

LPDC



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

NOV 30 1978

Docket No. 50-341

Detroit Edison Company
ATTN: Dr. Wayne Jens, Manager
Engineering & Construction
2000 Second Avenue
Detroit, Michigan 48221

Gentlemen:

As a result of our continuing review of the Environmental Report for the Enrico Fermi 2 operating license, we find that we need additional information to complete our evaluation. The specific information required is listed in Enclosure 1.

Many of the items in the enclosure were previously forwarded to you in our letter of September 22, 1978 and discussed with your staff during our meeting of October 31, 1978. Additional questions are included in the enclosure which were developed as a result of the October 31 site visit.

In order to proceed with our licensing review, please provide a written response to the items in the enclosure by December 22, 1978. Your submittal may be in the form of a letter but should be followed by a formal supplement to the Environmental Report.

The staff is currently reviewing your proposed pre-operational and operational environmental review programs and will forward by separate letter our comments and/or questions relative to these programs.

Please contact us if you desire any discussion or clarification of the material requested.

Sincerely,

Robert P. Guckler
for Ronald L. Ballard, Chief
Environmental Projects Branch 1
Division of Site Safety and
Environmental Analysis

Enclosure:
As stated

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FERMI-2 ENVIRONMENTAL REVIEW QUESTIONS

Hydrology and Water Use

1. (Section 2.5.1.1) Supply the available records of runoff from Swan Creek. (p. 2.5-3)

Chemical Characteristics

1. (Section 2.5.2.1.1) If available supply chemical data for Swan Creek similar to those presented in Table 2.5.2. Describe the measurements and the resulting data which support the statement that Swan Creek water ranges from hard to very hard. (p. 2.5-6) Supply evidence to support the statement on p. 2.5-7 of the ER-OL: "Free chlorine has not been identified (in stream water in the vicinity of the site) due to its unstable nature."
2. (Section 2.5.3.3) What "standard techniques" were used to perform the chemical analyses of the groundwater (Tables 2.5-8 and 2.5-9)?
3. (Section 3.6.1) Provide the basis for the assumption of a chlorine demand of 2-3 ppm for Lake Erie water.
4. (Section 3.6.1) Provide estimates for the total chlorine average concentrations anticipated in the blowdown. Explain the bases for the estimates.
5. (Section 3.6.1) What chlorination procedure will be used in the circulating water and general service water systems? In particular, in what form will the chlorinating agent be shipped to and stored at the plant site, e.g., as Cl_2 or $NaOCl$ and in what quantities? What dechlorination techniques will be used, if necessary, to achieve the applicable limitations on chlorine in the effluent as described in Part I, Section A.1 of the NPDES (MI 003702, revised 10/27/78)?
6. If a dechlorinating system will be used, what techniques will be used to monitor and control the possible discharge of excess dechlorinating agent?
7. Would increasing the cycles of concentration during system chlorination eliminate the need for manual dechlorination by allowing a greater amount of time for natural chlorine dissipation? If so, why isn't this being done instead of manual dechlorination?
8. (Section 6.1) What is the rationale for the proposed sampling frequency in the monitoring program for heavy metals? Mercury levels appear to be elevated in the sediments around the plant. Please assess the potential for the resuspension of mercury-laden sediment due to the operation of the plant.

9. (Section 3.6.2) With what materials does the circulating water system come into contact? Is there likely to be sufficient corrosion from these sources to measurably affect the total dissolved solids in the effluent? (p. 3.6-2 and 3.6-3)
10. (Sections 3.6.3 and 3.6.5) What is the source of information in Tables 3.6-1 and 3.6-2? Provide a copy of missing page 3.6-13 with Table 3.6-3, laundry wastes.
11. (Section 5.4.5) It is stated that dissolved oxygen does not decrease as the water passes through the turbine condenser in "similar situations." Supply actual examples of "similar situations," with data such as water flow rates, temperatures, and oxygen concentrations. (p. 5.4-6)
12. (Section 6A-2.3.4.4) What is the reason for the implied limitation of pH values to numbers from 0 to 14? (p. 6A.2-10)
13. (Section 3.3.2.2) Supply the material composition of the condenser and other heat exchanger surfaces subject to corrosion. (p. 3.3-3) An average corrosion rate of 0.107 mils/yr is identified (on p. 3.3-3) as representative of other Detroit Edison plants. Supply initial composition and pH of the water at those plants. Are the corrodable materials comparable to the Fermi-2 materials? Describe any water treatment programs to reduce corrosion at existing Detroit Edison facilities. What portion of the sewage transported by the Frenchtown Township sewer line is predicted to be from Fermi-2? What percentage of the sewage treated at the Monroe sewage treatment facility is predicted to be from Fermi-2? (p. 3.3-3) Supply the non-radioactive chemical composition of the water from the liquid radwaste system. (p. 3.3-4)
14. In section 3.1 of the ER it is noted that the reduction in the surface area of the circulating water reservoir from 50 to 5.5 acres is a result of "the safety related decision not to use the circulating water reservoir as the ultimate heat sink." Please elaborate on the rationale for this decision.
15. Provide a list of the anticipated monthly chemical usage at the plant and indicate any expected seasonal variations in such usage.
16. A clay-lined chemical holding pond divided into three sections was observed during the site visit. Please indicate it on Figure 3.1-2, Site Plot Plan, and describe its function.
17. Provide a list of chemical solution streams which will be routed to any chemical holding or treatment ponds. Include the chemical compositions of the respective solution streams, i.e., provide the pH and identify the major components and potentially toxic minor components. In addition, include the anticipated quantities of such solutions and the anticipated holding times in the respective ponds. Describe the ultimate disposal of chemicals routed to holding or treatment ponds.

18. For the purpose of evaluating the potential for seepage from the circulating water reservoir and any holding or treatment ponds, provide data about the pond lining material and the underlying soils.
19. Section 3.6.4 of ER Supplement 1 (June 1975) describes a pre-operational cleaning and flushing program. This section has been deleted from Supplement 4 (February 1978) although such a pre-operational cleaning and flushing program was mentioned during the site visit. Provide a description of the planned pre-operational cleaning and flushing program, including the identity and quantity of each of the chemicals used, the time period of such use, and the ultimate disposal of the chemicals used.
20. Explain the background for the proposed substantial reduction in the size of the holding pond, and the consequent new proposal for a smaller pond plus the construction and operation of a chemical dechlorination system to remove residual chlorine values.

Aquatic Ecology

1. (Section 2.7.1.1) Provide a discussion of the effects of the plant on important fish populations, based on the spawning and distribution information presented on the important species in Lake Erie.

Provide quantitative estimates of the effects on important species or families through entrainment and local increases in temperature.

The effect of the plant on the important fish populations through entrainment is inadequately discussed. Item 350.4 specifically requests quantitative estimates on a species basis for entrainment and local temperature increases. The discussion of the effect of local temperature increases, although non-quantitative, is marginally adequate. However, the discussion regarding entrainment impact is not acceptable. Numeric estimates must be made on a species or family basis. These estimates were not provided in Subsection 5.1.3, or in Sections 5.2, 5.4, or 5.5.

2. (Section 2.7.1) Discuss the importance of the portion of Lake Erie potentially affected by the operation of the plant (i.e., the shore zone 3 miles either side of the plant) as a fish breeding ground and nursery area.
3. (Section 2.7.1) Provide a summary of the fish impingement records for the Monroe power plant and Fermi Unit No. 1.
4. (Appendix 2C) Define the term "temporary hardness" as it is used on page 2C-3.

5. (Appendix 2C) Provide a written description for interpretation of the percent composition graph in Figure 2 given on page 2C-77. The relationship between the plotted lines and the various shaded areas is quite confusing.
6. (Section 5.1) The ER-OL does not clearly address the ΔT from the reservoir into Lake Erie. What is the expected ΔT during worst case conditions into Lake Erie? Will this temperature cause a possible cold shock effect to fish during the winter? If so, what is the proposed mitigative action?
7. Please supply complete impingement summary records for Trenton Channel Power Station.
8. Given that the requirements of the NPDES Permit are now known, please detail the chlorination scheme proposed for the plant circulating water system. How often do you anticipate using the manual dechlorination system. What quantities of soluble sulfates will be discharged into Lake Erie as a result of system use? Will they exceed federal EPA standards?

Social Impact

1. (Section 8.1) Provide the following information by year from 1978 to 1990 and by job classification (i.e., welders, masons, office personnel, etc.).
 - a. Number of construction workers.
 - b. Number of operational employees.
2. (Section 8.1) Provide an estimate of the following information for currently employed construction workers:
 - a. Place of residence.
 - b. Number of children.
 - c. The number of workers who moved to the general area because of the job.
3. (Section 8.1) Estimate the number of operational workers who will be hired from the local area and where those who will be hired from other areas will reside. Provide the following information about operational workers:
 - a. Number and/or percentage of current employees who will transfer jobs to work at Fermi 2.
 - b. Of the remaining operational employees, how many will be hired from the local area as compared to those who will have to move to the area?
 - c. How many of these "new" employees have been hired?

Land Use

1. (Section 2.2) Please provide a loan copy of Reference 7, Section 2.2 of the ER-OL (Complan: 2000, Comprehensive Development Plan for Monroe County).
2. (Section 4.1) Update the figures in column 2 and Table IV-1 of the CP-IES incorporating the additional 30 acres and any other changes in plans since the publication of the document.

Economic Considerations

1. (Section 1.1) Please provide a recent bond prospectus that describes Fermi Unit No. 2.

Forecasting

1. (Section 1.1.2.1) The applicant should also provide the methodology and results of forecasts from its Planning Department as it incorporates analyses from its other departments (ER, 1.1-9). The applicant should provide the following reports of critiques of the DE forecast procedures (ER, 1.1-12 and 13):
 - a. The review of the Michigan Public Service Commission Staff (Touche Ross team).
 - b. Review of the NERA organization.
 - c. The review of Theodore Barry and Associates.
 - d. Latest available studies performed by DE on its own initiative or requested by the Michigan Public Service Commission on energy use of the auto industry or other major industrial users in the DE service area.

System Reliability

1. (Section 1.1.3) Provide loss of load probability calculations, results of studies from ECAR, or other documentation of its choice of a 22 percent reserve margin.

Benefits and Costs

1. (Section 8.2) Provide analyses to support the position that economic savings dictate the issuance of a license (see ER section 1.3). The applicant should rely on the Wein Automatic System Planning Package to show system production costs in the 1981-85 period with and without

Fermi 2 in service. The analysis should be performed for varying growth rates in energy requirements (i.e., the applicant's official forecast and one 50% lower to show the sensitivity of these cost estimates to load growth). Data for each operating unit or grouping of similar units should be presented showing fuel and O&M costs (variable and fixed), forced outage rates, scheduled maintenance, and other relevant operating characteristics.

2. (Section 8.2.1) Provide a more detailed breakdown of the primary internal cost for Fermi 2. Data should be presented showing capital cost of plant, fuel cost, operating and maintenance cost, NRC fees, decommissioning cost, research and development cost and other relevant costs. Annual costs are defined in mills/kWh or millions of dollars per year and present worth values are defined in millions of dollars (i.e., fuel cost, data should show the most recent projected fuel cost, including a resources depletion factor).

Archeological Survey

1. Has an archeological survey been conducted at the site inland and along the shore? If available provide the survey results including a description of the survey method.