

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

February 27, 1981

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
Attn: Mr. Darrell G. Eisenhut, Director
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

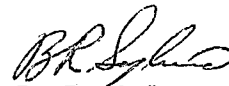
Serial No. 140
NO/WRM:ms
Docket Nos. 50-280
50-281
License Nos. DPR-32
DPR-37

Gentlemen:

ADDITIONAL NUREG-0737 POST-TMI
REQUIREMENTS INFORMATION

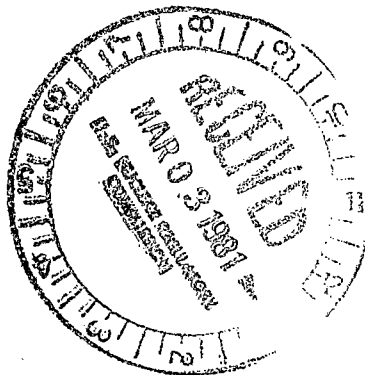
This letter provides to you our submittal of responses for Surry Power Station to Item II.K.3.17 of NUREG-0737. In accordance with our response to NUREG-0737 dated December 15, 1980 (Serial No. 985) and our letter dated December 31, 1980 (Serial No. 1022), Surry Power Station ECCS outage information required by Item II.K.3.17 is enclosed.

Very truly yours,



B. R. Sylvia
Manager - Nuclear
Operations and Maintenance

Enclosure



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ECCS OUTAGE REPORT

This report is concerned with the outages of the Emergency Core Cooling System (ECCS) of Surry Units 1 and 2 for the 5 year period ending December 1980. The data collected is presented as a response to the requirements of NUREG 0737, Item II.k.3.17-1 and will address the following four criteria as required by NUREG 0737. These four criteria are: (1) outage dates and duration of outages; (2) cause of the outage; (3) ECC Systems or components involved in the outage; (4) correction action taken.

The primary methods utilized in collecting the data consisted of identifying the ECC Systems/Components to be examined, and of reviewing the Licensee Event Reports and Periodic Surveillance Tests for the appropriate time period. Other documents used in this review included Maintenance Reports, Control Room Operators' Logs, and the Shift Supervisor's Logs.

Outage data for the #3 Emergency Diesel Generator will be found under both Unit 1 and Unit 2 headings as this is a shared generator. Placement of the data was under the unit that was most affected by the outage.

The equipment identified as ECCS equipment and the total outage duration times are as follows for each unit.

<u>UNIT 1</u>	<u>MAINT. HOURS</u>	<u>TESTING HOURS</u>
Emergency Power System		
#1 EDG	115.5	156.0
#3 EDG	1.0	99.0
Safety Injection System	74.5	1.5
Recirculation Spray System	0.25	157.5
Charging Pump Component Cooling	48.2	
Service Water System	14.6	
<u>UNIT 2</u>	<u>MAINT. HOURS</u>	<u>TESTING HOURS</u>
Emergency Power System		
#2 EDG	0.0	126.0
#3 EDG	1.0	81.0
Safety Injection System	51.7	6.5
Recirculation Spray System		126.5
Charging Pump Component Cooling	7.0	
Service Water System	73.9	

The equipment identified as ECCS equipment and the average outage duration times per month are as follows for each unit.

		<u>HOURS</u>	
Emergency Power System	Unit 1	4.5	(#1 EDG)
		1.7	(#3 EDG)
	Unit 2	2.1	(#1 EDG)
		1.4	(#3 EDG)
Safety Injection System	Unit 1	1.3	
	Unit 2	1.0	
Recirculation Spray System	Unit 1	3.0	
	Unit 2	2.1	
Charging Pump Component Cooling	Unit 1	0.8	
	Unit 2	0.1	
Service Water System	Unit 1	0.2	
	Unit 2	1.2	

SURRY POWER STATION

UNIT #1

ECCS OUTAGE REPORT

EMERGENCY POWER SYSTEM

COMPONENT	CAUSE OF OUTAGE	CORRECTIVE ACTION	OUTAGE DATES	OUTAGE DURATION (HOURS)
#1 Emergency Diesel Generator	Crack in cylinder #17 allowed water to enter causing extensive damage when diesel started.	Replaced all damaged parts.	04-16-76	77.00
	Crack in cylinder head #1 allowed water to enter cylinder.	Replaced cylinder head #1, 2, and 16.	05-08-76	10.50
	Cylinder head #19 cracked.	Replaced cylinder head #1, 2 and 16.	07-02-76	13.80
	Cylinder head #7 cracked.	Replaced cylinder head.	07-23-76	11.92
	Base tank switch sticking preventing fuel flow from day tank.	Repaired switch.	09-02-80	2.25
	Periodic Test 22.3A	Completed Test.	01-05-76	3.00
	Periodic Test 22.3A	Completed Test.	01-30-76	3.00
	Periodic Test 22.3A	Completed Test.	03-02-76	3.00
	Periodic Test 22.3A	Completed Test.	04-04-76	3.00
	Periodic Test 22.3A	Completed Test.	05-06-76	3.00
	Periodic Test 22.3A	Completed Test.	05-14-76	3.00
	Periodic Test 22.3A	Completed Test.	06-02-76	3.00
	Periodic Test 22.3A	Completed Test.	07-03-76	3.00
	Periodic Test 22.3A	Completed Test.	07-13-76	3.00
	Periodic Test 22.3A	Completed Test.	07-21-76	3.00
	Periodic Test 22.3A	Completed Test.	08-02-76	3.00
	Periodic Test 22.3A	Completed Test.	08-10-76	3.00
	Periodic Test 22.3A	Completed Test.	08-24-76	3.00
	Periodic Test 22.3A	Completed Test.	09-01-76	3.00
	Periodic Test 22.3A	Completed Test.	10-01-76	3.00
	Periodic Test 22.3A	Completed Test.	10-11-76	3.00
	Periodic Test 22.3A	Completed Test.	02-02-77	3.00
	Periodic Test 22.3A	Completed Test.	02-02-77	3.00
	Periodic Test 22.3A	Completed Test.	03-02-77	3.00
	Periodic Test 22.3A	Completed Test.	03-02-77	3.00
	Periodic Test 22.3A	Completed Test.	06-02-77	3.00
	Periodic Test 22.3A	Completed Test.	07-02-77	3.00
	Periodic Test 22.3A	Completed Test.	08-02-77	3.00
	Periodic Test 22.3A	Completed Test.	09-02-77	3.00

SURRY POWER STATION

UNIT #1

ECCS OUTAGE REPORT

EMERGENCY POWER SYSTEM

COMPONENT	CAUSE OF OUTAGE	CORRECTIVE ACTION	OUTAGE DATES	OUTAGE DURATION (HOURS)
#3 Emergency Diesel Generator	Periodic Test 22.3C	Completed Test.	06-08-76	3.00
	Periodic Test 22.3C	Completed Test.	06-09-76	3.00
	Periodic Test 22.3C	Completed Test.	06-10-76	3.00
	Periodic Test 22.3C	Completed Test.	07-02-76	3.00
	Periodic Test 22.3C	Completed Test.	08-10-76	3.00
	Periodic Test 22.3C	Completed Test.	09-01-76	3.00
	Periodic Test 22.3C	Completed Test.	10-11-76	3.00
	Periodic Test 22.3C	Completed Test.	03-02-77	3.00
	Periodic Test 22.3C	Completed Test.	07-03-77	3.00
	Periodic Test 22.3C	Completed Test.	07-06-77	3.00
	Periodic Test 22.3C	Completed Test.	09-03-77	3.00
	Periodic Test 22.3C	Completed Test.	11-03-77	3.00
	Periodic Test 22.3C	Completed Test.	01-03-77	3.00
	Periodic Test 22.3C	Completed Test.	03-06-78	3.00
	Periodic Test 22.3C	Completed Test.	04-18-78	3.00
	Periodic Test 22.3C	Completed Test.	04-19-78	3.00
	Periodic Test 22.3C	Completed Test.	01-05-79	3.00
	Periodic Test 22.3C	Completed Test.	11-06-79	3.00
	Periodic Test 22.3C	Completed Test.	02-06-80	3.00
	Periodic Test 22.3C	Completed Test.	06-11-80	3.00
Periodic Test 22.3C	Completed Test.	07-06-80	3.00	
Periodic Test 22.3C	Completed Test.	07-25-80	3.00	
Periodic Test 22.3C	Completed Test.	09-07-80	3.00	
NOTE: The following Periodic Tests were accomplished using Unit 2 Periodic Test. However, only Unit 1 was operating	Periodic Test 22.3C	Completed Test.	10-05-76	3.00
	Periodic Test 22.3C	Completed Test.	04-06-78	3.00
	Periodic Test 22.3C	Completed Test.	10-06-78	3.00
	Periodic Test 22.3C	Completed Test.	02-06-79	3.00
	Periodic Test 22.3C	Completed Test.	12-06-79	3.00

SURRY POWER STATION

UNIT #1

ECCS OUTAGE REPORT

EMERGENCY POWER SYSTEM

<u>COMPONENT</u>	<u>CAUSE OF OUTAGE</u>	<u>CORRECTIVE ACTION</u>	<u>OUTAGE DATES</u>	<u>OUTAGE DURATION (HOURS)</u>
#1 Emergency Diesel Generator	Periodic Test 22.3A	Completed Test.	10-02-77	3.00
	Periodic Test 22.3A	Completed Test.	11-02-77	3.00
	Periodic Test 22.3A	Completed Test.	01-02-78	3.00
	Periodic Test 22.3A	Completed Test.	01-03-78	3.00
	Periodic Test 22.3A	Completed Test.	02-02-78	3.00
	Periodic Test 22.3A	Completed Test.	03-02-78	3.00
	Periodic Test 22.3A	Completed Test.	04-03-78	3.00
	Periodic Test 22.3A	Completed Test.	04-19-78	3.00
	Periodic Test 22.3A	Completed Test.	08-02-78	3.00
	Periodic Test 22.3A	Completed Test.	09-02-78	3.00
	Periodic Test 22.3A	Completed Test.	10-02-78	3.00
	Periodic Test 22.3A	Completed Test.	11-02-78	3.00
	Periodic Test 22.3A	Completed Test.	11-02-78	3.00
	Periodic Test 22.3A	Completed Test.	12-02-78	3.00
	Periodic Test 22.3A	Completed Test.	01-04-79	3.00
	Periodic Test 22.3A	Completed Test.	01-15-79	3.00
	Periodic Test 22.3A	Completed Test.	02-02-79	3.00
	Periodic Test 22.3A	Completed Test.	03-02-79	3.00
	Periodic Test 22.3A	Completed Test.	11-02-79	3.00
	Periodic Test 22.3A	Completed Test.	12-02-79	3.00
#3 Emergency	Gauge in cooling water system blew out.	Replaced gauge.	08-02-78	1.00
	Periodic Test 22.3C	Completed Test.	01-02-76	3.00
	Periodic Test 22.3C	Completed Test.	03-03-76	3.00
	Periodic Test 22.3C	Completed Test.	05-06-76	3.00
	Periodic Test 22.3C	Completed Test.	05-21-76	3.00
	Periodic Test 22.3C	Completed Test.	06-07-76	3.00

SURRY POWER STATIONUNIT #1ECCS OUTAGE REPORTSAFETY INJECTION SYSTEM

<u>COMPONENT</u>	<u>CAUSE OF OUTAGE</u>	<u>CORRECTIVE ACTION</u>	<u>OUTAGE DATES</u>	<u>OUTAGE DURATION (HOURS)</u>
Boron Injection Tank	Recirculation of BIT stopped to allow repair of 1-CH-85.	Replaced valve 1-CH-85.	03-26-76	0.20
	Recirculation of BIT stopped to allow repair of 1-CH-125.	Repaired valve 1-CH-125.	08-23-76	0.58
	Recirculation of BIT stopped to allow installation and subsequent removal of a blind flange on line 1"-CH-56-152.	The flange was installed to clear a suspected Boric Acid Plug - no obstruction was found.	09-17-76	0.13
	BIT boron concentration less than T.S. due to erroneous valve line-up.	Corrected valve line-up, Recirc. BIT with "B" Boric Acid Storage Tank.	11-29-78	2.00
	Recirculation of BIT stopped to allow repair of valves 1-CH-83 and 1-CH-95.	Replaced diaphragms.	01-26-77	0.23
	Recirculation of BIT stopped to allow repair of valve 1-CH-98.	Replaced diaphragm.	02-20-77	0.33
	Recirculation of BIT stopped to allow repairs to 1-CH-98.	Replaced diaphragm.	04-07-78	0.05
1-CH-P-2A	Pump shaft broken.	Replaced pump shaft.	01-23-80	13.00
1-SI-TK-1A	Moisture in air line to HCV-1852A caused a delay in closing of the valve allowing the "A" accumulator level to decrease below T.S. levels.	Cleared air line and refilled accumulator	02-06-80	0.42
1-SI-TK-1B	Check valves 1-SI-128 and 1-SI-130 leaking by causing dilution of "B" accumulator.	Initiated recirculation of "B" accumulator with RWST to increase boron concentration.	07-02-76	1.33
1-SI-TK-1C	When attempting to pressurize the accumulator, a partially open valve (HCV-1936) and a body to bonnet leak on valve HCV-1549, caused acc. pressure to decrease to 540 psig.	Repaired HCV-1549 and HCV-1936.	09-09-76	4.55
CLS	Jumper used to defeat CLS not removed after refueling.	Removed jumper.	07-21-76	3.50

SURRY POWER STATION
UNIT #1
ECCS OUTAGE REPORT
SAFETY INJECTION SYSTEM

COMPONENT	CAUSE OF OUTAGE	CORRECTIVE ACTION	OUTAGE DATES	OUTAGE DURATION (HOURS)
RWST	Volume of tank specified by A.E. different than that assumed in the order for modification of license dated 06-29-78.	Calculated correct level and filled RWST to greater than this level.	08-19-80	
	Periodic Test 18.7	Completed Test.	02-05-80	0.50
	Periodic Test 18.7	Completed Test.	08-11-80	0.50
	Periodic Test 18.7	Completed Test.	09-05-80	0.50

SURRY POWER STATION
UNIT #1
ECCS OUTAGE REPORT
RECIRCULATION SPRAY SYSTEM

COMPONENT	CAUSE OF OUTAGE	CORRECTIVE ACTION	OUTAGE DATES	OUTAGE DURATION (HOURS)
1-RS-6	Recirculation valve left open.	Closed valve.	09-09-80	0.25
	Periodic Test 17.3	Completed Test.	01-03-76	4.50
	Periodic Test 17.3	Completed Test.	02-03-76	4.50
	Periodic Test 17.3	Completed Test.	03-03-76	4.50
	Periodic Test 17.3	Completed Test.	04-08-76	4.50
	Periodic Test 17.3	Completed Test.	06-02-76	4.50
	Periodic Test 17.3	Completed Test.	07-03-76	4.50
	Periodic Test 17.3	Completed Test.	08-04-76	4.50
	Periodic Test 17.3	Completed Test.	09-04-76	4.50
	Periodic Test 17.3	Completed Test.	10-05-76	4.50
	Periodic Test 17.3	Completed Test.	01-19-77	4.50
	Periodic Test 17.3	Completed Test.	02-03-77	4.50
	Periodic Test 17.3	Completed Test.	03-03-77	4.50
	Periodic Test 17.3	Completed Test.	06-04-77	4.50
	Periodic Test 17.3	Completed Test.	07-03-77	4.50
	Periodic Test 17.3	Completed Test.	08-03-77	4.50
	Periodic Test 17.3	Completed Test.	09-04-77	4.50
	Periodic Test 17.3	Completed Test.	10-09-77	4.50
	Periodic Test 17.3	Completed Test.	11-06-77	4.50
	Periodic Test 17.3	Completed Test.	01-05-78	4.50
	Periodic Test 17.3	Completed Test.	02-03-78	4.50
	Periodic Test 17.3	Completed Test.	03-10-78	4.50
	Periodic Test 17.3	Completed Test.	04-16-78	4.50
	Periodic Test 17.3	Completed Test.	07-15-78	4.50
	Periodic Test 17.3	Completed Test.	10-16-78	4.50
	Periodic Test 17.3	Completed Test.	11-15-78	4.50
	Periodic Test 17.3	Completed Test.	01-16-79	4.50
	Periodic Test 17.3	Completed Test.	02-16-79	4.50
	Periodic Test 17.3	Completed Test.	11-15-79	4.50
	Periodic Test 17.3	Completed Test.	12-15-79	4.50
	Periodic Test 17.3	Completed Test.	01-06-80	4.50
	Periodic Test 17.3	Completed Test.	02-15-80	4.50
	Periodic Test 17.3	Completed Test.	05-15-80	4.50
	Periodic Test 17.3	Completed Test.	06-15-80	4.50
	Periodic Test 17.3	Completed Test.	08-15-80	4.50
	Periodic Test 17.3	Completed Test.	09-04-80	4.50

SURRY POWER STATION

UNIT #1

ECCS OUTAGE REPORT

COMPONENT COOLING SYSTEM

<u>COMPONENT</u>	<u>CAUSE OF OUTAGE</u>	<u>CORRECTIVE ACTION</u>	<u>OUTAGE DATES</u>	<u>OUTAGE DURATION (HOURS)</u>
1-CC-P-2A	Motor bearing failed.	Replaced bearings.	02-08-77	28.00
1-CC-P-2B	Pump bearing failed.	Replaced bearings.	10-09-78	20.17

SURRY POWER STATION
UNIT #1
ECCS OUTAGE REPORT
SERVICE WATER SYSTEM

<u>COMPONENT</u>	<u>CAUSE OF OUTAGE</u>	<u>CORRECTIVE ACTION</u>	<u>OUTAGE DATES</u>	<u>OUTAGE DURATION (HOURS)</u>
1-SW-132	Stem corroded causing valve disc to drop and stop flow from Charging Pump intermediate Seal Cooler 1-SW-E-1B.	Replaced valve stem.	03-05-78	0.75
1-SW-110	Stem corroded causing valve disc to drop and stop flow to Charging Pump Intermediate Seal Cooler 1-SW-E-1B.	Replaced valve stem.	12-04-78	0.83
1-SW-107	Stem corroded allowing valve disc to drop and stop flow to 1-SW-P-10A Charging Pump Service Water Pump.	Replaced valve.	11-27-79	12.50

SURRY POWER STATION
UNIT #2
ECCS OUTAGE REPORT
EMERGENCY POWER SYSTEM

COMPONENT	CAUSE OF OUTAGE	CORRECTIVE ACTION	OUTAGE DATES	OUTAGE DURATION (HOURS)
#3 Emergency Diesel Generator	Air motor worn out.	Rebuilt motor.	11-15-80	4.32
#2 Emergency Diesel Generator	Periodic Test 22.3B	Completed Test.	01-01-76	3.00
	Periodic Test 22.3B	Completed Test.	02-01-76	3.00
	Periodic Test 22.3B	Completed Test.	03-01-76	3.00
	Periodic Test 22.3B	Completed Test.	04-01-76	3.00
	Periodic Test 22.3B	Completed Test.	06-03-76	3.00
	Periodic Test 22.3B	Completed Test.	07-21-76	3.00
	Periodic Test 22.3B	Completed Test.	07-01-76	3.00
	Periodic Test 22.3B	Completed Test.	01-01-77	3.00
	Periodic Test 22.3B	Completed Test.	02-01-77	3.00
	Periodic Test 22.3B	Completed Test.	05-01-77	3.00
	Periodic Test 22.3B	Completed Test.	06-01-77	3.00
	Periodic Test 22.3B	Completed Test.	07-01-77	3.00
	Periodic Test 22.3B	Completed Test.	08-01-77	3.00
	Periodic Test 22.3B	Completed Test.	09-02-77	3.00
	Periodic Test 22.3B	Completed Test.	11-01-77	3.00
	Periodic Test 22.3B	Completed Test.	12-02-77	3.00
	Periodic Test 22.3B	Completed Test.	12-04-77	3.00
	Periodic Test 22.3B	Completed Test.	01-01-78	3.00
	Periodic Test 22.3B	Completed Test.	01-03-78	3.00
	Periodic Test 22.3B	Completed Test.	02-01-78	3.00
	Periodic Test 22.3B	Completed Test.	03-04-78	3.00
	Periodic Test 22.3B	Completed Test.	05-04-78	3.00
	Periodic Test 22.3B	Completed Test.	05-11-78	3.00
	Periodic Test 22.3B	Completed Test.	05-24-78	3.00
	Periodic Test 22.3B	Completed Test.	06-05-78	3.00
	Periodic Test 22.3B	Completed Test.	07-04-78	3.00
	Periodic Test 22.3B	Completed Test.	08-04-78	3.00
	Periodic Test 22.3B	Completed Test.	09-04-78	3.00
	Periodic Test 22.3B	Completed Test.	10-04-78	3.00
	Periodic Test 22.3B	Completed Test.	12-04-78	3.00
	Periodic Test 22.3B	Completed Test.	01-04-79	3.00
	Periodic Test 22.3B	Completed Test.	01-15-79	3.00
	Periodic Test 22.3B	Completed Test.	01-18-79	3.00
	Periodic Test 22.3B	Completed Test.	02-04-79	3.00

SURRY POWER STATION
UNIT #2
ECCS OUTAGE REPORT
EMERGENCY POWER SYSTEM

COMPONENT	CAUSE OF OUTAGE	CORRECTIVE ACTION	OUTAGE DATES	OUTAGE DURATION (HOURS)
#2 Emergency Diesel Generator	Periodic Test 22.3B	Completed Test.	08-07-80	3.00
	Periodic Test 22.3B	Completed Test.	09-04-80	3.00
	Periodic Test 22.3B	Completed Test.	11-05-80	3.00
	Periodic Test 22.3B	Completed Test.	11-15-80	3.00
	Periodic Test 22.3B	Completed Test.	11-16-80	3.00
	Periodic Test 22.3B	Completed Test.	11-25-80	3.00
	Periodic Test 22.3B	Completed Test.	12-01-80	3.00
	Periodic Test 22.3B	Completed Test.	12-09-80	3.00
#3 Emergency Diesel Generator	Periodic Test 22.3C	Completed Test.	02-03-76	3.00
	Periodic Test 22.3C	Completed Test.	04-05-76	3.00
	Periodic Test 22.3C	Completed Test.	06-04-76	3.00
	Periodic Test 22.3C	Completed Test.	08-03-76	3.00
	Periodic Test 22.3C	Completed Test.	02-03-77	3.00
	Periodic Test 22.3C	Completed Test.	06-03-77	3.00
	Periodic Test 22.3C	Completed Test.	08-03-77	3.00
	Periodic Test 22.3C	Completed Test.	10-02-77	3.00
	Periodic Test 22.3C	Completed Test.	12-03-77	3.00
	Periodic Test 22.3C	Completed Test.	02-01-78	3.00
	Periodic Test 22.3C	Completed Test.	06-05-78	3.00
	Periodic Test 22.3C	Completed Test.	08-06-78	3.00
	Periodic Test 22.3C	Completed Test.	11-03-78	3.00
	Periodic Test 22.3C	Completed Test.	12-06-78	3.00
	Periodic Test 22.3C	Completed Test.	01-16-79	3.00
	Periodic Test 22.3C	Completed Test.	01-17-79	3.00
	Periodic Test 22.3C	Completed Test.	10-06-80	3.00
	Periodic Test 22.3C	Completed Test.	11-24-80	3.00
	Periodic Test 22.3C	Completed Test.	12-06-80	3.00
	NOTE: The following Periodic Tests were accomplished using Unit 1 Periodic Test. However, only Unit 2 was operating			
#3 Emergency Diesel Generator	Periodic Test 22.3C	Completed Test.	01-03-77	3.00
	Periodic Test 22.3C	Completed Test.	05-03-77	3.00
	Periodic Test 22.3C	Completed Test.	05-06-78	3.00
	Periodic Test 22.3C	Completed Test.	06-06-78	3.00
	Periodic Test 22.3C	Completed Test.	09-07-78	3.00
	Periodic Test 22.3C	Completed Test.	08-07-80	3.00
	Periodic Test 22.3C	Completed Test.	09-07-80	3.00
	Periodic Test 22.3C	Completed Test.	11-05-80	3.00

SURRY POWER STATION

UNIT #2

ECCS OUTAGE REPORT

SAFETY INJECTION SYSTEM

<u>COMPONENT</u>	<u>CAUSE OF OUTAGE</u>	<u>CORRECTIVE ACTION</u>	<u>OUTAGE DATES</u>	<u>OUTAGE DURATION (HOURS)</u>
Boron Injection Tank	Leakage through MOV-2867C and D caused a dilution of the BIT.	Initiated recirculation of BIT with "B" Boric Acid Storage Tank to increase boron concentration.	11-09-77	0.67
	The Contents of the Batch Tank were transferred to the "C" Boric Acid Storage Tank and the BIT causing the boric acid concentration to rise above T.S. limits.	Dilute to the required concentration.	08-22-80	1.12
	Improper valve lineup caused a dilution of BIT and "C" BAST.	Increased boric acid concentration.	11-05-80	0.96
	Leakage through MOV-2876A and/or MOV-2867B diluting BIT to less T.S. low limit.	Closed valves manually and recirculated BIT with "C" Boric Acid Storage Tank to increase concentration.	12-30-76	3.50
	An obstruction stopped recirculation of the BIT.	Established recirculation with "B" Boric Acid Storage Tank.	01-26-77	1.75
	Dilution of BIT because of a cracked diaphragm on 1-CH-144.	Recirculate BIT with "B" Boric Acid Storage Tank and replaced diaphragm on valve 1-CH-144.	08-15-77	1.20
	Leakage through MOV-2867C and D diluting the BIT.	Closed valves manually and increased boric acid concentration of BIT.	10-31-77	0.57
2-SI-TK-1B	When attempting to pressurize the accumulator, the low N ₂ header pressure caused a further reduction of accumulator pressure.	Repaired Leaking N ₂ fittings and repressurized.	08-26-80	1.58
	Contents of the boric acid bottoms tank were transferred to the "C" Boric Acid Storage Tank & thence the BIT causing the boric acid concentration to rise above T.S. limits.	Dilute to required concentrations.	08-15-80	0.81

SURRY POWER STATION

UNIT #2

ECCS OUTAGE REPORT

SAFETY INJECTION SYSTEM

<u>COMPONENT</u>	<u>CAUSE OF OUTAGE</u>	<u>CORRECTIVE ACTION</u>	<u>OUTAGE DATES</u>	<u>OUTAGE DURATION (HOURS)</u>
2-SI-TK-1B	The accumulator was filled to a level greater than allowed by T.S.	Repaired instrumentation and drained accumulator.	08-16-80	4.03
	Check valve 2-SI-127 leaking through allowing dilution of "B" accumulator.	Isolated valve and recirculated accumulator with RWST.	11-08-77	3.92
2-SI-TK-1C	Check valves 2-SI-147 and 2-SI-145 leaking allowing dilution of "C" accumulator.	Initiated recirculation of accumulator with RWST to increase boron concentration.	08-13-76	2.75
2-SI-P-1A	Rain water from a leaking roof hatch grounded out the motor connection box.	Repaired roof hatch and dried motor connections.	11-05-80	4.83
MOV-2862B	Valve binding caused motor overloads to function.	Adjusted valve and reset overloads.	06-15-76	21.92
4"-CH-389	Pipe support for alternate charging header not installed as designed.	Modified to conform to drawings.	10-15-80	2.12
	Periodic Test 18.7	Completed Test.	08-09-80	0.50
	Periodic Test 18.7	Completed Test.	09-05-80	0.50
	Periodic Test 18.7	Completed Test.	09-07-80	0.50
	Periodic Test 18.7	Completed Test.	09-15-80	0.50
	Periodic Test 18.7	Completed Test.	10-07-80	0.50
	Periodic Test 18.7	Completed Test.	11-07-80	0.50
	Periodic Test 18.7	Completed Test.	11-19-80	0.50
	Periodic Test 18.7	Completed Test.	11-21-80	0.50
	Periodic Test 18.7	Completed Test.	12-07-80	0.50
	Periodic Test 18.7	Completed Test.	12-12-80	0.50
	Periodic Test 18.7	Completed Test.	12-13-80	0.50
	Periodic Test 18.7	Completed Test.	12-13-80	0.50
	Periodic Test 18.7	Completed Test.	12-27-80	0.50

SURRY POWER STATION

UNIT #2

ECCS OUTAGE REPORT

RECIRCULATION SPRAY SYSTEM

<u>COMPONENT</u>	<u>CAUSE OF OUTAGE</u>	<u>CORRECTIVE ACTION</u>	<u>OUTAGE DATES</u>	<u>OUTAGE DURATION (HOURS)</u>
Recirculation Spray	Periodic Test 17.3	Completed Test.	01-26-76	4.50
	Periodic Test 17.3	Completed Test.	02-25-76	4.50
	Periodic Test 17.3	Completed Test.	06-24-76	4.50
	Periodic Test 17.3	Completed Test.	07-25-76	4.50
	Periodic Test 17.3	Completed Test.	08-25-76	4.50
	Periodic Test 17.3	Completed Test.	12-30-76	4.50
	Periodic Test 17.3	Completed Test.	01-24-77	4.50
	Periodic Test 17.3	Completed Test.	04-23-77	4.50
	Periodic Test 17.3	Completed Test.	05-25-77	4.50
	Periodic Test 17.3	Completed Test.	06-24-77	4.50
	Periodic Test 17.3	Completed Test.	07-24-77	4.50
	Periodic Test 17.3	Completed Test.	12-23-77	4.50
	Periodic Test 17.3	Completed Test.	01-23-78	4.50
	Periodic Test 17.3	Completed Test.	02-24-78	4.50
	Periodic Test 17.3	Completed Test.	04-25-78	4.50
	Periodic Test 17.3	Completed Test.	06-25-78	4.50
	Periodic Test 17.3	Completed Test.	06-30-78	4.50
	Periodic Test 17.3	Completed Test.	08-24-78	4.50
	Periodic Test 17.3	Completed Test.	09-24-78	4.50
	Periodic Test 17.3	Completed Test.	10-23-78	4.50
	Periodic Test 17.3	Completed Test.	12-23-78	4.50
	Periodic Test 17.3	Completed Test.	01-24-79	4.50
	Periodic Test 17.3	Completed Test.	08-23-80	4.50
	Periodic Test 17.3	Completed Test.	09-10-80	4.50
	Periodic Test 17.3	Completed Test.	10-12-80	4.50
	Periodic Test 17.3	Completed Test.	11-10-80	4.50
	Periodic Test 17.3	Completed Test.	11-25-80	4.50
	Periodic Test 17.3	Completed Test.	12-11-80	4.50

SURRY POWER STATION

UNIT #2

ECCS OUTAGE REPORT

CHARGING PUMP COMPONENT COOLING SYSTEM

<u>COMPONENT</u>	<u>CAUSE OF OUTAGE</u>	<u>CORRECTIVE ACTION</u>	<u>OUTAGE DATES</u>	<u>OUTAGE DURATION (HOURS)</u>
2-CC-P-2B	Pump worn beyond service limits.	Rebuilt pump.	11-13-77	7.00

SURRY POWER STATION

UNIT #2

ECCS OUTAGE REPORT

SERVICE WATER SYSTEM

<u>COMPONENT</u>	<u>CAUSE OF OUTAGE</u>	<u>CORRECTIVE ACTION</u>	<u>OUTAGE DATES</u>	<u>OUTAGE DURATION (HOURS)</u>
MOV-SW-203, A,B,C,D.	Drain valves inadvertently left open flooded to the valve pit.	Drained pit and dried motors.	10-11-77	21.50
	Valve stem corroded allowing disc to drop and obstruct service water flow to the intermediate seal cooler.	Replaced valve stem.	03-05-78	1.33
2-SW-P-10A	Motor bearings failed.	Replaced motor.	04-10-78	3.00
	Eel found in impeller.	Removed eel.	10-12-80	22.42
	Material entrained in water was deposited on pump impeller causing loss of discharge pressure.	Cleaned pump	11-14-80	6.63
2-SW-P-10B	Trash in pump caused a loss of flow.	Cleaned pump.	09-24-80	12.00
	Trash on strainer caused a reduction in discharge pressure.	Cleaned strainer.	11-05-80	0.62
2-SW-113	The valve disc was found to be missing from the check valve for 2-SW-P-10A.	Replaced check valve.	09-26-80	6.40