## PMFermiCOLPEm Resource

**From:** Olson, Bruce
**Sent:** Tuesday, November 17, 2009 8:05 AM
**To:** Randall D Westmoreland
**Cc:** LaGory, Kirk E.; FermiCOL Resource
**Subject:** Status of 10-30-09 RAI responses as of 11-16-09

Attached is a status summary regarding Detroit Edison's October 30, 2009 RAI responses.
Give me a call if you have questions.

Status of 10-30-09
RAI respons...

Thanks.....

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Environmental Project Manager
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**Status of October 30, 2009 Detroit Edison Responses to**
**U.S. Nuclear Regulatory Commission (NRC) Requests for Additional Information (RAIs)**
**Fermi Nuclear Power Plant, Unit 3 (Fermi 3)**
**Combined License Application - Environmental Report**

| RAI Number[1] | Response Date/ ADAMS Accession No. | Status of Response | Question Summary (RAI) | Full Text (supporting information) | Comments |
|---|---|---|---|---|---|
| GE2.2-1<br>ESRP 2.2, 2.4, 2.5, and 4.3 | 10/30/09<br>ML | Complete | Provide the Geographic Information System (GIS) data (as electronic shapefiles) that were used to create the figures in the ER. | GIS data used to create figures in the ER are needed for the NRC to perform confirmatory analyses for the EIS. Figures that appear to be based on GIS data include, but may not be limited to: 2.2-1, 2.2-3, 2.2-4, 2.4-5, 2.5-17, and 4.3-2. | [11/16/09] Response acceptable |
| AC7.3-1<br>10 CFR 51.50(c)<br>10 CFR 52.79(d)(3) | 10/30/09<br>ML | Not complete | Provide in electronic format the analysis and assumptions used in determining averted costs for SAMAs. Discuss the process for ensuring that SAMAs related to operating procedures and administrative controls will be evaluated prior to plant startup. Explain how completion of this analysis will be tracked. Also, evaluate the effect of changing the reported cost basis in NUREG/BR-184, which is in 1992-1993 dollars, to the current year, similar to the cost estimate process used in the MACCS2 analysis for determining offsite property losses resulting from severe accidents. | Section 7.3.3 of the ER presents a discussion leading to the conclusion that no cost beneficial SAMDAs have been identified, and states that evaluation of specific administrative control measures for the ESBWR will be considered for implementation when they are developed prior to fuel load. The current analysis is based on cost bases in 1992-1993 dollars as given in NUREG/BR-184. For new reactors that are expected to have a 60-year lifetime, there is a need to readjust the cost values. NUREG/BR-184 states that the averted costs dollar measures "should be present valued and expressed in terms of the same year." Considering that the | [11/16/09] Response acceptable, however, the revised values provided are already out of date and must be updated by Detroit Edison in response to revisions to the ESBWR DCD and COL. NRC should be provided with updated analyses based on ESBWR DCD Rev. 6 and PRA Rev. 4 following methodologies consistent with the FSAR update. |

[1] RAI numbers follow a specific form. RAIs apply to a specific section from the Environmental Standard Review Plan (ESRP; U.S. Nuclear Regulatory Commission. 1999. *Standard Review Plans for Environmental Reviews for Nuclear Power Plants*. NUREG-1555. Office of Nuclear Reactor Regulation, Washington, D.C. October, 1999), and the RAI number consists of the relevant ESRP section number followed by a unique number (e.g., the first RAI related to ESRP Section 2.7 would be numbered 2.7-1). If the RAI applies to more that one section of the ESRP, then the next higher section number is used (e.g., if an RAI is applicable to Sections 3.3.4, 3.3.5, and 3.3.6, then the RAI is assigned to Section 3.3, such as 3.3-1).

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| | | | | potential operation date for Fermi 3 is 2016 and beyond, there is a need for adjusting these costs estimates to the current date, especially for the replacement power costs that contribute the most to the estimated averted costs. | |
| AQ2.7-3<br>ESRP 2.7<br>Reg. Guide 1.23, Sec. C<br>Reg. Guide 1.111, Sec. C<br>Reg. Guide 1.145, Sec. C<br>Reg. Guide 4.2, Sec. 2.3<br>10 CFR 51.50<br>10 CFR 51.70(b)<br>10 CFR 51 App. A<br>10 CFR 100.20(c) | 10/30/09<br>ML | Complete | Provide in electronic format the 2001-2007 onsite meteorological database. | These data are required by the staff to perform independent evaluations and assessments of atmospheric diffusion characteristics and station impacts on the environment. Data should be provided in a format compatible with that described in Appendix A to Reg. Guide 1.23. | [11/16/09] Response acceptable |
| AQ3.6.3-2<br>ESRP 3.6.3<br>10 CFR 51.71(d) | 10/30/09<br>ML | Complete | Provide: (1) a memo including vendor emission data for proposed stationary sources during operation, which were not cited in ER Tables 3.6-3 (standby diesel generators), 3.6-4 (auxiliary boiler), and 3.6-5 (fire pump engines); (2) the rationale for assuming 3% sulfur content; and (3) estimation of $CO_2$ emissions for these sources. | ER Tables 3.6-3 to 3.6-5 present annual emission rates for criteria pollutants and volatile organic compounds (VOCs) during operation; however no specific reference was provided. During the site audit, Detroit Edison showed a memo including emission inventories for this equipment. When Fermi 3 is in operation, only ultra low sulfur | [11/16/09] Response acceptable |

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| | | | | diesel of 15 ppm will be on the market. Estimates of annual emissions of $CO_2$ and other greenhouse gases are needed for the climate change analysis that will be presented in the EIS. | |
| AQ5.8.1-1<br>ESRP 5.8.1<br>10 CFR 51.71(d) | 10/30/09<br>ML | Complete | Provide expected annual $CO_2$ emission rates during Fermi 3 operations. $CO_2$ emission sources should include engine exhaust emissions from heavy equipment and worker/delivery/support vehicles, and other fossil-fuel combustion emissions | $CO_2$ emissions during operation are needed for the climate change analysis to be presented in the EIS. Note that annual $CO_2$ emissions from stationary sources during operation are included in RAI Number 3.6.3-2. | [11/16/09] Response acceptable |
| AE4.3.2-1<br>ESRP 4.3.2<br>10 CFR 51.71(d)<br>33 CFR Section 320.2-320.4<br>40 CFR Part 230 | 10/30/09<br>ML | Complete | Provide any available chemical characterization information pertaining to dredged materials from areas in Lake Erie near the Fermi site. | The requested information will assist with evaluating the potential impacts to aquatic organisms from suspension of sediments that could occur during dredging operations to prepare the intake area/barge slip and during placement of the discharge pipe for Fermi 3. | [11/16/09] Response acceptable |
| BC10.4.2-2<br>ESRP 10.4.2<br>10 CFR 51.45<br>10 CFR 51.71 | 10/30/09<br>ML | Complete | Provide data on spent fuel storage costs. Data should show total construction and annual operating costs for an independent spent fuel storage facility (ISFSI), that is either:<br>• built to support spent fuel storage at the Fermi 2 reactor;<br>• an expansion of a Fermi 2 reactor ISFSI to accommodate Fermi 3 spent fuel; or<br>• built at the Fermi 3 | Spent fuel storage, particularly dry storage, is an important aspect of the operation of a nuclear power plant, and may be of particular concern to the public. Construction and operating costs specified separately from the costs of the remainder of the plant provide the public with additional information on nuclear waste activities and the associated costs. | [11/16/09] Response acceptable |

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| | | | reactor, after a specified time period to be provided by Detroit Edison. | | |
| HH4.5-1<br>ESRP 4.5<br>10 CFR 20.1301 | 10/30/09<br>ML | Complete | Provide an explanation of the conclusion that the TLD location T-48 is the most representative location for construction worker dose estimates. | A written explanation for the conclusion that the TLD location T-48 is the most representative location to be used for construction worker dose estimates is needed to support the assessment. | [11/16/09] Response acceptable |
| HH4.5-2<br>ESRP 4.5<br>40 CFR 190<br>10 CFR 50 App. I | 10/30/09<br>ML | Complete | Provide the rationale for using 2001 data for thyroid and whole body dose calculations. | The staff assumes that 2001 data were used for thyroid and whole body dose calculations because data from this year resulted in the highest estimates of dose and therefore are conservative. A written statement to that effect is needed from Detroit Edison. | [11/16/09] Response acceptable |
| HH4.5-3<br>ESRP 4.5<br>10 CFR 20.1301<br>10 CFR 50 App. I | 10/30/09<br>ML | Complete | Provide information on:<br>• specific construction activities and the number of workers used in construction worker dose calculations and<br>• effects of doses from Fermi 1 on Fermi 3 construction worker doses. | According to ESRP 4.5 Section I, data are needed for the number and principal locations of construction workers who will be exposed to the radiation sources and the total amount of time per year that they will spend at those locations.<br>ER Section 4.5 does not have any information about specific construction activities and the number of workers used in construction worker dose calculations. Fermi 3 construction worker dose calculations include doses from Fermi 2, but do not include any component or discussion about doses from Fermi 1. | [11/16/09] Response acceptable |

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| HH4.5-4<br>ESRP 4.5<br>10 CFR 20.1301<br>40 CFR 190<br>10 CFR 50 App. I | 10/30/09<br>ML | Complete | Provide updated dose calculations for construction workers based on the new Fermi 3 site layout. | During the site audit, it was mentioned that the site layout for Fermi 3 would change. This change would result in a change to the estimated construction worker dose. | [11/16/09] Response acceptable |
| HH5.4.3-2<br>ESRP 5.4.3<br>10 CFR 20.1201 | 10/30/09<br>ML | Complete | Provide revised calculations of construction worker doses that incorporate any new Independent Spent Fuel Storage Installation (ISFSI) that would be built on the Fermi site before or during the construction of Fermi 3. | If Detroit Edison plans to build and operate an ISFSI before or during the construction of Fermi 3, the dose rates from the ISFSI need to be addressed in the calculation of the construction worker doses for Fermi 3. See related RAI BC10.4.2-2. | [11/16/09] Response acceptable |
| HH5.4.3-3<br>ESRP 5.4.3<br>10 CFR 20.1301<br>40 CFR 190<br>10 CFR 50, App. I | 10/30/09<br>ML | Complete | Provide updated calculations of dose from gaseous effluent releases for the MEI and population based on the new site layout. | During the site audit it was mentioned that the site layout for Fermi 3 would change. This change may result in changes to the MEI and population doses from gaseous effluent releases. These revised estimates are needed for the analysis that will be presented in the EIS. | [11/16/09] Response acceptable |
| HH5.4.4-1<br>ESRP 5.4.4<br>40 CFR 190,<br>10 CFR 20.1301(d) | 10/30/09<br>ML | Not complete | Provide dose estimates for biota (including the bald eagle) inside the site boundary (0.25 mi from Fermi 3 emission sources). | Biota doses are presented in Table 5.4-9 (Dose to Biota from Liquid and Gaseous Effluents) but the assumptions used with the LADTAP computer code to estimate dose to biota from liquid effluents are not provided. It is assumed that biota would be at the site boundary to calculate the dose from gaseous effluent but biota could be inside the site boundary and very near the proposed Fermi Unit 3.<br>According to ESRP Section 5.4.4, | [11/16/09] Response unacceptable. In calculating dose to onsite biota, Detroit Edison first determined the direction that resulted in the highest site boundary X/Q and D/Q values (ER Table 2.7-87). The highest values were obtained at the boundary in the SSE direction. Detroit Edison then scaled these values with the X/Q and D/Q values at 0.25 mi to represent maximum dose to onsite biota. This would be an appropriate calculation if the distance to the |

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| | | | | "the biota to be considered in this evaluation should include those in the pathways identified in ESRP 5.4.1, those appearing on the endangered/threatened species lists, and others of significance." ER Section 2.4.1.2.1, page 2-330 states that two bald eagle nests were observed on the Fermi site in May 2008. Dose calculations for the bald eagle should be made because the species is protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. | boundary was equal in all directions or if X/Q and D/Q values were equal in all directions. However, they are not, and the maximum X/Q and D/Q values (and therefore dose) at 0.25 mi occur in the ESE direction (ER Table 2.7-96). Therefore, calculating the onsite biota dose in the ESE direction would be the more conservative (and appropriate) calculation. |
| HH5.11.7-1<br>ESRP 5.11<br>40 CFR 190 | 10/30/09<br>ML | Complete | Provide an explicit statement regarding how contributions from the Davis-Besse nuclear plant and other nuclear facilities are incorporated in the assessment of cumulative radiological health impacts. | ER Section 5.11.7 states "The radiological environmental monitoring program measures radiation and radioactive materials from all sources, including Fermi." The Davis-Besse nuclear power station located 21 miles ESE of Toledo, Ohio, is about 30 miles from the proposed Fermi Unit 3. An explicit statement is needed regarding how the contributions from Davis-Besse and other nuclear facilities are incorporated in the radiological monitoring program and cumulative dose calculations. | [11/16/09] Response acceptable |

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| HY4.2.1-10<br>ESRP 4.2.1<br>10 CFR 51.70(b) | 10/30/09<br>ML | Complete | Provide information on the design of the Condensate Storage Tank (CST) basin for Fermi 3. | The CST was designed to be enclosed in a basin (Section 2.4.13 of the Final Safety Analysis Report) to contain potential accidental releases of radioactive materials from the tank. A description of the CST basin and its location were not provided in the ER but is needed to understand the potential impacts of operations. | [11/16/09] Response acceptable |
| HY5.11-1<br>ESRP 5.11<br>10 CFR 51.45<br>10 CFR 51.50 | 10/30/09<br>ML | Complete | Provide information on cumulative water withdrawals and chemical and thermal discharges to the Western Lake Erie Basin from other users. | The Western Lake Erie Basin is hydrologically connected to the rest of Lake Erie, but the basin is different from other portions of the lake in that it is relatively shallow and a large population depends on the basin. To support the analysis of cumulative environmental impacts on the basin, please supply specific information on water withdrawals from the Western Basin. Also supply information on chemical and thermal discharges from other facilities, even if plume interactions are not foreseen. | [11/16/09] Response acceptable |
| LU1.2-1b<br>ESRP 1.2<br>10 CFR 51.45<br>10 CFR 51.71 | 10/30/09<br>ML | Complete | Provide a discussion of the effects of the revised Fermi 3 site layout on the 100-year and 500-year floodplains at the site. | In the EIS, the NRC staff needs to cite Detroit Edison's characterization of the location of the Fermi 3 site. The land use impact analysis will include an evaluation of effects on floodplains. | [11/16/09] Response acceptable |
| LU4.4.2-1<br>ESRP 4.4.2<br>ESRP 10.4.1 | 10/30/09<br>ML | Complete | Provide information on any past and present management of commercial timber onsite, and any plans to sell timber as part of the development of the Fermi 3 site, | In the EIS, the NRC staff needs to cite Detroit Edison's characterization of these activities as they may affect land use and land requirements. A description | [11/16/09] Response acceptable |

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| 10 CFR 51.45<br>10 CFR 51.71 | | | specifically:<br>• value of marketed timber that has been, or is expected to be, harvested for commercial use and<br>• duration of timber harvesting. | of past and present activities will be used in developing the affected environment description in the EIS. | |
| NO4.4.1-2<br>ESRP 4.4.1<br>10 CFR 51.71(d) | 10/30/09<br>ML | Complete | Provide the noise and vibration modeling analysis for blasting-activities on an average and "worst" day. | Blasting impacts during construction would be the source of important noise and vibration impacts on nearby structures and neighboring communities. The noise and vibration modeling, along with blasting-related information (e.g., general description of blasting activities, TNT equivalent weight per charge, frequency, and noise and vibration control measures) is needed for the impact analysis to be presented in the EIS. | [11/16/09] Response acceptable |
| SE4.4.2-6<br>ESRP 4.4.2<br>ESRP 5.8.2<br>10 CFR 51.45<br>10 CFR 51.70 | 10/30/09<br>ML | Complete | Provide revised and updated construction cost estimates, reporting pre-construction and construction activities and expenditures separately, and reporting planned expenditures for supplies and materials within the local area versus outside the area. | The data are needed to better characterize the economic impacts of the proposed project presented in ER Sections 4.4.2, 4.4.2.4.6, and 5.8.2.7 using the most currently available construction cost estimates. | [11/16/09] Response acceptable. |
| TE4.3.1-2<br>ESRP 4.3.1<br>10 CFR 51.71 (d) | 10/30/09<br>ML | Complete | Provide additional detailed terrestrial ecology impacts data for the proposed transmission line from the Fermi site to the Milan substation. Specifically, provide quantitative data on:<br>• forest fragmentation;<br>• changes of wetland type | The ER does not contain detailed information on construction impacts for the transmission line corridor. More detailed information is needed for the EIS, for the proposed transmission line from the Fermi site to the Milan Substation to support the assessment of ecological impacts. | [11/16/09] Response acceptable, but none of the information requested was provided by Detroit Edison. Consequently, the NRC staff will use information they can obtain independently to determine the effects of transmission line construction on forest fragmentation, wetland impacts, |

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| | | | from palustrine forested to palustrine scrub-shrub or palustrine emergent types; and<br>• impacts on threatened and endangered species and important habitat.<br>Provide a modified ER Table 4.3-4 to reflect acres of impact to vegetative communities from the clearing and operation of the ROW, not just the cumulative foot print of the towers. | Data should include types and acreages of vegetative community impacts. Discussion should include impacts that cause changes in community types, especially forested to other types. | and impacts to threatened and endangered species. |
| TE4.3.1-6<br>10 CFR 51.71 (d) | 10/30/09<br>ML | Complete | Provide MDEQ data on overall acreage of existing inland wetlands and coastal wetlands and permitting data for Monroe County (see Table 4.3-1 of ER). | During the site audit, MDEQ indicated that they may have acreage data for existing inland wetlands and coastal wetlands in the project vicinity, and could provide these data to Detroit Edison if requested. Such data would facilitate the analysis of construction impacts on onsite wetlands compared to wetlands in the wider surrounding area. | [11/16/09] Response acceptable |
| TR4.8.3-2<br>EIS Sections 4.8.3 and 5.8.6 | 10/30/09<br>ML | Complete | Provide an estimate of the average distances that will be travelled to work by Fermi 3 construction and operations employees. | This information provides the basis for estimation of construction worker and operations personnel transportation impacts for presentation in Sections 4.8.3 and 5.8.6 of the EIS. | [11/16/09] Response acceptable. |
| TR3.8-1<br>ESRP 3.8<br>10 CFR 51.52 | 10/30/09<br>ML | Complete | Provide an analysis for the estimation of the heat load expected in a spent fuel shipping cask for comparison with that in 10 CFR 51.52 Table S-4 (250,000 Btu/hr). | Shipping cask heat loads must be evaluated per 10 CFR 51.52 requirements | [11/16/09] Response acceptable. |

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| TR3.8-2<br>ESRP 3.8<br>10 CFR 51.52 | 10/30/09<br>ML | Complete | Provide assurance of compliance of irradiated fuel and other waste shipments with 10 CFR 51.52 Table S-4 with respect to shipment weight limits (73,000 lbs per truck). | Shipment weights must be shown to be in compliance with 10 CFR 51.52 requirements. | [11/16/09] Response acceptable. |
| TR3.8-3<br>ESRP 3.8<br>10 CFR 51.52 | 10/30/09<br>ML | Complete | Provide estimates of the number of annual shipments of unirradiated fuel, irradiated fuel, and waste for comparison with the truck traffic density of less than 1 per day in 10 CFR 51.52 Table S-4. Include all supporting calculations. | Estimated number of radiological shipments to and from the facility must be evaluated per 10 CFR 51.52 requirements. | [11/16/09] Response acceptable. |
| TR3.8-4<br>ESRP 3.8<br>10 CFR 51.52 | 10/30/09<br>ML | Complete | Provide a comparison of the non-radiological transportation impacts for Fermi 3 with Table S-4 in 10 CFR 51.52 (i.e., non-radiological accidents result in one fatal injury per 100 reactor years, 1 non-fatal injury in 10 reactor years, and $475 in property damage per year). Include supporting input such as the number of shipments of each type, shipment distances, and accident and injury rates. | Estimated non-radiological impacts must be evaluated per 10 CFR 51.52 requirements. | [11/16/09] Response acceptable. |
| TR3.8-5<br>ESRP 3.8<br>ESRP 5.7.2<br>ESRP 7.4<br>10 CFR 51.52(b) | 10/30/09<br>ML | Complete | Provide a full description and detailed analysis of the environmental effects of the transportation of fuel and waste to and from Fermi-3 and alternative sites that meets the intent of 10 CFR 51.52(b). Conduct a site-specific analysis using an acceptable methodology, such as RADTRAN 5. The transportation risk assessment must describe key input parameters and assumptions and provide | The ER contains an assertion that Fermi-3 transportation impacts are bounded by those in a previous NRC EIS for the Grand Gulf ESP. However, this does not adequately address the intent of 10 CFR 51.52(b) which requires a detailed analysis for the reactor should all conditions under 10 CFR 51.52(a) not be met. | [11/16/09] Response acceptable. |

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| | | | justification that the best available information has been used in developing the RADTRAN 5 input values. Provide the RADTRAN and any additional software input and output files (in electronic form) that support the analysis. | | |