



Commonwealth Edison

One First National Plaza, Chicago, Illinois

Address Reply to: Post Office Box 767

Chicago, Illinois 60690

February 9, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: LaSalle County Station Units 1 and 2
Deviation Report History for
LaSalle County Station's Diesel
Fire Pumps from April 17, 1982
to January 1, 1984
NRC Docket Nos. 50-373 and 50-374

References (a): C. W. Schroeder letter to H. R. Denton
dated November 23, 1983, subject
LaSalle County Station, Unit 2,
Fire Protection

(b): LaSalle County Station, Unit 2
Facility Operating License, NPF-13
License Condition 2.C.(15).(f)

Dear Mr. Denton:

The Deviation Report History for LaSalle County Station Diesel Fire Pumps from April 17, 1982 to January 1, 1984 is being submitted to your office in accordance with Commonwealth Edison's commitment in reference (1). This report meets the requirements of reference (2) and it is requested that Unit 2 license condition 2.C.(15).(f) be closed.

The attached Diesel Fire Pump Report was extracted from the Deviation Report file that is maintained on site in accordance with the Commonwealth Edison Quality Assurance program. The enclosed index and attachments indicate that this History Report is listed in three different methods. The Deviation Report History Subject mentioned in the index and throughout this report refers to certain types of failure. If the fuel filters clogged and a Deviation Report was written, the Deviation Report History Subject would be categorized as "clogged fuel filters". Attachment D provides a listing and copies of Special Reports submitted to the Regional Administrator when both Diesel Fire Pumps were declared inoperable at the same time.

During the last failure of the A Diesel Fire Pump in December, 1983, questions were raised by NRR on the operability of the Diesel Fire Pumps discharge check valves. The failure has been attributed to a large foreign object lodged in the check valve and both Discharge Check Valves have been functionally tested satisfactorily.

8402210251 840209
PDR ADOCK 05000373
S PDR

Boo2
1/40

February 9, 1984

It should be noted that Commonwealth Edison believes that the availability of the subject pumps will be improved significantly as the number of starts are decreased. Administrative actions have been taken to reduce the number of starts and design changes are under review to improve the fire jockey pump system.

To the best of my knowledge and belief the statements contained herein and in the attachments are true and correct. In some respects these statements are not based on my personal knowledge but upon information furnished by other Commonwealth Edison and contractor employees. Such information has been reviewed in accordance with Company practice and I believe it to be reliable.

Enclosed for your use are one signed original and forty (40) copies of this letter and the attachment. If there are any further questions in this matter, please contact this office.

Very truly yours,

CW Schroeder 2/9/84

C. W. Schroeder
Nuclear Licensing Administrator

CWS/lm

cc: J. G. Keppler
A. Bournia - Federal Express
NRC Resident Inspector - LSCS

8119N

INDEX

- ATTACHMENT A: Alphabetical List of Deviation Report History Subject and whether an engine failed or more than one DVR was written per subject.
- ATTACHMENT B: Alphabetical List of Deviation Report Subjects and each subject report describes what has been done to date to prevent this problem from happening in the future.
- ATTACHMENT C: Chronological List of Diesel Fire Pump Deviation Reports from April 17, 1982 to January 1, 1984.
- ATTACHMENT D: Special Reports submitted to NRC Regional Administrator under Technical Specification 3.7.5.1.b.2.

ATTACHMENT A

DEVIATION REPORT SUBJECT

Battery Cable	
Check Valve (Fire Pump Discharge)	Engine Failed
Cooling Water Lines	*
Cooling water solenoid	
Day Tank Fuel Leak	*
Fuel Filter	*
Fuel Line Leak	*
Fuel Pump Input Shaft Broken	
Glycol in Oil	Engine Failed
Jacket Water Level Low	
Maintenance	
Minimum Flow Line, Jockey Fire Pump	
Oil Level Low	
Oil Pressure Switch Stuck	
Oil Dipstick	
Radiator Cap	
Raw Water Reducer	
Speed Cable	
Temperature Gauge	
U-Joint	Engine Failed
V-Belt	Engine Failed

* means more than one DVR was written for this subject.

ATTACHMENT B

This Section addresses each Deviation Report Subject and describes what has been done to date to prevent this problem from happening in the future.

DEVIATION REPORT SUBJECT

Battery Cable

DVR #
1-1-82-378

DATE OF OCCURRENCE
12/27/82

EQUIPMENT INVOLVED
OA DFP

STATUS TO DATE:

Battery cable was replaced and we have had no further problems with battery cables. The Diesel Fire Pump batteries have been mounted off the floor on battery stands to simplify and insure proper maintenance. The battery cables from the batteries to the engine have been routed via conduit so as to protect the battery cables from damage.

DEVIATION REPORT SUBJECT

Check Valve (Fire Pump Discharge)

DVR #
1-1-83-479

DATE OF OCCURRENCE
12/27/83

EQUIPMENT INVOLVED
"A" DFP

STATUS TO DATE:

A block of wood was found in OA DFP discharge check valve. The block of wood caused the discharge check valve to stick open and the pump and diesel rotated backward. The wood was removed and the diesel engine was replaced. The fire pump and check valve were tested satisfactorily.

To prevent this happening in the future the fire protection strainers are to be checked regularly for debris.

DEVIATION REPORT SUBJECT

Cooling Water Lines

DvR #	DATE OF OCCURRENCE	EQUIPMENT INVOLVED
1-1-83-188	5/17/83	OA DFP
1-1-83-194	5/25/83	OA DFP
1-1-83-353	8/27/83	OA DFP

STATUS TO DATE:

The above problem was due mainly to hard piped lines connected to the angle drive and the hard piped lines vibrating and starting to leak.

The above problem has been addressed on OA and OB DFP by bracing the lines that vibrate and using stainless steel covered flexible hose to join the cooling water pipes to the angle drive. This problem has not reoccured since instaliation of the flexible hoses.

DEVIATION REPORT SUBJECT

Cooling Water Solenoid

DVR #
1-1-82-107

DATE OF OCCURRENCE
6/23/82

EQUIPMENT INVOLVED
OB DFP

STATUS TO DATE:

OB DFP overheated because the cooling water solenoid failed to open.

This problem was solved by removing the cooling water solenoids from both DFP's. NFPA 20 states an electric solenoid cooling water valve is not required on a vertical shaft turbine type pump when there is no pressure in the discharge when the pump is idle.

DEVIATION REPORT SUBJECT

Day Tank Fuel Leak

DVR #
1-1-82-201
1-1-82-208

DATE OF OCCURRENCE
8/22/82
8/28/82

EQUIPMENT INVOLVED
OB DFP
OB DFP

STATUS TO DATE:

The Diesel Fire Pump Day Tank was reinforced in the area of fuel supply line and this problem has never occurred since.

DEVIATION REPORT SUBJECT

Fuel Filter

DVR #	DATE OF OCCURRENCE	EQUIPMENT INVOLVED
1-1-82-99	6/18/82	OA DFP
1-1-82-273	10/10/82	OA DFP

STATUS TO DATE:

The fuel filters were becoming clogged and starving the engine of fuel. This was due to construction work being done on Diesel Oil Lines and causing debris to enter the Diesel Fuel Oil System. This problem has not occurred since 10/10/82.

A modification is being considered to add a duplex strainer upstream of both DFP Day Tanks to prevent debris from entering Day Tanks. This problem has not reoccurred since the last occurrence.

DEVIATION REPORT SUBJECT

Fuel Line Leak

DVR #
1-1-82-62
1-1-82-124

DATE OF OCCURRENCE
5/26/82
7/6/82

EQUIPMENT INVOLVED
OA DFP
OB DFP

STATUS TO DATE.

The Fuel Line connections from the Day Tank to the engine Fuel Pump leaked fuel. Stainless Steel jacketed flexible hose was used to connect the fuel line to the diesel engine fuel pump and the Day Tank. This problem has not happened since 7/6/82.

DEVIATION REPORT SUBJECT

Fuel Pump Input Shaft Broken

DVR #
1-1-82-130

DATE OF OCCURRENCE
7/14/82

EQUIPMENT INVOLVED
OB DFP

STATUS TO DATE:

The fuel pump input shaft was replaced and has caused no problems since.

DEVIATION REPORT SUBJECT

Glycol in Oil

DVR #
1-1-83-144

DATE OF OCCURRENCE
4/24/83

EQUIPMENT INVOLVED
OA DFP

STATUS TO DATE:

It was not determined how Glycol entered the diesel engine oil system. The diesel engine was replaced and this problem has not happened since this failure.

DEVIATION REPORT SUBJECT

Jacket Water Level Low

DVR #
1-1-83-313

DATE OF OCCURRENCE
8/9/83

EQUIPMENT INVOLVED
OB DFP

STATUS TO DATE:

It has not been determined why the diesel engine jacket water level was low. Coolant mixture was added to OB DFP and this problem has not happened since.

DEVJATION REPORT SUBJECT

Maintenance

DVR #
1-1-83-473

DATE OF OCCURRENCE
12/6/83

EQUIPMENT INVOLVED
OB DFP

STATUS TO DATE:

OB DFP was out of service only to replace the engine because of good maintenance practices and not because of a failure on OB DFP.

DEVIATION REPORT SUBJECT

Minimum Flow Line, Jockey Fire Pump

DVR #
1-1-83-331

DATE OF OCCURRENCE
8/18/83

EQUIPMENT INVOLVED
"B" Jockey Fire Pump

STATUS TO DATE:

This line was repaired and has not leaked since the original failure.

DEVIATION REPORT SUBJECT

Engine Oil Level Low

DVR #
1-1-82-256

DATE OF OCCURRENCE
10/3/82

EQUIPMENT INVOLVED
OA DFP

STATUS TO DATE:

The diesel engine would not reach rated RPM because the engine oil level was low. Oil was added to the engine crank case and the engine tested satisfactorily. AIR 1-82-543 was written to ensure that proper Diesel Fire Pump starting/running will be trained on by operating. In particular, the proper way to check engine oil.

DEVIATION REPORT SUBJECT

Oil Pressure Switch Stuck

DVR #
1-1-82-251

DATE OF OCCURRENCE
9/29/82

EQUIPMENT INVOLVED
OB DFP

STATUS TO DATE:

OB DFP failed to start in the Manual or Test Mode. No problems were found so the OB DFP was retested and operated satisfactorily.

DEVIATION REPORT SUBJECT

Oil Dipstick

DVR #
1-1-82-38

DATE OF OCCURRENCE
5/12/82

EQUIPMENT INVOLVED
OA DFP

STATUS TO DATE:

An operator while checking engine oil with the engine dipstick, shorted between the engine block and the positive terminal of the starter solenoid. To prevent happening in the future, the starter connections at the diesel have been insulated with electrical tape. This problem has not reoccurred since this failure.

DEVIATION REPORT SUBJECT

Radiator Cap

DVR #
1-1-82-117

DATE OF OCCURRENCE
7/8/82

EQUIPMENT INVOLVED
OA DFP

STATUS TO DATE:

OA DFP overheated as the result of a leaking radiator cap. The radiator cap was replaced and the engine was retested satisfactorily. A step has been added to weekly procedure LOS-FP-W2 to inspect the radiator cap for possible damage.

DEVIATION REPORT SUBJECT

Raw Water Reducer

DVR #
1-1-83-402

DATE OF OCCURRENCE
10/4/83

EQUIPMENT INVOLVED
OB DFP

STATUS TO DATE:

The Raw Water Reducer is not able to supply enough water to cool the diesel engine jacket water heat exchanger when the angle drive raw water cooling supply is opened fully. The temporary fix is to install caution tags on the raw water bypass valve around the Raw water reducer to ensure enough water is available to cool both the angle drive and engine jacket water heat exchange adequately.

Both fire pumps have been tested at full load with this temporary fix and the jacket water temperatures did not exceed the normal operating temperatures. A permanent fix to this problem is now under investigation.

DEVIATION REPORT SUBJECT

Speed Cable

DVF #
1-1-82-12

DATE OF OCCURRENCE
4/17/82

EQUIPMENT INVOLVED
OB DFP

STATUS TO DATE:

The speed cable was replaced and the OB DFP tested SAT. This problem has not happened since.

DEVIATION REPORT SUBJECT

Temperature gauge

DVR #
1-1-82-379

DATE OF OCCURRENCE
12/18/82

EQUIPMENT INVOLVED
OB DFP

STATUS TO DATE:

The operator stated the Diesel Fire Pump Temperature was excessive. After testing the OB DFP it did not over heat and was declared operable. A work request was written to investigate the possibility of a defective temperature gauge. This problem has not happened since this incident.

DEVIATION REPORT SUBJECT

U-Joint

DVR #
1-1-83-390

DATE OF OCCURRENCE
9/22/83

EQUIPMENT INVOLVED
OA DFP

STATUS TO DATE:

The Universal Joint on OA DFP broke and damaged the diesel engine and angle drive. Both the diesel engine and angle drive were repaired and returned to service. It was believed this failure was caused by lack of lubrication of the universal joint. A surveillance has been initiated that lubricates the universal joints regularly.

DEVIATION REPORT SUBJECT

V-belt

DVR #
1-1-83-229

DATE OF OCCURRENCE
6/19/83

EQUIPMENT INVOLVED
OA DFP

STATUS TO DATE:

The V-belt guard was cracked and caused the water pump V-belt to break. The broken V-belt caused the engine to overheat and the engine was damaged because of the lack of cooling water flow.

The engine was replaced and tested satisfactorily. An addition to LOS-FP-W2 has been added to inspect the V-belt and V-belt guard for cracks at least once a week. This problem has never reoccurred.

ATTACHMENT C

Chronological list of Diesel Fire Pump Deviation Reports from April 17, 1982, to January 1, 1984.

ATTACHMENT C

<u>Deviation Report #</u>	<u>Date</u>	<u>Subject</u>	<u>Downtime</u>	<u>Pump Involved</u>
1-1-82-12	4/17/82	Speed Cable	3 days	B
1-1-82-38	5/12/82	Oil Dipstick	1 days	A
1-1-82-62	5/26/82	Fuel Line Leak	1 day	A
1-1-82-99	6/18/82	Fuel Filter	1 day	A
1-1-82-107	6/23/82	Cooling Water Solenoid	1 day	B
1-1-82-124	7/06/82	Fuel Line Leak	7 days	B
1-1-82-117	7/08/82	Radiator Cap	6 days	A
1-1-82-130	7/14/82	Fuel Pump Input Shaft Broken	2 days	B
1-1-82-201	8/22/82	Day Tank Fuel Leak	2 days	B
1-1-82-208	8/28/82	Day Tank Fuel Leak	4 days	B
1-1-82-251	9/29/82	Oil Pressure Switch Stuck	2 days	B
1-1-82-256	10/03/82	Engine Oil Level Low	2 days	A
1-1-82-273	10/10/82	Fuel Filter	1 day	A
1-1-82-379	12/18/82	Temperature Gauge	7 days	B
1-1-82-378	12/27/82	Battery Cable	4 days	A
1-1-83-144	4/19/83	Glycol in Oil	21 days	A
1-1-83-188	5/17/83	Cooling Water Lines	2 days	A
1-1-83-194	5/25/83	Cooling Water Lines	7 days	A
1-1-83-229	6/19/83	V-Belt	10 days	A
1-1-83-313	8/09/83	Jacket Water Level Low	1 day	B
1-1-83-331	8/18/83	Minimum Flow Line, Jockey Fire Pump	1 day	A&B
1-1-83-353	8/27/83	Cooling Water Lines	1 day	A
1-1-83-390	9/22/83	U-Joint	44 days	A
1-1-83-402	10/02/83	Raw Water Reducer	1 day	B
1-1-83-473	12/06/83	Maintenance	7 days	B
1-1-83-479	12/27/83	Check Valve	16 days	A

ATTACHMENT D

Special Reports submitted to NRC Regional Administrator under Technical Specification 3.7.5.1.b.2.