

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)
Davis-Besse Unit 1

DOCKET NUMBER (2)

0 5 0 0 0 3 4 6 1 OF 0 3

PAGE (3)

TITLE (4)

High Pressure Injection Pumps Startup Strainers Found Still Installed

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	8	0	2	8	5	8	5	0	1	6	0	5	0	0	0	
0	8	0	2	8	5	0	1	6	0	0	0	8	3	0	8	5

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10)	0	0	0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)				
				20.405(a)(1)(i)	50.73(a)(2)(v)	73.71(c)					
				20.405(a)(1)(ii)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 395A)					
				20.405(a)(1)(iii)	50.73(a)(2)(vii)(A)						
				20.405(a)(1)(iv)	50.73(a)(2)(vii)(B)						
20.405(a)(1)(v)	50.73(a)(2)(ix)										

LICENSEE CONTACT FOR THIS LER (12)

NAME
Richard Ackerman/Jan Stotz

TELEPHONE NUMBER

AREA CODE

4 1 9 2 4 9 - 5 0 0 0

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input checked="" type="checkbox"/>	<input type="checkbox"/>				

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

On August 2, 1985, Toledo Edison determined that strainers found still installed in the suction piping of the High Pressure Injection Pumps was a condition not considered in the operating design. The strainers were found during maintenance to repair a slight flange leak. The strainers had been placed in the suction piping during construction and were to be in place during system flushing to prevent any debris from reaching the pumps. However, the strainers should have been removed after system flushing prior to functional testing. Other systems were also checked and no other startup strainers were found still installed. This check included the Decay Heat/Low Pressure Injection Pumps, the Containment Spray Pumps, and the Component Cooling Water Pumps.

The strainers in both High Pressure Injection Pumps will be removed prior to Mode 3 (Hot Standby) operation.

The finding is reportable under 10CFR50.73(a)(2)(ii) as a condition outside the design basis of the plant.

8509050324 850830
PDR ADOCK 05000346
S PDRIE 22
1/1

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Davis-Besse Unit 1	0500034685	01	6	00	02	OF	03

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

Description of Occurrence: On August 2, 1985, Toledo Edison Engineering determined that a strainer installed in the suction piping of High Pressure Injection, HPI, Pump 1-1 was not part of the operating design. The Station has been in Mode 5 (Cold Shutdown) since June 10, 1985. The discovery was made when Engineering was asked to disposition a Non-Conformance Report (NCR 85-0116) that was written against damage to the strainer that occurred during maintenance. That maintenance had been initiated to repair a flange leak. Damage to the strainer occurred when Maintenance personnel tried to remove what they thought was just a spacer piece. The piece was part of the strainer.

Additional checking found that a strainer was also still installed in HPI Pump 1-2. Other systems checked by either x-raying or actual disassembly were the Decay Heat/Low Pressure Injection Pumps, the Containment Spray Pumps, and the Component Cooling Water Pumps. These contained only the desired spacer rings.

The startup strainers were intended to be installed during initial construction and then remain in the lines for system flushing. This was to catch any debris left in the lines and prevent it from reaching the pumps. However, these strainers were supposed to be removed and replaced with a spacer ring prior to reactor operations that would require these systems to be operable per the Technical Specifications.

A red phone notification was made on August 2, 1985 under 10CFR50.72(b)(2)(i) followed by a call directly to the NRC at Region III.

This 30 day written report is being submitted under 10CFR50.73(a)(2)iii)(B) as a condition outside the design basis of the plant.

Designation of Apparent Cause of Occurrence: The cause was an oversight during system turnover from original construction. The punchlist of incomplete items at the time of turnover did not include an item to remove the strainers after system flushing. The strainers were to be left in during system flushing to prevent debris from the lines from reaching the pumps. However, the strainers were to be removed after the system flushing was complete prior to functional testing.

The problem was also complicated by the fact that once the strainer was installed, the ring that was visible looked just like the spacer ring that replaced the strainers in other systems. In fact, the practice was to cut the strainer from the ring and then use this ring as the spacer piece.

Toledo Edison personnel who were involved with these systems during turnover remember questioning whether the strainers were removed. They were assured by the architect/engineer that the strainers had been replaced with spacer rings.

Analysis of Occurrence: Operation with the startup strainers installed involved unreviewed safety questions. One was the possible effects of a strainer basket failure during a seismic event which could disengage and travel into the pump. Another is the possibility of debris accumulation resulting in reduced flow and related pump damage.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
* Davis-Besse Unit 1	0 5 0 0 0 3 4 6	8 5	— 0 1 6	— 0 0	0 3	OF	0 3

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

The HPI pump strainers are perforated conical temporary strainers manufactured by the Mack Iron Works Company. Due to their low mass and location within the piping, it is expected that additional vibrational effects on the piping system due to the installation of strainers during a seismic event would be minimal. Also, in the event that some strainer deformation did occur, clogging would not have resulted due to the relatively high percent open flow area of the strainer. Therefore, although the strainers were not seismically qualified, it is not felt that the strainer would have failed and damaged the pump or piping or clogged the suction flowpath.

The HPI pumps take suction from either the Borated Water Storage Tank or the Containment Emergency Sump. The initial water supply for the Borated Water Storage Tank was supplied via the Makeup Water Treatment System and the Chemical Addition System. The Makeup Water Treatment System consists of a series of strainers, clearwells, and filters (anthracite and activated carbon) that clean and purify Lake Erie water to be utilized in various plant systems including the Chemical Addition System. The HPI pump startup strainers would have collected system debris during the initial testing phases. Once the initial debris loading was obtained, no additional significant accumulation of debris should have occurred from either the Borated Water Storage Tank or the Containment Emergency Sump. Borated water for the injection phase is essentially clean water in a closed system, and for the recirculation phase, most debris would be removed by the Containment Emergency Sump intake screen. However, the size of the opening of the intake screen is larger than that of the startup strainers. It is expected that after lengthy operation in the recirculation mode some debris accumulation would occur. Most accident scenarios would not expect the HPI pumps to be on for that length of time where the Borated Water Storage Tank volume would be used up requiring HPI pump operation from the Containment Emergency Sump.

Finally, flow induced vibration is normally associated with high velocity flow which causes high amplitude vibrations. Generally, the higher the flow velocity, the higher the amplitude of vibration. The HPI pump suction flow velocity is relatively low (5.5 fps) and low amplitude vibrations, if any, would be expected. It is not felt that vibrations due to flow through the strainers would have created any adverse effect.

Corrective Action: The startup strainers will be removed from both pumps and replaced with spacer rings under Maintenance Work Orders 1-85-2648-00 and 1-85-2648-01. This work will be completed prior to Mode 3 (Hot Standby) operation.

Failure Data: This is the first report of this type of problem.

Report No: NP-33-85-22

DVR No(s): 85-114



August 30, 1985

Log No. K85-1235
File: RR 2 (NP-33-85-22)

Docket No. 50-346
License No. NPF-3

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

Gentlemen:

LER No. 85-016
Davis-Besse Nuclear Power Station Unit 1
Date of Occurrence: August 2, 1985

Enclosed is Licensee Event Report 85-016 which is being submitted in accordance with 10CFR50.73, to provide 30 day written notification of the subject occurrence.

Yours truly,

Louis F. Storz /wso

Louis F. Storz
Plant Manager
Davis-Besse Nuclear Power Station

LFS/ljk

Enclosure

cc: Mr. James G. Keppler,
Regional Administrator,
USNRC Region III

Mr. Walt Rogers
DB-1 NRC Resident Inspector

JCS/001

*IE22
11*