

APPROVED BY C
3150-0011
EXPIRES 4-30-82

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

[illegible]

CON'Y

01 REPORT SOURCE L 6 0 5 0 0 0 3 9 5 7 1 2 2 4 8 3 8 0 1 0 6 8 4 9
7 8 60 61 DOCKET NUMBER 68 69 EVENT DATE 74 75 REPORT DATE 80

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

On December 24, 1983, with the Plant in Mode 1, the instrument lines froze for the Refueling Water Storage Tank (RWST) level transmitters. Additional failures occurred to transmitter LT-993 on December 25th and 31st. There were no adverse consequences from the event; however, for approximately 31 minutes, Plant personnel would have had to manually perform the transfer of suction for the Residual Heat Removal (RHR) and Spray Pumps in the event automatic transfer did not occur.

| SYSTEM CODE | | CAUSE CODE | | CAUSE SUBCODE | | COMPONENT CODE | | | | COMP. SUBCODE | | VALVE SUBCODE | | | | | |
|---------------------------|----|---------------|----|-----------------------|----|-----------------|----|-------------|----|----------------------|----|------------------|----|----------------------|--|------------------------|--|
| 0 | 9 | S | F | E | X | I | N | S | T | R | U | T | Z | | | | |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | | | |
| (17) LER/RO REPORT NUMBER | | EVENT YEAR | | SEQUENTIAL REPORT NO. | | OCCURRENCE CODE | | REPORT TYPE | | REVISION NO. | | | | | | | |
| 83 | | — | | 140 | | / 01 | | T | | 0 | | | | | | | |
| 21 | | 22 | | 23 | | 24 | | 25 | | 26 | | | | | | | |
| ACTION TAKEN | | FUTURE ACTION | | EFFECT ON PLANT | | SHUTDOWN METHOD | | HOURS | | ATTACHMENT SUBMITTED | | NPRD-4 FORM SUB. | | PRIME COMP. SUPPLIER | | COMPONENT MANUFACTURER | |
| E | F | Z | Z | 0 | 0 | 0 | 0 | Y | N | N | W | 1 | 2 | 0 | | | |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | | | |

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 The failure of the RWST level instrumentation was due to instrument lines
1 1 freezing in the abnormally cold temperatures experienced during the subject
1 2 period of time. Heat was subsequently applied to the transmitters to return
1 3 them to operable status. Modifications to Heat Trace setpoints and component
1 4 insulation will be completed by January 20, 1984.

| FACILITY STATUS | | % POWER | OTHER STATUS (30) | METHOD OF DISCOVERY | DISCOVERY DESCRIPTION (32) |
|-----------------|--------------|------------------|-------------------|---------------------|----------------------------|
| 1 | 5 E (28) | 1 0 0 (29) | N/A | A (31) | Operator Observation |

ACTIVITY CONTENT
RELEASED OF RELEASE

1 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

AMOUNT OF ACTIVITY (35)

LOCATION OF RELEASE (36)

1 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

N/A

N/A

| PERSONNEL EXPOSURES | | | | |
|---------------------|---|------|-------------|----------|
| NUMBER | | TYPE | DESCRIPTION | |
| 1 | 7 | 000 | (27) Z | (38) N/A |

| PERSONNEL INJURIES | | NUMBER | | DESCRIPTION | | 41 | |
|--------------------|---|--------|---|-------------|----|-----|--|
| 1 | 8 | 0 | 0 | 0 | 40 | N/A | |

| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | | 13 | | 14 | | 15 | | 16 | | 17 | | 18 | | 19 | | 20 | | 21 | | 22 | | 23 | | 24 | | 25 | | 26 | | 27 | | 28 | | 29 | | 30 | | 31 | | 32 | | 33 | | 34 | | 35 | | 36 | | 37 | | 38 | | 39 | | 40 | | 41 | | 42 | | 43 | | 44 | | 45 | | 46 | | 47 | | 48 | | 49 | | 50 | | 51 | | 52 | | 53 | | 54 | | 55 | | 56 | | 57 | | 58 | | 59 | | 60 | | 61 | | 62 | | 63 | | 64 | | 65 | | 66 | | 67 | | 68 | | 69 | | 70 | | 71 | | 72 | | 73 | | 74 | | 75 | | 76 | | 77 | | 78 | | 79 | | 80 | | 81 | | 82 | | 83 | | 84 | | 85 | | 86 | | 87 | | 88 | | 89 | | 90 | | 91 | | 92 | | 93 | | 94 | | 95 | | 96 | | 97 | | 98 | | 99 | | 100 | |
|---|--|---|--|---|--|---|--|---|--|---|--|---|--|---|--|---|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|------|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|-----|--|
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | | 13 | | 14 | | 15 | | 16 | | 17 | | 18 | | 19 | | 20 | | 21 | | 22 | | 23 | | 24 | | 25 | | 26 | | 27 | | 28 | | 29 | | 30 | | 31 | | 32 | | 33 | | 34 | | 35 | | 36 | | 37 | | 38 | | 39 | | 40 | | 41 | | 42 | | 43 | | 44 | | 45 | | 46 | | 47 | | 48 | | 49 | | 50 | | 51 | | 52 | | 53 | | 54 | | 55 | | 56 | | 57 | | 58 | | 59 | | 60 | | 61 | | 62 | | 63 | | 64 | | 65 | | 66 | | 67 | | 68 | | 69 | | 70 | | 71 | | 72 | | 73 | | 74 | | 75 | | 76 | | 77 | | 78 | | 79 | | 80 | | 81 | | 82 | | 83 | | 84 | | 85 | | 86 | | 87 | | 88 | | 89 | | 90 | | 91 | | 92 | | 93 | | 94 | | 95 | | 96 | | 97 | | 98 | | 99 | | 100 | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | | 13 | | 14 | | 15 | | 16 | | 17 | | 18 | | 19 | | 20 | | 21 | | 22 | | 23 | | 24 | | 25 | | 26 | | 27 | | 28 | | 29 | | 30 | | 31 | | 32 | | 33 | | 34 | | 35 | | 36 | | 37 | | 38 | | 39 | | 40 | | 41 | | 42 | | 43 | | 44 | | 45 | | 46 | | 47 | | 48 | | 49 | | 50 | | 51 | | 52 | | 53 | | 54 | | 55 | | 56 | | 57 | | 58 | | 59 | | 60 | | 61 | | 62 | | 63 | | 64 | | 65 | | 66 | | 67 | | 68 | | 69 | | 70 | | 71 | | 72 | | 73 | | 74 | | 75 | | 76 | | 77 | | 78 | | 79 | | 80 | | 81 | | 82 | | 83 | | 84 | | 85 | | 86 | | 87 | | 88 | | 89 | | 90 | | 91 | | 92 | | 93 | | 94 | | 95 | | 96 | | 97 | | 98 | | 99 | | 100 | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | | 13 | | 14 | | 15 | | 16 | | 17 | | 18 | | 19 | | 20 | | 21 | | 22 | | 23 | | 24 | | 25 | | 26 | | 27 | | 28 | | 29 | | 30 | | 31 | | 32 | | 33 | | 34 | | 35 | | 36 | | 37 | | 38 | | 39 | | 40 | | 41 | | 42 | | 43 | | 44 | | 45 | | 46 | | 47 | | 48 | | 49 | | 50 | | 51 | | 52 | | 53 | | 54 | | 55 | | 56 | | 57 | | 58 | | 59 | | 60 | | 61 | | 62 | | 63 | | 64 | | 65 | | 66 | | 67 | | 68 | | 69 | | 70 | | 71 | | 72</ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | PUBLICITY ISSUED DESCRIPTION | (45) | | NRC USE ONLY |
|---|---|---------------------------------|------|-----|--------------|
| 2 | 0 | N | (44) | N/A | |

NAME OF PREPARER

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O. W. DIXON, JR.
VICE PRESIDENT
NUCLEAR OPERATIONS

January 6, 1984

Mr. James P. O'Reilly
Regional Administrator
U.S. Nuclear Regulatory Commission
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Atlanta, Georgia 30303

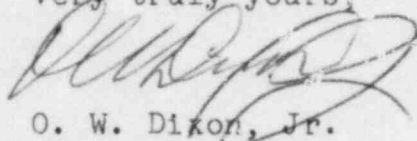
SUBJECT: Virgil C. Summer Nuclear Station
Docket No. 50/395
Operating License No. NPF-12
Fourteen Day Report
LER 83-140

Dear Mr. O'Reilly:

Please find attached Licensee Event Report #83-140 for the Virgil C. Summer Nuclear Station. This Fourteen Day Report is required by Technical Specification 6.9.1.12.(b). The Licensee experienced failures to the Refueling Water Storage Tank Level Transmitters, which resulted in entry into Technical Specification 3.3.2, Table 3.3-3, Item 8, Action Statement 16 and Technical Specification 3.3.3.6, Action Statements (a) and (b).

Should there be any questions, please call us at your convenience.

Very truly yours,



O. W. Dixon, Jr.

CJM:OWD/mac
Attachment

cc: V. C. Summer
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LER No. 83-140
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EVENT DESCRIPTION AND PROBABLE CONSEQUENCES

On December 24, 1983, with the Plant in Mode 1, the instrument lines froze for the Refueling Water Storage Tank (RWST) level transmitters. A summary of the occurrence is as follows:

- 1719 hours - RWST level indication for transmitters LT-992 and LT-993 failed high from frozen instrument lines caused by abnormally low temperatures. LT-992 is a Post Accident Monitoring System (PAMS) instrument and Technical Specification 3.3.3.6, Action Statement (a) was entered. Technical Specification 3.0.3 was also entered since the failure of both instruments exceeded the minimum channels operable requirement of Technical Specification 3.3.2 (Table 3.3-3, Item 8).
- 1730 hours - Additional heat was applied to the transmitters.
- 1805 hours - LT-992 was bypassed in accordance with the requirements of Action Statement 16 of Technical Specification 3.3.2.
- 1809 hours - RWST level indication for transmitters LT-990 and LT-991 failed high from the freezing temperatures. Action Statement (b) of Technical Specification 3.3.3.6 was subsequently entered upon the failure of PAMS transmitter LT-990.
- 1817 hours - LT-993 was thawed and indication returned to normal.
- 1830 hours - Setpoints for the RWST heat tracing were increased so that the system would be maintained at a higher temperature.
- 1840 hours - Indication returned to normal for LT-990, LT-991, and LT-992. Technical Specification 3.0.3 was no longer applicable. A turbine load reduction was not initiated due to the short duration of the multiple failures. All RWST level instrumentation was operable at this time.
- 2010 hours - An additional failure occurred to LT-993 and Action Statement 16 of Technical Specification 3.3.2 was again entered.
- 2030 hours - LT-993 was placed in bypass in accordance with the Action Statement.

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EVENT DESCRIPTION AND PROBABLE CONSEQUENCES - Continued

2045 hours - LT-993 was thawed and returned to operable status.

On December 25, 1983, at 0530 hours, LT-993 was again declared inoperable when the instrument lines froze. The associated bistable was placed in "bypass" at 0600 hours. The transmitter was subsequently thawed and returned to operable status at 2330 hours after the completion of a calibration. The calibration was performed when a zero shift occurred in the transmitter output after the instrument lines were thawed.

On December 31, 1983, at 0445 hours, the indication for LT-993 again failed high from frozen instrument lines. The bistable was placed in "bypass" at 0540 hours. The failure occurred while testing was being performed on the Heat Trace System to determine the cause of the previous failures. The channel was returned to operable status at 1445 hours after the instrument lines were thawed and a satisfactory calibration check performed on the transmitter output.

There were no adverse consequences during this event. For approximately 31 minutes, the failure of four (4) RWST level channels in the high direction would have prevented the automatic transfer of suction for the Residual Heat Removal (RHR) and Reactor Building Spray Pumps from the RWST to the Reactor Building recirculation sumps in the event of a Lo-Lo RWST level coincident with a "Safety Injection" signal. However, Emergency Operating Procedure (EOP)-1, "Safety Injection," contains procedural steps to instruct the operators to manually perform the transfer of suction for the RHR and Reactor Building Spray Pumps in the event automatic transfer does not occur.

CAUSE AND CORRECTIVE ACTION

Similar failures occurred to the RWST transmitters on January 19, 1983 (Ref. LER 83-001). The investigation performed at that time indicated that additional heat trace and an insulated enclosure would reduce the potential for future failures. These actions were performed and appeared adequate under ambient conditions normally present in the vicinity of the Virgil C. Summer Nuclear Station.

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CAUSE AND CORRECTIVE ACTION - Continued

The latest failure of the RWST level instrumentation was also due to frozen instrument lines. The results of testing performed after the event on December 24, 1983, indicated that the sensors for the heat trace are located on a section of pipe which does not cool down as rapidly as the line immediately adjacent to the transmitters. Consequently, the abnormally low temperatures experienced during this period caused the instrument lines adjacent to the transmitters to freeze before the sensors activated the heat trace.

Reference the previous section of this report for details of the immediate corrective actions taken by the Plant personnel on December 24, 1983. The subsequent failures of LT-993 on December 25th and 31st are attributed to a loose section of insulation on the instrument line which allowed that portion of piping to rapidly dissipate heat. The insulation was repaired on January 4, 1984.

The following actions will be performed to prevent a future recurrence. The actions are based upon the results of field testing performed between December 29, 1983, and January 1, 1984.

1. The design setpoints for both trains of heat trace presently installed on RWST transmitters will be increased to 65°F by January 6, 1984. The original design setpoint was 47°F.
2. The present insulated enclosure for the transmitters will be replaced with one which is larger and better insulated. The piping and tubing will also have new insulation installed to correct minor degradation. This action is expected to be complete by January 20, 1984.

Additional testing will be performed by Plant personnel upon the completion of the above actions to ensure that the modification was adequate to prevent a recurrence.