CATEGORY 1

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FACIL:50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
AUTH.NAME AUTHOR AFFILIATION
SNODGRASS,D.D. Indiana Michigan Power Co.
RENCHECK,M.W. Indiana Michigan Power Co.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 99-017-00:on 990625,noted that improperly installed fuel oil return relief valve rendered EDG inoperable.Caused by personnel error.Fuel oil return valve was replaced with valve in correct orientation.With 990722 ltr.

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AEP
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July 22, 1999

United States Nuclear Regulatory Commission
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Washington, DC 20555

Operating License DPR-58
Docket No. 50-315

Document Control Manager:

In accordance with the criteria established by 10 CFR 50.73 entitled Licensee Event Report System, the following interim report is being submitted:

LER 315/99-017-00, "Improperly Installed Fuel Oil Return Relief Valve Renders Emergency Diesel Generator Inoperable Due to Personnel Error".

There are no commitments identified in this LER.

Sincerely,

M. W. Rencheck
Vice President – Nuclear Engineering

/mbd
Attachment

c: J. E. Dyer, Region III
R. P. Powers
P. A. Barrett
G. P. Arent
R. Whale
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Records Center, INPO
NRC Resident Inspector

280016

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NRC FORM 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Cook Nuclear Plant Unit 1	05000-315	1 OF 3

TITLE (4)

Improperly Installed Fuel Oil Return Relief Valve Renders Emergency Diesel Generator Inoperable Due to Personnel Error

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION N	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
06	25	1999	1999	017	00	07	26	1999	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	5
POWER LEVEL (10)	0%

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

	20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)	X	50.73(a)(2)(ii)		50.73(a)(2)(x)
	20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
	20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		OTHER
	20.2203(a)(2)(iii)		50.36(c)(1)	X	50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A	
	20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Mr. Dennis D. Snodgrass, Compliance Engineer	(616) 465-5901 X1627

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On June 25, 1999 at 2030 hours EST with both units in Mode 5, the Unit 1 CD Diesel Generator (D/G) was determined to be inoperable after the fuel oil return relief valve was identified as being installed backwards. The correct orientation of this valve is important to ensure that fuel oil is continuously circulated around the D/G fuel oil injector pump barrel for cooling. On June 25, 1999 at 2308 hours EST an ENS report was made in accordance with 10CFR 50.72(b)(2)(iii)(D), a condition that alone could have prevented the fulfillment of the safety function of systems that are needed to mitigate the consequences of an accident and 10CFR 50.72(b)(2)(i), a condition found while the reactor is shutdown that had it been found while in operation, would have resulted in the plant being seriously degraded or in an unanalyzed condition. This LER is therefore submitted in accordance with 10CFR 50.73(a)(2)(v)(D) and 10CFR 50.73(a)(2)(ii)(A).

The apparent cause of this condition is personnel error. The valve has been installed backwards since prior to 1986. Inspection of the corresponding valves on the 1AB, 2AB and 2CD D/Gs determined the valves were installed in the correct orientation. Operations entered the action statements for the applicable Technical Specifications upon declaring the Unit 1 CD D/G inoperable. Following replacement of the valve and D/G surveillance testing the 1CD D/G was declared operable on July 7, 1999 at 2243 hours EST.

The successful completion of past Technical Specification (T/S) surveillance tests for the Unit 1 CD D/G has verified acceptable engine performance, regardless of the incorrect orientation of this valve. A review of maintenance history did not reveal any abnormal D/G operation that could be attributed to the incorrect valve orientation. Therefore, there were minimal implications to the health and safety of the public as a result of this event. If significant changes are identified as a result of completion of the root cause investigation, an update to this LER will be submitted.

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TEXT *(If more space is required, use additional copies of NRC Form 366A)* (17)

Conditions Prior To Event
Unit 1 Mode 5 in Cold Shutdown
Unit 2 Mode 5 in Cold Shutdown

Description Of The Event
On June 25, 1999 at 2030 hours EST with both units in Mode 5, the Unit 1 CD D/G (EIIS:EK) was determined to be inoperable. While performing inspections of D/G fuel oil lines (EIIS:DC), the Unit 1 CD D/G fuel oil return relief valve (EIIS:DC/FCV) was identified as being installed backwards. The correct orientation of this valve is important to ensure that fuel oil is continuously circulated around the D/G fuel oil injector pump barrel for cooling. In the as-found orientation, the valve would not have lifted off of its seat at the required setpoint and would not have supplied the designed cooling to the fuel oil injector pump.

The valve is shown in the incorrect orientation on the current revision 3 of a plant isometric drawing. A review of previous revisions of this drawing indicates that the incorrect orientation was incorporated in revision 2, dated 1986. Revision 1 dated 1973, indicated that the relief valve was correctly orientated but installed in a different physical location. A review of documentation provided no reason for the drawing change, other than to reflect "As-Found" conditions.

Inspection of the corresponding valves for the 1AB, 2AB and 2CD D/Gs determined that the valves were installed in the correct location and orientation in the plant. However, the 1AB D/G isometric drawing shows the wrong location for the valve.

Cause Of The Event
The apparent cause of this condition is personnel error. Drawing changes and discussion with the vendor indicate that the D/G fuel oil return relief valves were initially supplied skid mounted on the diesel fuel oil return manifold but subsequently moved to the diesel fuel oil day tank room during plant construction. The process used to relocate the valve to its present location and when this occurred could not be determined from available documentation. Therefore, the valve was apparently installed incorrectly during plant construction and drawings were as-built to reflect the incorrect installation. Subsequent reviews of drawing changes were inadequate in that they did not identify the incorrect field installation.

Analysis Of The Event
On June 25, 1999 at 2308 hours EST an ENS report was made in accordance with 10CFR50.72(b)(2)(iii)(D), a condition that alone could have prevented the fulfillment of the safety function of systems needed to mitigate the consequences of an accident and 10CFR50.72(B)(2)(I), a condition found while the reactor is shutdown that had it been found while in operation, would have resulted in the plant being seriously degraded or in an unanalyzed condition.

The D/G fuel oil return relief valve, set at 15 pounds per square inch pressure, is installed to maintain a fixed fuel pressure differential across the D/G fuel injection pump. This provides the proper fuel flow to achieve the required degree of cooling for the D/G fuel oil injection pump. In the as-found orientation, the valve would not have lifted off of its seat at the required setpoint at low load D/G operating conditions and proper cooling of the D/G fuel oil injection pump could have been affected.

The successful completion of past Technical Specification (T/S) surveillance tests for the Unit 1 CD D/G has verified acceptable engine performance, regardless of the orientation of this valve. A review of maintenance history did not reveal any abnormal D/G operation that could be attributed to the valve. Therefore, it has been concluded that there were minimal implications to the health and safety of the public as a result of this event.

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TEXT *(If more space is required, use additional copies of NRC Form 366A)* (17)

CORRECTIVE ACTIONS

An Engineering Evaluation was performed to evaluate the as-found condition of the 1CD D/G fuel oil return relief valve and to determine required corrective actions.

Inspection of the corresponding D/G fuel oil return relief valves and the fuel oil supply relief valves on each D/G determined that the extent of condition was limited to the 1CD D/G fuel oil return relief valve.

The vendor was contacted to determine what inspections could be performed to determine if fuel oil injector pump damage had occurred as a result of inadequate cooling. The vendor indicated that there would be no real indication of pump damage until the pump seized. The only possible visible indication of overheating prior to seizure is that the fuel oil would separate and give the pump internals a "varnished" look. To remove and inspect the pumps would require recalibration at the factory due to the tight internal tolerances involved. It was decided not to inspect the pumps, since the pumps have a successful maintenance history and there were no precursors to indicate pump failure.

Design Input Transmittals were issued to revise isometric drawings to reflect the correct 1CD D/G valve orientation and to revise the 1 AB D/G isometric drawing to reflect the correct valve location.

The fuel oil return relief valve was replaced with a valve in the correct orientation. Following surveillance testing, the 1CD D/G was declared operable on July 7, 1999 at 2243 hours EST.

AEP:NRC:1260GH, "Enforcement Actions 98-150, 98-151, 98-152 and 98-186 Reply to Notice Of Violation October 13, 1998", dated March 19, 1999, responded to identified programmatic weaknesses in the plant Design and Licensing Basis, Control of Contractors and the Training and Qualification of personnel. The Engineering Leadership Plan establishes a configuration management program to control plant design and a new design control process, which includes design verification, design document control, vendor technical documentation control and testing of design changes. The Leadership Plan for Control of Contractors insures that workers are qualified for the job, line management is accountable for workers job qualification, monitoring of work performance and performing an adequate review for quality. The Training and Qualification of Personnel Leadership Plan will reinforce a "nuclear safety culture" for site personnel. These plans in whole will help preclude a similar event similar from occurring in the future.

SIMILAR EVENTS

315/98-029-00
315/99-015-00
315/99-016-00