



10 CFR 52.79

52-033

March 19, 2010  
NRC3-10-0011

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555-0001

- References:
- 1) Fermi 3  
Docket No. 52-033
  - 2) Letter from Ilka T. Berrios (USNRC) to Jack M. Davis (Detroit Edison),  
"Request for Additional Information Letter No. 16 Related to the SRP Sections  
2.5.1, 2.5.2, 2.5.3, 2.5.4 and 2.5.5 for the Fermi 3 Combined License  
Application," dated November 13, 2009
  - 3) Letter from Ilka T. Berrios (USNRC) to Jack M. Davis (Detroit Edison),  
"Request for Additional Information Letter No. 17 Related to the SRP Sections  
2.5.1, 2.5.2 and 2.5.4 for the Fermi 3 Combined License Application," dated  
November 24, 2009
  - 4) Letter from Ilka T. Berrios (USNRC) to Jack M. Davis (Detroit Edison),  
"Request for Additional Information Letter No. 22 Related to the SRP Section  
2.5.2 for the Fermi 3 Combined License Application," dated January 11, 2010
  - 5) Letter from Peter W. Smith (Detroit Edison) to USNRC, "Detroit Edison  
Company Response to NRC Request for Additional Information Letter No. 16,  
17, and 22," dated February 11, 2010
  - 6) Letter from Peter W. Smith (Detroit Edison) to USNRC, "Detroit Edison  
Company Response to NRC Request for Additional Information Letter (RAI)  
Letter 16, RAI numbers 02.05.02-1, 02.05.02-3, 02.05.02-4, 02.05.02-8,  
02.05.02-27, and 02.05.04-28," dated February 15, 2010
  - 7) Letter from Ilka T. Berrios (USNRC) to Jack M. Davis (Detroit Edison),  
"Request for Additional Information Letter No. 24 Related to the SRP Section  
2.4.1 for the Fermi 3 Combined License Application," dated February 4, 2010

Subject: Detroit Edison Company Response to NRC Request for Additional Information  
Letters No. 22 and No. 24

In Reference 7, the NRC requested additional information (RAI) to support the review of a portion of the Fermi 3 Combined License Application (COLA). The responses to these RAIs are provided as Attachment 1 through 4 of this letter. Information contained in these responses will be incorporated into a future COLA submission as described in the RAI response.

D095  
NRK

In Reference 7, the NRC requested that Detroit Edison provide the digital elevation model (DEM) for the Swan Creek watershed be submitted to support the staff's review of the application. This letter provides the requested files as described in the enclosure.

The file format and names on the enclosed CD do not comply with the requirements for electronic submission in the NRC Guidance Document, "Guidance for Electronic Submissions to the NRC," dated June 25, 2009; the files are not "pdf" formatted. The NRC Staff requested the files be submitted in their native formats required by the software in which they are utilized to support NRC review of the COLA.

In References 2, 3, and 4, the NRC requested additional information to support the review of a portion of the Fermi 3 Combined License Application (COLA). Reference 5 was the response to portions of References 2 and 3, and 4 in its entirety. During final assembly of Reference 5, the response to RAI 02.05.02-10 was omitted and a duplicate of RAI 02.05.01-10 was mistakenly inserted in its place. The requests in RAI 02.05.02-10 are addressed in the Detroit Edison response to RAI 02.05.02-8, which was submitted in Reference 6. Attachment 5 of this letter contains the response to RAI 02.05.02-10.

If you have any questions, or need additional information, please contact me at (313) 235-3341.

I state under penalty of perjury that the foregoing is true and correct. Executed on the 19<sup>th</sup> day of March 2010.

Sincerely,

A handwritten signature in black ink, appearing to read 'PWS', with a long horizontal flourish extending to the right.

Peter W. Smith, Director  
Nuclear Development – Licensing & Engineering  
Detroit Edison Company

Attachments: 1) Response to RAI Letter No. 24 (Question No. 02.04.01-1)  
2) Response to RAI Letter No. 24 (Question No. 02.04.01-2)  
3) Response to RAI Letter No. 24 (Question No. 02.04.01-3)  
4) Response to RAI Letter No. 24 (Question No. 02.04.01-4)  
5) Response to RAI Letter No. 22 (Question No. 02.05.02-10)

Enclosure: 1) CD containing Digital Elevation Model (DEM) for the Swan Creek watershed

cc: Ilka Berrois, NRC Fermi 3 Project Manager  
Chandu Patel, NRC Fermi 3 Project Manager (w/o Enclosure CD)  
Jerry Hale, NRC Fermi 3 Project Manager (w/o Enclosure CD)  
Bruce Olson, NRC Fermi 3 Environmental Project Manager (w/o Enclosure CD)  
Fermi 2 Resident Inspector (w/o Enclosure CD)  
NRC Region III Regional Administrator (w/o Enclosure CD)  
NRC Region II Regional Administrator (w/o Enclosure CD)  
Supervisor, Electric Operators, Michigan Public Service Commission (w/o Enclosure CD)  
Michigan Department of Environmental Quality  
Radiological Protection and Medical Waste Section (w/o Enclosure CD)

**Attachment 1  
NRC3-10-0011**

**Response to RAI Letter No. 24  
(eRAI Tracking No. 4149)**

**RAI Question No. 02.04.01-1**

**NRC RAI 02.04.01-1**

*To meet the requirements of 10 CFR 100.20(c) and 52.79(a)(1)(iii) and to support the staff's review of the application, the staff requests that documentation (e.g., a letter from the Frenchtown Water Department) be provided that states that the Frenchtown Township municipal water supply is available for Fermi 3 potable water needs and makeup demineralizer water.*

**Response**

Detroit Edison has previously provided this information in response to Environmental Report (ER) RAI HY2.3.1-13. ER RAI HY2.3.1-13 and the corresponding response are contained in Detroit Edison Letter to the NRC, NRC3-09-0012 (ML092290713), dated July 31, 2009.

**Proposed COLA Revision**

None

**Attachment 2  
NRC3-10-0011**

**Response to RAI Letter No. 24  
(eRAI Tracking No. 4149)**

**RAI Question No. 02.04.01-2**

**NRC RAI 02.04.01-2**

*To meet the requirements of 10 CFR 100.20(c) and 52.79 (a)(1)(iii) and to support the staff's review of the application, the staff requests that the digital elevation model (DEM) for the Swan Creek watershed be submitted.*

**Response**

The requested digital elevation model (DEM) for the Swan Creek watershed is included on the Enclosed CD. The directory for the attached CD is included as an Enclosure to this RAI response.

**Proposed COLA Revision**

None

**Enclosure 1**  
**NRC3-10-0011**

**Digital Elevation Model for the Swan Creek Watershed CD**



**CD Directory – Swan Creek Watershed DEM**

Directory of D:\

03/03/2010 03:58 PM <DIR> dem\_swnstny  
0 File(s) 0 bytes  
1 Dir(s) 0 bytes free

D:\dem\_swnstny>dir

Volume in drive D is 100303\_1559  
Volume Serial Number is A35F-14F6

Directory of D:\dem\_swnstny

03/03/2010 03:58 PM <DIR> .  
03/03/2010 03:59 PM <DIR> ..  
01/18/2008 02:50 PM 32 dblbnd.adf  
01/18/2008 02:50 PM 308 hdr.adf  
01/18/2008 02:50 PM 192 log  
01/18/2008 02:50 PM 608 metadata.xml  
01/18/2008 02:50 PM 124 prj.adf  
01/18/2008 02:50 PM 32 sta.adf  
01/18/2008 02:50 PM 79,948,958 w001001.adf  
01/18/2008 02:50 PM 78,156 w001001x.adf  
8 File(s) 80,028,410 bytes  
2 Dir(s) 0 bytes free

**Attachment 3  
NRC3-10-0011**

**Response to RAI Letter No. 24  
(eRAI Tracking No. 4149)**

**RAI Question No. 02.04.01-3**

**NRC RAI 02.04.01-3**

*To meet the requirements of 100.20(c) and 52.79(a)(1)(iii) and to support the staff's review of the application, the staff requests the applicant provide background documentation for information used to create Tables 2.4-206 through 2.4-208 of the FSAR related to Monroe County water supply and water use. The staff also requests that the data presented in Table 2.4-209 of the FSAR concerning the water supply of Lake Erie be further explained with detailed documentation of how the values in the table were determined.*

**Response**

In support of COLA development, contacts were made with public authorities for data gathering and compilation. FSAR Section 2.4.1.2.8 describes water use in the region near Fermi 3. In support of this section, Tables 2.4-206, 2.4-207 and 2.4-208 provide water use and capacity data for Monroe County for the years 2005 and 2006. This data was provided directly from the Michigan Department of Environmental Quality (MDEQ). The spreadsheets that contain the data transmitted from the MDEQ are attached to this response. This same data is also used in Tables 2.3-35, 2.3-36 and 2.3-37 in the Fermi 3 Environmental Report.

FSAR Table 2.4-209 provides net basin supply data for Lake Erie and inflow from the Detroit River. This information was obtained at the Great Lakes Environmental Research Laboratory (GLERL) website. Net basin supply data can be accessed through this website, notably great lakes monthly hydrologic data can be accessed at: <http://www.glerl.noaa.gov/data/arc/hydro/mnth-hydro.html>. The data presented in the FSAR was obtained on November 26, 2007.

Using the data access link to the updated files, the spreadsheet titled "NBS\_ERI.xls" provides the Lake Erie Net Basin Supply, monthly overland precipitation depth, and overlake precipitation depth for years 1948 through 2008. At the time of COLA development, data for the Detroit River was available at the above website. Subsequent to August 2009, the data for the Detroit River was removed from the GLERL website. Consequently, today flow rates for the Detroit River for the years 1900 through 1990 can be obtained at: <http://www.lre.usace.army.mil/greatlakes/hh/outflows/historic%20connecting%20channel%20outflows/>. Data for years after 1990 would be obtained through direct correspondence with the U.S. Army Corps of Engineers (USACE), Detroit District, Great Lakes Hydraulics and Hydrology Office.

Per discussions with GLERL personnel, the data available on the web site at any particular time is considered to be the best possible estimate of the averaged value. Therefore, information contained on the website today would be slightly different than the information presented in the FSAR. The net total supply shown in FSAR Table 2.4-209 is the sum of the overland precipitation depth and the yearly inflow for the Detroit River.

Information located at the GLERL website (<http://www.glerl.noaa.gov/data/arc/hydro/mnth-hydro.html>) describes the methodology for calculating the overlake and the overland precipitation depths. As described in this methodology:

“Over-lake precipitation estimates can be different, depending on which land-based meteorologic stations are used and how lake/land precipitation ratios are determined from short term studies. For the Great Lakes, where lake effects on nearshore meteorology are significant and drainage basins have relatively low relief, the use of all available meteorologic stations through the basin may be less biased than the use of only nearshore stations. GLERL often estimates over-lake precipitation from over-land precipitation which is, in turn, measured throughout the basin and Thiessen weighted.”

Thus, consistent with the GLERL practices, the overland precipitation is used. The data in Table 2.4-209 is used in the discussion in Section 2.4.1.2.8 for comparison to the quantity of withdrawals within the vicinity of Fermi 3, with the conclusion that the withdrawals comprise approximately 1.4 percent of the total Lake Erie supply.

**Data provided from MDEQ – 2005 Monroe County Water Capacity and Usage**

<b>Industrial</b>	<b>Facility Name</b>	<b>Groundwater Use(Mgal)</b>	<b>Surface Water Use (Mgal)</b>	<b>Great Lakes Use (Mgal)</b>
Holcim (US) Inc.	Dundee Plant		286.7	
Stoneco	Denniston Quarry	155.58		
Sylvania Minerals		3073.88		

<b>Golf Course Irrigation</b>	<b>Facility Name</b>	<b>Groundwater Use (Mgal)</b>	<b>Surface Water Use (Mgal)</b>	<b>Great Lakes Use (Mgal)</b>
Carleton Glen Golf Club			21	
Wyndridge Oaks Golf Course		8.091841		

<b>Thermoelectric Power Generation</b>	<b>Facility Name</b>	<b>Groundwater Use (Mgal)</b>	<b>Surface Water Use (Mgal)</b>	<b>Great Lakes Use (Mgal)</b>
Consumers Energy Company	J R Whiting	32.29		77440.4
Detroit Edison Company	Monroe			572846
Detroit Edison Company	Enrico Fermi II			18756.5

**Data provided from MDEQ – 2006 Monroe County Water Capacity and Usage**

<b>Industrial</b>	<b>Facility Name</b>	<b>Groundwater Capacity</b>	<b>Units</b>	<b>Groundwater Use (Mgal)</b>	<b>Surface Water Capacity</b>	<b>Units</b>	<b>Surface Water Use (Mgal)</b>	<b>Great Lakes Capacity</b>	<b>Units</b>	<b>Great Lakes Use (Mgal)</b>
Holcim (US) Inc.	Dundee Plant				0.585	MGD	286.9			
Stoneco	Maybee Quarry	11.52	MGD	442.66						
Stoneco	Newport Quarry	9.36	MGD	222.65						
Stoneco	Ottawa Lake Quarry	23.88	MGD	1024.78						
Stoneco	Denniston Quarry	16.74	MGD	109.13						
Sylvania Minerals		30.53	MGD	4131.64						
Tenneco Inc.		200	GPM	17						

<b>Golf Course Irrigation</b>	<b>Facility Name</b>	<b>Groundwater Capacity</b>	<b>Units</b>	<b>Groundwater Use (Mgal)</b>	<b>Surface Water Capacity</b>	<b>Units</b>	<b>Surface Water Use (Mgal)</b>	<b>Great Lakes Capacity</b>	<b>Units</b>	<b>Great Lakes Use (Mgal)</b>
Carleton Glen Golf Club					275	GPM	30.412			
Deme Acres Golf Course		155	GPM	6.55017						
Green Meadows Golf Course Inc		850	GPM	13.187718						
Maple Grove Golf Course		600	GPM	25.037445						
Monroe Golf & Country Club		800	GPM	12.688						
Raisin River Golf Club		875	GPM	15.69						
Sandy Creek Golf Course		600	GPM	33.9						
Whiteford Valley Golf Course		750	GPM	43.55						

<b>Thermoelectric Power Generation</b>	<b>Facility Name</b>	<b>Groundwater Capacity</b>	<b>Units</b>	<b>Groundwater Use (Mgal)</b>	<b>Surface Water Capacity</b>	<b>Units</b>	<b>Surface Water Use (Mgal)</b>	<b>Great Lakes Capacity</b>	<b>Units</b>	<b>Great Lakes Use (Mgal)</b>
Consumers Energy Company	J R Whiting	0.864	MGD	39.02				324.288	MGD	81490.45
Detroit Edison Company	Monroe							2056	MGD	540283
Detroit Edison Company	Enrico Fermi II							45.1	MGD	17905.7

**Proposed COLA Revision**

None



**Attachment 4  
NRC3-10-0011**

**Response to RAI Letter No. 24  
(eRAI Tracking No. 4149)**

**RAI Question No. 02.04.01-4**

**NRC RAI 02.04.01-4**

*To meet the acceptance criteria of NUREG-0800 and to support the staff's review of the application, the staff requests that the applicant provide additional information on future water use and the methods used to calculate the water use.*

*The applicant does not provide an estimate of future likely water use for Lake Erie in the FSAR. A discussion of future water use is presented in the Fermi 3 COLA ER Section 2.3.2.3 with corresponding Tables 2.3-40 and 2.3-41 presenting the estimates of future water use by category through 2060. The discussion in Section 2.3.2.3 of the ER states that the applicant used water use information for the year 2000 from USGS Water-Resources Investigations Report 03-43 12 (USGS, 2004) and population estimates presented in ER Section 2.5.1 to estimate future water use. The staff reviewed the values for groundwater use for the year 2000 presented in Table 2.3-40 compared with the information in FSAR Table 2.4-205. The values for public supply, groundwater withdrawals, fresh, in MGD and Irrigation, groundwater withdrawals, fresh, in MGD presented in ER Table 2.3-40 are not consistent with values in the FSAR Table 2.4-205.*

**Response**

FSAR Table 2.4-205 provides water use data for Monroe County available from the Michigan Department of Environmental Quality (MDEQ). This same information is also presented in ER Table 2.3-34. ER Table 2.3-40 provides projected groundwater use for Monroe County through year 2060. This same information is also presented in ER Table 2.3-20 and FSAR Table 2.4-227. As described in ER Section 2.3.2.3, the projected groundwater use information in Table 2.3-40 is developed based on the year 2000 water use data documented in USGS Circular 1268 supplemented by the State of Michigan water use data for Thermoelectric Power Generation for the year 2000 and data presented in USGS Investigations Report 03-4312. Table 2.4-227 identifies the specific source for the data used in the projections. Specific data for each county represented in USGS Circular 1268 is available at the following website: <http://water.usgs.gov/watuse/data/2000/mico2000.xls>. It is recognized that the values in ER Table 2.3-40 may be different than the values in FSAR Table 2.4-205. These differences, and the rationale for the differences, are summarized in the following table:

Water Use	FSAR Table 2.4-205 (ER Table 2.3-34)	ER Table 2.3-40 (ER Table 2.3-20) (FSAR Table 2.4-227)	Bases for Differences
Thermoelectric Power	0.07	0.07	No difference, USGS Circular 1268 data indicates 0 MGal/d withdrawn for thermoelectric power in Monroe County. To be conservative for determination of future water uses, the higher value from the MDEQ data was used to estimate future groundwater usage.
Public Water Supply	0.23	0.24	USGS Circular 1268 has a slightly higher value than the MDEQ data. For conservatism the data from USGS Circular 1268 was used to estimate future groundwater usage.

Water Use	FSAR Table 2.4-205 (ER Table 2.3-34)	ER Table 2.3-40 (ER Table 2.3-20) (FSAR Table 2.4-227)	Bases for Differences
Agricultural Irrigation	0.55		USGS Circular 1268 does not differentiate between uses of irrigation. The MDEQ data specifically includes irrigation for agriculture and golf courses.
Self-Supply Industrial	15.65	23	USGS Circular 1268 has same value of 15.65 MGal/day as the MDEQ data. To be conservative the higher value of 23 MGal/day from USGS Investigations Report 03-4312 was used to estimate future groundwater usage.
Golf Course Irrigation	0.29		USGS Circular 1268 does not differentiate between uses of irrigation. The MDEQ data specifically includes irrigation for agriculture and golf courses.
Domestic Self-Supply		4.28	The MDEQ data does not specifically identify this water use where the USGS Circular data does. For conservatism the data from USGS Circular 1268 was used to estimate future groundwater usage.
Livestock		0.05	USGS Circular 1268 does not differentiate between uses of irrigation. The MDEQ data specifically includes irrigation for agriculture and golf courses.
Irrigation		0.78	USGS Circular 1268 does not differentiate between uses of irrigation. The MDEQ data specifically includes irrigation for agriculture and golf courses.

The values used in ER Table 2.3-40 (and ER Table 2.3-20 and FSAR Table 2.4-227) were selected to provide conservative results for projections of future groundwater use.

During the review as part of developing this RAI response it was discovered that the references shown on ER Table 2.3-20 and 2.3-40 should be updated to be consistent with FSAR Table 2.4-227.

#### **Proposed COLA Revision**

A proposed mark-up for ER Tables 2.3-20 and 2.3-40 is provided to revise the references to be consistent with FSAR Table 2.4-227.

**Markup of Detroit Edison COLA**  
(following 2 pages)

The following markup represents how Detroit Edison intends to reflect this RAI response in the next submittal of the Fermi 3 COLA Revision 2. However, the same COLA content may be impacted by revisions to the ESBWR DCD, responses to other COLA RAIs, other COLA changes, plant design changes, editorial or typographical corrections, etc. As a result, the final COLA content that appears in a future submittal may be different than presented here.

**Table 2.3-20 Monroe County, Michigan Projected Groundwater Use Through 2060**

Category	2000	2008	2013	2018	2020	2030	2040	2050	2060	Data Source
Total population of county, in thousands	146	158	166	174	177	194	213	234	258	ER FCAR Section 2.5
Domestic, self-supplied population, in thousands	49.64	53.79	56.38	59.08	60.20	66.12	72.61	79.75	87.59	Reference 2.3-10 ← 2.3-85
Public supply, total population served, in thousands	96.30	104.36	109.37	114.62	116.79	128.27	140.87	154.72	169.92	Reference 2.3-10 ← 2.3-85
Public supply, groundwater withdrawals, fresh, in Mgal/d	0.24	0.26	0.27	0.29	0.29	0.32	0.35	0.39	0.42	Reference 2.3-10 ← 2.3-85
Domestic, groundwater self-supplied withdrawals, fresh, in Mgal/d	4.28	4.64	4.86	5.09	5.19	5.70	6.26	6.88	7.55	Reference 2.3-10 ← 2.3-85
Industrial, groundwater self-supplied withdrawals, fresh, in Mgal/d	23	24.9	26.1	27.4	27.9	30.6	33.6	37.0	40.6	Reference 2.3-10 ← 2.3-76
Irrigation, groundwater withdrawals, fresh, in Mgal/d	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	Reference 2.3-10 ← 2.3-85
Livestock, groundwater withdrawals, fresh, in Mgal/d	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	Reference 2.3-10 ← 2.3-85
Thermoelectric, groundwater withdrawals, fresh, in Mgal/d	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	Reference 2.3-10 ← 2.3-35
Total groundwater withdrawals, fresh, in Mgal/d	28.42	30.72	32.15	33.65	34.27	37.55	41.16	45.11	49.46	

**Table 2.3-40 Projected Water Use – Monroe County**

Category	2000	2008	2020	2030	2040	2050	2060
Total population of county, in thousands	145.95	158.16	176.99	194.39	213.49	234.47	257.52
Domestic, self-supplied population, in thousands	49.64	53.79	60.20	66.12	72.61	79.75	87.59
Public supply, total population served, in thousands	96.30	104.36	116.79	128.27	140.87	154.72	169.92
Public supply, ground-water withdrawals, fresh, in MGD	0.24	0.26	0.29	0.32	0.35	0.39	0.42
Domestic, ground-water self-supplied withdrawals, fresh, in MGD	4.28	4.64	5.19	5.70	6.26	6.88	7.55
Industrial, ground-water self-supplied withdrawals, fresh, in MGD	23	24.9	27.9	30.6	33.6	37.0	40.6
Irrigation, ground-water withdrawals, fresh, in MGD	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Livestock, ground-water withdrawals, fresh, in MGD	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Thermoelectric, ground-water withdrawals, fresh, in MGD	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Total ground-water withdrawals, fresh, in MGD	28.42	30.72	34.27	37.55	41.16	45.11	49.46

Source: ~~Reference 2.3-35~~

See Table 2.3-20

**Attachment 5  
NRC3-10-0011**

**Response to RAI Letter No. 22  
(eRAI Tracking No. 3937)**

**RAI Question No. 02.05.02-10**

**NRC RAI 02.05.02-10**

*In order for the staff to verify the adequacy of the Fermi 3 site PSHA relative to the seismicity in the Anna, Ohio and Northeast Ohio areas, please provide the input source parameters (e.g. activity rates) as well as the specific source geometries used by each of the EPRI Teams to model these two potential sources. In addition, provide the corresponding PSHA hazard curves for these two sources.*

**Response**

The requests in this RAI are addressed in the Detroit Edison response to RAI 02.05.02-8.

**Proposed COLA Revision**

None