

**Additions to 1989 Annual Radiological
Environmental Operating Report**

Section 6.0 Program Execution, page 13

Detroit Edison changed analytical labs on 04/01/89, from Teledyne Isotopes Midwest Laboratory (TIML) to International Technology Corporation (ITC).

Section 6.0 Program Execution

Section 6.1 Thermoluminescent Dosimetry (TLD), page 13

During the second quarter 1989 mid-quarter TLD inspection on 05/19/89, TLDs T-11 and T-32 were noted missing. These were replaced on 05/24/89.

During the third quarter 1989 mid-quarter TLD inspection on 08/18/89, TLDs T-11 and T-8 were noted missing. These were immediately replaced.

NOTE: All TLD reads are normalized to the number of days in the quarter, and all TLDs not in the field for a full quarter are noted as such when returned to the vendor for analysis.

Section 6.0 Program Execution

Section 6.3 Other Deviations from Program, page 14

Drinking water sample DW-2 collected on 03/23/89 was a partial month composite sample, due to sample pump being shut off by water plant personnel. This was discussed with water plant personnel.

Collected replacement sample on 06/01/90 for the DW-2 May sample, which leaked during transit. This happened once during the year.

Drinking water sample DW-1 collected on 06/23/89 was a grab sample, due to the sampler being inadvertently turned off during maintenance. Sampler was turned back on.

Drinking water sample DW-1 collected on 08/28/89 was a grab sample, due to the sampler being turned off by water plant personnel. This was discussed with water plant personnel.

Drinking water sample DW-2 collected on 11/29/89 was a partial month composite sample, due to the sample station being under repair at the water plant. This was discussed with water plant personnel.

Drinking water sample DW-2 collected on 12/27/89 was a partial month composite sample, due to the sample station being dismantled and under repair at the water plant. Water plant personnel were making repairs and estimated being finished after the first of 1990.

The April 12/13, 1989 milk samples were shipped to the wrong location by the carrier where they subsequently spoiled. New samples for all locations were taken on 04/27/89.

New milk location M-7 was added to the program 05/22/89.

Milk sample M-3 scheduled to be collected on 06/27/89 was not collected due to unavailability of milk. Grass was collected in lieu of milk.

Milk samples M-1 and M-7 scheduled to be collected on 07/20/89 were not collected due to unavailability of milk. Grass was collected in lieu of milk.

Table 8.0-1 Radiological Environmental Monitoring Program, Fermi 2 Sample Locations and Associated Media, page 23

Direct Radiation

Station Number	Meteorological Sector/Azimuth Direction	Distance from Reactor (Approx)	Description	Media	Frequency
T1	NE/38 ⁰	1.3 mi	Estrai Beach Pole on Lakeshore, 23 Poles S of Lakeview (Special Area)	Direct Radiation	Q
T2	NNE/22 ⁰	1.2 mi	Tree at the Termination Branch St (Special Area)	Direct Radiation	Q
T3	N/9 ⁰	1.1 mi	Pole, NW Corner of Swan Boat Club Fence (Special Area)	Direct Radiation	Q
T4	NNW/337 ⁰	0.6 mi	Site Boundary and Toll Rd, on Site Fence by API #2	Direct Radiation	Q
T5	NW/313 ⁰	0.6 mi	Site Boundary and Toll Rd, on Site Fence by API #3	Direct Radiation	Q
T6	WNW/293 ⁰	0.6 mi	Pole, NE Corner of Bridge over Toll Rd	Direct Radiation	Q
T7	W/270 ⁰	14.2 mi	Pole, behind Doty Farm, 7512 N Custer Rd (Control)	Direct Radiation	Q
T8	NW/305 ⁰	1.9 mi	Pole, NE Corner of Dixie Hwy and Post Rd	Direct Radiation	Q
T9	NNW/334 ⁰	1.5 mi	Pole, NW Corner of Trombley and Swan View Rd	Direct Radiation	Q
T10	N/6 ⁰	2.1 mi	Pole, S Side of Massarant - 2 Poles W of Canavara	Direct Radiation	Q
T11	NNE/23 ⁰	6.3 mi	Pointe Mouillee - W Jefferson and Campau Rds, Pole on SE Corner of Bridge	Direct Radiation	Q
T12	NNE/29 ⁰	6.3 mi	Pointe Mouillee Game Area - Field Office, Pole near Tree, N Area of Parking Lot	Direct Radiation	Q
T13	N/356 ⁰	4.1 mi	Labo and Dixie Hwy - Pole on SW Corner with Light	Direct Radiation	Q
T14	NNW/337 ⁰	4.4 mi	Labo and Brandon - Pole on SE Corner near RR	Direct Radiation	Q
T15	NW/315 ⁰	3.9 mi	Pole, behind Newport Post Office	Direct Radiation	Q

Table 8.0-1 Radiological Environmental Monitoring Program, Fermi 2 Sample Locations and Associated Media, page 24

Direct Radiation

Station Number	Meteorological Sector/Azimuth Direction	Distance from Reactor (Approx)	Description	Media	Frequency
T16	WNW/283°	4.9 mi	Pole, SE of War and Post Rds	Direct Radiation	Q
T17	W/271°	4.9 mi	Pole, NE Corner of Nadeau and Laprad near Mobile Home Park	Direct Radiation	Q
T18	WSW/247°	4.8 mi	Pole, NE Corner of Mentel and Hurd	Direct Radiation	Q
T19	SW/236°	5.2 mi	1st Pole E of Fermi Siren on Waterworks Rd. NE corner of intersection - Sterling State Park Rd Entrance Drive/Waterworks (in Sterling State Park)	Direct Radiation	Q
T20	WSW/257°	2.7 mi	Pole, S Side of Williams Rd - 8 Poles W of Dixie Hwy (Special Area)	Direct Radiation	Q
T21	WSW/239°	2.7 mi	Pole, N Side of Pearl at Parkview - Woodland Beach (Special Area)	Direct Radiation	Q
T22	S/172°	1.2 mi	Pole, N Side of Pointe Aux Peaux 2 Poles W of Long - Site Boundary	Direct Radiation	Q
T23	SSW/195°	1.1 mi	Pole, S Side of Pointe Aux Peaux - 1 Pole W of Huron next to Vent Pipe - Site Boundary	Direct Radiation	Q
T24	SW/225°	1.2 mi	Fermi Gate along Pointe Aux Peaux Rd - on Fence Post W of Gate - Site Boundary	Direct Radiation	Q
T25	WSW/251°	1.5 mi	Pole, Toll Rd - 13 Poles S of Fermi Dr	Direct Radiation	Q
T26	WSW/259°	1.1 mi	Pole, Toll Rd, 6 Poles S of Fermi Dr	Direct Radiation	Q
T27	SW/225°	6.8 mi	Pole, NE Corner of McMillan and East Front St (Special Area)	Direct Radiation	Q
T28	SW/229°	10.7 mi	Pole, SE Corner of Mortar Creek and LaPlaisance (Control)	Direct Radiation	Q
T29	WSW/237°	10.3 mi	Pole, E Side of S Dixie, 1 Pole S of Albain (Control)	Direct Radiation	Q
T30	WSW/247°	7.8 mi	Pole, Custer, St. Mary's Park Corner of Elm and Monroe St, N Side, next to River (Special Area)	Direct Radiation	Q

Table B.0-1 Radiological Environmental Monitoring Program, Fermi 2 Sample Locations and Associated Media, page 25

Direct Radiation

Station Number	Meteorological Sector/Azimuth Direction	Distance from Reactor (Approx)	Description	Media	Frequency
T31	WSW/255°	9.6 mi	1st Pole W of Entrance Drive Milton "Pat" Munson Recreational Reserve - N Custer Rd (Control)	Direct Radiation	Q
T32	WNW/295°	10.3 mi	Pole, Corner of Stony Creek and Finzel Rds	Direct Radiation	Q
T33	NW/317°	9.2 mi	Pole, W Side of Grafton Rd, 1 Pole N of Ash/Grafton Intersection	Direct Radiation	Q
T34	NNW/338°	9.7 mi	Pole, E Side of Port Creek, 1 Pole S of Will-Carleton Rd	Direct Radiation	Q
T35	N/359°	6.9 mi	Pole, S Side of S Huron River Dr across from Race St (Special Area)	Direct Radiation	Q
T36	N/358°	9.1 mi	Pole, NE Corner of Gibraltar and Cahill Rds	Direct Radiation	Q
T37	NNE/21°	9.8 mi	Pole, S Corner of Adams and Gibraltar (across from Humbug Marina)	Direct Radiation	Q
T38	WNW/294°	1.7 mi	Residence - 6594 N. Dixie Hwy.	Direct Radiation	Q
T39	S/176°	0.3 mi	SE Corner of Protected Area Fence (PAF)	Direct Radiation	Q
T40	S/170°	0.3 mi	Midway along OBA - PAF	Direct Radiation	Q
T41	SSE/161°	0.2 mi	Midway between OBA and Shield Wall - PAF	Direct Radiation	Q
T42	SSE/149°	0.2 mi	Midway along Shield Wall - PAF	Direct Radiation	Q
T43	SE/131°	0.1 mi	Midway between Shield Wall and Aux Boilers - PAF	Direct Radiation	Q
T44	ESE/109°	0.1 mi	Opposite OSSF Door - PAF	Direct Radiation	Q
T45	E/86°	0.1 mi	NE Corner - PAF	Direct Radiation	Q
T46	ENE/67°	0.2 mi	NE Side Barge Slip - on Fence	Direct Radiation	Q

Table 8.0-2 Radiological Environmental Monitoring Program, Fermi 2 Sample Locations and Associated Media, page 26

Fish and Sediment

Station Number	Meteorological Sector/Azimuth Direction	Distance from Reactor (Approx)	Description	Media	Frequency
SEDIMENTS					
S-1	SSE/165°	0.9 mi	Pointe Aux Peaux, Shoreline to 500 ft offshore sighting directly to Land Base Water Tower	Sediment	SA
S-2	E/81°	0.2 mi	Fermi 2 Discharge, approx 200 ft offshore	Sediment	SA
S-3	NE/39°	1.1 mi	Estral Beach, approx 200 ft offshore, off North shoreline where Swan Creek and Lake Erie meet	Sediment	SA
S-4	WSW/241°	3.0 mi	Indian Trails Community Beach	Sediment	SA
S-5	NNE/20°	11.7 mi	DECo's Trenton Channel Power Plant intake area (Control)	Sediment	SA
FISH					
F-1	NNE/31°	9.5 mi	Celeron Island (Control)	Fish	SA
F-2	E/86°	0.4 mi	Fermi 2 Discharge (approx 1200 ft offshore)	Fish	SA
F-3	WSW/238°	4.8 mi	Brest Bay Marina Area (Control)	Fish	SA

Table 8.0-3 Radiological Environmental Monitoring Program, Fermi 2 Sample Locations and Associated Media, page 27

Milk

Station Number	Meteorological Sector/Azimuth Direction	Distance from Reactor (Approx)	Description	Media	Frequency
M-1	W/270°	14.2 mi	Doty Farm - 7512 N Custer Rd (Control)	Milk/Grass	M-SM
M-2	NW/319°	5.4 mi	Reaume Farm - 2705 E Labo	Milk	M-SM
M-3	NW/317°	4.2 mi	Yoas Farm - 3239 Newport Rd	Milk	M-SM
M-7	WNW/301°	2.1 mi	Webb Farm - 4362 Post Rd	Milk/Grass	M-SM

Table 8.0-4 Radiological Environmental Monitoring Program, Fermi 2 Sample Locations and Associated Media, page 28

Water

Station Number	Meteorological Sector/Azimuth Direction	Distance from Reactor (Approx)	Description	Media	Frequency
DRINKING WATER					
DW-1	S/174°	1.1 mi	Monroe Water Station N Side of Pointe Aux Peaux 1/2 Block W of Long Rd	Drinking Water	M
DW-2	N/8°	18.5 mi	Detroit Water Station 14700 Moran Rd, Allen Park (Control)	Drinking Water	M
SURFACE WATER					
SW-1	SSE/160°	0.3 mi	Fermi 1 Raw Lake Water Inlake Structure	Surface Water	M
SW-2	NNE/20°	11.7 mi	DECo's Trenton Channel Power Plant Intake Structure (Screenhouse #1) (Control)	Surface Water	M
SITE WELLS					
GW-1	S/175°	0.4 mi	Approx 100 ft W of Lake Erie, EF-1 Parking lot near gas fired peakers	Groundwater	Q
GW-2	SSW/208°	1.0 mi	4 ft S of Pointe Aux Peaux (PAP) Rd Fence 427 ft W of where PAP crosses over Stoney Point's Western Dike	Groundwater	Q
GW-3	SW/226°	1.0 mi	143 ft W of PAP Rd Gate, 62 ft N of PAP Rd Fence	Groundwater	Q
GW-4	WNW/299°	0.6 mi	42 ft S of Langton Rd, 8 ft E of Tull Rd Fence	Groundwater	Q

Table B.0-5 Radiological Environmental Monitoring Program, Fermi 2 Sample Locations and Associated Media, page 29

Air Particulate/Air Iodine

Station Number	Meteorological Sector/Azimuth Direction	Distance from Reactor (Approx)	Description	Media	Frequency
API-1	NE/39°	1.4 mi	Estral Beach Pole on Lakeshore 18 Poles S of Lakeview (Nearest Community with highest X/Q)	Radioiodine Particulates	W W
API-2	NNW/337°	0.6 mi	Site Boundry and Toll Road, on Site Fence by T-4	Radioiodine Particulates	W W
API-3	NW/313°	0.6 mi	Site Boundry and Toll Road, on Site Fence by T-5	Radioiodine Particulates	W W
API-4	W/270°	14.2 mi	Pole, behind Doty Farm - 7512 N Custer Road (Control)	Radioiodine Particulates	W W
API-E	S/191°	1.2 mi	Corner of Erie St and Pointe Aux Peaux Rds	Radioiodine Particulates	W W

Table 8.0-6 Radiological Environmental Monitoring Program, Fermi 2¹ Sample Locations and Associated Media, page 30

Food Products

Station Number	Meteorological Sector/Azimuth Direction	Distance from Reactor (Approx)	Description	Media	Frequency
FP-1	NNE/21 ⁰	3.9 mi	9501 Turnpike Highway	Food Products	M (when available)
FP-3	NNE/12 ⁰	1.1 mi	6441 Brancheau	Food Products	M (when available)
FP-4	WNW/301 ⁰	2.1 mi	4262 Post	Food Products	M (when available)
FP-5	NNE/19 ⁰	4.5 mi	7806 Labo	Food Products	M (when available)
FP-6	WNW/290 ⁰	14.5 mi	8200 Geirman (Control)	Food Products	M (when available)

Table 8.0-7 Radiological Environmental Monitoring Program, Fermi 2¹ Sample Locations and Associated Media, page 31

Land Use Census

Meteorological Sector	Distance from Reactor (Approx)	Description
NE	1.1 mi	6760 Lakeshore
NNE	1.0 mi	6500 Brando
N	1.1 mi	6200 Blanchett
NNW	1.1 mi	5701 Post
NW	1.1 mi	6577 Leroux
WNW	0.7 mi	6200 Langton
W	1.1 mi	6001 Toll
WSW	1.5 mi	4771 Pointe Aux Peaux
SW	1.2 mi	4981 Pointe Aux Peaux
SSW	1.1 mi	5820 Pointe Aux Peaux
S	0.9 mi	4834 Long
ESE-SSE		Lake Erie

NOTE: These locations have been identified as the closest residences in the most recent Land Use Census.

FERMI-2

TLD ANALYSIS

Gamma Radiation, as measured by TLDs (continued)

Collection: 1st Quarter (January - March)

Units: mR/standard quarter, net exposure

Date Placed: 12-29-88

Date Removed: 03-31-89

Days in the Field: 92

Calculated Transit Dose: 6.2 ± 0.6

Station	Location		mR/Std. Qtr.			
	Azimuth (°)	Distance (miles)	A	B	Mean \pm s.d.	% s.d.
T-34	339	9.7	LOST IN THE FIELD			
T-35	360	7.0	17.7 ± 1.0	17.6 ± 0.7	17.6 ± 0.1	0.4
T-36	360	9.2	21.3 ± 1.3	21.9 ± 0.8	21.6 ± 0.4	2.0
T-37	23	9.9	20.2 ± 1.1	20.8 ± 1.0	20.5 ± 0.4	2.1
T-38	289	1.7	18.7 ± 1.2	18.9 ± 1.1	18.8 ± 0.1	0.8
T-39	147	0.17	20.9 ± 1.2	21.2 ± 1.0	21.0 ± 0.3	1.0
T-40	139	0.16	18.0 ± 0.7	17.8 ± 0.7	17.9 ± 0.1	0.8
T-41	133	0.15	21.0 ± 1.0	20.4 ± 1.2	20.7 ± 0.4	2.0
T-42	125	0.15	22.0 ± 1.0	22.5 ± 0.8	22.2 ± 0.4	1.6
T-43	114	0.14	23.5 ± 1.3	23.7 ± 1.0	23.6 ± 0.1	0.6
T-44	101	0.14	21.3 ± 1.1	21.6 ± 1.0	21.4 ± 0.2	1.0
T-45	84	0.16	20.2 ± 1.0	20.9 ± 1.3	20.6 ± 0.5	2.4
T-46	71	0.2	20.0 ± 0.9	20.4 ± 0.7	20.2 ± 0.3	1.4

FERMI-2

TLD ANALYSIS

Gamma Radiation, as measured by TLDs (Vendor - ITC)
Collection: 3rd Quarter (July - September)
Units: mR/Standard Quarter, Net Exposure

Date Placed: 06-30-89
Date Removed: 09-28-89
Days in the Field: 91
Calculated Transit Dose: 6.4

Station	Location		mR/Std. Qtr.	2-Sigma
	Azimuth (°)	Distance (miles)		
T-1	38	1.4	12.4	12.9
T-2	21	1.1	11.4	14.3
T-3	4	1.1	13.9	9.0
T-4	340	0.6	14.4	9.2
T-5	321	0.6	16.4	10.7
T-6	296	0.6	15.9	11.0
T-7	269	14.2	15.5	13.7
*T-8	304	1.9	17.3	11.1
T-9	333	1.5	16.1	10.2
T-10	6	2.2	19.6	12.7
*T-11	25	6.3	15.3	10.2
T-12	33	6.1	16.9	10.7
T-13	357	4.1	20.1	13.6
T-14	338	4.4	16.4	12.7
T-15	318	3.9	17.2	11.4
T-16	282	4.8	19.9	12.6
T-17	273	5.2	19.8	13.2
T-18	245	4.8	19.1	12.1
T-19	234	5.0	20.9	13.1
T-20	233	2.6	19.5	13.3
T-21	237	2.7	18.0	11.4
T-22	168	1.2	17.4	11.2
T-23	193	1.1	19.1	13.3
T-24	222	1.2	13.4	16.1
T-25	249	1.4	21.4	15.6
T-26	258	1.1	21.3	13.7
T-27	223	7.0	15.1	9.6
T-28	227	10.6	19.7	12.5
T-29	237	10.3	18.1	12.0
T-30	247	7.8	16.1	10.6
T-31	254	8.9	19.3	12.2
T-32	296	10.3	23.7	15.4
T-33	318	9.3	20.5	13.1

* Placed in the field 08/18/89.