

LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Dresden Nuclear Power Station, Unit 2 Docket Number (2) 0 5 10 10 10 2 3 7 1 of 0 6 Page (3)

Title (4) ESF Actuation Due to the Loss of Both RPS Busses Caused by Diesel Generator Fuel Filter Fouling

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)																					
1	2	2	4	8	8	8	8	8	---	0	2	0	---	0	0	0	1	2	0	8	9	N/A	0	5	10	10	10				
														N/A	0	5	10	10	10												

OPERATING MODE (9) N

POWER LEVEL (10) 0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)

<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> Other (Specify in Abstract below and in Text)
<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

Name: Lawrence Bihlman, Technical Staff Engineer Ext. 2549

TELEPHONE NUMBER: AREA CODE 8 1 5 9 4 2 - 2 9 2 10

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	
X	E	K	F	L	T	E	1	4	7	Y

SUPPLEMENTAL REPORT EXPECTED (14)

Expected Submission Date (15) X | NO

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

On December 24, 1988, with Unit 2 shutdown and all the fuel removed from the reactor vessel, the Standby Gas Treatment System automatically initiated and the Reactor Building Ventilation System isolated when both Reactor Protection System (RPS) busses deenergized when the Electrical Protection Assemblies (EPAs) tripped on underfrequency. At the time of the event the A RPS bus (powered from B RPS MG set) and B RPS bus (powered at the time from the Reserve Instrument and RPS bus) were being fed from the Unit 2 Diesel Generator. The root cause of the event was a fouled Unit 2 Diesel Generator fuel filter which caused the diesel generator speed and, therefore, frequency to drop below the RPS EPA relay setpoint. The Unit 2/3 Diesel Generator and the Unit 2 to Unit 3 crosstie breaker were operable and capable of supplying power to Unit 2. The Fuel Pool Cooling System also remained operable and therefore this event was deemed to be of minimal safety significance. The fuel filters were replaced. Subsequently, the High Voltage Operator's Round Book will be revised to monitor fuel pressure during long duration diesel generator runs. This was the first event in which diesel generator operability was compromised by the fuel system at Dresden Station:

IF22

8901250250 890120
PDR ADDCK 05000237
S PDC

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)		
		Year	///	Sequential Number	///	Revision Number				
Dresden Nuclear Power Station	0 5 0 0 0 2 3 7	8 8	-	0 2 0	-	0 0	0 3	OF	0 6	

TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

C. APPARENT CAUSE OF EVENT:

This report is being submitted to comply with 10CFR50.73(a)(2)(iv) which requires the reporting of any unplanned Engineered Safety Feature (ESF) actuation. The intermediate cause of the event has been determined to be the frequency oscillations of the Unit 2 Diesel Generator. The EPA underfrequency relays are set to trip at 56 hz, consequently when the relays actuated the RPS busses were deenergized resulting in a scram signal on both RPS channels. The Control Rod Drive (CRD) [AA] System was not in operation and the CRD accumulators were drained, therefore no CRD movement occurred. The SBTG initiations and Reactor Building System Ventilation isolation also resulted from the deenergization of the RPS busses. The Reactor Building and refuel floor radiation monitors [IL] are fed from RPS. When the monitors are deenergized, the logic circuitry seals in a high radiation signal resulting in the SBTG initiation and Reactor Building Ventilation isolation.

The Control Room frequency meter has a scale from 58 to 62 hz while the local meter has a scale from 56 to 62 hz. Both meters were observed oscillating through their entire range. The frequency oscillations were the result of a fouled fuel filter [DC], which has been determined to be the root cause of this event. The Unit 2 Diesel Generator had been operating for approximately 100 hours when the failure occurred. Conversation with the diesel generator vendor has indicated that the fouling of a fuel filter is not uncommon with a run of this duration. Diesel fuel is inherently dirty and coupled with the agitation of contaminants in the main storage tank by fuel deliveries resulted in the filter becoming fouled.

D. SAFETY ANALYSIS OF EVENT:

The SBTG and Reactor Building Ventilation Systems performed as expected and designed when the radiation monitors were deenergized. The Unit 2/3 Diesel Generator functioned properly during the event. With all the fuel removed from the reactor vessel, none of the high or low pressure Emergency Core Cooling Systems (ECCSs) were required to be operable. The Unit 2 to Unit 3 4KV crosstie was also operable and capable of supplying power to Unit 2. The Fuel Pool Cooling System [DA] remained operable throughout the event thus assuring adequate decay heat removal from the stored fuel. The 2C Shutdown Cooling (SDC) loop was also aligned to the fuel pool and was available to assist the Fuel Pool Cooling System had the need arose. The 2C SDC pump is fed from the Unit 2/3 Diesel Generator. Based on the above, this event was deemed to be of minimal safety significance.

E. CORRECTIVE ACTIONS:

Immediate corrective actions consisted of switching to the other diesel generator fuel filter, flashing the RPS MG set, resetting the EPA relays, energizing the RPS busses and resetting the scram signal. The Reactor Building Ventilation System was placed in operation and SBTG secured. The fuel oil filters were subsequently replaced under Work Request 80921 when TR22 was returned to service. Dresden Operating Surveillance (DOS) 6600-1, Diesel Generator Surveillance Test, was performed to verify the operability of the Unit 2 Diesel Generator. Additional corrective action will consist of replacing the Unit 2/3 Diesel Generator fuel filters during the upcoming maintenance outage (237-200-88-15001). Additionally the High Voltage Operator's (HVO) Round Book will be revised to include a section for critical diesel generator parameters when the engine is running. This section will include fuel pressure and will direct the HVO to switch filters if fuel pressure exceeds 70 psig (237-200-88-15002) in addition to initiating a work request to replace the filter. The filters can be replaced while the engine is running if necessary.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)		
		Year	/	Sequential Number	/	Revision Number				
Dresden Nuclear Power Station	0 5 0 0 0 2 3 7	8 8	-	0 2 0	-	0 0	0 4	OF	0 6	

TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

The fuel oil for each diesel generator is sampled on a monthly basis in accordance with DOS 040-2, Operators Oil Sampling for Off-Site Laboratory Analysis. The samples from the bottom of the main storage tanks and the day tanks are analyzed by the System Material Analysis Department (SMAD) for water, sediment, microbes and viscosity. Fuel acceptance is based on the American Society for Testing Materials (ASTM) D975 for #1 and #2 diesel fuels. New fuel shipments are sampled and inspected visually in accordance with Dresden Warehouse Procedure (DWP) 15, Receiving of Diesel Oil, prior to acceptance. The fuel is procured from vendors on the Quality Assurance (QA) Approved Bidders List (ABL). The vendor supplies a Certificate of Conformance to ASTM D-975 with each shipment. The new fuel samples are also analyzed by SMAD. The sample results from the past month and the new fuel shipments have yet to be received from SMAD; however, they are expected based on previous results to be acceptable.

The diesel engines utilize two fuel filters, a dual filter assembly and a suction fuel filter as shown in Figure 2. The various filters are checked and/or replaced periodically. The dual fuel filter is cycled every three months in accordance with Dresden Maintenance Procedure (DMP) 6600-2, Diesel Generator Three Month Inspection/Mechanical Maintenance Department, and the filter elements are replaced every six months in accordance with DMP 6600-3, Diesel Generator Six Month Inspection/Mechanical Maintenance Department. The suction fuel filter is cleaned or replaced yearly as required in accordance with DMP 6600-4, Diesel Generator Annual and Biennial Mechanical Inspection.

The above corrective actions, sampling program and preventive maintenance actions are deemed adequate to prevent further failures. No further corrective actions are considered necessary at this time.

F. PREVIOUS EVENTS:

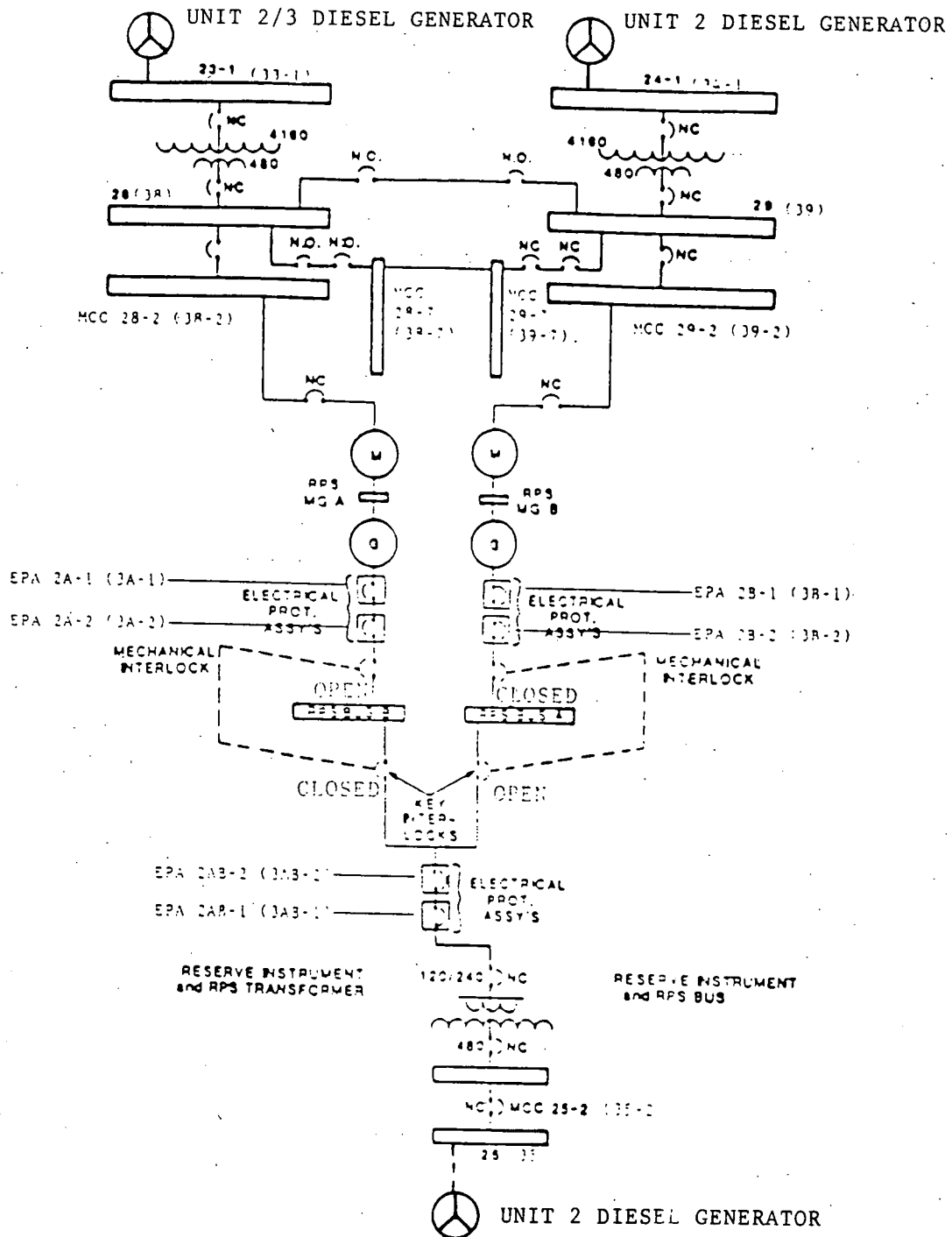
This was the first occurrence in which a fuel filter had an adverse affect on diesel generator operation.

G. COMPONENT FAILURE DATA:

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model Number</u>	<u>MFG Part Number</u>
Electromotive (General Motors)	Fuel Filter	N/A	3386761

An NPRDS data search revealed 16 events involving the fouling of a diesel generator fuel filter. In each instance the fuel filters were replaced and the diesel generator returned to service.

FACILITY NAME (1) Dresden Nuclear Power Station	DOCKET NUMBER (2) 0 5 0 0 0 2 3 7	LER NUMBER (6)						Page (3)		
		Year 8 8	Sequential Number - 0 2 0	Revision Number - 0 0						
TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]										

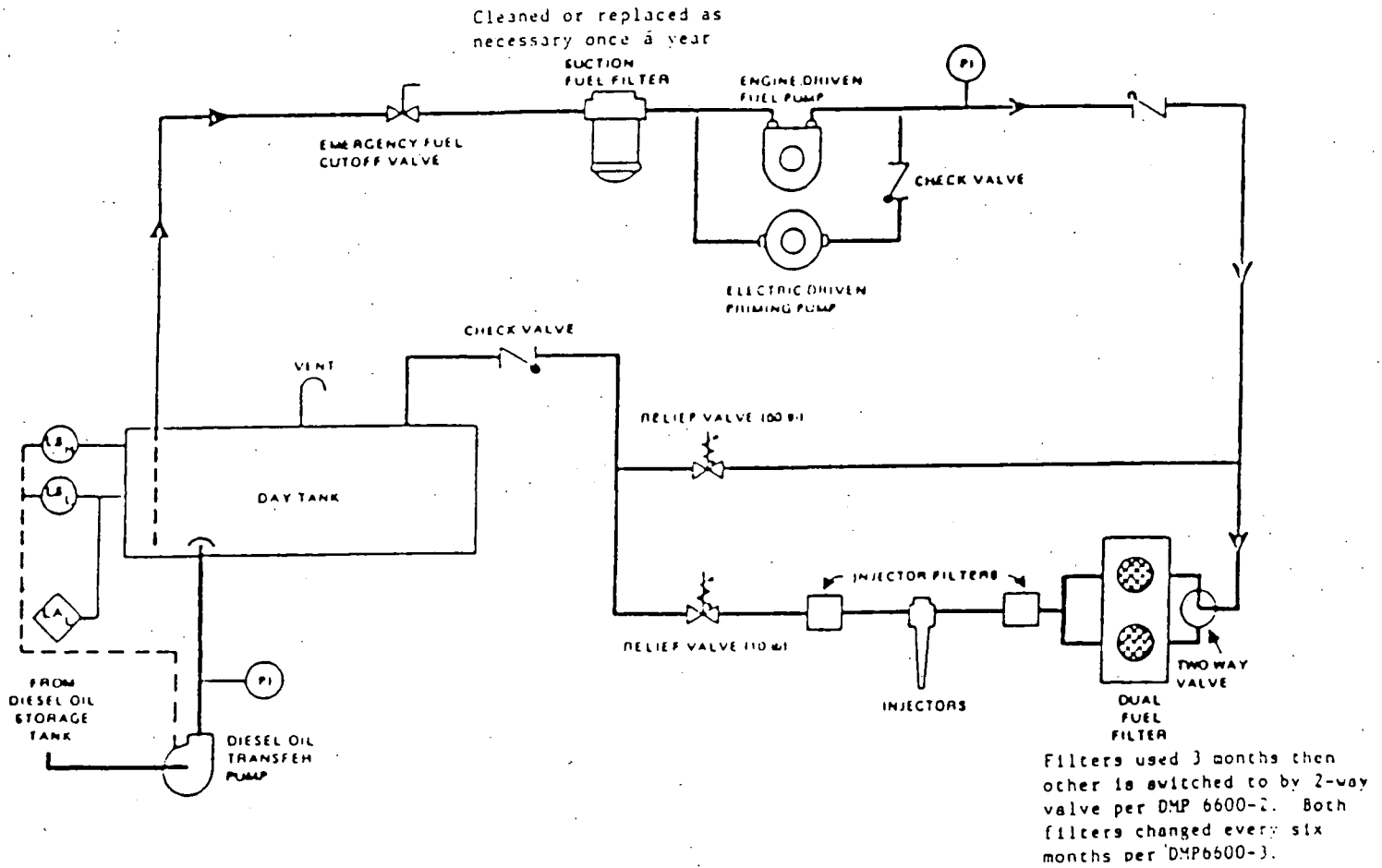


REACTOR PROTECTIVE SYSTEM DISTRIBUTION

Figure 1

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			Page (3)		
		Year	Sequential Number	Revision Number			
Dresden Nuclear Power Station	0 5 0 0 0 2 3 7	8 8	- 0 2 0	- 0 0	0 6	OF	0 6

TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]



DRESDEN UNIT 2
EMERGENCY DIESEL GENERATOR FUEL OIL SYSTEM

Figure 2



Commonwealth Edison

Dresden Nuclear Power Station

R.R. #1

Morris, Illinois 60450

Telephone 815/942-2920

January 20, 1989

EDE LTR #89-018

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

Licensee Event Report #88-020-0, Docket #050237 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73(a)(2)(iv).

E.D. Eenigenburg
Station Manager
Dresden Nuclear Power Station

EDE/ade

Enclosure

cc: A. Bert Davis, Regional Administrator, Region III
File/NRC
File/Numerical

0464k

IE22
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