THREE MILE ISLAND AQUATIC STUDY
MONTHLY REPORT FOR MAY 1985

Prepared for

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JUNE 1985

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INTRODUCTION

The objective of this monthly report is to document compliance with the nonradiological (aquatic) environmental monitoring programs specified in Sections 3.1.1.a(4), 3.1.2.a., and 4.6.1 of the Environmental Technical Specifications (ETS). These programs have been carried out as directed in the Environmental Controls Aquatic Sampling Manual. Program elements being conducted under contract to GPU Nuclear Corporation include benthic macroinvertebrates, ichthyoplankton, fish population dynamics (seine and electrofishing), creel surveys, and water quality. The ultimate purpose of these studies is to obtain a database sufficient to establish the natural fluctuations within the ecosystem and identify any significant biological alterations resulting from the TMINS.

Compliance with all programs specified in the ETS and detailed in the Aquatic Sampling Manual was achieved in May (Table 1). Details are provided in the following pages wherein progress is described for each program.

Data presented in this report are considered provisional, pending subsequent proofing, analysis, and presentation in the annual report.

Water Quality Analysis

Objective: To measure select physical and chemical parameters of the Susquehanna River in the vicinity of Three Mile Island Nuclear Station (TMINS) concurrent with General Ecological Survey samples.

Progress: Water quality samples were collected on 14 May 1985 and forwarded to TMI-EC (Table 1). Select water quality parameters were also measured at sampling times and locations of the General Ecological Survey.

Benthic Macroinvertebrates

Objective: To assess the abundance, distribution, and diversity of benthic macroinvertebrates at three stations in the vicinity of TMINS.

Progress: Benthos sampling on 14 May 1985 consisted of replicate (4) samples taken at each of the three benthos stations (Table 1).

Ichthyoplankton

Objective: To determine species composition, relative abundance, density, seasonal and spatial distribution of ichthyoplankton at eight stations in the vicinity of TMINS.

Progress: Replicate (2) ichthyoplankton samples were taken at each of the eight sampling stations on 6, 13, 20, and 29 May (Table 1).

Seine

Objective: To assess species composition, relative abundance, seasonal and spatial distribution, condition factor, occurrence of parasites, anomalies and fish kills, and species diversity of fishes vulnerable to seine capture at six stations in the vicinity of TMINS.

Progress: Seine collections were taken at each of the six sampling stations on 9 and 23 May 1985 (Table 1).

Electrofishing

Objective: To assess species composition, relative abundance, occurrence of parasites, anomalies, and species diversity of fishes vulnerable to electrofisher capture at six stations in the vicinity of TMINS.

Progress: Electrofishing at the six stations was completed on 7 and 22 May 1985 (Table 1). Samples consisted of 206 fish of 16 species and 66 fish of 12 species collected on 7 and 22 May respectively (Table 2 and 3). More fish (94 specimens) were collected at Station 10B3 than at any other station on 7 May, while most species (10) were taken at Station 9B5 (Table 2). Station 13A1 yielded the most fish (18 specimens) in collections taken on 22 May (Table 3). Centrarchids were most abundant with pumpkinseed (79 specimens) and redbreast sunfish (13 specimens) dominating catches on 7 and 22 May respectively. Leeches were seen on seven redbreast sunfish and one bluegill. Anchor worms (Lernaea) were found on one pumpkinseed and on four bluegill. Wounds related to angling (e.g., hooks in mouth, mouth fungus, eye injuries, etc.) were seen on one pumpkinseed specimen, one bluegill, three smallmouth bass, and one largemouth bass. Cysts were found on one golden shiner and two bluegills. Open wounds or lesions (of undertimined origin) were seen on one bluegill and two smallmouth bass.

Creel Survey

Objective: To investigate the extent of success of sport-fishing, and determine angler residence and use of catch, in the Susquehanna River near TMINS.

Progress: Creel surveys were completed on 11, 16, 19, and 22 May 1985 (Table 1). Tabulation of May creel survey data was initiated.

TABLE 1 AQUATIC SAMPLING CONDUCTED DURING MAY 1985 IN COMPLIANCE WITH THREE MILE ISLAND NUCLEAR STATION ENVIRONMENTAL TECHNICAL SPECIFICATIONS

Discipline	MAY 1-4	MAY 5-11	MAY 12-18	MAY 19-25	MAY 26-31
Water Quality Analysis			X		
Benthic Macro-invertebrates			X		
Ichthyoplankton		X	X	X	X
Seine		X		X	
Electrofishing		X		X	
Creel Survey		X	X	XX	

TABLE 2 FISHES CAPTURED BY AC ELECTROFISHER ON 7 MAY 1985 NEAR TMINS

Zone	TM-AQF -4A1	TM-AQF -13A1	TM-AQF -10A3	TM-AQF -9B5	TM-AQF -10B3	TM-AQF -11B1	TOTAL
Time	2303	2330	0007	0037	2206	2127	
Duration (min)	16	17	12	14	14	13	
Air Temp (C)	13.0	13.0	12.0	11.0	14.0	15.0	
Water Temp (C)	15.0	16.0	16.0	16.0	16.0	15.0	
Dissolved Oxygen (mg/l)	11.0	10.6	10.4	9.5	9.5	8.9	
pH	7.7	7.6	7.4	7.3	7.4	7.9	
Conductivity (micromhos/cm)	225	225	225	240	195	185	
Secchi Disc (cm)	53.3	40.6	50.8	50.8	76.2	61.0	
Volts	200	200	200	200	200	200	
Amps	5.0	5.0	5.0	5.0	5.0	5.0	
Gizzard shad	-	-	-	2	-	1	3
Common carp	2	-	4	2	1	1	10
Golden shiner	-	-	-	-	-	2	2
Quillback	1	3	-	-	2	3	9
Northern hog sucker	-	1	-	-	-	-	1
Shorthead redhorse	-	-	1	-	-	-	1
Rock bass	-	6	1	-	-	-	7
Redbreast sunfish	-	9	7	1	19	-	36
Green sunfish	-	-	-	1	1	-	2
Pumpkinseed	-	2	-	5	45	27	79
Bluegill	-	-	-	2	16	5	23
Lepomis hybrid	-	-	-	1	-	-	1
Smallmouth bass	-	9	4	2	1	-	16
Largemouth bass	-	-	-	-	-	2	2
Black crappie	-	-	1	3	9	-	13
Walleye	-	-	-	1	-	-	1
Total Specimens	3	30	18	20	94	41	206
Total Species	2	6	6	10	8	7	16

TABLE 3 FISHES CAPTURED BY AC ELECTROFISHER ON 22 MAY 1985 NEAR TMINS

Zone	TM-AQE -4A1	TM-AQE -13A1	TM-AQE -10A3	TM-AQF -9B5	TM-AQF -10B3	TM-AQF -11B1	TOTAL
Time	2244	2311	2345	0009	2205	2138	
Duration (min)	14	15	12	15	15	13	
Air Temp (C)	17.0	17.0	16.0	16.0	18.0	17.0	
Water Temp (C)	20.0	21.0	22.0	22.0	10.4	8.2	
Dissolved Oxygen (mg/l)	8.9	8.9	8.7	8.8	10.4	8.2	
pH	7.8	7.6	7.7	7.6	7.5	7.9	
Conductivity (micromhos/cm)	NA	NA	NA	NA	NA	NA	
Secchi Disc (cm)	38.1	35.6	38.1	50.8	61.0	61.0	
Volts	180	180	180	180	180	200	
Amps	7.0	7.0	7.0	7.0	5.5	6.0	
Gizzard shad	2	-	-	-	-	-	2
Common carp	4	1	-	-	-	-	5
Golden shiner	-	-	-	-	-	1	1
Spottail shiner	-	-	1	-	-	-	1
Quillback	7	-	1	-	-	-	8
Rock bass	-	4	1	-	3	-	8
Redbreast sunfish	-	8	4	-	1	-	13
Green sunfish	-	1	-	-	-	1	2
Pumpkinseed	1	-	-	1	1	2	5
Bluegill	-	-	-	-	6	3	9
Smallmouth bass	-	4	2	-	4	-	10
Largemouth bass	-	-	-	-	-	2	2
Total Specimens	14	18	9	1	15	9	66
Total Species	4	5	5	1	5	5	12

NA = Not Available