Nebraska Public Power District

COOPER NUCLEAR STATION
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NLS960018

February 19, 1996

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555-0001

Dear Sir:

Cooper Nuclear Station Licensee Event Report 96-001 is forwarded as an attachment to this letter. A supplemental report with an expected submission date of March 19, 1996, will be submitted detailing cause and corrective actions.

Sincerely,

J. T. Herron
Plant Manager

/crm

Attachment

cc: Regional Administrator
USNRC - Region IV

Senior Project Manager
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector
USNRC

NPG Distribution

INPO Records Center

W. Turnbull
MidAmerica Energy

IE22

NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
COOPER NUCLEAR STATION	05000298	1 OF 3

TITLE (4)

Potential Inoperability Of Emergency Diesel Generators Due To Unauthorized Modification

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 NAME	DOCKET NUMBER
01	18	96	96	-- 001 --	00	02	19	96	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N
POWER LEVEL (10)	097

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)	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)
Chris R. Moeller, Senior Staff Licensing Engineer	(402) 825-3811

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
X	YES (If yes, complete EXPECTED SUBMISSION DATE).	NO		03	19	96

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

At 1520 hours on January 18, 1996, it was determined that an unauthorized modification, installed on both emergency diesel generators, had the potential to prevent the fulfillment of a safety function required to mitigate the consequences of an accident. This modification was found as a result of surveillance testing during which the Diesel Generator (DG) 2 muffler bypass solenoid pilot operated valve failed to operate. Upon investigation of the failure, it was discovered that solenoid pilot operated valve exhaust port was constricted by tubing and fittings installed during design change activities during the 1995 refueling outage. While not provided for in the design change package, the tubing and fittings were initially added by contracted craft personnel to address foreign material exclusion concerns created by the orientation of the newly installed solenoid pilot operated valves (i.e., the open exhaust ports are directed upward). Diesel Generator 1, although modified in a similar fashion, successfully completed the muffler bypass valve surveillance testing in the as-found configuration. At the time of discovery, the reactor was at power operation.

Immediate actions were taken to remove the tubing and fittings from the solenoid pilot operated valve exhaust ports. Investigation of the cause for this condition is continuing. Investigation results and actions to prevent recurrence will be reported in a supplemental LER.

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

PLANT STATUS

At the time of discovery, the plant was at power operation.

EVENT DESCRIPTION

At 1520 hours on January 18, 1996, it was determined that an unauthorized modification, installed on both emergency diesel generators, had the potential to prevent the fulfillment of a safety function required to mitigate the consequences of an accident. This modification was found as a result of routine surveillance testing during which the Diesel Generator (DG) 2 muffler bypass solenoid pilot operated valve (SPOV) failed to operate. (The muffler bypass arrangement provides for an alternate route for the DG exhaust to reach the exterior of the building in the event the primary route becomes unavailable.) Upon investigation of the failure, it was discovered that SPOV exhaust port was constricted by tubing and fittings installed during a design change implemented during the 1995 refueling outage.

Design Change (DC) 93-024 modified the operation of the DG muffler bypass valves from air-to-open/air-to-close to spring-to-open/air-to-close. To facilitate this change, the existing four-way SPOV for each muffler bypass valve was replaced with a three-way SPOV. As part of the DC, detailed instructions were provided in sketch SKE-DG-206 for installing the tubing and three-way SPOVs. (However, neither this sketch nor the written instructions included in the DC package directed the installation of tubing or fittings on the exhaust port of the valves.)

While the involved contracted craft personnel are no longer on site for interview, it is assumed that there were foreign material exclusion (FME) concerns associated with the as-installed orientation of the three-way muffler bypass SPOVs. Specifically, foreign material could enter the exhaust ports, which are directed upward, and subsequently could cause the valves to fail. This assumption is supported by the following facts:

1. The previously installed four-way valves had tubing on the exhaust ports to address FME concerns. (However, the tubing was of a larger diameter than that installed in the three-way valves and did not constrict the exhaust flow.)

2. A stop-work order was issued for craft personnel early in the refueling outage because of poor FME practices.

As a result of these concerns, a "U" shaped assembly (consisting of an "L" shaped piece of 1/4 inch outside diameter, thick wall tubing and a 90 degree compression type fitting) was attached to the exhaust port of the muffler bypass SPOV for DG 1 (the first DG to be modified). The manufacturer's recommendations for exhaust tubing specify the inside diameter to be at least as large as the valve pipe size (in this case, 3/8 inch). Therefore, the tubing and fittings installed caused a restriction in exhaust flow.

The conclusion that the "U" shaped assembly was installed by contract craft personnel is supported by Maintenance Work Request (MWR) 95-3569, Revision 1. As a result of poor workmanship discovered during post-modification testing, the tubing installed by the contract craft personnel on DG 1 was reworked by utility craft personnel. Documentation attached to this MWR indicates that the suspect tubing and fittings had already been installed at the time of rework.

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

To avoid similar workmanship concerns, the tubing modification for DG 2 was done by utility craft personnel. Although working to sketch SKE-DG-207, they were also directed by the contract engineer responsible for DC implementation to duplicate the tubing for DG 1 since it had successfully passed all of the acceptance testing criteria.

The contract engineer was contacted concerning his knowledge of the unauthorized modification. While he was aware of the "U" assembly, he did not authorize or give direction to the contract craft for its installation. However, he believed it to be a good practice to avoid FME concerns, even though not specified in the design change package, and did not question the installation.

Once the DC related modifications were completed, the DGs passed their post-modification testing and were eventually declared operable in support of divisional work and plant restart.

CAUSE

The investigation of the cause of this event is continuing and will be reported in a supplement to this LER.

SAFETY SIGNIFICANCE

The muffler bypass arrangement provides for an alternate route for the DG exhaust to reach the exterior of the building in the event the primary route (i.e., muffler and exhaust stack) becomes unavailable. Although the muffler is seismically qualified, it is not qualified for tornado and missile events; the exhaust stack is not qualified for either seismic or tornado and missile events. Should the muffler bypass valve fail to open when required, the diesel engine could be damaged or stall as a result of high back pressure conditions. While the potential inoperability of the muffler bypass valves could have challenged DG operability during these design basis events, the actual significance for this condition is considered to be minimal for the following reasons:

1. The condition was self-identified during routine surveillance testing and immediately corrected, thus minimizing the duration of inoperability for DG 2.

2. The functionality of DG 1 was never challenged. This was confirmed through surveillance testing on December 30, 1995, and again just prior to removing the "U"assembly on January 18, 1996.

CORRECTIVE ACTIONS

Immediate actions were taken to remove the tubing and fittings from the SPOV exhaust ports. Corrective actions to prevent recurrence will be provided in a supplement to this LER.

PREVIOUS EVENTS

Previous events will be addressed in a supplement to this LER.

EQUIPMENT SPECIFICATIONS

Component: Three-Way Pilot Operated Valve
Manufacturer: ASCO
Model: NP8316A54E

Correspondence No: NLS960018

The following table identifies those actions committed to by the District in this document. Any other actions discussed in the submittal represent intended or planned actions by the District. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Licensing Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITTED DATE OR OUTAGE
None	