

**Detroit Edison**



April 30, 2001  
NRC-01-0027

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

- References: 1) Fermi 2  
NRC Docket No. 50-341  
NRC License No. NPF-43
- 2) DECo Letter, W. T. O'Connor, Jr. to USNRC, "ECCS  
Cooling Performance Evaluation Model Report," dated  
December 19, 2000 (NRC-00-0074)

Subject: 2000 Annual Reports for Fermi 2

The Fermi 2 Technical Specifications (TS) contain requirements for submitting a report for occupational radiation exposure (Technical Specification 5.6.1) and safety relief valve challenges (Technical Specification 5.6.6). Both reports shall be submitted by April 30 of each year. Enclosures A and B are provided in accordance with Technical Specification 5.6.1 and 5.6.6 to meet these requirements.

Enclosure C is attached containing a report on service life of the main steam bypass line. This satisfies the commitment stated in a Detroit Edison letter to the NRC dated November 7, 1986 [VP-86-0154].

Enclosure D is attached in accordance with 10 CFR 50.46(a)(3)(ii) and contains a report on Emergency Core Cooling System (ECCS) cooling performance evaluation model changes or errors.

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USNRC  
NRC-01-0027  
Page 2

Should you have any questions or require additional information, please contact me at (734) 586-4258.

Sincerely,

A handwritten signature in black ink, appearing to be 'N. K. Peterson', written over a horizontal line.

Norman K. Peterson  
Director - Nuclear Licensing

Enclosure A: Occupational Radiation Exposure Report  
Enclosure B: Safety Relief Valve Challenge Report  
Enclosure C: Service Life of Main Steam Bypass Line  
Enclosure D: ECCS Cooling Performance Evaluation Model Changes or Errors

cc: M. A. Ring  
M. A. Shuaibi  
NRC Resident Office  
Regional Administrator, Region III  
Supervisor, Electric Operators,  
Michigan Public Service Commission

**FERMI 2**

**OCCUPATIONAL RADIATION EXPOSURE REPORT**

**JANUARY 1 - DECEMBER 31, 2000**

**DETROIT EDISON COMPANY**

**NRC DOCKET NO. 50-341**

**FACILITY OPERATING LICENSE NO. NPF-43**

**Detroit Edison Fermi 2**  
**2000 Regulatory Guide 1.16 Secondary Dosimeter Deep Dose Equivalent (DDE) Dose Report**

Function	Department	Personnel Receiving Exposure			DRD DDE Manrem		
		Station Employees	Utility Employees	Contract Workers	Station Employees	Utility Employees	Contract Workers
Reactor Operations & Surveillance	Maintenance	16	4	134	1.504	0.169	14.957
	Operations	0	0	2	0.000	0.000	0.225
	Health Physics	1	0	0	0.120	0.000	0.000
	Supervisory	0	4	45	0.000	0.000	2.699
	Engineering	1	0	2	0.000	0.000	0.139
Routine Maintenance	Maintenance	151	41	399	8.755	0.545	23.533
	Operations	120	0	88	10.104	0.000	7.789
	Health Physics	58	2	62	8.008	0.061	5.398
	Supervisory	238	67	407	7.588	0.181	7.054
	Engineering	134	15	43	2.875	0.144	3.041
Inservice Inspection	Maintenance	0	0	13	0.000	0.000	1.591
	Operations	0	0	0	0.000	0.000	0.000
	Health Physics	0	0	0	0.000	0.000	0.000
	Supervisory	1	0	0	0.003	0.000	0.000
	Engineering	1	0	10	0.049	0.000	1.701
Special Maintenance	Maintenance	10	1	135	2.495	0.269	11.949
	Operations	1	0	1	0.259	0.000	0.000
	Health Physics	1	0	1	0.330	0.000	0.000
	Supervisory	1	0	30	0.358	0.000	1.673
	Engineering	1	0	1	0.219	0.000	0.001
Waste Processing	Maintenance	0	0	0	0.000	0.000	0.000
	Operations	2	0	14	0.160	0.000	0.634
	Health Physics	0	0	0	0.000	0.000	0.000
	Supervisory	0	0	0	0.000	0.000	0.000
	Engineering	0	0	0	0.000	0.000	0.000
Refueling	Maintenance	0	0	21	0.000	0.000	2.620
	Operations	0	0	1	0.000	0.000	0.421
	Health Physics	0	0	6	0.000	0.000	0.404
	Supervisory	0	0	5	0.000	0.000	0.551
	Engineering	0	0	1	0.000	0.000	0.093
<b>Total</b>	<b>Maintenance</b>	<b>177</b>	<b>46</b>	<b>702</b>	<b>12.754</b>	<b>0.983</b>	<b>54.65</b>
	<b>Operations</b>	<b>123</b>	<b>0</b>	<b>106</b>	<b>10.523</b>	<b>0.000</b>	<b>9.069</b>
	<b>Health Physics</b>	<b>60</b>	<b>2</b>	<b>69</b>	<b>8.458</b>	<b>0.061</b>	<b>5.802</b>
	<b>Supervisory</b>	<b>240</b>	<b>71</b>	<b>487</b>	<b>7.949</b>	<b>0.181</b>	<b>11.977</b>
	<b>Engineering</b>	<b>137</b>	<b>15</b>	<b>57</b>	<b>3.143</b>	<b>0.144</b>	<b>4.975</b>
<b>Grand Total</b>		<b>Personnel 2292</b>			<b>Manrem 130.669</b>		

**NOTE:** This report was produced using only secondary (DRD) external dosimetry - it does not include any internal exposure.

**FERMI 2**

**SAFETY RELIEF VALVE CHALLENGE REPORT**

**JANUARY 1 - DECEMBER 31, 2000**

**DETROIT EDISON COMPANY**

**NRC DOCKET NO. 50-341**

**FACILITY OPERATING LICENSE NO. NPF-43**

Safety Relief Valve Challenges

There were no instances in 2000 where reactor pressure was high enough to require Safety Relief Valve (SRV) actuation. There were no instances in 2000 where an SRV actuation was demanded by an automatic logic system. SRVs were manually actuated in 2000 for surveillance/post-maintenance testing following the seventh refueling outage (RFO7) as described below:

<u>Date</u>	<u>Affected SRV</u>	<u>Comments</u>
5/22/00	All	Surveillance Testing/Post Maintenance Testing Following 2000 Refuel Outage. All SRVs lifted on demand.

**FERMI 2**

**SERVICE LIFE OF MAIN STEAM BYPASS LINE**

**JANUARY 1 - DECEMBER 31, 2000**

**DETROIT EDISON COMPANY**

**NRC DOCKET NO. 50-341**

**FACILITY OPERATING LICENSE NO. NPF-43**

Service Life of Main Steam Bypass Line

In accordance with a Detroit Edison letter to the NRC dated November 7, 1986 [VP-86-0154], the cumulative time the main steam bypass lines are operated with the bypass valves between 30 percent and 45 percent open will be reported annually. A cumulative value of 100 days is not to be exceeded without prior NRC notification.

Evaluations performed by Stone and Webster and by Hopper and Associates concluded that the bypass lines are acceptable for safe operation when operated within the 100 day constraint. Based on these evaluations, the new main steam bypass piping that was installed in 1985 has a service life that will allow it to function for the life of the plant under anticipated operating conditions. The main steam bypass lines cumulative usage was 38.01 days as of December 31, 2000.



**FERMI 2**

**ECCS COOLING PERFORMANCE EVALUATION MODEL CHANGES OR ERRORS**

**JANUARY 1 - DECEMBER 31, 2000**

**DETROIT EDISON COMPANY**

**NRC DOCKET NO. 50-341**

**FACILITY OPERATING LICENSE NO. NPF-43**

### ECCS Cooling Performance Evaluation Model Changes or Errors

No changes or errors which impact the Fermi 2 licensing basis Peak Cladding Temperature (PCT) were identified. However, two errors were discovered in General Electric's (GE) GESTR-LOCA and SAFER codes used to calculate fuel peak clad temperature (PCT) during a LOCA.

1. On September 26, 2000, Global Nuclear Fuel (GNF) informed Detroit Edison of an error found in GE's SAFER/GESTR-LOCA code. This error regards modeling ECCS leakage flows. The ECCS piping inside the vessel has various leakage paths through slip joints and vent holes. Not all the ECCS water injected into the vessel reaches the region inside the shroud. In the SAFER analysis, these leakage flows are not automatically subtracted from the Operating Parameters for Licensing Form 4 (OPL-4) values for the ECCS system flows. Because relaxed ECCS flow rates were used in the Fermi 2 SAFER analysis, we were able to use some of this flow margin to account for ECCS leakage. Therefore, this error has no impact on the Fermi 2 PCT results.
2. On November 20, 2000, GNF informed Detroit Edison of an additional error. This error involves the impact of time step size on numerical convergence of the PCT calculation. The use of smaller time steps improves convergence and reduces the PCT by 5 degrees Fahrenheit. This negative 5 degree Fahrenheit change (along with the previously reported 65 degree Fahrenheit change) meets the notification requirements of 10CFR50.46(a)(3)(ii) because the sum of the absolute magnitudes of the individual PCT changes is greater than the thirty day reporting threshold value of 50 degrees Fahrenheit (Reference 2).

Without this negative 5 degree Fahrenheit change in PCT, there is still more than 500 degrees Fahrenheit of margin to the 2200 degrees Fahrenheit Licensing Basis PCT limit (i.e.  $2200 - 1602 - 65 = 533$  degrees Fahrenheit). The additional change does not reduce this margin.

The licensing basis remains as reported to the NRC in Detroit Edison Letter NRC-96-0052, dated May 28, 1996.