

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Virgil C. Summer Nuclear Station	DOCKET NUMBER (2) 0 5 0 0 0 3 9 5	PAGE (3) 1 OF 0 4
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TITLE (4)
Significant Safety Hazard Attributable to Anchor Darling Check Valves

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)
0	2	14	8	6	8	0	0	1	0	0	0
0	2	14	8	6	8	0	0	0	0	2	1

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

OPERATING MODE (9) 1	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
	20.405(a)(1)(i)	50.38(a)(1)	50.73(a)(2)(v)	73.71(c)
POWER LEVEL (10) 1 0 0	20.405(a)(1)(ii)	50.38(a)(2)	50.73(a)(2)(vi)	X OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(vii)(A)	
	20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
	20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME A. M. Paglia, Jr., Manager, Nuclear Licensing	TELEPHONE NUMBER AREA CODE 8 0 3 7 4 8 - 3 9 6 1
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
B	S	J	V A	3 9 1 Y					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (if yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces - i.e. approximately fifteen single-space typewritten lines) (16)

On February 14, 1986, the Licensee completed a Substantial Safety Hazard Evaluation (10CFR21) of the as found condition and design basis function for fifty-one Anchor Darling Check Valves installed in various systems at the Virgil C. Summer Nuclear Station. The evaluation determined that a potential failure existed for seven valves in the Emergency Feedwater System. This potential failure could represent a Substantial Safety Hazard because of the possibility of a loss of Emergency Feedwater Flow and is reportable in accordance with 10CFR21.

The potential disabling of the valves is attributed to the manufacturer's failure to apply required capture tack-welds to certain internal components during the manufacturing process. The missing tack-welds could allow hinge pins and disc nut thru-pins to back out and disable the valves. The Licensee opened and inspected sixty-three of the sixty-four Anchor Darling Check Valves installed in the plant. Fifty-one valves had one or more of the tack-welds missing and were repaired during the inspection process. No valves were found to be inoperable. The remaining valve (XVC-1900 MU), a 3 inch valve in the return line to the Reactor Makeup Water Storage Tank, was not inspected because of its inaccessibility. This valve is not required for Safe Shutdown of the plant.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

On February 14, 1986, the Licensee determined that a potential substantial safety hazard (10CFR21) existed because of the potential failure of seven Anchor Darling check valves. The seven valves were missing required internal tack-welds used as a locking mechanism for the disc nut thru-pin.

During the second refueling outage, the Licensee commenced an "open and inspect" program on installed Anchor Darling check valves based on technical correspondence from Anchor Darling dated August 16 and 19, 1985. This correspondence identified concerns with missing internal capture tack-welds. The Licensee is aware that Palo-Verde Nuclear Generating Station previously reported similar problems to the NRC in December 1984.

Sixty-three of sixty-four installed Anchor Darling check valves were inspected. Fifty-one valves exhibited one or more of the missing tack-welds on the hinge pin and/or the disc nut thru-pin. In addition, missing tack-welds were noted on the hinge assembly and hinge assembly cap screws which were not identified in the Anchor Darling technical correspondence or the Palo-Verde report. The remaining valve (XVC-1900-MU) is a 3 inch valve in the return line to the Reactor Makeup Water Storage Tank. The valve was not inspected at this time because of its inaccessibility. An engineering evaluation determined that this valve is not required for safe shutdown.

Pages 3&4 of this report contain a list of valves inspected. Each valve was repaired prior to closure. The Licensee performed an engineering evaluation of as-found conditions and design function for each of the fifty-one suspect valves. This evaluation determined that a potential failure existed in seven Emergency Feedwater Valves. The potential failure of these valves coincident with an additional single failure of the turbine driven Emergency Feedwater Pump could cause a loss of Emergency Feedwater. The following list identifies the seven Emergency Feedwater Valves and their function.

- 1) XVC-1015B-EF-Emergency Feedwater Pump "B" Discharge Check Valve.
- 2) XVC-1022B-EF-Service Water "B" Makeup Check Valve to the Turbine Driven Emergency Feedwater Pump.
- 3) XVC-1034B-EF-Service Water Makeup Supply Check Valve to "B" Emergency Feedwater Pump.
- 4) XVC-1022A-EF-Service Water "A" Supply Check Valve for the Turbine Driven Emergency Feedwater Pump.
- 5) XVC-1015A-EF-"A"-Emergency Feedwater Pump Discharge Check Valve.
- 6) XVC-1013A-EF-Condensate Storage Tank Supply Makeup to "A" Emergency Feedwater Pump Check Valve.
- 7) XVC-1034A-EF-Service Water "A" Makeup to "A" Emergency Feedwater Pump Check Valve.

The Licensee recommends that other utilities using Anchor Darling Check Valves open and inspect these valves at the earliest opportunity. It is also recommended that the NRC consider issuing an I&E Notice on this subject.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 386A's) (17)

VALVE NUMBER	SIZE (Inch)	SERIAL NUMBER
XVC00971A-DG	3.000	E-6188
XVC00971B-DG	3.000	E-6188
XVC00971C-DG	3.000	E-6188
XVC00971D-DG	3.000	E-6188
XVC01013A-EF	6.000	E-6188-72-1
XVC01013B-EF	6.000	E-6188-72-2
XVC01014-EF	8.000	E-6188-74-1
XVC01015A-EF	4.000	E-6188-82-1
XVC01015B-EF	4.000	E-6188-82-2
XVC01016-EF	4.000	E-6188-82-3
XVC01022A-EF	8.000	E-6188-74-2
XVC01022B-EF	8.000	E-6188-74-3
XVC01024-EF	3.000	E-6188-81-1
XVC01034A-EF	6.000	E-6188-72-3
XVC01034B-EF	6.000	E-6188-72-4
XVC01038A-EF	4.000	E-6188-96-1
XVC01038B-EF	4.000	E-6188-96-2
XVC01038C-EF	4.000	E-6188-96-3
XVC01039A-EF	4.000	E-6188-96-4
XVC01039B-EF	4.000	E-6188-96-5
XVC01039C-EF	4.000	E-6188-96-6
XVC01680A-FW	3.000	E-6188-94-1
XVC01680B-FW	3.000	E-6188-94-2
XVC01680C-FW	3.000	E-6188-94-3
XVC01901A-MU	4.000	E-6188-69-1
XVC01901B-MU	4.000	E-6188-69-2
XVC01902-MU	4.000	E-6188-69-3
XVC01930-MU	3.000	E-6188-67-2
XVC02876A-MS	4.000	E-6188-80-4
XVC02876B-MS	4.000	E-6188-80-2
XVC03006A-SP	12.000	E-6188-77-1
XVC03006B-SP	12.000	E-6188-77-2
XVC03009A-SP	10.000	E-6188-79-1
XVC03009B-SP	10.000	E-6188-79-2
XVC03013A-SP	3.000	E-6188-66-1
XVC03013B-SP	3.000	E-6188-66-2
XVC03120A-SW	4.000	E-6188-68-1
XVC03120B-SW	4.000	E-6188-68-2
XVC03136A-SW	12.000	N/A
XVC03136B-SW	12.000	E-6188-76-2
XVC03137A-SW	16.000	E-6188-78-1
XVC03137B-SW	16.000	E-6188-78-2
XVC06410A-VU	3.000	E-6188-62-2
XVC06410B-VU	3.000	E-6188-62-2
XVC06461A-VU	6.000	E-6188-70-1
XVC06461B-VU	6.000	E-6188-70-2

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TEXT (If more space is required, use additional NRC Form 308A's) (17)

<u>VALVE NUMBER</u>	<u>SIZE (Inch)</u>	<u>SERIAL NUMBER</u>
XVC06461C-VU	6.000	E-6188-70-3
XVC06489A-VU	3.000	E-6188-62-3
XVC06489B-VU	3.000	E-6188-62-4
XVC06652-SF	10.000	E-6188-75-1
XVC06653-SF	10.000	E-6188-75-2
XVC06799-FS	4.000	E-6188-86-1
XVC09570-CC	8.000	E-6188-73-1
XVC09573-CC	6.000	E-6188-71-1
XVC09579-CC	6.000	E-6188-71-2
XVC09596A-CC	3.000	E-6188-64-1
XVC09596B-CC	3.000	E-6188-64-2
XVC09596C-CC	3.000	E-6188-64-3
XVC09602-CC	3.000	E-6188-61-1
XVC09632-CC	8.000	E-6188-74-4
XVC09633-CC	8.000	E-6188-74-5
XVC09680A-CC	4.000	N/A
XVC09680B-CC	4.000	N/A



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Dan A. Nauman
Vice President
Nuclear Operations

February 19, 1986

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

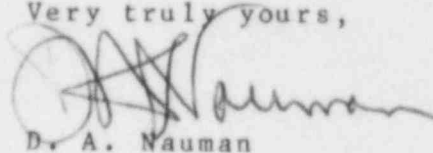
Subject: Virgil C. Summer Nuclear Station
Docket No. 50/395
Operating License No. NPF-12
LER 86-001
P-21-86-001

Dear Sir:

Attached is Licensee Event Report #86-001 for the Virgil C. Summer Nuclear Station. The report is submitted in accordance with 10CFR21, because of problems noted with Anchor Darling Check Valves.

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

Very truly yours,



D. A. Nauman

PDL:DAN:tdh

Attachment

c: V. C. Summer	K. E. Nodland
O. W. Dixon, Jr./T. C. Nichols, Jr.	R. A. Stough
E. H. Crews	G. O. Percival
E. C. Roberts	R. L. Prevatte
W. A. Williams, Jr.	J. B. Knotts, Jr.
J. Nelson Grace	INPO Records Center
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