

U. S. NUCLEAR REGULATORY COMMISSION
REGION III

Report No. 50-341/91005(DRSS)

Docket No. 50-341

License No. NPF-43

Licensee: The Detroit Edison Company
6400 North Dixie Highway
Newport, MI 48166

Facility Name: Fermi 2

Inspection At: Fermi Site, Newport, Michigan

Inspection Conducted: February 4-6, 1991 (Onsite)
February 8, 1991 (Telephone Discussion)

Inspector: *J. E. House*
J. E. House

2-21-91
Date

Approved By: *M. C. Schumacher*
M. C. Schumacher, Chief
Radiological Controls and
Chemistry Section

2-21-91
Date

Inspection Summary

Inspection on February 4-6, 1991 (Report No. 50-341/91005(DRSS))

Areas Inspected: Routine unannounced inspection of the licensee's radiological environmental monitoring program (REMP) (IP 84750); nonradiological confirmatory measurements (IP 84750); standby liquid control system (SLCS) (IP 92701)

Results: The licensee's REMP appeared to be adequate. Performance in the nonradiological confirmatory measurement was very good. No violations were identified.

DETAILS

1. Persons Contacted

- ¹R. Baum, Sr. Radiological Engineer, ALARA
- ¹S. Catola, Vice President, Nuclear Engineering Services
- ¹D. Gipson, Assistant Vice President
- ¹L. Goodman, Director, Nuclear Licensing
- ¹T. Lashley, Engineer, REMP
- ¹P. Lovallo, Senior Engineer, Chemistry
- ¹R. McKeon, Plant Manager
- ¹J. Pendergast, Engineer, Compliance
- ¹T. Riley, Supervisor, Compliance
- ¹K. Shields, Supervisor, Chemistry
- ¹W. Terrasi, General Supervisor, Chemistry
- ¹T. VanderMey, Radiological Engineer

- ¹S. Stasek, NRC Resident Inspector

The inspector also interviewed other licensee personnel in various departments in the course of the inspection.

¹Denotes those present at the plant exit interview on February 6, 1991.

2. Radiological Environmental Monitoring Program (REMP)(IP B4750)

The inspector reviewed the REMP, including the 1989 Annual Environmental Report, an audit of the program (Section 6) and toured the air sampling stations. The Annual Environmental Report appeared to comply with the REMP Technical Specification (T/S) requirements. All of the required samples were collected and analyzed, except as noted in the report. The results do not indicate a significant radiological contribution to the environment due to plant operation.

The inspector toured five air sampling stations around the plant and reviewed the environmental sampling program with a licensee representative who appeared knowledgeable in the details of the overall REMP sampling program. The inspector reviewed calibration records for the FAC Universal Samplers. The five air sampling stations are calibrated every six months and all were within the calibration period. Calibration documents for the primary calibration instrument (Kurtz Model MCI 1129N) were satisfactory.

The inspector tested air sampling trains for air leakage. The air samplers appeared to be performing adequately, both with respect to vacuum and flow. Overall, the REMP appeared to be operating satisfactorily.

During May 1990, milk samples from three locations were reported by the licensee vendor laboratory to contain I-131, the highest level being 17.8 picoCuries per liter at a location approximately 5 miles to the northwest. A routine quality control sample taken at the same location on the same day was about a factor of 15 lower. The licensee conducted

an extensive investigation to determine whether or not the plant was the source of the I-131. The investigation included plant operating conditions, meteorological data, reactor coolant chemistry data, effluent and monitor data for the reactor and turbine buildings, environmental monitoring results and an audit of vendor performance including quality assurance data. The licensee's investigation concluded that the plant was not the source of the apparent iodine. Licensee representatives believe that it is likely that the iodine indication was a false positive result introduced by QA problems at the vendor laboratory. In particular, errors resulting from extensive delay in counting for the eight day half life of I-131 were noted. The licensee has changed vendor laboratories because of these problems. The NRC and the State of Michigan were both apprised of the licensee's investigation. Based on his review of the licensee's investigation, the inspector agreed with the licensee's conclusions.

No violations or deviations were identified.

3. Nonradiological Confirmatory Measurements (IP 92701)

The inspector submitted chemistry samples to the licensee for analysis as part of a program to evaluate the laboratory's capabilities to monitor nonradiological chemistry parameters in various plant systems with respect to various Technical Specification and other regulatory and administrative requirements. These samples had been prepared, standardized, and periodically reanalyzed (to check for stability) for the NRC by the Radiological Sciences Division of Brookhaven National Laboratory (BNL). The samples were analyzed by the licensee using routine methods and equipment.

A single dilution was made for each sample by licensee personnel as necessary to bring the concentrations within the ranges normally analyzed by the laboratory, and run in a manner similar to that of routine samples. The results are presented in Table 1 which also contains the criteria for agreement. These criteria are based on BNL analyses of the standards and on the relative standard deviations (RSD) derived from the results of the plants participating in the 1986 interlaboratory comparisons (Table 2.1 NUREG/CR-5422).

The licensee determined 7 analytes at a single concentration, all of which were agreements. The licensee performed well and no analytical problems were apparent.

No violations or deviations were identified.

4. Water Chemistry Control Program (IP 84750)

The inspector reviewed chemistry trend charts of reactor water and feedwater parameters for the previous year. During this period water quality was generally adequate. A licensee representative stated that on several occasions leaks in condenser tubes and feedwater heater tubes were responsible for increases in contaminant levels. Reactor water levels of chloride, sulfate and conductivity were elevated during parts of January and February; August and September 1990. Although these excursions were above the EPRI achievable levels of the BWR Owners Group Guidelines (BWR OGG), trend chart data did not indicate that action levels were entered. Water quality improved following

repairs to these systems and has been very good since December. Feedwater metals were generally within the Owners Group Guidelines.

Licensee representatives stated that the run time of the condensate filter demineralizers has increased to an average of 15 days from a few days during the previous inspection (Region III Inspection Report 89023). Continued progress in this area along with plant water quality will be followed in subsequent inspections.

No violations or deviations were identified.

5. Standby Liquid Control System (IP 84750)

The inspector reviewed selected analyses of boron concentration and tank volume of the Standby Liquid Control System (SLCS). Boron concentration and tank volumes appeared to be within acceptable ranges. The licensee now uses sodium pentaborate enriched in the B-10 isotope to meet the 10 CFR 50.62 ATWS requirement. Licensee procedures require that the B-10 isotope enrichment be 65 atom%. Vendor data showed that this was the case.

No violations or deviations were identified.

6. Audits

The inspector reviewed Chemistry QA audit 90-0031 conducted February 19 - March 2, 1990, which focused on sample collection and analysis, result reporting, Post Accident Sampling System (PASS) operation, trending of results and ALARA practices in the laboratory. One surveillance, conducted December 12-21, 1990, was reviewed and the observations had been responded to in an adequate and timely fashion.

Audit 90-0187 conducted July 16-27, 1990 of the REMP was reviewed. Deviation Event Reports (DERs) and observations were responded to in an adequate and timely fashion. Both Audits and the surveillance were performance based and appeared to be thorough.

No violations or deviations were identified.

7. Exit Interview

The scope and findings of the inspection were reviewed with licensee representatives at the conclusion of the inspection on February 6, 1991. The inspector discussed the Radiological Environmental Monitoring Program (REMP), nonradiological confirmatory measurements results, water quality and the licensee's investigation of I-131 in milk. During the exit interview, the inspector discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector. Licensee representatives did not identify any such documents or processes as proprietary.

Attachment:

1. Table 1, Nonradiological Interlaboratory Test Results, February 4-6, 1991

TABLE 1
 Nonradiological Interlaboratory Test Results
 FERM1 2 Nuclear Generating Plant
 February 4-6, 1991

Analyte	Method ¹		Conc ²	Ratio ³	Acceptance Ranges ⁴		Result ⁵
					$\pm 2sd$	$\pm 3sd$	
ppb							
Chloride	A	IC	15	1.020	0.933-1.067	0.900-1.100	A
Sulfate	A	IC	10	0.989	0.895-1.105	0.842-1.158	A
Iron	G	ICP	1000	0.985	0.904-1.096	0.854-1.146	A
Copper	G	ICP	1000	1.005	0.904-1.095	0.859-1.141	A
Nickel	G	ICP	1000	0.966	0.936-1.064	0.906-1.094	A
Chromium	G	ICP	1000	0.970	0.905-1.095	0.855-1.145	A
ppm							
Boron ⁶	F	Titr	5000	1.011	0.979-1.021	0.968-1.032	A

1. Methods: Titr - Titration
 IC - Ion Chromatography
 ICP - Inductively Coupled Plasma Spectroscopy
2. Conc: Approximate concentration analyzed.
3. Ratio of Licensee mean value to NRC mean value.
4. The SD in the fifth and sixth columns (acceptance ranges) represents the coefficient of variation obtained from averaging licensee data from the preceding cycle (Table 2.1 of NUREG/CR-5244). The licensee value is considered to be in agreement if it falls within the ± 2 SD range; a qualified agreement if it lies outside ± 2 SD but within ± 3 SD; and in disagreement if it is outside the ± 3 SD range.
5. Result:
 A = Agreement: Licensee value is within ± 2 SDs of the NRC mean value.
 A+ = Qualified agreement: Licensee is between ± 2 and ± 3 SDs of the NRC value.
 D = Disagreement: Licensee value is outside ± 3 SDs.

INSPECTOR'S REPORT
 Office of Inspection and Enforcement

House, J. E.
 REVIEWER
 SCHUMACHER, M. C.

INSPECTOR:

LICENSEE/VENDOR DETROIT EDISON FERMI-2	TRANSACTION TYPE <input checked="" type="checkbox"/> INSERT <input type="checkbox"/> MODIFY <input type="checkbox"/> DELETE <input type="checkbox"/> REPLACE	DOCKET NO. (NAME OF LICENSEE NO. BY PRODUCT) (ISSUE) 05000391	REPORT NO. 91005	NEXT INSPEC. DATE							
	<table border="1"> <tr> <td>NO.</td> <td>REQ.</td> <td>WFO</td> <td>VA</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>				NO.	REQ.	WFO	VA			
NO.	REQ.	WFO	VA								

PERIOD OF INVESTIGATION - INSPECTION	INSPECTION PERFORMED BY	ORGANIZATION CODE OF REGION AND CODEDUCTING ACTIVITY (SEE 50 CFR 2.207) (Minimum Report No. - Weekly Manpower Reporting - 10/20/81)
FROM: MO DAY HR 02 04 91 02 06 91	TO: MO DAY HR 02 06 91	REGION DIVISION BRANCH 3 4 1
1 - REGIONAL OFFICE STAFF 2 - REGIONAL INSPECTOR 3 - PERFORMANCE APPRAISAL TEAM	OTHER	

REGIONAL ACTION (CHECK OFFICE ONLY)	TYPE OF ACTIVITY CONDUCTED (CHECK ONE OR MORE)			
<input checked="" type="checkbox"/> 1 - NO FORMER <input checked="" type="checkbox"/> 2 - REGIONAL OFFICE LETTER	<input checked="" type="checkbox"/> 01 - SAFETY <input type="checkbox"/> 02 - ACCIDENT <input type="checkbox"/> 03 - ENFORCEMENT <input type="checkbox"/> 04 - MOIST AIR	<input type="checkbox"/> 05 - MOIST VENT <input type="checkbox"/> 07 - SPECIAL <input type="checkbox"/> 08 - VENDOR <input type="checkbox"/> 09 - BRT AUST	<input type="checkbox"/> 10 - PLANT REQ. <input type="checkbox"/> 11 - INVENT. OR. <input type="checkbox"/> 12 - SHIPMENT EXPORT <input type="checkbox"/> 13 - REPORT	<input type="checkbox"/> 14 - INDUSTRY <input type="checkbox"/> 15 - INVESTIGATION

INSPECTION NOTES FOR THIS INSPECTION (CHECK ONE OR MORE)	TOTAL NUMBER OF VIOLATIONS AND DEVIATIONS	ENFORCEMENT CONFERENCE HELD	REPORT CONTAINS ALL INFORMATION	LETTER OF REPORT TRANSMITTAL DATE
<input checked="" type="checkbox"/> 1 - CLEAR <input type="checkbox"/> 2 - VIOLATION <input type="checkbox"/> 3 - DEVIATION <input type="checkbox"/> 4 - VIOLATION & DEVIATION	A B C D 0 0	A B C D YES	A B C D YES	NO. OF ORIGINAL LETTER ISSUED REPORT SENT FOR ACTION MO DAY HR 02 28 91

MODULE INFORMATION												MODULE INFORMATION											
TYPE	NUMBER	PHASE	MANUAL	CHAPTER	PROCEDURE NUMBER	LEVEL	STATUS	PERCENTAGE COMPLETED TO DATE	STATUS	PHASE	MANUAL	CHAPTER	PROCEDURE NUMBER	LEVEL	STATUS	PERCENTAGE COMPLETED TO DATE	STATUS	PHASE	MANUAL	CHAPTER	PROCEDURE NUMBER	LEVEL	
0111	8,9	7,5,0																					
0111	9,2	7,0,1																					

INSPECTOR'S REPORT

(Continuation)

Office of Inspection and Enforcement

DOCKET NO. (E, R, or L) OR LICENSE NO. (BY PRODUCT) (12 digit)

REPORT

NO.

SEQ.

MODULE NUMBER

VIOLATION, SEVERITY OR DEVIATION

SITE RELATED

Y/N

Y/N

A

B

C

D

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

VIOLATION OR DEVIATION (Enter up to 2400 characters for each item. If the text exceeds this number, it will be necessary to paraphrase. Limit lines to 50 characters each.)

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
50	

DOCKET NO. (E REG. OR LICENSE
 NO. (BY PRODUCT) (ITS DIGIT)

REPORT
 NO. SEC.

MODULE NUMBER

INSPECTOR'S REPORT
 (Continuation)
 Office of Inspection and Enforcement

A	B	C	D	VIOLATION SEVERITY OR DEVIATION							E	F	G
				1	2	3	4	5	6	7			

VIOLATION OR DEVIATION (Enter up to 2400 characters for each item. If the text exceeds this number, it will be necessary to paraphrase. Limit lines to 50 characters each.)

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	

DOCKET NO. (S) OR LICENSE NO. (BY PRODUCT) (1) (2) (3) (4)

REPORT

MODULE NUMBER

NO.

REQ.

INSPECTOR'S REPORT
(Continuation)

Office of Inspection and Enforcement

NO.	REQ.	A	VIOLATION SEVERITY OR DEVIATION						BYE	RE	EC	SUP.
			1	2	3	4	5	6				

VIOLATION OR DEVIATION (Enter up to 2400 characters for each item. If the text exceeds this number, it will be necessary to discontinue. Limit lines to 20 characters each.)

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

51

52

53

54

55

56

57

58

59

60

61

62

63

64

65

66

67

68

69

70

71

72

73

74

75

76

77

78

79

80

81

82

83

84

85

86

87

88

89

90

91

92

93

94

95

96

97

98

99

100