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Lake Erie Waterkeeper Mission: "To preserve, protect, and improve the waters and fish of Lake Erie, the warmest, shallowest, most biologically productive area in all of the Great Lakes through collaboration, education & advocacy."

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Email to: Fermi3.COLEIS@nrc.gov
Docket ID NRC-2008-0566

Draft Environmental Impact
Statement for Combined License (COL)
for Enrico Fermi Unit 3
report number: NUREG-2105

Please accept the following comments submitted by Sandy Bihn, Lake Erie Waterkeeper

Fermi 3 Comment

1. Section 5.221 Line 1 after line 16 states that the Great Lakes Compact of 2008 requires that any new water use of more than 5 MGD be subjected to a regional review. Therefore, Fermi 3 would be subject to such a review by the other Great Lakes States and provinces.
While this statement is correct, the State of Michigan has also adopted a water withdrawal model that should be part of this review.
The EIS should include the analysis that is required in the Great Lakes Compact and the review required by Michigan DEQ for the 49.3 million gallons per day withdrawal from western Lake Erie. The EIS needs to incorporate these element, not have them determined independently. This information should have been part of the EIS.
2. Section 5.221 line 12 and forward discusses the volume of water that Detroit Edison will use for Fermi 3. The estimate provided is .006 percent of the total volume of water in all of Lake Erie. Fermi 3 is to be located in the shallowest part of Lake Erie – the western basin which holds only 5% of the total volume of Lake Erie water. Rather than .006 percent of the total Lake Erie water volume, the EIS should base the analysis of water in the Western Lake Erie basin. This means that the volume of water used would be .1727 percent of the western Lake Erie volume. This is based on 5% of 116 cubic miles = 5.8 cubic miles, .00006 times 116 equals .00696 cubic miles, .00696/5.8

cubic miles equals .12% of the water use in western Lake Erie where the plant is located, significantly more than .006% in the report.

Furthermore, the total volume of water used by DTE from western Lake Erie in the Monroe, Michigan area adds up to 4.8% of the water in the western basin of Lake Erie. Given the current algae crisis in Lake Erie, especially western Lake Erie the volume of water used in the basin with the increased discharge temperature decrease western Lake Erie water quality and increase algae growth.

3. Section 5.2.3.1 discusses the mixing zone/thermal plume as be about 55,000 square feet. This conflicts with a recent mixing zone/thermal study conducted by BP for Ohio EPA in Maumee Bay in about eight feet of water which is about the same as Fermi 3's estimated depth. That study showed the plume extending in some cases over one mile – significantly more than the Detroit Edison information suggests and from some research it appears that the same model was used. NRC should review the BP thermal report recently completed which includes analysis of fish kills and determine why there are such discrepancies in the mixing zone calculations. Also, if the calculations used in the thermal plume model use the entire volume of water in Lake Erie rather than the volume of water in the western basin, then the calculations for the thermal plume are understated. In addition there is a 2011 report by Limnotech that shows algae in the area of where Fermi 3 is to be built is not reported or discussed in the EIS. The growing algae problem in Lake Erie decreases water quality and caters to fish that live in lower water quality.
4. NOAA MODIS satellite imagery available for Lake Erie in 2011 shows massive algal blooms along the Monroe shoreline from July through October. Researchers say that the Lake Erie 2011 algal bloom was the largest ever recorded. Detroit Edison in their EIS depicted Lake Erie as being healthier and thriving when in fact the water quality and types of aquatic habitat it can support are declining. USEPA, Ohio EPA and others can verify the growing algae problem in Lake Erie. The Fermi Three plant will heat an estimated additional .12% of the water in western Lake Erie that will contribute to undesirable toxic algae growth which is a threat to human health and the environment. Contribution to algae growth and degradation to the fish population from the additional algae was not evaluated in the EIS.
5. Fish kill estimates are based on Fermi 2 counts. There is no analysis for Fermi Three of the incremental impact of additional fish kills in an already stressed western Lake Erie watershed. How many fish would Fermi 3 have to kill before there was an adverse impact on walleye and yellow perch populations in western Lake Erie either from the species themselves being killed or from the forage fish needed to support the walleye and yellow perch populations.
6. Section 5.2.2.1 line 6 page 5-9 talks about the water quantity withdrawal impacts when considering the Monroe/Frenchtown water intake. There is no discussion of the impact on the water intake waters from the discharged waters of Fermi 3 – both from water quality changes and from temperature changes. The State of Oregon bans drinking water intakes from being in a mixing zone. Given the shallow nature of the water – estimated at 8.5', it is imperative that the EIS include an analysis of impacts on the Monroe drinking water intake for the public health – both from increased temperatures and increased chemicals in the water.

Attachment A Size of thermal plume Bayshore power plant. Note that OEPA suggests that the thermal plume/mixing zone predictive model underestimates the size of the thermal plume. Given the conservative estimate below, Bayshore uses about 750mgd with 'an underestimated' average observed plume size of 216 acres while the model shows 84 acres, which is 2.52 times the model. If this observation would apply to Fermi 3, then the plume size would be 55,000 sq. ft. times 2.57 = 141,350 sq. ft.

This from a 2004 Ohio EPA Update of the Bayshore Power plant.

slightly less than the daily maximum water quality standards while it is possible that south shore temperatures exceed the 30-day average water quality standards during certain months. The 30-day average water quality standard for July is 83° F. and the temperatures recorded near the south shore were 82° F. and 86° F. for July 9th and July 30th, respectively.

- Size of the thermal plume. The largest thermal plume observed during the summer of 2002 was approximately 2,000 acres, or 3.1 square miles. The average plume size observed was 216 acres. The predictive computer model developed in the "Thermal Mixing Zone Study" projects a typical plume size of 84 acres. However, Ohio EPA believes that the predictive model underestimates the size of the thermal plume, especially as the plume size increases.
- Temperatures at the south shore. Assuming that temperatures measured at the water intake structure for the Bayshore Plant are a reasonable measure of background (or ambient) temperatures in Maumee Bay, the "Thermal Mixing Zone Study" showed that the temperature of water reaching the south shore during the summer are roughly 3 to 5° F. higher than ambient temperatures. (See Figures 3 - 9.) For example, temperatures measured near the south shore on July 30th were 86° F. while the intake or ambient temperature for July 30th was 81° F. In addition, the data shows that temperatures at the south shore are

Attachment B USGS comments on DTE 316 fish kills etc. for the coal fired power plant which may be applicable to Fermi 3 - attached