UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
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CHICAGO, IL 60604-3590

JAN 10 2012

REPLY TO THE ATTENTION OF:

E-19J

Cindy K. Bladey,
Chief, Rules, Announcements, and Directives Branch
Office of Administration
Mail Stop: TWB-05-B01M
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Re: **Draft Environmental Impact Statement for the Combined License (COL) for Enrico Fermi Unit 3, Monroe County, Michigan, CEQ# 20110364**

Dear Ms. Bladey:

The United States Environmental Protection Agency has reviewed the above-referenced document provided by the Nuclear Regulatory Commission (NRC) and the United States Army Corps of Engineers (USACE). Our comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR 1500-1508), and Section 309 of the Clean Air Act.

On September 18, 2008, the Detroit Edison Company (the Applicant) submitted to the NRC an application for a Combined Operating License (COL) for the Enrico Fermi Unit 3 (Fermi 3) to be located adjacent to the existing Units 1 (Fermi 1) and 2 (Fermi 2) on the Detroit Edison Enrico Fermi Atomic Power Plant site (Fermi site). The site proposed by the Applicant for Fermi 3 is located in Monroe County, Michigan, approximately 30 miles southwest of Detroit, Michigan, and 7 miles southwest of the United States-Canada international border. The proposed Fermi 3 Unit and its associated infrastructure would be completely within the confines of the current Fermi site and would be located adjacent to the existing operating Fermi 2 Unit. Fermi 1, also within the confines of the Fermi site, is in the process of being decommissioned.

USACE, a cooperating agency, participated with NRC in preparation of the environmental impact statement (EIS). As a result of the NEPA process, USACE and NRC will issue separate decision documents: USACE will issue a Record of Decision (ROD) and NRC will issue a license, if the Commission accepts the NRC staff's recommendation.

Proposed actions include:

1) NRC issuance of a COL for the construction and operation of a power reactor at the Fermi site in Monroe County, Michigan, and

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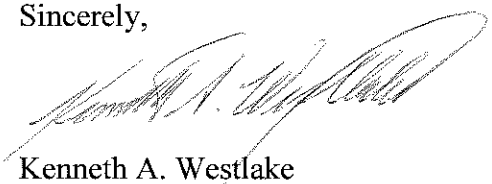
2) USACE permit action pursuant to Section 404 of the Clean Water Act, as amended, and Section 10 of the Rivers and Harbors Appropriation Act of 1899 to perform certain preconstruction activities, as appropriate to the USACE scope of analysis, on the site.

Based on the materials provided, we have rated the document and project as **EC-2, Environmental Concerns-Insufficient Information**. This rating is based, in part, on dose limits and potential impacts from radiation to construction workers. We are also concerned with impacts to aquatic resources, air, and traffic as a result of increased onsite personnel, as well as public outreach strategies and methodologies used for analyzing direct environmental and socioeconomic impacts. Finally, we find some information from the document either missing or incomplete; its inclusion would accommodate a more comprehensive review. We have enclosed our ratings definitions and our detailed comments.

We commend the Applicant for suggesting various mitigation strategies and public outreach undertakings. However, EPA is concerned that non-nuclear-safety-related mitigation will not be included in the license conditions; this is discussed further in the detailed comments. We recommend the Applicant commit to all mitigation measures and public outreach methods mentioned in the Draft EIS and Environmental Report (ER) in the decision documents.

Thank you in advance for your consideration of our recommendations to reduce environmental impacts of the project and to improve the quality of the document. Please be aware that we reserve the right to provide additional comments or recommendations at the permitting stage, including, but not limited to, Clean Water Act Section 404 and 402 permits. If you have any questions, please feel free to contact Elizabeth Poole of my staff at 312-353-2087 or poole.elizabeth@epa.gov.

Sincerely,



Kenneth A. Westlake
Chief, NEPA Implementation Section
Office of Enforcement and Compliance Assurance

cc: Bruce Olson, U.S. Nuclear Regulatory Commission
Colette Luff, U.S. Army Corps of Engineers, Detroit District
Colleen O'Keefe, Michigan Department of Environmental Quality
Burr Fisher, U.S. Fish and Wildlife Service
Paul Ajegba, Michigan Department of Transportation
Randall Westmoreland, DTE Energy

Enclosures: USEPA's Detailed Comments
Ratings Definitions

Detailed Comments, Draft Environmental Impact Statement for Combined License (COL) for Enrico Fermi Unit 3 CEQ# 20110364
January 2012

Affected Environment

Affected Environment: Aquatic Resources

EPA is concerned that tritium has been detected in some onsite monitoring wells (page 2-29, lines 16 though 23) and that well locations have not been provided. NRC indicates that the Applicant has provided a "realistic scenario of the washout of tritium by precipitation." The Draft EIS is not clear if NRC concurs with this statement, or if it is a reiteration of the Applicant's conclusion.

> **Recommendation:** Clarify whether NRC concurs with the Applicant's conclusions on the source(s) of the tritium. The Final EIS should include a map of the locations of the deep and shallow monitoring wells, rather than referencing the Environmental Report (ER) on the whole. This will help us analyze whether or not there is a pattern regarding tritium concentrations.
>
> It is also unclear whether the Applicant has pursued remediation based on these levels, if (and by how much) permitted discharge is a contributing factor, and if (and by how much) the operation of Fermi 3 will increase tritium levels at the monitoring sites. Though tritium levels in Lake Erie are expected to be significantly diluted, we would like the Final EIS to include a map showing the location of tritium monitoring points in Lake Erie.

EPA is concerned with the arsenic level found in wells within a five-mile radius of the Fermi site. These wells have elevated concentrations above EPA's maximum concentration level. The Draft EIS does not identify a source(s), nor does it identify any remediation efforts by the responsible party(s), if known.

> **Recommendation:** Identify the source(s) of the arsenic. We recommend this information be included in the Final EIS. Further, we recommend identifying whether or not construction or operation related activities will augment concentrations of arsenic.

Affected Environment: Geology

In our scoping comment letter dated February 9, 2009, we commented that karst geology may be found at the Fermi site. This was not addressed in Chapter 2 of the Draft EIS, as indicated in Appendix D that it would be.

Recommendation: EPA recommends that the document clarify whether or not karst geology exists at the Fermi site. If karst exists, the Applicant should identify how the proposed project will be influenced by it.

The Draft EIS mentions 0.88 acre in the southeastern part of the Fermi site as mineral rights not owned by the Applicant. Part of the proposed project includes the relocation of the meteorological tower to the southeastern part of the Fermi site.

Recommendation: EPA recommends clarifying whether these areas overlap and, if they do, what plans, if any, the Applicant has to acquire the minerals rights below the proposed meteorological tower. The Final EIS should show this area, where the Applicant does not own mineral rights, on site maps.

Affected Environment: Socioeconomics

Table 2-33 indicates that the labor force percentages for "nuclear technicians" for both Michigan and Ohio is not projected to increase between 2006 and 2016, just before Fermi 3 is expected to begin operation. With no currently operating facilities in the area expected to begin the decommissioning process (Fermi 2 has begun the re-licensing process and Davis-Besse is in the midst of re-licensing), the Draft EIS does not draw conclusions about where the Applicant might obtain the new nuclear technicians needed.

Recommendation: EPA recommends the NRC identify from where the nuclear technicians might come in order to rectify the discrepancy in this number.

<u>Construction Impacts</u>

Preconstruction Impacts vs. Construction Impacts

While EPA recognizes that NRC does not consider "preconstruction" activities within the scope of the COL application, per 10 CFR 51.45(c), these activities are within the scope of the NEPA review because they are all connected actions, per 40 CFR 1508.25(a)(1)(iii) [*...are interdependent parts of a larger action and depend on the larger action for their justification*]. For example, Table 3-2 identifies "deep excavation" or the "excavation of the basemat for the reactor" as a preconstruction activity. However, but for the larger action (the issuance of the COL), the excavation of the basemat for the reactor need not occur. Thus, all preconstruction activities should be analyzed as direct impacts. This might be a valid delineation if "preconstruction" activities were either completed or ongoing at the time of the document's issuance. This is not the case, as noted on page 4-59, line 8 to 9: "Detroit Edison plans to begin the preconstruction work specific to Fermi 3 in 2013 and to complete all building activities in 2020."

Specific to Fermi 3, all preconstruction activities should be analyzed as direct impacts, per NEPA. Therefore, the magnitudes of impacts (as identified by NRC as SMALL, MODERATE, or LARGE[1]) significantly changes, and warrants stronger or additional mitigation measures. EPA agrees that preconstruction activities should also continue to be analyzed in terms of cumulative impacts.

> **Recommendation:** NRC-deemed preconstruction activities should be re-analyzed as part of the construction of Fermi 3. The Final EIS should include activities specific to the Fermi 3 site that have been deemed "pre-construction," rather than the generic activities listed in Table 3-2. Finally, if any construction-related activities have commenced, these should be indentified in the Final EIS.

EPA recognizes that in NRC's Waste Confidence Decision and rule, a generic determination was made that spent fuel could be stored onsite for 60 years past the length of its license. The Waste Confidence Decision also states that "no discussion of environmental impact of spent fuel storage in reactor facility storage pools or independent spent fuel storage installations (ISFSI) for the period following the terms of the [...] reactor combined license or amendment [...] is required in any [...] environmental impact statement [...] prepared in connection with [...] the issuance or amendment of a combined license for a nuclear power reactors under parts 52 or 54 of this chapter." While we understand that NRC need not include a discussion of the actual storage of spent fuel at the proposed Fermi 3 site, we do not understand why the construction of the ISFSI was left out of Chapter 4. EPA views the construction of the ISFSI as a connected action to the proposed action. If the ISFSI's associated impacts were included in the discussion under a different subtitle, for instance under *Radwaste Facility* (page 3-16), this should be stated in the Final EIS. Based on conversations held at the interagency meeting on December 15, 2011, we understand that the pad for the ISFSI has already been installed at the Fermi site and that it could potentially hold fuel from Fermi 2. This information should be clarified in the Final EIS.

> **Recommendation:** EPA recommends that the Final EIS include discussion of the construction of the ISFSI, or identification of where it was incorporated in Chapter 4. We also recommend clarifying that it has already been constructed.

The Final EIS should include a more detailed description of the radwaste facility, including the actual activity limits outlined in the permit for this area. A complete description is necessary for reviewers to understand what will be stored onsite.

> **Recommendation:** EPA recommends including in the Final EIS a description of current and future projected tonnage, cubic volume, total activity limits, and other related

[1] NRC categorizes impacts to resources as SMALL, MODERATE, or LARGE.

parameters, in relation to current and future planned storage capacity for the nuclear pools and the ISFSI.

Construction Impacts: Wetlands

EPA is pleased to see that, from the first iterations of the proposed project, projected permanent wetlands impacts have been reduced from approximately 125 acres to 10 acres. EPA appreciates that the conceptual mitigation plans were included as an attachment to the Draft EIS.

Recommendation: We recommend that the following measures to further minimize impacts to wetlands during construction be committed to in the license:

- Perform construction in wetlands during frozen ground conditions, if feasible;
- Minimize width of temporary access roads;
- Use easily-removed materials for construction of temporary access roads and staging areas (e.g., swamp/timber mats) in lieu of materials that sink (e.g., stone, rip-rap, wood chips);
- Use swamp/timber mats or other alternative matting to distribute the weight of the construction equipment. This will minimize soil rutting and compaction;
- Use vehicles and construction equipment with wider tires or rubberized tracks, or use low ground pressure equipment to further minimize impacts during construction access and staging;
- Use long-reach excavators, where appropriate, to avoid driving or staging in wetlands; and
- Place mats under construction equipment to contain any spills.

Construction Impacts: Surface Water Use and Quality

EPA appreciates that the Applicant has committed to gradual reduction in surface water discharge rates during the winter months to reduce the risk of fish mortality caused by temperature shock.

Recommendation: We recommend that the Applicant work with and notify Michigan Department of Environmental Quality (MDEQ) during unplanned shutdowns to control discharge rates and temperatures and to mitigate for any resultant impacts, e.g., fish kills.

Please be aware that EPA reserves the right to provide comments at the Clean Water Act National Pollution Discharge Elimination System (NPDES) permitting stage. EPA has delegated the NPDES program to MDEQ, but retains an oversight role on NPDES permitting. Should any water quality criteria or effluent change during the five-year permitting cycle, the NPDES permit will need to be updated when the permit is up for renewal. This includes the forthcoming revised

standards under the Clean Water Act Section 316(b), which are currently in draft form, but closed for public comments.

Construction Impacts: Groundwater

The Draft EIS does not identify a clear recommendation regarding the groundwater dewatering scenario as laid out in Section 4.2.2.2.

> **Recommendation:** EPA recommends using the dewatering technique that has the least negative impact on adjacent receptors. Based on the models and the information provided, that technique would be the reinforced diaphragm concrete scenario. We also recommend that more information be included pertaining to where the pumped water will ultimately discharge. Finally, we would like additional information about public outreach to be conducted before drawdown activities. Because several receptor wells will experience groundwater drawdown of no more than one foot (page 4-16), we recommend providing written notices to impacted residents explaining when, why, and by how much they will be impacted.

Construction Impacts: Socioeconomics and Environmental Justice

In order to analyze different types of impacts in a more generic way, NRC opted to use the average number of onsite construction workers over an 8-year construction period, which is 1,000 onsite workers. We understand this is a more convenient way to compare impacts, as it captures the range of the construction period; however, using an 8-year average to analyze the number of onsite workers obscures the fluctuations in the numbers so that the true impact of their presence is not captured. During the first 50 months and last 30 months, the Fermi 3 site will experience a markedly lower number of onsite workers (each period being under 500 workers). The middle 40 months will experience the peak of construction, between 2,500 and 2,900 workers. Using the average of 1,000 workers overestimates by a factor of two the number of workers in the beginning and ending months and underestimates the number of onsite workers during the middle 40 months by a factor of three.

Because of this, EPA does not agree with the conclusions about the impacts of onsite constructions workers. For example, the economic benefits of the presence of construction workers during the beginning and ending months of the construction period is largely inflated because 1,000 workers will not be onsite, only 500 workers will be onsite. Conversely, the negative air quality impacts from traffic and construction equipment during the middle 40 months are largely diluted because the impacts are evenly spread throughout the construction period, when in reality, the impacts will be undoubtedly much greater during the peak of construction. At both extremes, the metric does not capture the true impact of onsite construction workers.

Recommendation: EPA recommends revisiting this methodology to better reflect the true number of onsite workers and reevaluating the magnitude of impact during each construction phase.

EPA appreciates NRC's efforts to outline its environmental justice analysis methodology; however, we disagree with NRC's conclusion that the influx of some 2,900 construction workers at the peak of Fermi 3's construction will have a SMALL impact to infrastructure and community services. As outlined above, the additional 2,900 workers is captured by using the average of 1,000 workers; the magnitude of an increase in 2,900 workers cannot be quantified given the methodology used. Such a large increase of workers will undoubtedly put pressure on community resources, such as affordable rent and availability of medical services. Therefore, EPA believes that the impacts are MODERATE in magnitude and require additional mitigation.

Recommendation: EPA recommends a re-evaluation of the methodology for assessing socioeconomic impacts as a result of the proposed project; this will yield a higher magnitude of impact to resources on which communities living with environmental justice concerns are reliant. This will also increase the necessity of mitigation measures.

We agree that there will be at least a MODERATE impact to traffic. However, as detailed above, EPA views the methodology used to determine impact from the influx of construction workers as flawed and the true impact will be much greater during parts of the construction cycle. EPA also believes the Michigan Department of Transportation (MDOT) and Monroe County should be consulted on the impending decreases in levels-of-service to certain roads and intersections. Ultimately, a comprehensive outreach strategy can mitigate many of the traffic impacts.

Recommendation: We suggest as part of the Applicant's mitigation strategy that the Applicant supply estimated schedules to adjacent communities and post them on the Applicant's website. The estimated schedules should include when (beginnings and ends of shifts) and where (heavily used roads and intersections) an increase in traffic is expected. We also recommend that the MDOT and Monroe County be consulted on the proposed project and any associated impacts to traffic patterns so they can assess the need for potential improvements. Any improvements to local roads that are a result of the proposed Fermi 3 project should be treated as connected actions and analyzed as such in the Final EIS.

Based on conversations between EPA and NRC staff, we understand that there are no other sensitive populations in the vicinity of the Fermi site (such as nursing homes and child-care centers) other than those listed in Chapter 2 of the Draft EIS.

Recommendation: We recommend this be definitively stated in the Final EIS.

The meteorological data indicates the predominate wind direction at the site is from the south-east. The land downwind from the site is primarily Canadian. While we appreciate the comprehensiveness of the data provided for Monroe and Lucas Counties in the United States, EPA would like to see more socioeconomic data from Canada, as Canadian citizens will also be receptors of Fermi 3 impacts.

> **Recommendation:** EPA recommends that socioeconomic data from Canadian receptor areas be included in the Final EIS.

Construction Impacts: Terrestrial Resources

EPA is pleased to see that all temporary and permanent forest clearings will occur on edges of forest patches and that no further forest fragmentation will occur at the Fermi site. We are also pleased to see that "temporarily disturbed vegetated areas would be revegetated with plants native to the project vicinity once no longer need" (page 4-24, lines 1-2). However, EPA is concerned about the amount of habitat lost in the transmission corridor and due to the proposed expansion of the Substation, at 1,069 and 21 acres, respectively. As outlined under *Transmission Corridor and Substation*, EPA views these developments as connected actions. Therefore, estimated impacts should be considered when preparing mitigation plans. This includes wetlands mitigation ratios.

> **Recommendation:** We recommend that all disturbed habitats are similarly revegetated using native species and that measures of success (e.g., percentages of allowed non-native invasive species) are discussed in the Final EIS. While we understand that conversion of forested uplands to cleared grasslands is necessary for maintenance of the transmissions towers, we strongly encourage low-growing native plants conducive to periodic mowing be used instead. Clarify whether agricultural fields that will be used for construction staging will be returned to agricultural use or converted to upland habitat. Finally, EPA would like to know the fate of the restored tall grass prairie below the transmission lines on the Fermi site mentioned on page 2-10, lines 4-6. It is unclear if this area will be impacted and, if it is, whether it will be restored and what measures of success will be employed. Because of the low likelihood of successful restoration of tall grass prairies, EPA strongly encourages the Applicant to commit to avoiding this area. Lastly, EPA recommends that the Final EIS indicate what land, if any, will revert to or become part of the Detroit River International Wildlife Refuge.

As noted on page 4-23, lines 20 to 24, NRC staff will prepare the Biological Assessment (BA) under the Endangered Species Act prior to the issuance of the Final EIS.

> **Recommendation:** EPA expects to see the BA as an appendix to the Final EIS. Clarify in the Final EIS whether the findings of the U.S. Fish and Wildlife Service's (USFWS) Biological Opinion are incorporated into the Final EIS, and will be incorporated into the

NRC license and the USACE ROD. EPA will also look for coordination with the Michigan Department of Natural Resources regarding adaptive management plans to protect the state-listed eastern fox snake in the Final EIS.

Construction Impacts: Air

EPA appreciates the dust suppression and control methods proposed by the Applicant. We find the wet operations and watering plans as appropriate control measures and encourage NRC to include this information in their decision document.

Since Monroe County, Michigan is within an area that is designated in as "maintenance" for the 8-hour ozone standard and in "non-attainment" for the fine particulate $PM_{2.5}$ standard, a conformity analysis for the proposed project is forthcoming. EPA acknowledges that MDEQ has requested re-designation of southeastern Michigan to "maintenance" for $PM_{2.5}$. That request is currently under review by EPA.

Recommendation: EPA expects to see this conformity analysis in the Final EIS.

The National Institute for Occupational Safety and Health (NIOSH) has determined that diesel exhaust is a potential occupational carcinogen, based on a combination of chemical, genotoxicity, and carcinogenicity data. In addition, acute exposures to diesel exhaust have been linked to health problems such as eye and nose irritation, headaches, nausea, asthma, and other respiratory system issues.

Recommendation: Although every construction site is unique, common actions can reduce exposure to diesel exhaust. EPA recommends that the Applicant commit in the Final EIS to the following actions during construction:

- Using low-sulfur diesel fuel (less than 0.05% sulfur).
- Retrofitting engines with an exhaust filtration device to capture diesel particulate matter before it enters the construction site.
- Positioning the exhaust pipe so that diesel fumes are directed away from the operator and nearby workers, thereby reducing the fume concentration to which personnel are exposed.
- Using catalytic converters to reduce carbon monoxide, aldehydes, and hydrocarbons in diesel fumes. These devices must be used with low sulfur fuels.
- Ventilating wherever diesel equipment operates indoors. Roof vents, open doors and windows, roof fans, or other mechanical systems help move fresh air through work areas. As buildings under construction are gradually enclosed, remember that fumes from diesel equipment operating indoors can build up to dangerous levels without adequate ventilation

- Attaching a hose to the tailpipe of diesel vehicles running indoors and exhaust the fumes outside, where they cannot reenter the workplace. Inspect hoses regularly for defects and damage.
- Using enclosed, climate-controlled cabs pressurized and equipped with high efficiency particulate air (HEPA) filters to reduce the operators' exposure to diesel fumes. Pressurization ensures that air moves from inside to outside. HEPA filters ensure that any incoming air is filtered first.
- Regularly maintaining diesel engines, which is essential to keep exhaust emissions low. Follow the manufacturer's recommended maintenance schedule and procedures. Smoke color can signal the need for maintenance. For example, blue/black smoke indicates that an engine requires servicing or tuning.
- Reducing exposure through work practices and training, such as turning off engines when vehicles are stopped for more than a few minutes, training diesel-equipment operators to perform routine inspection, and maintaining filtration devices.
- Purchasing new vehicles that are equipped with the most advanced emission control systems available.
- With older vehicles, using electric starting aids such as block heaters to warm the engine reduces diesel emissions.
- Using respirators, which are only an interim measure to control exposure to diesel emissions. In most cases, an N95 respirator is adequate. Workers must be trained and fit-tested before they wear respirators. Depending on work being conducted, and if oil is present, concentrations of particulates present will determine the efficiency and type of mask and respirator. Personnel familiar with the selection, care, and use of respirators must perform the fit testing. Respirators must bear a NIOSH approval number. Never use paper masks or surgical masks without NIOSH approval numbers.

The location of the proposed cooling tower, presently the site for meteorological data collection, will require the relocation of the meteorological data collection site. This presents an excellent opportunity to upgrade the instrumentation. Presently, the instrumentation is on a 60-meter high tower. Relocation of this tower to the proposed wooded location requires cutting a large amount of trees to bring the site into compliance with the regulatory requirements for clearance around the tower. Replacing the tower with a SODAR unit and some additional ground-based instruments would likely decrease the amount of clearance required. The use of the SODAR unit would also increase worker safety by eliminating the elevated work required for maintenance.

> **Recommendation:** EPA suggests the Applicant consider using a SODAR unit and some additional ground-based instrumentation at the new meteorological site instead of relocating the meteorological tower.

Present meteorological monitoring data shows the presence of a lake breeze at times. Lake breeze effects usually extend only a few miles inland, at best. Moving the meteorological monitoring site closer to Lake Erie will probably increase the amount of data that shows the lake breeze effect. Although this is important for onsite emergency response, it could cause problems if the emergency is extended offsite. The ability to determine if a lake breeze is in effect may be critical. The presence of a second (10 m) tower located inland beyond the lake breeze zone would be helpful.

> **Recommendation:** EPA suggests the Applicant consider installing a second, 10-meter meteorological tower beyond the lake breeze effect zone for use during emergencies.

Construction Impacts: Radiological Health

Based on conversations held between members of the EPA review team and NRC staff on December 6th, 15th, and 21st, 2011, we understand the following:

- The classification of construction workers as members of the public pertains to radiation dose limits only. Construction workers are protected under a more stringent NRC annual limit of 100 millirem (mrem), as opposed to occupational workers who are protected under the NRC annual limit of 5 rem. Construction workers are still protected by the Occupational Safety and Health Administration (OSHA) for other types of occupational hazards; any onsite safety violations or concerns will be reported to OSHA via the onsite NRC inspectors. Further, the annual ambient limit of 100 mrem is an NRC regulatory limit for onsite members of the public, while the EPA limit is for members of the public offsite. This information should be included in the Final EIS.
- The dose limit used to estimate construction worker exposure is very conservative, as it included the design maximum as the upper limit; however, this is not the expected dose. This estimation includes exposures as a result of fuel outages.
- Construction workers and other onsite personnel (administrative, reclamation, etc.) who are not classified as occupational radiation workers will not wear radiation badges. Until the new fuel for the operation of Fermi 3 is brought onsite at the end of the construction stage, there will be limited potential for radiation exposure. Fermi 1 has been undergoing decommissioning for approximately 20 years and Fermi 2 has its own radiation monitoring plan. There are radiation monitors within the boundary of Fermi 2. The Applicant does not anticipate that there will be a radiation exceedance; therefore, radiation badges are not required on construction workers.

EPA respectively disagrees with the Applicant's assertion that construction workers should be protected under the "members of the public" annual limit of 100 mrem; we are also concerned with NRC's interpretation of 10 CFR Part 20. Based on an NRC Request for Additional Information (RAI) dated May 21, 2010 (ADAMS Access number: ML101450195; answers to

question 5 and 6), we understand that this conclusion was reached based on a worst-case-scenario estimate of total radiation doses from all onsite sources to construction workers, which is 96 mrem. Since this number is under NRC's members-of-the-public dose limit of 100 mrem, the Applicant and NRC opted to allow construction workers to be treated as members of the public. However, NRC's regulations at 10 CFR Part 20 indicate that individuals are excluded from being considered members of the public when they are "receiving an occupational dose[2]" and an occupational dose means "the dose received by an individual in the course of employment in which the individual's assigned duties involve exposure to radiation or to radioactive material[3]". These definitions suggest construction workers should be subject to occupational dose limits as opposed to limits that would apply to members of the public. As outlined above, EPA recognizes that construction workers will not be working in direct contact with radioactive material and that the 96 mrem is a conservative estimate; however, since they will be exposed to radiation just by being onsite, as pointed out in the Draft EIS, EPA believes that the construction workers are entitled to a higher protection class than onsite "members of the public." As occupational workers, the construction workers would be allowed a total effective dose limit of 5 rems per year, and would also fall under the licensed radiation protection program, further ensuring their health and safety.

> **Recommendation:** EPA strongly encourages NRC and the Applicant to commit to a comprehensive radiation monitoring program that includes construction workers as occupational workers, affording them radiation monitoring (simple radiation badges) and health screening. At a minimum, ambient air quality monitoring should be performed at the construction site to ensure that the estimated dose limit of 96 mrem is an achievable limit. Onsite monitoring would not only validate that construction workers are working under the 100 mrem limit, but also provide valuable data for future nuclear power plant siting (i.e., situations where aging units are being decommissioned alongside either operating units or units under construction). Finally, the above clarifications (bullets under this heading) should be incorporated into the Final EIS, including NRC's views on where the radiation limit to members of the public of 100 rmem applies (e.g., within or beyond the facility boundaries).

Construction Impact: Noise

EPA acknowledges that Section 4.8.2 presented information on noise impacts during construction. However, EPA recommends additional information be included in the Final EIS on specific noise sources and locations of noise receptors. The Final EIS should include discussion of adaptive management should there be an annoyance[4].

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[2] 10 CFR 20.1003 *Member of the public*

[3] 10 CFR 20.1003 *Occupational dose*

[4] As defined by the Frenchtown Charter Township Noise Ordinance.

Recommendation: EPA recommends that the sources of noise be listed along with anticipated decibel levels or potential sound pressure levels. A map of potential receptors should be included in the Final EIS. The Final EIS should also include specific noise attenuation measures and Applicant mitigation plans to adapt should noise thresholds be exceeded for the listed receptors or the Frenchtown Charter Township Noise Ordinance be violated. See comments on *Public Notification* below, for discussion on recommended outreach.

Operation Impacts

Operation Impacts: Surface Water Use and Quantity

The document states that mean monthly wind velocity was measured at the Grosse Ile, Michigan airport, which is approximately 11 miles from the Fermi site (page 5-14, lines 15 through 17).

Recommendation: The Final EIS should provide appropriate rationale for using this data rather than data generated by the on-site meteorological tower.

Section 5.2.3.1, which discusses discharge and intake of water from Lake Erie, includes much valuable information for making an assessment of the surface water quality and quantity impacts. There are separate discussions regarding etiological agents and biocides, but not how biocides might control the listed pathogens, such as legionnella, salmonella, and *naegleria fowleri*. The Draft EIS does not include a monitoring or sampling plan for the listed pathogens or an adaptive management plan should an outbreak occur.

Recommendation: We acknowledge that NRC concluded that the likelihood of an outbreak would be SMALL. Nevertheless, EPA recommends that the Final EIS include a more thorough discussion of etiological agents that could be found in Lake Erie, in conjunction with the NPDES permit. The document only discusses normal operations and does not describe adaptive management if there were an outbreak of enteric pathogens in the thermal plume, cooling towers, or condensers. Finally, EPA would like to see a discussion of worker protection from exposure to likely etiological agents, such as legionnella or *naegleria fowleri*.

Operation Impacts: Terrestrial Impacts

The Draft EIS does not discuss lights that may be located on the proposed meteorological tower or the proposed cooling towers. As this area or this part of Lake Erie is an important part of migratory bird flight paths, any lights that might impact bird migration should be discussed and subsequently mitigated for.

Recommendation: EPA recommends that any lighting installed on the meteorological tower or the cooling towers is discussed, including what color will be used and whether

they would be continuous or intermittent. The Final EIS should discuss coordination with USFWS and the Federal Aviation Administration to ensure the best possible lighting solutions are employed to reduce avian impacts, while ensuring aviation safety.

Operation Impacts: Radiological Health

As outlined above, under *Construction Impacts: Radiological Health*, EPA disagrees with the conclusion that construction members should be treated as "members of the public." Based on information in Section 5.9 (Radiological Impacts of Normal Operations), the document indicates the maximally-exposed individual (MEI) is someone living offsite, but near, the Fermi facility. It is not clear why a person living near the facility, and not working directly on it, might be considered the MEI. EPA recommends clarification of whether the assumptions made in the MEI analysis are actually for a maximally-exposed offsite individual (MEOSI).

> **Recommendation:** EPA recommends that more information about MEI be included in the Final EIS, including the differences between MEI and MEOSI and whether construction workers fall into either category. If they do not, this should also be explained. The Final EIS should explain which models and assumptions were used to make determinations of MEI or MEOSI, and the relative degree of conservatism that was used to keep exposures as low as reasonable achievable (ALARA).

Operational Impact: Transportation

EPA acknowledges there is a discussion of rail transportation in terms of radioactive material in Chapter 6. However, the Draft EIS does not include other resource impacts as a result of the use of the rail line both on the Fermi site and externally. We acknowledge that the rail line is currently being used; however, with increased activity from both the construction of Fermi 3 and decommissioning of Fermi 1, there is reasonable expectation for rail use to increase.

> **Recommendation:** EPA recommends a more thorough discussion of impacts from increased use of the rail line transporting fuel and goods to and from the Fermi site. We are interested in both internal and external rail use. For internal rail use, impacts to worker health, noise, and emissions are the primary concerns. For external use, impacts to traffic, accident mitigation, noise, and emissions are the primary concerns. These potential impacts should be studied further and information should be provided in the Final EIS.

<u>Cumulative Impacts</u>

Cumulative Impacts: Surface Water Quality

The distance between the surface water discharge outfalls of Fermi 2 and 3 is approximately 0.4 miles. The presence of any shoreline currents could transport water from one of the plumes

towards the location of the other plume discharge. There is no discussion of whether shoreline currents are near the Fermi site, and if there are, how currents might impact plume movement.

> **Recommendation:** EPA recommends that discussion of shoreline current be included, and if present, what effects it would have on plume movement.

Transmission Lines and Substation

EPA understands that NRC analyzes impacts from the lengthening of the transmission lines and expansion of the Milan Substation as cumulative impacts and outside the scope of the COL permit application and accompanying NEPA document. However, per NEPA, EPA views these actions as connected to the granting of the license and, therefore, should be analyzed as direct impacts as a result of the proposed action. The Draft EIS even acknowledges the connectedness of the building of Fermi 3 and the expansion of the Substation on page 3-17, lines 31-21, among other locations: "The 350-ft-by-ft-500-ft Milan Substation may be expanded to an area about 1000 ft by 1000 ft to accommodate the Fermi 3 expansion (Detroit Edison 2011b)." Therefore, because the lengthening of the transmission lines and the expansion of the Substation are only necessitated by granting the COL license for Fermi 3, the Final EIS should analyze impacts from these two actions as direct impacts.

> **Recommendation:** The Final EIS should analyze the construction of the transmission lines and the expansion of the Substation as actions part of the proposed action; any unavoidable impacts should be accounted and mitigated for.

Green Infrastructure

EPA notes in the detailed site plans many of the current parking lots have been converted into parking structures; we appreciate that the Applicant opted for a smaller footprint, thus reducing potential wetland and upland forest impacts. EPA strongly encourages that elements of sustainable or "green" infrastructure be incorporated into all facets of the design and site layout of Fermi 3. This should include consideration of, but is not limited to, using permeable pavement in roads leading in and out of the plant, for example, and re-planting construction lay-down areas with native vegetation. We appreciate that the Applicant has already identified re-vegetation of construction areas with native species as part of their overall mitigation plan. In the Final EIS, we recommend all beneficial mitigation measures be outlined and included in the license.

We also encourage the Applicant to construct all buildings to Leadership in Energy and Environmental Design (LEED) standards. If LEED standards are pursued, this information should be included in the Final EIS. Any potential use of Energy Star appliances, EPA's WaterSense program, EPA's GreenScapes program, or other similar programs should be identified in the Final EIS. These are important elements of reducing the overall environmental impact of the proposed project.

Finally, EPA would like more information in the Final EIS on the sources of the required construction materials, as listed in table 10-4, on page 10-26 under "Material and Resources." Please outline whether this material can be made of second-sourced material (i.e., reclaimed aggregate). EPA understands there could be specific safety codes that prevent this; however, we recommend that any auxiliary buildings, new roads, and other non-safety related structures be constructed with materials that are recycled, if possible. If you need more information about this, please see our website about environmentally responsible purchasing at www.epa.gov/epp.

> **Recommendation:** EPA strongly encourages the Applicant to consider environmentally-friendly purchasing and sourcing, as well as sustainable development of the facility. Any plans currently proposed by the Applicant to pursue programs or initiatives listed above should be disclosed in the Final EIS along with information listed above.

Construction, Operating, and Refueling Schedules

The Draft EIS does not fully outline when refueling of Fermi 2 will take place and how this activity might impact onsite construction workers. It is not clear if each of the resource analyses have taken into account the additional workers and risk of radiation.

> **Recommendation:** EPA recommends that NRC and the Applicant identify when during the pre-construction and construction periods the required refueling operations of Fermi 2 will occur, if Fermi 3 construction workers will be impacted by re-fueling operating, and identify whether each of the impact analyses took this into account when drawing conclusions. We are particularly interested in the sections on radiological health impacts, traffic impacts, and socioeconomic impacts, due to the additional risk of radiation exposure and the additional number of onsite workers. Clarify whether onsite construction workers will wear radiation badges or receive additional screening if they are onsite during the refueling periods where there is an increased risk of radiation exposure.

In order to better quantify traffic impacts, EPA recommends that estimated normal operating schedules for Fermi 2, proposed construction schedules for Fermi 3, and estimated Fermi 1 decommissioning schedule be included in the Final EIS. Specifically, EPA is looking for the points at which anticipated shift changes might occur, whether any shift changes coincide, and if shift changes might be staggered or altered so that traffic impacts are reduced. This is an important point for neighboring residences, as levels-of-service (LOS) on several nearby roads and intersections is already rated at C or lower and LOS is expected to worsen as construction of Fermi 3 progresses.

> **Recommendation:** EPA recommends additional coordination with MDOT and Monroe County. The Final EIS should outline shift schedules so local communities can be made aware of and adequately prepare for the change in traffic patterns.

Public Notification

Based on conversations between EPA staff and NRC staff on December 6th and 15th, 2011, we understand that NRC cannot include mitigation measures in the license that do not pertain to nuclear security. However, EPA strongly encourages the Applicant commit to a comprehensive public outreach strategy to inform residents about the risks and impacts of the proposed project. EPA believes that comprehensive public outreach is part of any successful mitigation strategy. This should include, but is not limited to, targeted outreach campaigns to neighbors, informational literature, and updated websites. There are specific resource impacts where EPA believes this outreach would be particularly beneficial, including, but not limited to:

- construction schedule;
- work shifts and the resultant traffic expectations;
- noise monitoring;
- air quality monitoring data;
- radiological data;
- dewatering at the construction site and the resultant lowering of the well levels;
- refueling outages and the resultant increase in onsite personnel;
- contact information for complaints and questions; and
- emergency information.

Recommendation: EPA strongly encourages the Applicant commit to a comprehensive public outreach strategy to inform residents to the risks and impacts as a result of the proposed project. This should include, but is not limited to, targeted outreach campaigns to neighbors, informational literature, and updated websites. Commitment by the Applicant to a comprehensive public outreach strategy would alleviate many of the EPA's concerns. Any details of the public outreach strategy should be included in the Final EIS.

References and Editorial

EPA understands that incorporation by reference is an effective way to conserve resources, particularly when the reference is lengthy. However, the Environmental Report (ER), which is referenced extensively throughout the Draft EIS, was not included with the document. We appreciate that NRC sent a copy of the ER upon request; however, the ER's absence delayed EPA's review. We remain concerned that its unavailability, specifically to those who do not have access to the Internet, prevented readers from understanding the full extent of actions, impacts, and mitigation.

Recommendation: EPA recommends the ER be added as an appendix to the Final EIS.

Most references to the ER were to the whole document and not specific lines, pages, or chapters. This made EPA's review very difficult, as the document is over 1,900 pages in length. We appreciate where specific references were employed, for example, in section 5.2.3.1, page 5-10, line 29.

> **Recommendation:** We recommend that in locations where narrative was used to describe information found in the ER, the actual data, figure, table, etc. be inserted into the Final EIS, including, but not limited to, noise and air dispersion models, noise receptors, and radiation monitoring locations. Other references should include section, page, and line numbers.

We recommend that the following entities be provided copies of the Final EIS and be afforded the right to comment, as they each have authorities or interests in the proposed project, but were not listed as contacted in Appendix B:

- Occupational Safety and Health Administration;
- United States Coast Guard;
- Canadian Environmental Assessment Agency; and
- Michigan Department of Transportation, given the concerns outlined under Construction Impacts.

Per Executive Order 12866 and the Plain Writing Act of 2011, there are several instances in the Draft EIS that do not adhere to the government-wide directive to commit to writing in plain language. Below are terms or figures that should be clarified or corrected in the Final EIS or ER:

- The northerly run of the transmission line is parallel to I-275, not I-75 (page 2-10, line 9).
- The status of the Coastal Zone Management Act Certification (page 2-7, lines 1-3).
- Wells referenced on page 2-31, lines 21 through 26 should be identified on a map.
- Keys should be added to figures 2.1-4 and 4.2-1 in the ER.
- Category 1 structures (page 3-2, line 4) should be defined.
- The definition for "standard noise control measures" (page 4-61) should be clarified.
- Identify the "four pieces" of equipment and their potential noise levels (page 4-109).
- "Blowdown" should be defined (as referenced throughout the document) earlier than Section 5.2.3.1, page 5-10, lines 6 through 14.
- Page 5-43, paragraph beginning on line 29 references Table 2-15, which should be Table 2-13.
- According to EPA's databases and the project workplan, the Pointe Aux Peaux Wetlands Restoration project, referred to on page 7-21, lines 14 and 15, is located in the Pointe Aux Peaux State Wildlife Area, which is adjacent to the Fermi complex, not within it. Please make this correction in the Final EIS.

- Maps that rely on color ramp symbology should be printed in color.
- Several industry terms that should be defined, including, but not limited to: startup, hot shutdown, stable shutdown, cold shutdown, and refueling.

Recommendation: The Final EIS should be more reader-friendly. EPA recommends the above issues be addressed in order to accomplish this.

SUMMARY OF RATING DEFINITIONS AND FOLLOW UP ACTION

Environmental Impact of the Action

LO-Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impacts. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1-Adequate
The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alterative and those of the alternatives reasonably available to the project or action. No further analysis or data collecting is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information
The draft EIS does not contain sufficient information for the EPA to fully assess the environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640 Policy and Procedures for the Review of the Federal Actions Impacting the Environment