

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

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7	8	LICENSEE CODE						14	15	LICENSE NUMBER										25	26	LICENSE TYPE					30	57	CAT	58

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REPORT SOURCE L 6 0 5 0 0 0 2 8 0 7 0 6 2 6 8 0 8 0 7 0 8 8 0 9

60 61 DOCKET NUMBER 68 69 EVENT DATE 74 75 REPORT DATE 80

**EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)**

02 | During steady state operation of Surry Unit No.1 at 100% power and Unit No.2 at cold  
03 | shutdown for steam generator replacement, it was discovered that a potential may exist  
04 | for nonconservatism for Boron Concentrations of less than 2000 PPM when RCS has a  
05 | reduced volume and a dilution accident occurs. The instrumentation installed detects  
06 | the increase in  $K_{eff}$ . AP-3 directs emergency boration during uncontrolled reactivity  
07 | excursion. Therefore the health and safety of the public were not affected.  
08 |

<div style="border: 1px solid black; padding: 2px;">Q</div>	<div style="border: 1px solid black; padding: 2px;">9</div>							<div style="text-align: center;"><b>SYSTEM CODE</b></div> <div style="display: flex; align-items: center;"><div style="border: 1px solid black; padding: 2px;">R</div><div style="border: 1px solid black; padding: 2px;">B</div><div style="margin-left: 5px;">(11)</div></div> <div style="display: flex; justify-content: space-between; width: 80px;"><span>9</span><span>10</span></div>	<div style="text-align: center;"><b>CAUSE CODE</b></div> <div style="display: flex; align-items: center;"><div style="border: 1px solid black; padding: 2px;">X</div><div style="margin-left: 5px;">(12)</div></div> <div style="width: 30px; margin-top: -10px;">11</div>	<div style="text-align: center;"><b>CAUSE SUBCODE</b></div> <div style="display: flex; align-items: center;"><div style="border: 1px solid black; padding: 2px;">X</div><div style="margin-left: 5px;">(13)</div></div> <div style="width: 30px; margin-top: -10px;">12</div>	<div style="text-align: center;"><b>COMPONENT CODE</b></div> <div style="display: flex; align-items: center;"><div style="border: 1px solid black; padding: 2px;">Z</div><div style="border: 1px solid black; padding: 2px;">Z</div><div style="border: 1px solid black; padding: 2px;">Z</div><div style="border: 1px solid black; padding: 2px;">Z</div><div style="border: 1px solid black; padding: 2px;">Z</div><div style="border: 1px solid black; padding: 2px;">Z</div><div style="margin-left: 5px;">(14)</div></div> <div style="display: flex; justify-content: space-around; width: 200px;"><span>13</span><span></span><span></span><span></span><span></span><span></span><span>18</span></div>							<div style="text-align: center;"><b>COMP. SUBCODE</b></div> <div style="display: flex; align-items: center;"><div style="border: 1px solid black; padding: 2px;">Z</div><div style="margin-left: 5px;">(15)</div></div> <div style="width: 30px; margin-top: -10px;">19</div>	<div style="text-align: center;"><b>VALVE SUBCODE</b></div> <div style="display: flex; align-items: center;"><div style="border: 1px solid black; padding: 2px;">Z</div><div style="margin-left: 5px;">(16)</div></div> <div style="width: 30px; margin-top: -10px;">20</div>							
(17) LER/RO REPORT NUMBER	<div style="text-align: center;"><b>EVENT YEAR</b></div> <div style="display: flex; align-items: center;"><div style="border: 1px solid black; padding: 2px;">8</div><div style="border: 1px solid black; padding: 2px;">0</div><div style="margin-left: 5px;">( )</div></div> <div style="display: flex; justify-content: space-around; width: 60px;"><span>21</span><span>22</span></div>		<div style="width: 30px; height: 15px; background-color: #ccc;"></div>	<div style="text-align: center;"><b>SEQUENTIAL REPORT NO.</b></div> <div style="display: flex; align-items: center;"><div style="border: 1px solid black; padding: 2px;">0</div><div style="border: 1px solid black; padding: 2px;">3</div><div style="border: 1px solid black; padding: 2px;">9</div><div style="margin-left: 5px;">( )</div></div> <div style="display: flex; justify-content: space-around; width: 60px;"><span>24</span><span>26</span></div>	<div style="width: 30px; height: 15px; background-image: linear-gradient(to top right, transparent 49%, #000 49% 51%, #000 51% 53%, transparent 53%); background-size: 4px 4px;"></div>	<div style="text-align: center;"><b>OCCURRENCE CODE</b></div> <div style="display: flex; align-items: center;"><div style="border: 1px solid black; padding: 2px;">0</div><div style="border: 1px solid black; padding: 2px;">1</div><div style="margin-left: 5px;">( )</div></div> <div style="display: flex; justify-content: space-around; width: 40px;"><span>28</span><span>29</span></div>	<div style="text-align: center;"><b>REPORT TYPE</b></div> <div style="display: flex; align-items: center;"><div style="border: 1px solid black; padding: 2px;">T</div><div style="margin-left: 5px;">( )</div></div> <div style="width: 30px; margin-top: -10px;">30</div>	<div style="width: 30px; height: 15px; background-color: #ccc;"></div>	<div style="text-align: center;"><b>REVISION NO.</b></div> <div style="display: flex; align-items: center;"><div style="border: 1px solid black; padding: 2px;">0</div><div style="margin-left: 5px;">( )</div></div> <div style="width: 30px; margin-top: -10px;">32</div>																	
ACTION TAKEN	FUTURE ACTION	EFFECT ON PLANT	SHUTDOWN METHOD	HOURS	ATTACHMENT SUBMITTED	NPRD-4 FORM SUB.	PRIME COMP. SUPPLIER	COMPONENT MANUFACTURER																		
<div style="border: 1px solid black; padding: 2px;">X</div>	<div style="border: 1px solid black; padding: 2px;">X</div>	<div style="border: 1px solid black; padding: 2px;">Z</div>	<div style="border: 1px solid black; padding: 2px;">Z</div>	<div style="display: flex; align-items: center;"><div style="border: 1px solid black; padding: 2px;">0</div><div style="border: 1px solid black; padding: 2px;">0</div><div style="border: 1px solid black; padding: 2px;">0</div><div style="border: 1px solid black; padding: 2px;">0</div><div style="margin-left: 5px;">(22)</div></div> <div style="display: flex; justify-content: space-around; width: 60px;"><span>37</span><span>40</span></div>	<div style="border: 1px solid black; padding: 2px;">Y</div>	<div style="border: 1px solid black; padding: 2px;">N</div>	<div style="border: 1px solid black; padding: 2px;">Z</div>	<div style="display: flex; align-items: center;"><div style="border: 1px solid black; padding: 2px;">Z</div><div style="border: 1px solid black; padding: 2px;">9</div><div style="border: 1px solid black; padding: 2px;">9</div><div style="border: 1px solid black; padding: 2px;">9</div><div style="margin-left: 5px;">(26)</div></div> <div style="display: flex; justify-content: space-around; width: 80px;"><span>44</span><span>47</span></div>																		
33	34	35	36		41	42	43																			

**CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)**

1 0 | Analysis for boron dilution at cold shutdown and hot shutdown is not part of the  
1 1 | licensing basis for Surry Unit No.1 and Unit No.2. This is now being evaluated by  
1 2 | the reactor vendor.  
1 3 |  
1 4 |

FACILITY STATUS		% POWER			OTHER STATUS	METHOD OF DISCOVERY		DISCOVERY DESCRIPTION
1	5	E	28	1	0	0	29	NA
8	9	10	12	13	44	45	46	80
						Z	31	NA

ACTIVITY CONTENT  
RELEASED OF RELEASE AMOUNT OF ACTIVITY (35) LOCATION OF RELEASE (36)

1 6 Z (33) Z (34) NA NA

PERSONNEL EXPOSURES									
NUMBER			TYPE	DESCRIPTION					
1	7	0	0	0	(37) Z (38) NA				

PERSONNEL INJURIES					
NUMBER			DESCRIPTION		
1	2	0	0	0	(40) NA

8		9		11		12		80	
TYPE		DESCRIPTION		(43)					
1	9	Z	(42)	NA					
8	9	10							

8 9 10  
PUBLICITY  
ISSUED DESCRIPTION (45) 8 007140 259  
NRC USE ONLY

NAME OF PREPARER J. L. Wilson

PHONE: (804) 357-3184

017.928

ATTACHMENT 1

SURRY POWER STATION, UNIT NO.1

DOCKET: 50-280

REPORT NO: 80-039/01T-0

EVENT DATE: 6-26-1980

TITLE OF REPORT: NONCONSERVATISM IN BORON CONCENTRATION

1. Description of Event:

During steady state operation of Surry Unit No.1 at 100% power and Unit No.2 at cold shutdown for steam generator replacement, it was discovered that a potential may exist for nonconservatism in a dilution accident with Boron Concentrations of less than 2000 PPM and RCS at a reduced volume.

2. Probable Consequences/Status of Redundant Systems:

The instrumentation installed has the capability to indentify increasing  $K_{eff}$  through the high flux at shutdown alarm functions. (Annunciator 1G-17 and 2G-17). AP-3 (Uncontrolled Reactivity Excursion Requiring Emergency Boration) directs emergency boration during uncontrolled reactivity excursion. Therefore the health and safety of the public were not affected.

3. Cause of Event:

Analysis for boron dilution at cold shutdown and hot shutdown is not part of the licensing basis for Surry Unit No.1 and Unit No.2.

4. Immediate Corrective Action:

OP 1.1 and OP-1.F determine the shutdown margin. Annunciator 1G-17 and 2G-17 detect increase in  $K_{eff}$ . AP-3 directs emergency boration during uncontrolled reactivity excursion.

5. Scheduled Corrective Action:

Boron Concentration as stated above is being evaluated by the reactor vendor.

6. Action Taken to Prevent Recurrence:

None Required

7. Generic Implications:

Reactor vendor is evaluating the situation.