

**SULZER**

Sulzer Pumps  
Sulzer Pumps (US) Inc.  
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U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555

Date 21 March 2006

ATTN: Brendan Moroney

**Subject: 10 CFR Part 21 Notification**

**Ref: FP&L TPN supplied Ingersall Rand Auxiliary Feed Pump #0601001 FP&L PO# 67845**

Dear Sir or Madam,

Per the requirements of 10CFR Part 21, this letter has been written to inform you of a reportable condition in regards to a pump repaired for Florida Power & Light in use at the Turkey Point Nuclear Facility.

While repairing a pump at the Sulzer Pumps (US) Inc. Shreveport Service Center, the drive end bearing assembly was installed incorrectly which resulted in an internal oil passage blockage and the possibility of premature bearing failure.

An internal investigation committee was convened 20 March, 2006 per the requirements of 10CFR Part 21 and the evaluation and results of the investigation as well as corrective action are attached.

This notification is also being sent to Florida Power & Light.

Sincerely,



Karl Strand  
Quality & Environmental Manager  
Sulzer Pumps (US) Inc.

IE19

**10 CFR, PART 21 INTERNAL EVALUATION FORM****PURPOSE:**

The purpose of this form is to support the requirements of 10CFR, Part 21 and SPUSA's Evaluation Procedure A14.2. The documentation should be via this form with all necessary backup documentation attached and maintained in the 10CFR, Part 21 file under the direction of the Corporate Quality & Environmental Manager.

**SCOPE:**

This form shall be used in all conditions which have been brought to the attention of the 10CFR, Part 21 Committee.

**RESPONSIBILITY:**

The responsibility for assurance of completion of this form and the subsequent actions and filing will be that of the Corporate Quality & Environmental Manager.

PUMP SERIAL NUMBER(S)

FP&amp;L IPN supplied I-R CNTA Aux. Feed Pump #0601001

PARTS ORDER NUMBER(S)

Sulzer Order No. 08701898, FP&amp;L PO # 67845,

REPORTABLE YES  NO  IO: NRC  LICENSEES   
IPN Only

**(A) IDENTIFICATION OF ITEM OR PROCESS AFFECTED:**

The Turkey Point Nuclear Plant Aux. Feed Pump drive end journal bearing was installed incor-  
rectly (radial orientation) which resulted in internal oil passage blockage and the possibility of  
premature bearing failure due to lack of lubrication.

**(B) DESCRIPTION OF THE CONDITION:**

The plant reported to Sulzer on 11/8/05 that the DE journal bearing in one of the repaired pumps had been installed incorrectly so that the oil passage between the housing and journal obstructed the free flow of lube oil to the bearing journal. It was postulated the premature bearing failure was due to the lack of lubrication as a direct result of improper assembly of the DE journal bearing. Sulzer had generated an assembly procedure based on input from an FP&L supplied procedure, and enhanced the assembly procedure; however, neither the FP&L nor Sulzer procedure included a verification of bearing radial orientation. Regardless, the installation of the journal bearing should have been performed properly. The improper installation of the bearing (radial orientation) was due to human error. Sulzer had repaired two other identical TPN Aux Feed pumps using the same procedure, and subsequent inspections confirmed the DE journal bearing had been correctly installed in the other pumps Sulzer had repaired. This was an isolated case of human error coupled with a procedure that, viewed in hindsight, can be updated to include a verification of bearing orientation (barrier). Given the obvious oil passage design configuration coupled with the proper assembly of the other two pumps, we do not believe this is a generic issue.

(C) WHO REPORTED THE CONDITION:

NAME: A. Washburn TITLE: Engineering Manager DATE: 11/9/05

(D) EVALUATED BY 10 CFR, PART 21 COMMITTEE:

Chairperson:

NAME: K. Strand TITLE: Manager, Corp Quality & Environmental DATE: 3/20/06

Members:

NAME: <u>A. Washburn</u>	TITLE: <u>Engineering Manager</u>	DATE: <u>3/20/06</u>
NAME: <u>J. Bohlman</u>	TITLE: <u>Sr. Project Engineer</u>	DATE: <u>3/20/06</u>
NAME: <u>J. Wood</u>	TITLE: <u>Project Mgr, Quality</u>	DATE: <u>3/20/06</u>
NAME: <u>D. Spencer</u>	TITLE: <u>Mgr, Nuclear Services</u>	DATE: <u>3/20/06</u>
NAME: _____	TITLE: _____	DATE: _____
NAME: _____	TITLE: _____	DATE: _____

(E) REVIEW OF LIKE CONDITIONS:

Sulzer is not aware of the existence of a like condition. The TE bearing assembly is not subject to a similar assembly error due to its configuration difference. As previously mentioned Sulzer and other manufacturer's pump designs incorporate features and instructions to preclude incorrect assembly. The only other pump component where similar improper assembly is possible is ball bearing installation. In designs that incorporate duplex pairs of ball bearings the assembly instructions specify proper orientation ( i.e. face-to-face or back-to-back).

(NOTE: IF NO LIKE CONDITION OR POTENTIAL FOR A SIMILAR CONDITION IS NOTED, MAKE SURE ALL ASPECTS OF THE CONDITION IS REVIEWED AND NOT LIMIT THE EVALUATION TO A SPECIFIC PUMP OR APPLICATION.)

(F) RESULTS OF THE EVALUATION

The improper assembly of the subject pump resulted in the potential for premature bearing failure. However, Sulzer believes this was an isolated case involving human error for failing to detect the oil passage would be obstructed. An inspection verification (barrier) to confirm correct bearing assembly orientation would prevent future occurrences.

It is our opinion the issue meets the criteria for defect reporting per the requirements of 10CFR Part 21. Since the incident was isolated and non-generic only the NRC and the utility will be notified.



**SULZER**

**SULZER PUMPS (US) INC.  
SULZER NUCLEAR SERVICE CENTER  
CORRECTIVE ACTION REPORT (CAR)  
Reference SNSC Procedure QSS-03**

Form No. S0199-0

05-033	N/A	150051	Al Baggett	QA	12/10/05
CAR No.	AUDIT No.	NCR No	Issued By	Department	Date
Art Washburn		SNSC Manager of Engineering		12/28/05	
Issued To		Department/Company		REQUIRED RESPONSE	DUE DATE

**NON-CONFORMING CONDITION OR PROBLEM:**

See attached NCR 150051 for detailed description of Nonconforming Condition

**IMMEDIATE ACTION TO CORRECT NONCONFORMING CONDITION OR PROBLEM:**

FPL Turkey Point NPS replaced inboard journal bearing on pump S/N 0601001. Sulzer Engineering responded to FPL initial questions and started evaluation of nonconformance.

**ROOT CAUSE OF NON-CONFORMANCE OR PROBLEM:**

Improper assembly was caused by human error. (Failure to detect journal bearing assembly was blocking oil feed passage)  
The improper assembly resulted in the Journal Bearing Failure @ the D.E.

**PLANNED CORRECTIVE AND PREVENTIVE ACTION TO PREVENT RECURRENCE:**

- Revision to Sulzer Procedure "MSS-08 CNTA Assembly Procedure" to cover orientation.
- Documented training to stop and engineering coworkers to ensure attention to detail is followed and potential consequences when it is not.

D Spencer	3/20/06	4/28/06	
Responders Name	Date	Date Action(s) to be Completed	Date Action(s) Completed

**FOR SULZER PUMPS (US) INC. QUALITY DEPARTMENT ONLY**

Corrective and Preventive Action Follow-up Required? Yes/No

Closed By	Signature	Date
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