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METROPOLITAN EDISON COMPANY
THREE MILE ISLAND NUCLEAR STATION
1979
ANNUAL ENVIRONMENTAL OPERATING REPORT
FOR UNIT 1 AND UNIT 2

April 1980

This document and the referenced reports fulfill the requirements for the "Annual Environmental Operating Report" as described in the Three Mile Island Nuclear Station, Unit 1 and Unit 2 Environmental Technical Specifications, dated April 19, 1974 and February 8, 1978, respectively. The following table references sections of the "Annual Environmental Operating Report" to the appropriate sections of these documents.

SECTION REFERENCE

Annual Environmental Operating Report

	<u>TMI-1</u> <u>ETS</u>	<u>TMI-2</u> <u>ETS</u>
1. Thermal Characteristics of Cooling Water Discharge	2.1	3.1.1.a (1)
2. pH	2.2.3	3.1.1.a (2)
3. Suspended and Dissolved Solids	2.2.2	--
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5. Water Quality Analysis	4.2.2	3.1.1.a (4)
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* As required by TMI-1 and TMI-2 Environmental Technical Specifications

** "An Ecological Study of the Susquehanna River in the Vicinity of the Three Mile Island Nuclear Station - Annual Report for 1979", Ichthyological Associates, Inc., April 1980.

*** "1979 Monitoring of Cooling Tower Operational Effects on Vegetation in the Vicinity of the Three Mile Island Nuclear Station", NUS Corporation, December 1979.

**** "Hydraulic Survey, Three Mile Island Nuclear Station, June 1979", Gilbert Associates, Inc., August 1979.

1. THERMAL CHARACTERISTICS OF COOLING WATER DISCHARGE

In 1979 the temperature of the ambient intake water, the temperature of the discharge water at outfall 001, and the flow rate of the discharge water at the Three Mile Island Nuclear Station (TMINS) were continuously monitored. The date, time, temperature, and flow rate were recorded at the Station. The minimum, average, and maximum of these temperatures and flow rates are summarized and reported below:

Temperature (°F) of Intake Water

<u>Month</u>	<u>Min.</u>	<u>Ave.</u>	<u>Max.</u>	<u>Month</u>	<u>Min.</u>	<u>Ave.</u>	<u>Max.</u>
Jan.	33.0	34.3	40.8	July	67.0	77.6	84.7
Feb.	32.0	32.7	34.0	Aug.	66.0	77.5	84.4
March	32.4	32.2	48.4	Sept.	59.9	69.6	83.4
April	41.4	50.1	63.2	Oct.	48.2	55.7	65.8
May	58.0	65.7	76.6	Nov.	43.4	48.5	58.0
June	74.9	72.1	78.5	Dec.	32.0	37.8	43.6

Temperature (°F) of Discharge Water

<u>Month</u>	<u>Min.</u>	<u>Ave.</u>	<u>Max.</u>	<u>Month</u>	<u>Min.</u>	<u>Ave.</u>	<u>Max.</u>
Jan.	33.3	37.4	48.3	July	66.5	78.6	85.9
Feb.	34.7	38.0	40.8	Aug.	65.0	77.8	84.9
March	36.9	44.5	54.7	Sept.	61.1	70.7	83.9
April	41.8	51.7	65.4	Oct.	49.7	57.4	68.4
May	54.7	66.8	78.2	Nov.	44.4	50.4	60.6
June	65.2	73.3	79.6	Dec.	32.9	39.3	45.5

Flow Rate (Millions of Gallons Per Day) of Discharge Water

<u>Month</u>	<u>Min.</u>	<u>Ave.</u>	<u>Max.</u>	<u>Month</u>	<u>Min.</u>	<u>Ave.</u>	<u>Max.</u>
Jan.	41.7	59.4	88.6	July	37.8	59.6	70.9
Feb.	43.8	59.0	84.7	Aug.	55.8	60.5	66.2
March	50.5	71.0	106.6	Sept.	61.9	67.3	76.3
April	70.2	81.3	94.7	Oct.	46.0	63.1	85.8
May	51.5	65.1	101.2	Nov.	48.7	60.5	69.7
June	46.1	58.2	109.0	Dec.	53.5	64.4	70.4

During 1979, no flow or temperature limitations were exceeded.

2. pH

During 1979, pH was determined prior to each discharge from the TMINS Unit 1 and 2 Neutralizer Tanks. The analysis was performed according to an accepted method as described in Standard Methods for the Examination of Water and Wastewater (American Public Health Association, 1976)*. The date, time, and pH of all samples were recorded on Waste Neutralizing Tank Release Permits. The minimum, average, and maximum pH values, as well as the number of discharges per month (frequency) are presented below:

Unit 1 Neutralizer Tank

<u>Month</u>	<u>Min.</u>	<u>Ave.</u>	<u>Max.</u>	<u>Freq.</u>	<u>Month</u>	<u>Min.</u>	<u>Ave.</u>	<u>Max.</u>	<u>Freq.</u>
Jan.	6.4	7.17	8.2	21	July	6.5	7.33	8.13	15
Feb.	6.65	7.30	8.29	19	Aug.	6.3	7.09	7.98	15
March	6.6	7.21	8.23	23	Sept.	6.32	7.4	8.41	14
Apr.	6.63	7.46	8.6	12	Oct.	6.51	7.14	8.05	12
May	6.72	7.46	8.3	16	Nov.	6.9	7.24	7.6	9
June	6.67	7.35	8.29	14	Dec.	6.7	6.99	7.75	7

An analysis of the data indicate that all 177 pH values were within the specification range of 6.0-9.0.

* American Public Health Association, 1976. Standard Methods for the Examination of Water and Wastewater, Fourteenth Edition. Prepared and published jointly by the American Public Health Association, American Water Works Association, and Water Pollution Control Federation, Washington, DC, 1193 p.

Unit 2 Neutralizer Tank

<u>Month</u>	<u>Min.</u>	<u>Ave.</u>	<u>Max.</u>	<u>Freq.</u>	<u>Month</u>	<u>Min.</u>	<u>Ave.</u>	<u>Max.</u>	<u>Freq.</u>
Jan.	7.78	7.78	7.78	1	July	No Releases	Entire Month		
Feb.	No Releases	Entire Month			Aug.	No Releases	Entire Month		
March	8.03	8.37	8.7	2	Sept.	No Releases	Entire Month		
Apr.	No Releases	Entire Month			Oct.	No Releases	Entire Month		
May	No Releases	Entire Month			Nov.	No Releases	Entire Month		
June	No Releases	Entire Month			Dec.	No Releases	Entire Month		

An analysis of the data indicate that all 3 pH values were within the specification range of 6.0-9.0. Further, there were no releases throughout most of the year.

During 1979, the monthly minimum, average, and maximum pH of intake (I) water from the Susquehanna River and discharge (D) water from TMINS Discharge 001 (main discharge) are presented below:

pH of Intake and Discharge Water

<u>Month</u>	<u>Minimum</u>		<u>Average</u>		<u>Maximum</u>	
	<u>I</u>	<u>D</u>	<u>I</u>	<u>D</u>	<u>I</u>	<u>D</u>
Jan.	6.7	6.8	7.02	7.27	7.47	7.85
Feb.	6.42	6.67	6.92	7.21	7.7	7.95
March	6.6	6.75	7.06	7.26	7.51	7.95
Apr.	7.05	7.2	7.3	7.5	7.83	7.85
May	7.05	7.2	7.78	7.76	8.63	8.38
June	6.5	6.91	7.66	7.86	8.68	8.78
July	7.3	7.87	8.0	8.1	8.75	8.48
Aug.	7.2	7.7	7.94	8.17	8.75	8.85
Sept.	7.32	7.46	7.53	8.01	7.91	8.95
Oct.	7.1	6.96	7.32	7.47	7.54	7.75
Nov.	7.22	7.33	7.38	7.65	7.68	7.9
Dec.	6.95	7.42	7.32	7.48	7.59	7.63

An analysis of the data indicate that all pH values were within the specification range of 6.0-9.0.

3. SUSPENDED AND DISSOLVED SOLIDS

During 1979, the monthly minimum, average, and maximum concentrations of total suspended solids and total dissolved solids measured from intake (I) water from the Susquehanna River and discharge (D) water from TMINS Discharge 001 (main discharge) are presented below:

Month	<u>Total Suspended Solids (PPM)</u>						<u>Total Dissolved Solids (PPM)</u>					
	Minimum		Average		Maximum		Minimum		Average		Maximum	
	<u>I</u>	<u>D</u>	<u>I</u>	<u>D</u>	<u>I</u>	<u>D</u>	<u>I</u>	<u>D</u>	<u>I</u>	<u>D</u>	<u>I</u>	<u>D</u>
Jan.	7	7	85	90	508	521	37	56	141	166	254	331
Feb.	0	4	11	35	37	157	89	140	216	234	357	345
March	7	8	49	62	311	210	71	86	130	164	235	348
Apr.	1	4	17	24	46	64	117	124	170	171	315	335
May	1	1	15	22	37	56	53	87	147	166	212	305
June	1	10	11	23	23	36	87	130	170	199	284	256
July	1	5	22	23	68	39	158	141	222	253	359	391
Aug.	1	7	10	19	45	58	193	236	274	295	511	363
Sept.	1	11	7	28	14	63	110	133	180	202	276	290
Oct.	6	1	41	33	172	94	135	140	161	189	208	272
Nov.	1	2	10	14	26	34	117	115	184	168	278	203
Dec.	2	8	21	52	105	148	123	91	181	166	341	264

All values presented are below the concentrations specified for suspended solids and dissolved solids in the discharge water from TMINS. These specifications limit the concentration of dissolved solids to less than 500 ppm as a monthly average and 700 ppm at any time. Suspended solids may not exceed 560 ppm at any time.

4. BIOCIDE

No chlorinations were performed during 1979.

5. WATER QUALITY ANALYSIS

Refer to: "An Ecological Study of the Susquehanna River in the Vicinity of the Three Mile Island Nuclear Station - Annual Report for 1979", Ichthyological Associates, Inc., April 1980.

6. CHEMICAL RELEASE INVENTORY

During 1979, the chemicals used at Three Mile Island Nuclear Station*, Unit 2, and discharged to the Susquehanna River aquatic environment excluding chemicals used in laboratories, were tabulated from station inventory and operating records. The chemical name, the system from which the chemical was released, and the amount of chemical inventoried during the year are summarized and reported below:

<u>Chemical Name</u>	<u>System Released From</u>	<u>Amount Used</u>
Sulfuric Acid (95% by Weight)	Coagulator Building Acid Storage Tank, WT-T-7	22,337 Gallons
Sulfuric Acid (95% by Weight)	Circulating Water Chlorination House Chemical Treatment Acid Storage Tank, CL-T-1	11,877 Gallons
Sodium Hydroxide (50% by weight)	Coagulator Building Caustic Storage Tank, WT-T-8	16,180 Gallons
Chlorine	Circulating Water Chlorination House Chemical Treatment Chlorine Containers, CL-T-1A through J and CL-T-2A through J.	6,000 Pounds

The amounts of the chemicals used and discharged were less than those addressed in the Final Supplement to the Final Environmental Statement related to operation of the Three Mile Island Nuclear Station, Unit 2, dated December 1976, Docket No. 50-320, U. S. Nuclear Regulatory Commission.

* This inventory is not required for Unit 1 by the TMI-1 Environmental Technical Specifications.

7. BIOTIC - AQUATIC

Refer to: "An Ecological Study of the Susquehanna River in the Vicinity of the Three Mile Island Nuclear Station - Annual Report for 1979", Ichthyological Associates, Inc., April 1980.

8. BIOTIC - TERRESTRIAL

Refer to: "1979 Monitoring of Cooling Tower Operational Effects on Vegetation in the Vicinity of the Three Mile Island Nuclear Station", NUS Corporation, December 1979.

9. RESIDUAL CHLORINE STUDY PROGRAM

During 1979, the Three Mile Island Nuclear Station did not chlorinate. A residual chlorine study program was not required or performed.

10. THERMAL PLUME MAPPING

Refer to: "An Ecological Study of the Susquehanna River in the Vicinity of the Three Mile Island Nuclear Station - Annual Report for 1979", Ichthyological Associates, Inc., April 1980. §.

11. HYDRAULIC EFFECTS

Refer to: "Hydraulic Survey, Three Mile Island Nuclear Station, June 1979", Gilbert Associates, Inc., August 1979.

12. EROSION CONTROL INSPECTION

On April 6, 1979, foot patrol inspections were performed on the transmission line corridors associated with the Three Mile Island Nuclear Station (TMINS). These corridors run from TMINS to the Middletown and Hosensack Substations. No evidence of erosion, as may be associated with transmission line maintenance, was found.

13. HERBICIDE APPLICATIONS

During 1979, herbicides were not used in the transmission line corridors associated with the Three Mile Island Nuclear Station.

14. UNUSUAL OR IMPORTANT ENVIRONMENTAL EVENTS

All appropriate station and consultant personnel were instructed to notify designated members of the Generation Engineering staff if any unusual or important environmental events were observed. During 1979, there were no unusual or important, nonradiological events resulting from the operation of the Three Mile Island Nuclear Station.

15. EXCEEDING LIMITS OF OTHER RELEVANT PERMITS

During 1979, two noncompliance reports were submitted as required by the Three Mile Island National Pollution Discharge Elimination System (NPDES) Permit No. 0009920. In order to comply with the requirements of Section 4.6.2 of the TMI-2 Environmental Technical Specifications, copies of both noncompliance reports, numbered 79-01 and 79-02, were sent to the NRC.

Noncompliance 79-01 occurred at the IWFS (Industrial Waste Filter System) which is designated as NPDES discharge number 104. The noncompliance was caused by an operator error. The necessary supervisory steps were taken to preclude future such occurrences.

Noncompliance 79-02 occurred at the IWTS (Industrial Waste Treatment System) which is designated as NPDES discharge number 107. This noncompliance was caused by a mechanical failure which has since been corrected.

16. ENVIRONMENTAL PROGRAM DESCRIPTION DOCUMENT

The Environmental Program Description Document (EPDD) consists of portions of a series of procedures covering the programs required by Sections 3.1 and 4 of the Three Mile Island Station Unit 2 Environmental Technical Specifications. The following table lists these procedures.

During 1979, two procedures were erroneously deleted--the Population Estimates of Fishes (GP1475) and the Movements of Fishes (GP1478). These procedures have been reimplemented for 1980 (R. F. Wilson, GPU to B. H. Grier, NRC dated December 21, 1979). Additionally two other procedures, the Creel Survey (GP1476) and the Hydraulic Effects (GP1459) were revised.

ENVIRONMENTAL PROGRAM DESCRIPTION DOCUMENT

<u>Environmental Technical Specification Section</u>	<u>Procedure Title</u>	<u>Procedure Number</u>	<u>Current Revision Number</u>
3.1.1.a (1-3) & (5)	Temperature, pH, Biocide, and Chemical Release Inventory	GP 1448	0
3.1.1.a (4)	Water Quality Analysis	GP 1449	1
3.1.2.a (1) (a)	Benthic Macroinvertebrates	GP 1450	1
3.1.2.a (1) (b)	Ichthyoplankton	GP 1451	1
3.1.2.a (1) (c)	Fish	GP 1452	1
3.1.2.a (1) (c)	Population Estimates of Fishes	GP 1475	1
3.1.2.a (1) (c)	Creel Survey	GP 1476	2
3.1.2.a (1) (c)	Movements of Fishes	GP 1478	0
3.1.2.a (2)	Impingement of Organisms	GP 1453	1
3.1.2.a (3)	Entrainment of Ichthyoplankton	GP 1454	1
3.1.2.b (1)	Aerial Remote Sensing	GP 1456	1
4.1	Residual Chlorine Study Program	GP 1448 (page 6)	0
4.2	Thermal Plume Mapping	GP 1458	1
4.3	Hydraulic Effects	GP 1459	2
4.4	Erosion Control Inspection	GP 1460	0
4.5	Herbicide Applications	GP 1461	0
4.6.1	Unusual or Important Events	GP 1473	0
4.6.2	NRC Nonroutine Reports	GP 0004	0
Special Condition	Comparison of Ichthyoplankton Sampling Gear	GP 1474	0

17. CHANGES IN PROCEDURES, STATION DESIGN, OR OPERATION

During 1979, all proposed changes in procedures, station design, or operation were reviewed for potential environmental impact in accordance with Environmental Technical Specifications and administrative procedure requirements under the direction of the Manager-Generation Quality Assurance. The reviews ensured that no changes, which could involve an adverse environmental impact, or which could change the findings of the FSFES, were implemented.

18. CHANGES MADE TO ENVIRONMENTAL TECHNICAL SPECIFICATIONS

During 1979, there were no changes to the TMI-1 or TMI-2 Environmental Technical Specifications.

19. CHANGES IN PERMITS AND CERTIFICATIONS

During 1979, the Pennsylvania Department of Environmental Resources (PaDER) issued an amendment to extend Sewage Permit No. 2275419 until January 23, 1982. PaDER also issued separate approvals which allowed the TMI-1 Cooling Towers to be cleaned and Fire Brigade Training to be performed.

An application to renew NPDES Permit No. 0009920 was submitted to PaDER.

Copies of the above referenced documents were sent to the NRC.