}
Filtrate, Gross Gamma at 2 Hours, cpm/ml	7×10^2	5×10^3	3×10^5
**Crud, Gross Gamma at 2 Hours, cpm/Turbidity Unit	6×10^3	4×10^5	9×10^7

*Based on Efficiency of I-131, 2 Hours After Sampling
**Based on APHA Units (Turbidity) and 500 ml of Filtered Sample

Question 4 - For each component listed, indicate whether the internal surface is normally in contact with flowing water, stagnant water or steam, and indicate whether the configuration and operating conditions are such that a possibility exists of entrapment of gases within the sensitized portion. Also, discuss whether possible corrodents could have come into contact with the internal surfaces during cleaning or other preoperational exposure of these surfaces.

Answer - Please refer to Column 10 on the attached data sheets for normal internal component environmental conditions.

No construction records exist for monitoring of possible corrodents on component surfaces during construction. The nuclear steam supply system was chemically cleaned following construction with a solution consisting of 25,000 gallons of demineralized water, 250 pounds NaOH, 250 pounds Na_3PO_4, 3.9 gallons detergent (Triton 100) and 550 gallons of tri-ethanol-amine (chelating agent) at a temperature of 150°. Periodic samples showed the PO_4 and OH residuals remained steady and there was no buildup of S_iO_2. Rinses were conducted with a solution consisting of 10,000 gallons of demineralized water, 21 pounds monosodium phosphate, 21 pounds disodium phosphate and 42 pounds sodium nitrate. The first rinse solution was first used as the final rinse solution for the feed-water and heater drain system. Following the nuclear steam supply rinse, samples showed a low iron color residual measured by colormetric analysis. A second rinse solution similar to the first was prepared and recycled. Analysis showed that a complete rinse of the nuclear steam supply system was obtained.

Question 5 - Specify the nondestructive tests that have been performed internally and externally on each component listed since its installation. Indicate the acceptance criteria established for each type of test, the sensitivity in terms of flaw detection and the results of these tests.

Answer - Ultrasonic examinations were performed in early 1970 on one steam drum downcomer nozzle extension, one steam drum riser extension and three "J" welds between the stub tube and control rod drive housing assembly. For the steam drum nozzle extensions, the ultrasonic inspection system was calibrated from a 3% of wall notch cut into the inner diameter of a 3-inch schedule, 80-pipe section. The signal from this notch was adjusted to equal 9 divisions on the tester's display scope. Normal scanning was performed with the sensitivity increased by a factor of two. Evaluation of indications received during normal scanning were performed at "times one" sensitivity. All defects above the background noise level were noted (none). For the "J" welds, the system was calibrated using 10% and 20% notches machined into a mockup of the assemblies to be inspected. As examination on a half skip or full skip basis was not possible for accessibili / reasons, a distance amplitude correction curve was developed. Both anning and evaluation were performed at "times one" sensitivity. All i ications above background noise level would be considered a flaw if it coul ot be otherwise evaluated. There were none.

Hydrostatic tests at 1450 psi are conduc during each refueling outage. While the pressure is held, a visual inspe. on of all accessible piping, valves and other equipment is made. The acce tance criteria is no visible leakage. In addition, during this hydrostati test, a pressure drop test is conducted. The acceptance criteria for t is drop test is approximately 100 psi or less pressure drop occur in t 30-minute hold period. As the test is conducted above ambient tempera res, precise temperature control is difficult.

A reactor vessel surveillance inspection of vessel internals is conducted during each refueling outage prior to loading fuel. This inspection is visual and utilizes viewing aids, mirrors and an underwater television camera to observe the various components inside the reactor vessel. This inspection will be continued at each refueling outage.

Question 6 - Indicate whether any destructive metallurgical examinations have been performed on sensitized material removed from the reactor coolant pressure boundary, or samples thereof, and the results of such tests.

Answer - No sensitized material has been removed from the reactor coolant pressure boundary; therefore, no destructive metallurgical examinations have been performed.

Question 7 - Discuss the operating performance of leak detection systems during plant operation to date. Indicate the current sensitivity of each system.

Answer - A dew cell with a remote recorder is installed in an exhaust duct from the steam drum cavity. A significant increase in the dew point temperature alerts the operator to a possible steam leak. The increase in dew point temperature considered significant is that which is caused by a moderate valve packing leak. The presence of a steam leak is confirmed by taking a grab sample for air particulate activity on the steam drum cavity exhaust plenum. The minimum sensitivity of this sample is 5.2×10^{-4} gpm based on a reactor water iodine activity of 7×10^{-2} µCi/cc and 10% of the activity in the leak being carried away by the ventilation stream.

The dirty waste collection system for the Big Rock Plant typically runs 15 gallons per hour and doubling of this rate for no known reason will be reported by an operator. If this increase in collection rate cannot be explained by plant operation, a grab sample for air particulate activity is taken to confirm or deny the presence of a leak. The sensitivity of this sample is as discussed in the preceding paragraph.

Very small leaks in the control rod drive room can be heard on inspection rounds as the background noise level is very low.

An air particulate sample is routinely taken weekly on the steam drum enclosure exhaust line. The sensitivity of this is 5.2×10^{-4} gpm as discussed above. This method allows detection of very small valve packing leaks.

Question 8 - For each component listed, indicate the degree of accessibility which presently exists for the performance of nondestructive tests and inspections.

Answer - Please refer to Column 4 of the attached data sheets.

Question 9 - Describe the plans you have developed for surveillance and nondestructive tests of the sensitized stainless steel components of and within the reactor coolant pressure boundary, including a proposed timetable. In this connection, the recent experience with furnace-sensitized stainless steel components indicates that unless a considerable amount of evidence attests to the current integrity of such components or unless valid technical reasons would preclude performing nondestructive tests, the performance of a program of nondestructive testing of a sizeable sample of such components may be appropriate at an early date. These examinations should include dye penetrant testing and either ultrasonic testing or radiography.

Answer - During the February-March 1970 refueling outage, Consumers Power Company inspected ultrasonically one steam drum downcomer nozzle extension, one steam drum riser nozzle extension and three control rod drive assembly "J" welds in addition to other welds associated with the primary coolant pressure boundary but considered nonsensitized. Original plans for the March 1971 refueling outage were for a similar program. However, since the telephone conversation of March 16, 1970 between Mr. Dennis L. Ziemann of the Division of Reactor Licensing and Mr. Gerald J. Walke of Consumers Power Company, Consumers Power has modified these plans to include ultrasonic examination of all the remaining uninspected steam drum riser and downcomer extensions, the steam drum vent nozzle extension (piece No 104-7), the two reactor head vent nozzles and three more control rod drive assembly "J" welds. In addition, Consumers Power is attempting to develop equipment to volumetrically examine the reactor vessel steam outlet nozzle from the inside of the vessel. If this equipment is successfully developed, at least one of the reactor vessel steam outlet nozzles will be inspected. These plans are contingent on the allowable radiation exposure of the inspector; the items discussed above will receive preferential treatment.

A drum manway and seal plate will be removed during the next refueling outage so that the drum internals may be visually inspected. However, it is doubtful that much information can be gained by an inspection of this nature due to the high radiation dose rate estimated to exist inside the drum (5 to 10 R/hr).

The visual reactor vessel surveillance inspection of reactor vessel internals discussed in the answer to Question 5 will be continued at each refueling outage.

When sufficient experience has been gained concerning which components can be inspected volumetrically and/or surface and/or visually and the radiation dose associated with the inspection is determined, Consumers Power Company will formulate a program for recurring inspections.

Yours very truly,

Robert L. Haueter
Electric Production Superintendent - Nuclear

RBS/dmb

BIG ROCK POINT - CHARLEVOIX, MICHIGAN

1 Part	2 Dwg No	3 PC No	4 Degree of Accessibility	5 Material No	6 Cond	7 Sensitization Process	8 External Environment Insulation/Atmosphere	9 Quantity & Size	10 Internal Surface Environment	11 Stress Levels Actual/Allowable
Reactor Vessel				C-Steel				2 - 20"	W	
Recirc Water Inlet Nozzle	E-201-796	796-1	NA	SS-304	S-	SR	ACT+ RPRA			
Nozzle Ext (Safe End)	E-201-796	796-3						1 - 3"	SW & LPG	
Poison Inlet Nozzle	E-201-796	796-6	NA	C-Steel						
Nozzle Ext	E-201-796	-8		SS-304	S*	SR	ACT+ RPRA			
Thermal Sleeve	E-201-796	-12		SS-304	NS-					
Tub Tubes	E-201-799	798-8, -12	NA	SS-304	S*	SR		32	W	
Control Drive Housing Assy		798-1		SS-304	NS-			32	W	
Control Drive Housing	E-201-798	798-2	A (Refer to Gen Notes-1)	SS-304	NS-					
Flange	E-201-798	798-3	NA	SS-304	NS-					
Nozzle Insert	E-201-798	798-19	NA	SS-304	NS-					
Nozzle Ext	E-201-798	798-20	NA	SS-304	NS-		ACT+ RPRA	8	SW	
In-Core Nozzle Assy	E-201-798	798-4	NA	SS-36						
In-Core Pipe	E-201-798	798-5		SS-304	NS-					
In-Core Flange	E-201-798	-6		SS-304	NS-			4 - 3"	SW & G	
Instrument Nozzle Assy	E-201-795	795-1	NA				ACT+ RPRA			
Nozzle	E-201-795	795-2		C-Steel			ACT+ RPRA			
Nozzle Ext (Safe End)	E-201-795	-4		SS-304	S*	SR				
Thermal Sleeve	E-201-795	-19		SS-304	NS*			1 - 3"	SW & G	
Emergency Cooling Inlet Assy	E-201-795	795-6	NA	Duplicate of 795-1 Matl & Assy				1 - 8"	SW	
Shutdown Cooling	E-201-795	795-15	NA	C-Steel			ACT+ RPRA			
Nozzle	E-201-795	-16		SS-304	S-	SR	ACT+ RPRA			
Nozzle Ext	E-201-795	-17		SS-304	NS					
Concentric Reducer	E-201-795	-20						6 - 14"	SS	
Steam Outlet Nozzle Assy	E-201-795	795-11	A (Refer to Gen Notes-2)				ACT+ RPRA			
Nozzle	E-201-795	-10		C-Steel			ACT+ RPRA			
Nozzle Ext	E-201-795	-13		SS-304	S-	SR		2 - 3"	G & St	
Vent Nozzle Assy	E-201-807	807-1	A				ACT+ RPRA			
Nozzle	E-201-807	-2		C-Steel						
Nozzle Flange	E-201-807	-3		SS-304	S-	SR	Not Applicable	4	W	
Core Support Plate Bracket	E-201-802	802-18	NA	SS-304	S*	SR	Not Applicable	6	W	
Diffuser Bracket	E-201-802	802-32	NA	SS-304	S*	SR	Not Applicable	8	SW	
Upper Support Bracket	E-201-802	802-25	NA	SS-304	S-	SR	Not Applicable		W	
Core Support Bracket Assy	E-201-802	802-14	NA				Not Applicable			
Support Plate	E-201-802	-15		SS-304	NS-		Not Applicable			
Gusset	E-201-802	-16		SS-304	S*	SR	Not Applicable			
Steam Drum								4 - 17"	W	
Downcomer	E-230-103	103-1	A	CS						
Extension		103-2		SS-316	S+	SR	CST RPRA	6 - 14"	SW	
Riser	E-230-103	103-6	A							
Nozzle		103-7		CS			CST RPRA			
Extension		103-8		SS-316	S+	SR	CST RPRA			
Feed-Water Nozzle	E-230-103	103-14	A	CS			CST RPRA	2 - 8"	W	
Liner (Sleeve)		103-16	NA	SS-304	NS*		Not Applicable			
Support Bracket							Not Applicable			
Supp Ring		103-17	NA	Inconel (SB-166)			Not Applicable			
Supp Plate		103-18	NA	SS-304	NS*		Not Applicable			
Spacer		103-33	NA	SS-304	NS*		Not Applicable	3 Ea		
Condensate Ret	E-230-103	103-20						2 - 4"	SW & G	
Nozzle		103-21	A	Inconel (SB-166)			CST RPRA			
Liner (Sleeve)		103-22	NA	SS-304	NS*		Not Applicable			
Supp Ring		103-23	NA	Inconel (SB-166)			Not Applicable			
Supp Plate		103-24	NA	SS-304	NS*		Not Applicable			
Spacers		103-34	NA	SS-304	NS*		Not Applicable	3 Ea		
Level Indicating Nozzle	E-230-103	103-26						1 - 4"	SW	
Nozzle		103-27	A	Inconel (SB-166)			CST RPRA			
Sleeve		103-28	NA	SS-304	NS*		Not Applicable			
Support Ring		103-29	NA	Inconel (SB-166)			Not Applicable			
Support Plate		103-30	NA	SS-304	NS*		Not Applicable			
Spacer		103-31	NA	SS-304	NS*		Not Applicable			
Decontaminate	E-230-104	104-1	A					1 - 2"	SS & G	
Nozzle		104-2		Inconel (SB-166)			CST RPRA			
Vent	E-230-104	104-5	A					1 - 1.5"	SS & G	
Nozzle		104-6		Inconel (SB-166)			CST RPRA			
Extension		104-7		SS-304	S+	SR	CST RPRA			
Level Ind & FW Cont - Upper		104-9	A					2 - 1.5"	SS & G	
Nozzle		104-6		Inconel (SB-166)			CST RPRA			
Inst Nozzle - Lower	E-230-104	104-10						1 - 1.5"	SW & G	
Nozzle		104-11	A	Inconel (SB-166)			CST RPRA			
Sleeve		104-14	NA	SS-304	NS*		Not Applicable			
Spacer		104-15	NA	SS-304	NS*		Not Applicable	3 Ea		
Inst Nozzle - Upper	E-230-104	104-16	A					1 - 1.5"	SS & G	
Nozzle		104-11		Inconel (SB-166)			CST RPRA			
Sample Nozzle	F-230-104	104-17	A					1 - 1"	W	
Nozzle		104-18		Inconel (SB-166)			CST RPRA			
Vent Nozzle	E-230-104	104-21	A					2 - 1"	SS & G	
Nozzle		104-22		Inconel (SB-166)			CST RPRA			
Safety Relief	E-230-104	104-25	A					6 - 3"	SS & G	
Nozzle		104-26		Inconel (SB-166)			CST RPRA			
Manway Assy	E-230-102	102-1	A					2	W, SS & G	
Seal Plate		102-4		SS-304	NS+					
Downcomer Baffle Assy			NA^3							
Spider Clamps	E-230-108	84		SS-304	S+	SR	Not Applicable	16	W	
Clevis	E-230-108	67A		SS-304	S+	SR	Not Applicable	24	W SS	
Screen Dryer										
Hanger Lug	E-230-108	79	NA^3	SS-304	S+	SR	Not Applicable	32	W	
Feed-Water Header Supt										
Angles	E-230-108	85A	NA^3	SS-304	S+	SR	Not Applicable	2		

S = Sensitized
NS = Nonsensitized
* = Confirmed
- = Assumed by BRR
St = Steam
SW = Steam & Water
W = Water
G = Gas
LPG = Low Probability of Gas
+ = Assumed by CP Co
ACT = Aluminum Canned Type
CST = Calcium Silicate Type
SS = Saturated Steam
SR = Stress Relieving
RPRA = Recirculating Pump Room Atmosphere (Temperature ~120°, Humidity 10 to 20%)
A = Accessible
NA = Not Accessible
NA^3 = Not Accessible - Refer to General Notes-3

General Notes

1. Control drive housing J-weld accessible only.
2. Steam outlet nozzle assy - attempting to develop equipment to inspect.
3. Drum internal attachments - an attempt can be made to visually inspect by remote means.

CONSUMERS POWER CO

Furnace Sensitized Stainless Steel Data Sheet Big Rock Point

8-26-70 DCN/RBS

POOR ORIGINAL