

Metropolitan Edison Company Post Office Box 480 Middletown, Pennsylvania 17057 717 944-4041

Writer's Direct Dial Number

March 10, 1980 TLL 101

Operating Reactors Branch No. 4 Attn: R. W. Reid, Chief U. S. Nuclear Regulatory Commission Washington, D.C. 20555

THIS DOCUMENT CONTAINS
POOR QUALITY PAGES

Dear Sir:

Three Mile Island Nuclear Station, Units I and II (TMI-1 and TMI-2)
Operating License Nos. DPR-50 and DPR-73
Docket Nos. 50-289 and 50-320
Permit Modifications

In response to your letter of January 25, 1980, concerning the reporting of changes and additions to permits and certificates for the protection of the environment, enclosed please find copies of the items listed below. With this submittal we have fully complied with the Technical Specification requirements.

#### 1. ARMY CORPS OF ENGINEERS

Permit NABOP-F/4 75-1048. Permits maintenance dredging.

#### 2. ARMY CORPS OF ENGINEERS

Permit NABOP-F/4 75-1048. Amendment. Allows relocation of dredge spoil basin.

#### 3. PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES

Authorization to Conduct Fire Brigade Training as required by NRC for 1978.

#### 4. PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES

Authorization to Conduct Fire Brigade Training as required by NRC for 1979.

#### 5. ENVIRONMENTAL PROTECTION AGENCY

NPDES Fermit 0009920 Amendment No. 3.

(Note: NPDES permit was submitted to NRC by our letter dated 1/14/77 (GQL 0006). Amendments 1 and 2 were submitted by our letter dated 8/3/77 (GQL 1050).)

#### 6. ENVIRONMENTAL PROTECTION AGENCY

Request for consideration for a 301(c) and 301(g) modification.

Metropolitan Edison Company is a Member of the General Public Utilities System

8003170453

#### 6. ENVIRONMENTAL PROTECTION AGENCY (Con't.)

(Note: Request still pending.)

#### 7. PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES

NPDES Permit 0009920. Reapplication for a new permit.

(Note: Application still pending.)

#### 8. PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES

Approval to Clean TMI-I Cooling Towers dated 6/4/79.

(Prior approval dated 1/29/79, which is incorporated in this approval, is included.)

#### 9. PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES

Industrial Waste Permit No. 2270204. Amendment.

(Note: This amendment cancels the termal requirements of the permit which are now covered in Industrial Waste Permit No. 2277206 which was submitted to NRC by our letter dated 3/15/78, GQL 0432.)

#### 10. PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES

Sewage Permit No. 2275419 Amendment No. 2.

(This amendment extends permit expiration date. The TMI sewage plant is currently not in service. Permit No. 2275419 was submitted to NRC by letter dated 1/14/77, GQL 0046 and Amendment 1 was submitted by letter dated 8/30/79, GQL 1108.)

Sincerely.

J. G. Herbein Vice President Nuclear Operations

JGH: DGM: hah

Enclosures

cc: J. T. Collins



# DEPARTMENT OF THE ARMY BALT MORE DISTRICT, CORPS OF ENGINEERS P.O. BOX 1718 BALTIMORE, MARYLAND 21203

Rec'd

REPLY TO ATTENTION CF

NABOP-F/4 (Metro. Edison Co.)75-1048

19 January 1976

Metropolitan Edison Company Post Office Box 542 Reading, Pennsylvania 19603

#### Gentlemen:

In response to your application for a Department of the Army permit, there are inclosed an original and one copy of permit form NADB FL 1000.

It is requested that you indicate your acceptance of the terms and conditions set forth in the inclosed permit by placing your signature and the date signed on page 4 thereof. Upon your acceptance of the terms and conditions, you are authorized to proceed with the construction indicated therein. Your particular attention is invited to conditions (b), (r), (s), and (v) of the permit.

The copy of the permit signed by you should be returned for retention in the records of this office. A self-addressed, franked envelope is inclosed for this purpose. Also inclosed is your NOTICE OF AUTHORIZATION, ENG FORM 4336, which must be conspicuously displayed at the site of the work prior to its commencement.

Your early response in this matter would be appreciated.

Sincerely yours,

3 Incls As stated

Attachments: Obstruction Light Regs.

Ltr fr EPA

DOHN F. O'HAGAN Chast. Operations Division



#### DEPARTMENT OF THE ARMY

PERMIT

NABOP-F/4 (Metro. Edison Co.)75-1048

U.S. Army Engineer District, Baltimore Corps of Engineers P.O. Box 1715, Baltimore, Md. 21203

Metropolitan Edison Company Post Office Box 542 Reading, Pennsylvania 19603

Referring to written request dated 10 September 1975
upon the recommendation of the Chief of Engineers, and under the provisions
of Section 10 of the Act of Congress approved March 3, 1899 (33 U.S.C. 403),
entitled "An act making appropriations for the construction, repair, and
preservation of certain public works on rivers and harbors, and for other
purposes," you are hereby authorized by the Secretary of the Army(Authority
is also granted under the provisions of Section 404 of the Federal Water
Pollution Control Act, 86 Stat. 816, P.L. 92-500)
to suction dredge approx. 3000 cu.yds of sand silt, gravel, and coarse sand
from the intake channels of units 1 and 2, and the East-West low flow channel;
to place the spoil material in the designated upland disposal area; and to
maintenance dredge said channels for a 10 year period

in Susquehanna River

at Three Mile Island, Dauphin County, Pennsylvania

in accordance with the plans and drawings attached hereto titled:
"FIGURE 1 PROPOSED REMEDIAL DREDGING, FIGURE 2 AREA OF PROPOSED DREDGING,
FIGURE 3 DREDGE DISPOSAL AREAS, FIGURE 4 SUCTION DREDGE DISPOSAL BASIN"
ALL IN THREE MILE ISLAND NUCLEAR STATION,

subject to the following conditions:

- (a) That this instrument does not convey any property rights either in real estate or material, or any exclusive privileges; and that it does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State or local laws or regulations, nor does it obviate the necessity of obtaining State or local assent required by law for the structure or work authorized.
- (b) That the structure or work authorized herein shall be in accordance with the plans and drawings attached hereto and construction shall be subject to the supervision and approval of the District Engineer, Corps of Engineers, in charge of the District in which the work is to be performed.
- (c) That the District Engineer may at any time make such inspections as he may deem necessary to assure that the construction or work is performed in accordance with the conditions of this permit and all expenses thereof shall be borne by the permittee.
- (d) That the permittee shall comply promptly with any lawful regulations, conditions, or instructions affecting the structure or work authorized herein if and when issued by the Federal Water Quality Administration and/or the State water pollution control agency having jurisdiction to abate or prevent water pollution, including thermal or radiation pollution. Such regulations, conditions or instructions in effect or hereafter prescribed by the Federal Water Quality Administration and/or the State agency are hereby made a condition of this permit.
- (e) That the permittee will maintain the work authorized herein in good condition in accordance with the approved plans.
- (f) That this permit may, prior to the completion of the structure or work authorized herein, be suspended by authority of the Secretary of the Army if it is determined that suspension is in the public interest. \*
- (g) That this permit may at any time be modified by authority of the Secretary of the Army if it is determined that, under existing circumstances, modification is in the public interest. \* The permittee, upon receipt of a notice of modification, shall comply therewith as directed by the Secretary of the Army or his authorized representative.
- (h) That this permit may be revoked by authority of the Secretary of the Army if the permittee fails to comply with any of its provisions or if the Secretary determines that, under the existing circumstances, such action is required in the public interest. \*
- (i) That any modification, suspension or revocation of this permit shall not be the basis for a claim for damages against the United States.

- (j) That the United States shall in no way be liable for any damage to any structure or work authorized herein which may be caused by or result from future operations undertaken by the Government in the public interest.
- (k) That no attempt shall be made by the permittee to forbid the full and free use by the public of all navigable waters at or adjacent to the structure or work authorized by this permit.
- (1) That if the display of lights and signals on any structure or work authorized herein is not otherwise provided for by law, such lights and signals as may be prescribed by the United States Coast Guard shall be installed and maintained by and at the expense of the permittee.
- (m) That the permittee shall notify the District Engineer at what time the construction or work will be commenced, as far in advance of the time of commencement as the District Engineer may specify, and of its completion.
- (n) That if the structure or work herein authorized is not completed on or before 31st day of December 1986, this permit, if not previously revoked or specifically extended, shall cease and be null and void.
  - (o) That the legal requirements of all Federal agencies be met.
- (p) That this permit does not authorize or approve the construction of particular structures, the authorization or approval of which may require action by the Congress or other agencies of the Federal Government.
- (q) That all the provisions of this permit shall be binding on any assignee or successor in interest of the permittee.
- (r) That if the recording of this permit is possible under applicable State or local law, the permittee shall take such action as may be necessary to record this permit with the Registrar of Deeds or other appropriate official charged with the responsibility for maintaining records of title to and interests in real property.
- (s) That the permittee agrees to make every reasonable effort to prosecute the construction or work authorized herein in a manner so as to minimize any adverse impact of the construction or work on fish, wildlife and natural environmental values. (See EPA Ltr attached)
- (t) That the permittee agrees that it will prosecute the construction of work authorized herein in a manner so as to minimize any degradation of water quality.

- (u) That the permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the authorized structure or work, shall, without expense to the United States, at the direction of the Secretary of the Army and in such time and manner as the Secretary or his authorized representative may direct, restore the waterway to its former condition. If the permittee fails to comply with the direction of the Secretary of the Army or his authorized representative, the Secretary or his designee may restore the waterway to its former condition, by contract or otherwise, and recover the cost thereof from the permittee.
- (v) That no building or other structure may be erected on the fill authorized by this permit unless such building or other structure is appropriately identified and described in the plans and drawings attached hereto; that buildings or other structures authorized by this permit, once erected, may not be significantly modified in their outward appearance or tern down and other buildings or structures erected in their place unless a modification of this permit is authorized by the Secretary of the Army or his authorized representative; and that neither the fill itself nor buildings or structures erected in accordance with the plans and drawings attached hereto may be dedicated to any different use than that contemplated at the time of issuance of this permi" unless modification of this permit is authorized by the Secretary of the Army or his authorized representative.

#### (w) MAINTENANCE DREDGING:

- (1) That when the work authorized herein includes periodic maintenance dredging it may be performed under this permit for 10 years from the date of issuance of this permit; and (2) That the permittee will advise the District Engineer in writing at least two weeks before he intends to undertake any maintenance dredging:
- \* A judgment as to whether or not suspension, modification or revocation is in the public interest involves a consideration of the impact that any such action or the absence of any such action may have on factors affecting the public interest. Such factors include, but are no limited to navigation. fish and wildlife, water quality, economics, conservation, aesthetics, recreation, water supply, flood damage prevention, ecosystems and, in general, the needs and welfare of the people

By authority of the Secretary of the Army:

Issued for & in behalf of Colonel Robert S. McGarry

JOHN P. O'HAGAN

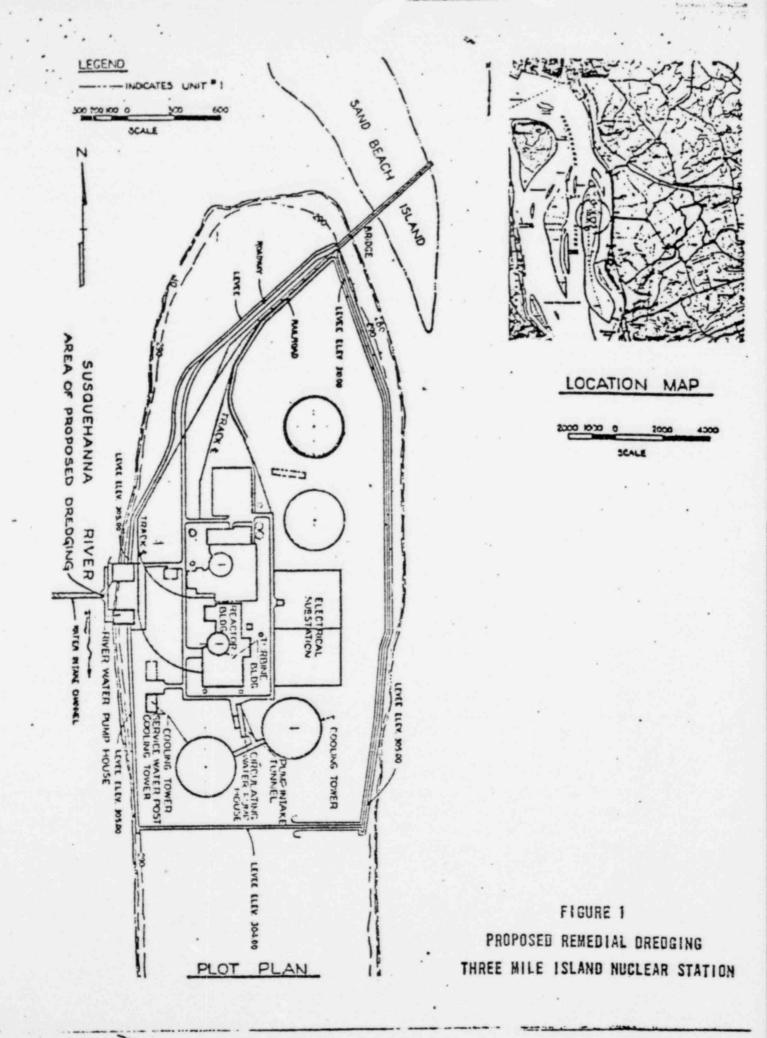
District Engineer

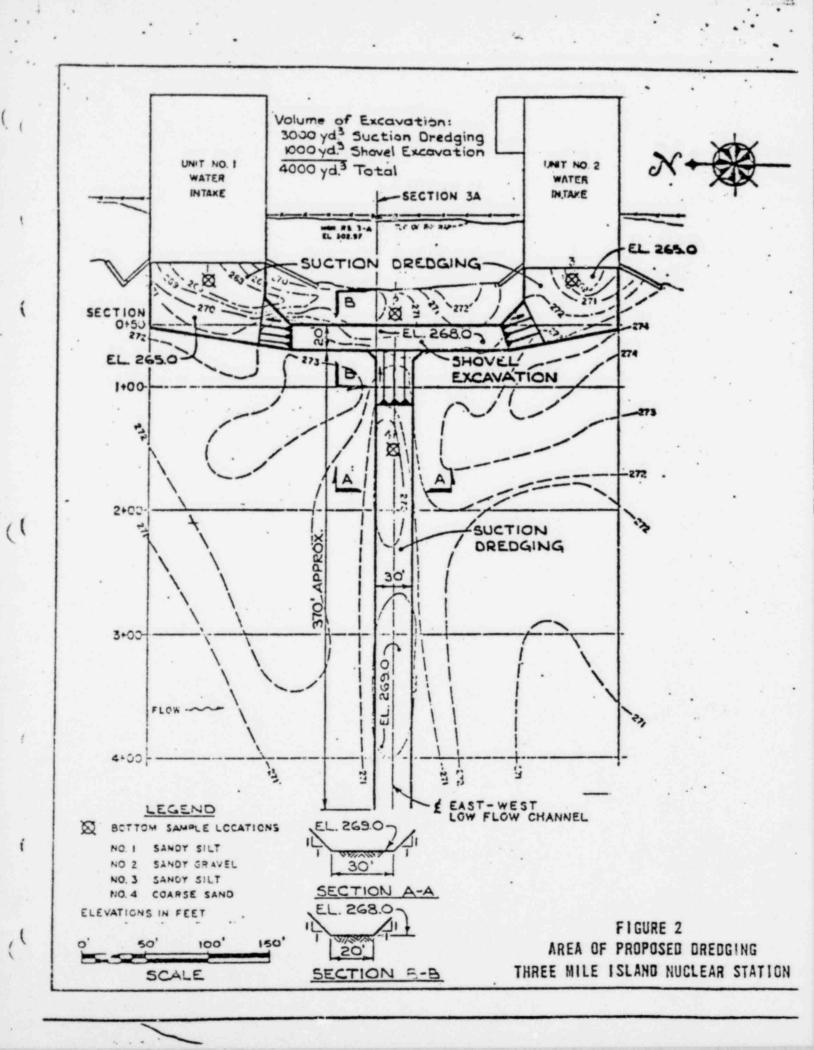
Chief, Operations Division

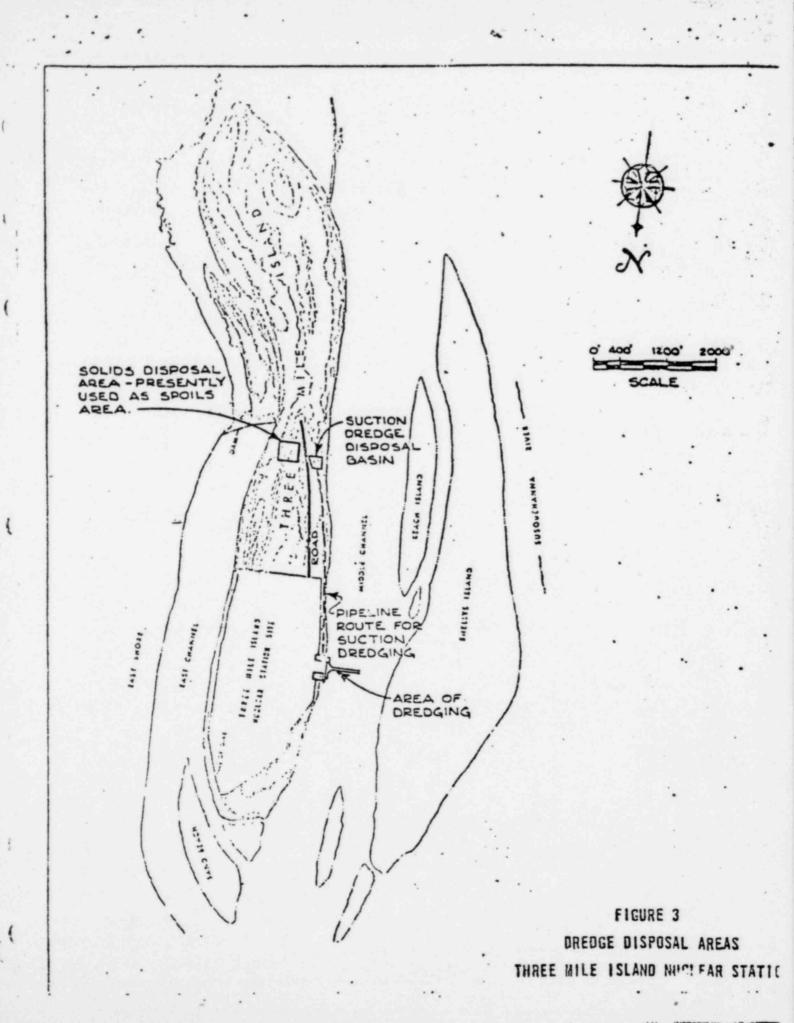
Date

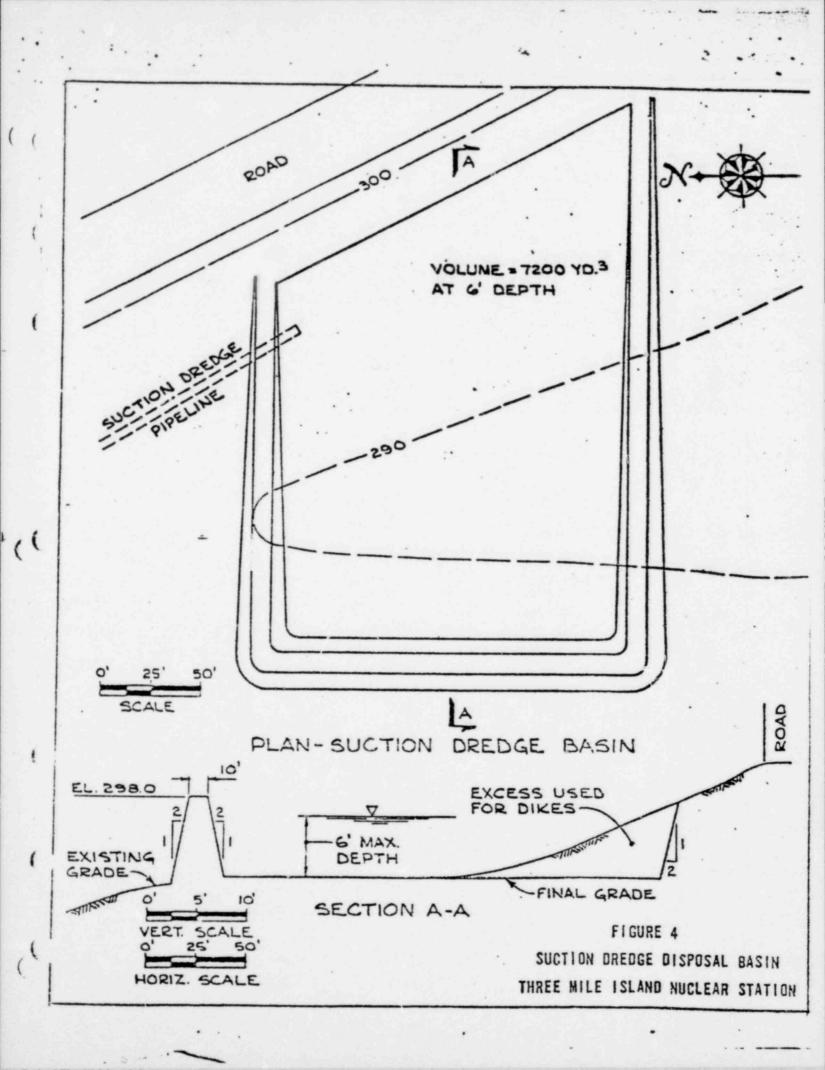
Permittee hereby accepts the terms and conditions of this permit.

NADB FL 10002 Rev. 26 Nov 73









The U. S. Code of Federal Regulations, Title 33, Subpart 67 30-5 (c) states that all structures erected in navigable waters in depths in excess of three feet at mean low water require obstruction lights unless the applicant is advised to the contrary by the Coast Guard unless the applicant is advised to the contrary by the Coast Guard District Commander. If the structures authorized by this parmit are to be built in water depths in excess of three feet at mean low water, you must contact the Commander (0-2), Fifth Coast Guard District, You must contact the Commander (0-2), Fifth Coast Guard District, Federal Eucliding, 431 Crawford Street, Portsmouth, Virginia 23705, to ascertain the need for the placement of obstruction lights.



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## 6TH AND WALNUT STREETS PHILADELPHIA, PENNSYLVANIA 19106

NOV 1 0 1975

Major William L. Jones Chief, Regulatory Functions Branch Baltimore District, Corps of Engineers P. O. Box 1715 Baltimore, Md. 21203

Re: NABOP-F/4 (Metropolitan Edison Co.) 75-1048

Dear Major Jones:

We have reviewed the referenced Public Notice, dated October 14, 1975 describing an application for a permit for work in navigable waters. We have considered the water pollution potential as well as the possible effect on the environment by construction of the facility. We have no objection to the above permit request provided the appropriate Water Quality Certification is issued to the applicant. We do, however, recommend that the following conditions be attached to and made part of any permit issued for the proposed construction:

- 1. Dikes will be constructed with adequate distance between the inlet and outlet to insure maximum detention time for the settling of solids. The dikes will also be of sufficient height and strength to prevent spillage at any point other than the outlet structure.
- 2. Excavation, dredging, or filling in the Susquehanna River will be done so as to minimize disturbance of the bottom or turbidity increases in the water which tend to degrade water quality and damage aquatic life.
- 3. Deposition of dredged or excavated materials on shore, and all earthwork operations on shore will be carried out in such a way that sediment runoff and soil erosion to the Susquehanna River are minimized.
- 4. On completion of earthwork operations, all fills in the Susquehanna River or on shore, and other areas on shore disturbed during construction will be seeded, rip-rapped or given some other type of protection from subsequent soil erosion.
- 5. Applicant will employ measures to prevent or control spills of fuels or lubricants from entering the Susquehanna River.

Please advise us of any action taken on the above permit request.

Sincerely yours,

Nicholas M. Ruha, Chief

EIS & Wetlands Review Section



## DEPARTMENT OF THE ARMY CORPS OF ENGINEERS

BALTIMORE DISTRICT, BALTIMORE, MARYLAND NOTICE OF AUTHORIZATION

19 January 1976

A PERMIT TO suction dredge approx. 3000 cu.yds of sandy silt, gravel, and coarse sand from the intake channels of units 1 & 2, and the East-West low flow channel; to place the spoil material in the designated upland disposal area; and to maintenance dredge said channels for a 10-year period in Susquehanna River AT Three Mile Island, Dauphin County, Pennsylvania

HAS BEEN ISSUED TO Metropolitan Edison Company

Post Office Box 542 ADDRESS OF PERMITTEE Reading, Pennsylvania 19603

PERMIT NUMBER

NABOP-F/4(Metro, Edison Company)75-1048

ON 19 January

OTHAGAN

for the

ENG Form 4338 Jul 70

THIS NOTICE MUST BE CONSPICUOUSLY DISPLAYED AT THE SITE OF



## DEPARTMENT OF THE ARMY CORPS OF ENGINEERS

BALTIMORE DISTRICT, BALTIMORE, MARYLAND NOTICE OF AUTHORIZATION

19 January 19.76

A PERMIT TO suction dredge approx. 3000 cu.yds of sandy silt, gravel, and coarse sand from the intake channels of units 1 & 2, and the East-West low flow channel; to place the spoil material in the designated upland disposal area; and to maintenance dredge said channels for a 10-year period in Susquehanna River AT Three Mile Island, Dauphin County, Pennsylvania

HAS BEEN ISSUED TO Metropolitan Edison Company Post Office Box 542

ADDRESS OF PERMITTEE Reading, Pennsylvania 19603

PERMIT NUMBER

MABOP-F/4 (Metro, Edison Company) 75-1048

ON 19 January 19 76

Operations Division for the

ENG Form 4336 Jul 70

THIS NOTICE MUST BE CONSPICUOUSLY DISPLAYED AT THE SITE OF WORK

\* 3PO: 1971 0-418-898

2110



DEPARTMENT OF THE ARMY

BALTIMORE, MARYLAND 21203

15 March 1976

Bee &

1 cerci

100 duno

اللاح- مين

NABOP-F/4(Met. Edison Co.)75-1048

Metropolitan Edison Company P.O. Box 542 Reading, Pennsylvania 19603

#### Gentlemen:

In accordance with your written request dated 8 March 1976, the plans for work authorized by the Secretary of the Army in permit dated 19 January 1976 from the District Engineer at Baltimore District, Baltimore, Maryland are hereby approved as revised.

The revised plans provide for the relocation of the spoil disposal sites on the island within the dike system surrounding the TMI facility in Susquehanna River at Three Mile Island, Dauphin County, Pennsylvania.

All of the conditions pertaining to the work authorized on 19 January 1976 remain in full force and effect.

By Authority of the Secretary of the Army:

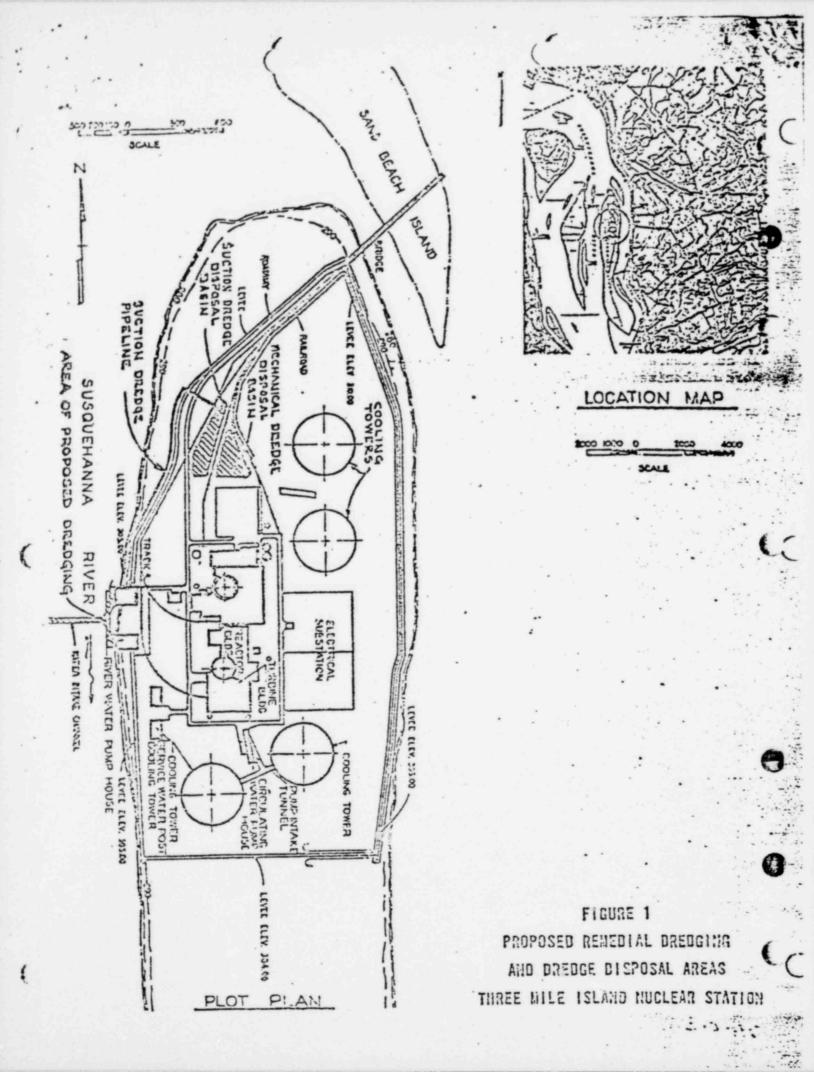
Issued for & in behalf of Colonel Robert S. McGarry District Engineer

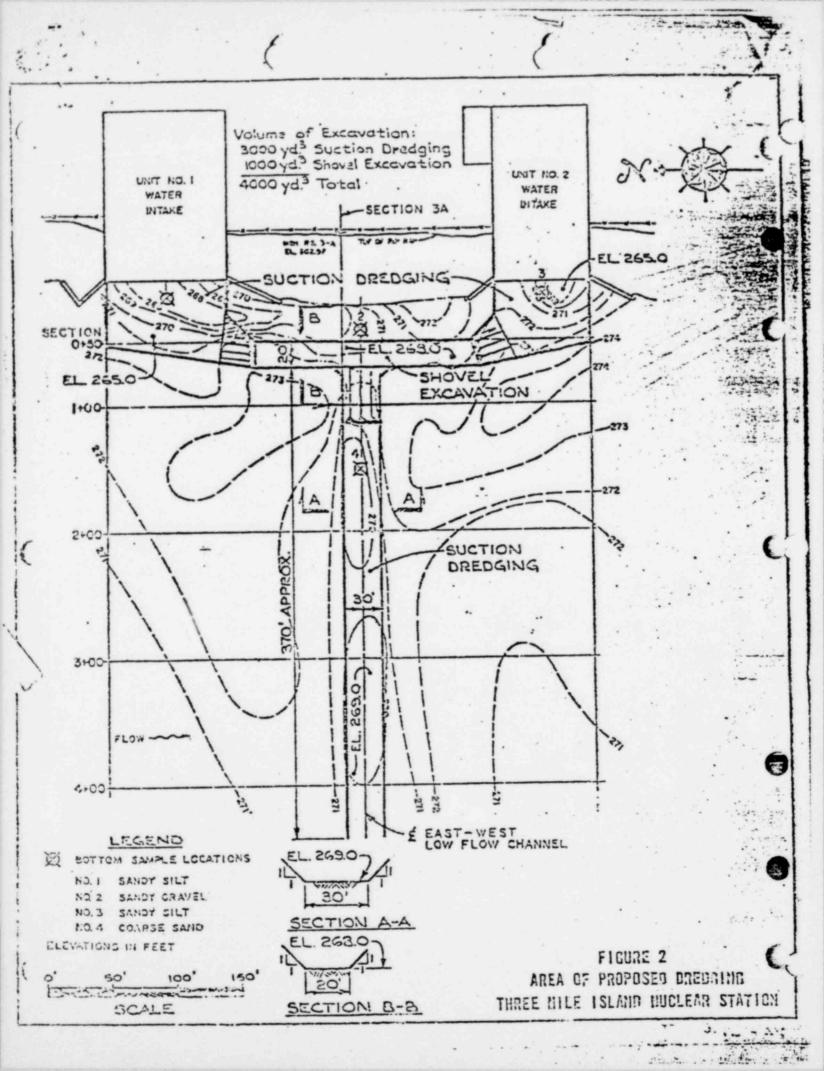
Attachment: Set of Plans

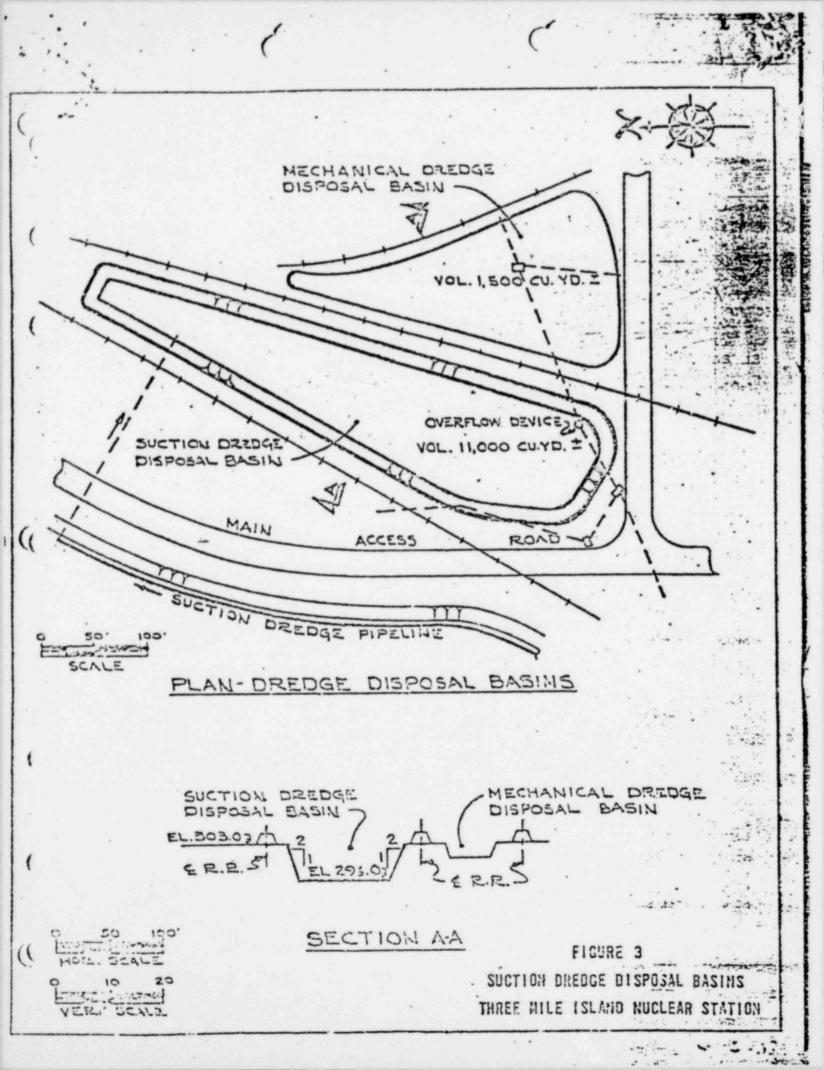
JOHN P. O'HAGAN Division Chief, Operations Division











02 0016 2003 0050.

COMMONWEALTHOF PENNSYLVANIA



#### DEPARTMENT OF ENVIRONMENTAL RESOURCES

Harrisburg Regional Office 407 South Cameron Street Harrisburg, Pennsylvania 17120

Dopies to

June 7, 1978

100-

1sc Chrono

1cc0 == 12

100

RmK

ICC

G? miller

Station Su

Metropolitan Edison Company P. O. Box 542 Reading, PA 19603

ATTN: Mr. G. J. Troffer

Manager - Generation Quality Assurance

Gentlemen:

This will acknowledge receipt of your June 7, 1978 request for fire training at your company's Three Mile Island facility.

Approval for the training is granted for the proposed site on the dates indicated in your request. The approval is subject to the following conditions:

- (1) burning shall be limited to the hours between 0700 a.m. and 0400 p.m.;
- (2) only the fuel specified in your letter shall be utilized;
- (3) no burning shall be conducted if unfavorable atmospheric conditions prevail;
- (4) the Department shall be notified of any change in your proposal.

If you have any questions, do not hesitate to contact me.

Very truly yours,

عنه فنس

Leif Ericson Regional Air Pollution Control Engineer

LE:gu

19/20 (155/2014) 3PT 02. 00/6. 0003. 0050.0001



DEPARTMENT OF ENVIRONMENTAL RESOURCES

MET Bireau of Air Quality Control
GENE 487 South Cameron Street
DI Harrisburg, Pennsylvania 17101
(717) 787-9685

RECEIVED
UN -1 PH 3: 0
ET -ED CO
ENERATION
DIVISION.

May 21, 1979

JCC JOH JCC TOH JCC Chrono orig gile JCC RMK

Metropolitan Edison Company P. O. Box 542 Reading, Pennsylvania 19603

Attention: Mr. G. J. Troffer

Manager - Generation Quality Assurance

#### Gentlemen:

This will acknowledge receipt of your May 9, 1979 request for fire training at your company's Three Mile Island facility.

Approval for the training is granted for the proposed site on the dates indicated in your request. The approval is subject to the following conditions:

- burning shall be limited to the hours between 0700 a.m. and 0400 p.m.;
- (2) only the fuel specified in your letter shall be utilized;
- (3) no burning shall be conducted if unfavorable atmospheric conditions prevail;
- (4) the Department shall be notified of any change in your proposal.

If you have any questions, do not hesitate to contact me.

Very truly yours,

Leif Ericson

Regional Air Pollution Control Engineer Harrisburg Region

LE/III

63.0050.0020.0001.01



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY EIVED

REGION III

6TH AND WALNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106 .

In reply refer to: 3EN43

APR 2 1 1978

J. G. Herbein, Vice President Metropolitan Edison Company P. O. Box 542 Reading, PA 19603

> Re: NPDES Permit Number EPA PA0009920 Amendment Number 3

Dear Sir:

Enclosed is Amendment Number 3 authorizing revisions to the above-referenced National Pollutant Discharge Elimination System permit previously issued in accordance with provisions of the Federal Water Pollution Control Act Amendments of 1972.

This permit amendment becomes effective on immediately unless you or another party file a timely and proper request for an adjudicatory hearing, pursuant to 40 C.F.R. \$125.36. If such request is duly filed, those terms and conditions of the Amendment affected by the issues raised in your request shall not be effective until final agency action has occurred in accordance with 40 C.F.R. \$125.36(d)(2).

Sincerely,

Stephen R. Wassersug

Director

Enforcement Division

Enclosure

Copies to

3CC GJT

1CC TGH

1CC RMK

1CC Chrono

1CC Chrono

1CC GP. Miller

1CC GP. Miller

1CC TPO'Handen

ORIG Helding File

PERMITTEE

Metropolitan-Edison Company

Amendment Number 3

Page 1 of 2

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM DISCHARGE PERMIT AMENDMENT NO. 3

Pursuant to the provisions of the Federal Water Pollution Control Act Amendments of 1972, the U.S. Environmental Protection Agency hereby authorizes the following revisions to the above captioned permit:

- 1 Pages 17a and 17b of 18 (Special Conditions)
  - a. Replace Special Conditions 11, 12, 13 and 14 with the following Special Conditions:
    - 11. The permittee shall at all times maintain in good working order and operate the Mechanical Draft Cooling Towers (MDCT's) as efficiently as possible so as to minimize temperature differential between ambient river temperature and the temperature of the discharge; provided, however, the MDCT's may be shut down when in the judgment of the responsible TMINS personnel a combination of atmospheric conditions and river temperature may exist which causes the waste water to be heated as it passes through the MDCT's or ice formation is observed to occur within the MDCT's.
    - 12. The temperature of the discharge shall never exceed a maximum of 87°F, except when the ambient river temperature exceeds 87°F, in which case, the discharge temperature shall not exceed the ambient river temperature; the temperature of the discharge shall not change by more than 5°F during any one hour period.

Ambient river temperature is the temperature of the river upstream of the heated waste discharge. The ambient temperature sampling point should be unaffected by any sources of waste heat. The temperature of the intake water will be considered as ambient river temperature so long as the intake water is unaffected by Til's or any other nearby heated water discharge.

- 13. The following temperature limitations shall never be exceeded:
  - a. During the period November 1 through April 30, the temperature of the discharge shall not exceed 12°F above ambient river temperature.
  - b. During the period May 1 through October 31, the temperature of the discharge shall not exceed 7°F above ambient river temperature.
  - c. During plant cooldown operations the temperature of the discharge shall not exceed 12°F above ambient river temperature.
- 14. The chief of the Operations Section of the Harrisburg Regional Office of the Bureau of Water Quality Management shall be advised by telephone within 24 hours when the MDCT's are shut down for reasons other than those specified in condition 11 above and again when tower operation is resumed; shall be notified within 24 hours when the discharge limitations specified in condition 13 above are exceeded and again when the discharge is in compliance with such limitations; and shall be notified, at least thirty (30) days in advance, whenever possible of all scheduled plant cooldown operations.
  - b. Add the following Special Condition to the permit:
    - 18. At no time shall the discharge exceed the rate of 150 million gallons per day.
  - c. Change the number of the following Special Condition to 19:
    - 19. The discharge of corrosion inhibitors, biocides (other than chlorine) and/or dispersants without the prior written approval of the Regional Administrator, is prohibited.

The changes as set forth by this amendment are/were effective immediately.

The remainder of the permit remains in full force and effect.

DV. Spirits M. Faire At Enforcement Division Director

April 21, 1978 Date

Permit No. PA0009920 Page 17a of 18 Amendment 50. 3

- 9. It is recognized that influent quality changes, equipment malfunction, or other circumstances beyond the control of the permittee, may sometimes result in effluents exceeding the permit limitations despite the exercise of appropriate care, maintenance, and corrective measures by the permittee. The permittee may come forward to demonstrate to the Agency that such circumstances exist in any case where effluents exceed the limitation set forth in this permit. The Agency may consider such information in determining whether there is an actionable violation.
- 16. EPA will not utilize a notification of noncompliance in a criminal prosecution against the individual who gave the notification, except in a prosecution for perjury or for giving a false statement.
- 11. The permittee shall at all times maintain in good working order and operate the Mechanical Draft Cooling Towers (MDCT's) as efficiently as possible so as to minimize temperature differential between ambient river temperature and the temperature of the discharge; provided, however, the MDCT's may be shut down when the judgment of the responsible TMINS personnel a combination of atmospheric conditions and river temperature may exist which causes the waste water to be heated as it passes through the MDCT's or ice formation is observed to occur within the MDCT's.
- 12. The temperature of the discharge shall never exceed a maximum of 87°F, except when the ambient river temperature exceeds 87°F, in which case, the discharge temperature shall not exceed the ambient river temperature; the temperature of the discharge shall not change by more than 5°F during any one hour period

Ambient river temperature is the temperature of the river upstream of the heated waste discharge. The ambient temperature sampling point should be unaffected by any sources of waste heat. The temperature of the intake water will be considered as ambient river temperature so long as the intake water is unaffected by TMI's or any other nearby heater water discharge.

- 13. The following temperature limitations shall never be exceeded:
  - a. During the period November 1 through April 30, the temperature of the discharge shall not exceed 12°F above ambient river temperature.
  - b. During the period May 1 through October 31, the temperature of the discharge shall not exceed 7°F above ambient river temperature.
  - c. During plant cooldown operations the temperature of the discharge shall not exceed 12°F above ambient river temperature.
- 14. The Chief of the Operations Section of the Harrisburg Regional Office of the Bureau of Water Quality Management shall be advised by telephone within 24 hours when the MDCT's are shut down for reasons other than those specified in condition 11 above and again when tower operation is resumed; shall be notified within 24 hours when the discharge limitations specified in condition 13 above are exceeded and again when the discharge is in compliance with such limitations; and shall be notified, at least thirty (30) days in advance, whenever possible of all scheduled plant cooldown operations.
- operation, the Metropolitan-Edison Company will collect and submit to the Department of Environmental Resources and the EPA, stream data which accuracyly defines the thermal plume or zone of impact from the TMINS heated waste discharge. As a minimum, thermal plume mapping data collected to meet the Nuclear Regulatory Commission's Environmental Resources and the EPA.
- 16. The Permittee shall submit to the Pennsylvania Department of Environmental Resources within ninety (90) days of issuance of Amendment No. 1 to the NPDES permit, an application for a new Pennsylvania Water Quality Management permit for the facilities associated with the thermal component of discharge 001.
- 17. For substances not specifically limited in the permit, the permittee is limited to the amount of the substance reported in the NPDES application. The permittee is not authorized to discharge any substance in excess of that reported in the NPDES application.
- 18. At no time shall the discharge exceed the rate of 150 million gallons per day.

Page 17c of 18 Permit No. PA0009920 Amendment No. 3

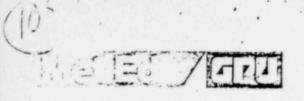
19. The discharge of corrosion inhibitors, biocides (other than chlorine) and/or dispersants without the prior written approval of the Regional Administrator, is prohibited.

6

GQL 1558 .

REQUEST FOR CONSIDERATION FOR A 301(c) OR 301(g) MODIFICATION	Form Approved OMB No. 153-R0164
Metropolitan Edison Company, Three Mile	Island Station
PEHMIT NO. OUTFALL NO.	ADIGINA OVACION
PA 0009920 001	
FFLUENT GUIDLINE THAT YOU HEQUEST A VAHIANCE FRO	ч ————
Cooling Tower Blowdown: Phosphorous and inhibitors	noncorrosive
am applying for a: 301(c) 301(g) X BOTH	
John O. Herbein, Vice President Generation	DATE
. Herbern, vice President Gereratio	9-22-78
11a. 61 1115 0200	

File: 61.1415.0000 02.0016.0001.0005.00



Metropolitan Edison Company Post Office Box 542 Reading Pennsylvania 19640 215 929-3801

Writer's Direct Dial Number

August 15, 1979 GQL 0991

Mr. Frederick Marrocco
Regional Water Quality Manager
Pa. Department of Environmental Resources
407 South Cameron Street
Harrisburg, PA 17120

Dear Mr. Marrocco:

NPDES Permit No. 0009920 ...
Three Mile Island Nuclear Station (TMI)

The subject permit expires January 30, 1980. Enclosed are four copies of our application for a new NPDES permit as well as the required permit application fee.

As detailed in the application, upon completion of the cooling tower cleaning operation, additional information will be supplied for outfall 005. Further, as the hazardous substances regulations have yet to be finalized we wish to reserve our right to update our application once the regulations are finalized.

Should your staff have any questions regarding this submittal or require any additional information, please call Eric Nielsen of my staff at 215-921-6586.

Sincerely,

/s/ J. G. Herbein
J. G. Herbein
Vice President
Nuclear-Operations

JGH: ESN: mrm .

Enclosures: Application (4 copies)
Application Fee

cc: Mr. James Donato
PA. Department of Environmental Resources
407 South Cameron Street
Harrisburg, PA 17120

THE CHECK ATTACHED IS IN FULL PAYMENT OF THE ITEMS LISTED BELOW. IF NOT CORRECT, PLEASE RETURN PROMPTLY
METROPOLITAN EDISON COMPANY

002697								
VENDOR NUMBER	REGISTER NUMBER	INVOICE NUMBER	MO.	DAY	BTAC	INVOICE AMOUNT	DISCOUNT OR CONTRA	NET AMOUNT
00540	074767			27		350.00	The Holes	350.00
				8.			F. F. F. S.	
			1					
** ***								
							Replication in the	
	医肾髓管炎							
		Manual 12 To	1					
	5 6 6 7 7 7	Mark Market				1		

A LESS FREIGHT B. INVOICE NOT SUBJECT TO PA. SALES TAX PLEASE DETACH THIS MEMORANDUM BEFORE DEPOSITING CHECK

C CREDIT MEMO

O-CORRECTED INVOICE

R-LESS RETENTIONS

E-THIS INVOICE WAS RECEIVED TOO LATE! PAYMENT ON ORIGINAL DUE DATE.

60-46 313

No. 002697

#### METROPOLITAN EDISON COMPANY TMI OPERATING ACCOUNT

MO. | DAY YEAR 10 10 14

PAY EXACTLY \*\* \* \* \* \* \* \* \* \* \* \* \* \* \* 350 DOLLARS AND OU CENTS

CHECK AMOUNT

\*\*\*\*\*350.00

AMERICAN BANK AND TRUST CO. CF PA.

TO THE ORDER OF

COMMONUEALTH OF PENNSYLVANIA HARRISHURG PA

030 -84 20 11

"P 25 00 \*" 1:0313004651 NOTE: All attached pages/tables/figures are sequentially numbered by section

FOR	M A	PPR	OV	ED
OMB				

FO	R A	G	43	10	Y 1	15	E
		-	-				
							L

### MATIONAL FOLLUTANT DISCHARGE ELIMINATION SYSTEM APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER

## STANDARD FORM C - MANUFACTURING AND COMMERCIAL

## SECTION I. APPLICANT AND FACILITY DESCRIPTION

Unless otherwise specified on this form all items are to be completed. If an Item is not applicable indicate 'NA.'

ADDITIONAL MOTPUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFE

OOKLET BEFORE FILLING OUT TH	ESETTENS.	Please Print o	or Type			- 1
. Legal Name of Applicant (see instruction.)	191	Metropolita	an Edison	Compan	у	
2. Mailing Address of Applicant (see instructions) Number & Street	102>	P.O. Box 5	42			
city	1025	Reading				
State	102c	Pennsylvan	ia			
ZIp Code	102d	19640				
3. Applicant's Authorized Agent (see instructions) Name and Title	103.	E. S. Niels Licensing 1 P.O. Box 5	Engineer	·	Metropolitan Edi	son Company
Number & Street Address	1036		42			
City	103c	Reading				
State	1034	Pennsylvan	ia			
Zip Code	103e	19640				
Telephone	1031	Area to	-6588			
<ol> <li>Previous Application If a previous application for a National or Federal discharge per- mit has been made, give the date of application. Use numeric designation for date.</li> </ol>	104	08 25 71 YR MO DAY		/		
I certify that I am familiar with the info	ormation con	twined in this applic	ation and that	to the best of	of my knowledge and belief	such information
is true, complete, and accurate.			ozel_Vic	e Presid	dent- Nuclear Ope	erations
J. G. Herbein  Printed Name of Pers	on Signing		024		Title	- 35
					79 08 15 VR MO DAY	216-1 216-1
/s/ J. G. Herbei	Married Street, Square, Square		1021		Date Application Signed	7.50
Signstone of Apolle and or /	Authorized A	anut .			Talle Adding Street, officer	
18 U.S.C. Section 1001 provides that:					nominally and willfully falsit	Ges conceals or
Whoever, in any matter within the juri						
covers up by any trick, xehene, or dev	ne nemneris	constin one false	fictitious or fr	audulent stat	ement or entry, shall be fin	ed not more than

wes any false writing or document knowing same to comisin any f \$10,000 or imprisoned not more than five years, or both,

		AND THE PERSON NAMED AND POST OF THE PERSON N
	FOR AGENCY USE	
		GEFICE:EPA Region Number
Property		State

YH MO DAY

F	0	R	AG	Er	10	Y 1	JS	Ε
								Г

2	his Facility Discharges and other Latres, 11 imper and Discharge (so- niet munt) Volume Specify (tra					
	number of discharge points and the volume of water discharged or lost from the facility according to the categorius below. Estimate average volume per day in thousand gallons pur day.		Number of Discharge Priots		Total Volume Used or Discharged. Thousand Gal/Day	
a.	Surface Water	10001	1	10112	*	
ь.	Substanty wastewater transport system	10251	1	17152	*	
c.	Storm water transport system	19901	2	15362	*	•
d.	Combined smitary and storm yeater transport system	ione:	N/A	10262	N/A	
e.	Surface impoundment with no effluent	109-1	1	103-2	N/A*	•
f.	Understown percolation	10911	N/A	103/2	N/A	
g.	Well Injection	16991	_N/A_	10942	N/A	
h.	Waste acceptance firm	103113	8	10412	*	* See Item 12 -
i.	Evaporation	109:1	6	10912	*	Additional Information
j.	Consumption	109;1		10012	*	
k.	Other.	10251	5	10092	*	

10. Parmits, Licenses and Applications
List all existing, pending or denied permits, licenses and applications related to discharges from this facility (see instructions).

	Issuina Agency	For Agency Use	Type of Perinit or License	ID Number	Date Filed VR/NO DA	Date   Issued   YR/MO/DA	Date Denied VR/MO/DA	Date VR/MO/DA
10	(6)	(6)	(c)	(d)	(0)	(!)	(9)	(n)
1.	ACOE		Dredging	NABOP-F/4	75/09/10	76/12/31		86/12/31
				75-1048	1			
2.	EPA		NPDES	PA0009920	75/08/25	75/01/30		80/01/30
3.	NRC		Unit 1	DPR-50	70/03/20	77/04/19		2008/5/18
			License					

11. Maps and Drawings
Attach all required maps and decomes to the back of this application (see instructions)

10911

10911

#### 12 Additional letermation

112

Facility discharges and volume

"If there are discharges to 'other,' specify.

Total Hem 9.

Norm	7.	See attached page 1 for additional information.
1000	3.	See attached page 1 for additional information.
31987	9.	See attached page 2 for additional information.
	10.	Permit list continued on attached page 8.
	11.	See map/drawing index on attached page 9.

#### 7. FACILITY INTAKE WATER

Figure 1 graphically displays TMI water flow paths.

Table 1 details water usage.

#### 8. FACILITY WATER USE

Refer to Table 1. Also, note that the sewage treatment plant (STP) is currently not in operation.

- 9. ALL FACILITY DISCHARGES AND OTHER LOSSES; NUMBER AND DISCHARGE
  - There are a total of 27 discharge points listed in Item 9. Figure 1 is a simplified flow diagram, Table 1 details water usage and Figure 2 indicates the discharge locations. The following is a description of those discharges listed in Item 9.
  - a. <u>Surface Water</u> This is current NPDES discharge, 001 which is the main outfall for the entire plant (TMI Unit 1 & 2).
  - b. Sanitary This is a current NPDES source which is designated by monitoring point number 101. This source combines with other flows and exists through discharge 001. At this time the sewage treatment plant (STP) is not in service and this waste source does not exit through discharge 001. Until such time that the STP returns to service, all sanitary wastes are being removed for offsite treatment and disposal.
    - When the STP becomes operational, daily flows which will be treated by the STP are estimated to be 14.4 thousand gallon/day maximum. Any additional flows will be treated offsite or the STP will be modified to handle the additional flow.
  - c. Storm Water Transport System This discharge has been designated as

    NPDES discharge 005 in our application to amend the NPDES Permit dated

    3-10-78 (GQL 0192). The discharge is normally comprised of storm water

    runoff from the yard drain system. Occasionally it is used for discharging

    treated effluent from cooling tower cleaning operations. It also allows

    for the treatment of construction runoff prior to discharge.

The storm water and construction runoff discharged through outfall 005. is intermittant (dependent on rainfall) and of a negligible amount.

As described to PaDER in our letter dated December 28, 1978, GQL 2054, a total of approximately 2.2 million gallons of water will be periodically discharged out discharge 005 during cooling tower cleaning operations.

There are three other storm water transport discharges all located on the west side of TMI. These discharges drain surface runoff from the areas immediately surrounding the Unit 1 and Unit 2 intake screen houses and the area just south of outfall 001. These drains are not expected to create contamination any different from nearby hi-ways and railroad right of ways which are located on both sides of the river. The flow from these discharges are intermittent (dependent on rainfall) and of a negligible amount.

- d. Combined Sanitary/Storm Water Discharge Not applicable
- e. Surface Impoundment with No Effluent During the periodic maintenance dredging which is carried out at the station, the dredged spoil effluent is treated by long term settling with usually no effluent from the dredging settling basin. Met-Ed also is subject to the requirements of Army Corps of Engineer and PaDER permits which specifically cover any dredging operations.
- f. Underground Percolation Not applicable
- g. Well Injection Not applicable
- h. <u>Waste Acceptance Firm</u> Solid and liquid wastes are removed from seven treatment systems as follows:

- 1. Sewage Treatment Plant (STP)-(NPDES designation No. 101) Wastes are removed for offsite treatment and disposal. Currently approximately 21,000 thousand gallons/day are generated. These wastes are removed on an approximate daily (6 day/week) basis.

  When the STP becomes operational, it is stimated that approximately 100 gallons/day of waste sludge will be generated. This sludge will then be periodically removed for offsite disposal.
- 2. Industrial Waste Filter System (NPDES designation No. 104) Waste filter cake is removed for offsite treatment and disposal. Approximately 3300 pounds/day are generated. The filter cake is then periodically removed for offsite disposal.
- 3. Industrial Waste Treatment System (NPDES designation No. 107) Waste oil is removed for offsite treatment and disposal. Approximately
  20 gallons/day of waste oil is generated. This waste is
  periodically removed for offsite disposal.
- 4. Radioactive Waste Treatment System Wastes which cannot be discharged to the river are removed for offsite treatment and disposal. Approximately 5000 cubic ft/unit are removed each year.
- 5. Pre-Operational Settling Basins (NPDES designation No. 103) 
  Accumulated settled wastes are removed as required for offsite treatment and disposal.

- 6. Stormwater Transport System comprises of the East Dam settling area which discharges through outfall 005. Accumulated solids from the settling area are periodically removed and used as landfill. After cooling tower cleaning operations, accumulated solids are also removed as required.
- Dredging Settling Basin After dredging operations, accumulated solids are removed as required and landfilled.
- 8. Intake Screen Houses Water for each Unit enters through its own corresponding intake screen house. The water is screened in order to prevent fouling of equipment from debris which may be present in the river. The materials which accumulate on these screens are periodically removed and landfilled.
- i. Evaporation There are six sources of evaporation, which are the four natural draft cooling towers (NDCT) and the two mechanical draft cooling towers (MDCT) Evaporation rates of 4625 and 400 gallons per minute are approximate values for each NDCT and MDCT respectively.
- j. <u>Consumption</u> Currently, water is not being used for drinking as it is being supplied by bottled water.
- k. Other There are a total of five discharges listed in this category. Three of these discharges are emergency outfalls which are currently numbered as NPDES outfalls 002, 003 and 004. These outfalls are described as follows:

#### 1. Discharge 002

This discharge is an alternate route to the Susquehanna River for the effluent from the TMI-2 Mechanical Draft Cooling Tower (MDCT). Water discharged through TMI discharge 002 would have received the same treatment as water discharged through the main outfall, 001. This alternate path from the cooling tower basin to the river was installed to allow continued cooling tower operation in the event that the main station discharge (001) were to become plugged. In the event that the normal discharge path from the TMI-2 MDCT is blocked, the water level in the cooling tower basin would rise until the water spilled over into the 002 discharge trough. The water would then flow to the river.

#### 2. Discharge 003

This discharge operates in the same manner as discharge 002, and is an alternate route to the Susquehanna River for the effluent from the TMI-1 MDCT.

### 3. Discharge 004

This discharge allows the TMI-1 MDCT to be isolated in the event of a problem arising which could require that work be performed on the MDCT. Should such a problem arise, the normal unit discharge would be diverted from the MDCT to a 48" pipe which discharges through the Station's East Dike. This emergency discharge has not yet been used.

There are two discharges associated with the intake screen houses. Both Units have trash removal facilities to screen the intermittent sluiding waters serving the bar rakes and traveling screens. The sluiding water is returned to the river and is cleaner than the water which enters TMI. This flow is intermittently discharged from each Unit screen house through an approximate six inch diameter pipe. This flow is considered to be negligible.

1. Facility discharges and volume total - Due to the varying nature of all the discharges detailed in this section, a single total discharge volume cannot be provided. It is believed that each discharge must be individually considered. Table 1 details all the normal discharge flows associated with the station.

#### NOTE:

In Section II of this application, information is provided for outfalls 001, 002, 003, 004 and 005. In most instances, the information provided for outfalls 002, 003 and 004 will refer back to discharge 001 since these outfalls are merely redundant emergency outfalls which have virtually the same characteristics as the effluent discharged from outfall 001.

Item 8 of Section II requests information regarding discharge distance from shore and depth below water level. Discharge pipe size, elevation and distance from discharge headwall to river are given. Those outfalls which are not at river level have rip-rap channels leading from the discharge headwall to the river.

# 10. Permits, Licenses and Applications Continued

А	В	С	D .	E	F	G	н
NRC		Unit 2 License	DPR-73	74/2/15	78/2/28		2009/11/4
PADER		Sewage	2275419	75/5/3	76/1/23		80/1/23
PADER		IWP	2270202	72/9/1	73/6/8		- ,
PADER		IWP	2270204	70/11/18	71/8/17		•
PADER		IWP	2270209	76/12/23	77/2/15	W 11	•
PADER		IWP	2277206	77/10/10	78/2/22		-
PADER		Dredging	2275214	75/10/1	76/1/13		81/12/31

#### 11. Maps and Drawings

The following is a listing of all Figures/Maps supplied as a part of this application.

- 1. Section I Figure 1 TMI Water Use Flow Diagram
- 2. Section I Figure 2 Location Diagram
- 3. Section I Figure 3 USGS Map
- 4. Section II Figure 1 Simplified Flow Diagram
- 5. Section II Figure 2 Data Set 1 Sampling Locations
- 6. Section II Figure 3 Data Set 2 Sampling Locations

#### DECITOR T - WITHCHEN LUCE TO

#### TABLE 1

N/A = Not Applicable MGD = Million Gallon/Day

Discharge No. Ave	rage Flow *1 (MGD)	Maximum Ant	cicipated Flow (MGD)
001	61.7		159.2 *3
002	N/A .		60.91 *3 83.80 *3
004	N/A N/A		83.80·*3 *4
101 (Currently not in use)	N/A		0.0144 (Projected)
103	0.001		0.144
104	0.063		0.251
105	0.042		.0.216
107	0.223		0.288
108	0.039		0.324

#### Evaporative Losses

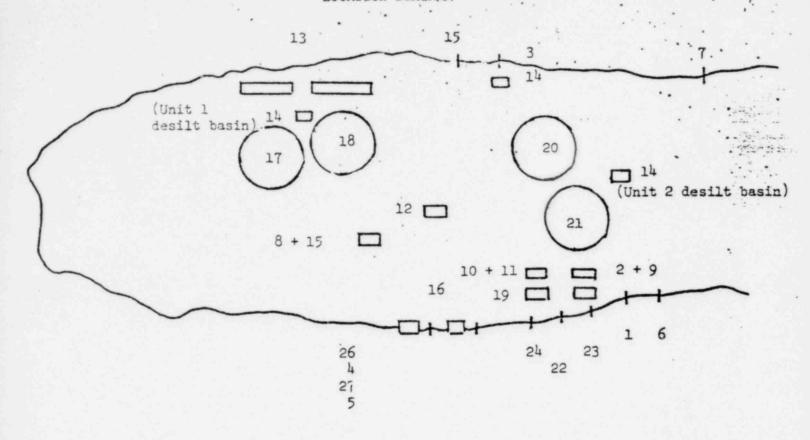
4 Natural Draft Cooling Towers 2 Mechanical Draft Cooling Towers	-		(4625 gallon/minute/tower) (400 gallons/minute/tower)
TOTAL - All Cooling Towers		27.80	(400 garions/minute/tower/

- \*1 Average flows were determined from 1978 station operating data. When TMI Units 1 and 2 resume operation, subsequent data may reveal higher average flows.
- \*2 Discharge 002 is an emergency outfall and is not used under normal operating conditions. As detailed in our letter dated 6/20/78, GQL 1093, average flow is negligible.
- \*3 This data previously supplied by letter dated 6/3/77, GQL 0759.
- Discharge 005 normal flow is dependent on rainfall and is considered to be negligible. Cooling Tower cleaning flows are as detailed in our letters dated 12/28/78, GQL 2054 and 5/15/79, GQL 0691.

......

FIGURE .2

#### LOCATION DIAGRAM



The 27 discharges listed on Page I-3, Item 9, are located in the above approximate positions on TMI. The numbers are listed sequentially to correspond with Item 9.

1.	9.a.	Outfall	001

2. 9.b. Sewage Treatment Plant

3. 9.c. Outfall 005

4. 9.c. Unit 1 Screen House are a runoff drain

 9.c. Unit 2 Screen House are a runoff drain

6. 9.c. Area runoff drain south of outfall 001

7. 9.c. Area runoff drain south of outfall 005

8. 9.e. Dredging settling basin

9. 9.h.l. Sewage Treatment Plant

10. 9.h.2. Industrial Waste Filter System

11. 9.h.3. Industrial Waste Treatment System

12. 9.h.4. Radioactive Waste Treatment System

13. 9.h.5. Pre-Op settling basins

14. 9.h.6. Stormwater Transport System/ desilting basins

15. 9.h.7 Dredging settling basin

16. 9.h.8. Intake Screen Houses

17. 9.i. Unit 1 NDCT

18. 9.i. Unit 1 NDCT

19. 9.i. Unit 1 MDCT

20. 9.i. Unit 2 NDCT

21. 9.i. Unit 2 NDCT

22. 9.i. Unit 2 MDCT

23. 9.k.1. Outfall 002

24. 9.k.2. Outfall 003

25. 9.k.3. Outfall 004

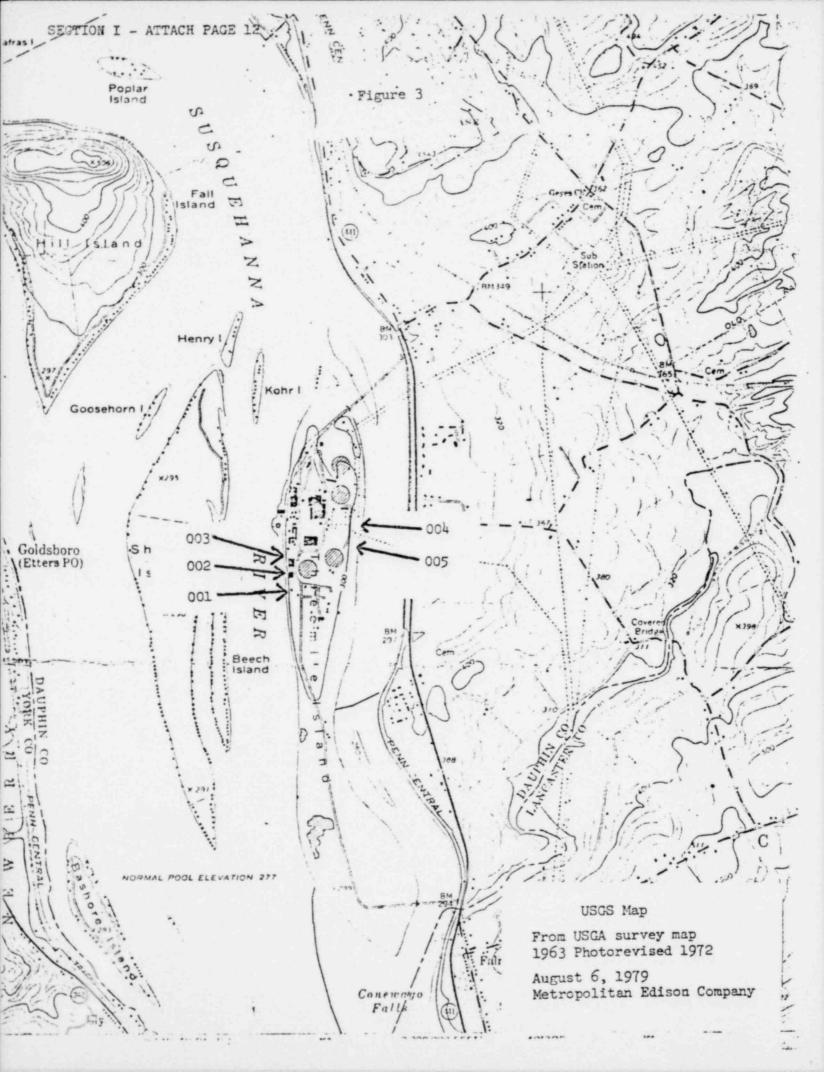
e/. J.k.j. Outland out

26. 9.k. Unit 1 Intake Screen Discharge

27. 9.k. Unit 2 Intake Screen Discharge

Location Map

August 6, 1979 Metropolitan Edison Company



#### STANDARD FORM C - MANUFACTURING AND COMMERCIAL

FO	A A	EN	CYL	12E
		П		

. SECTION II. BASIC DISCHARGE DESCRIPTION .

Complete this section for each discharge indicated in Section I, Item 9, that is to surface waters. This includes discharges to municipal sewerage systems in which the wastewater does not go through a treatment works prior to being discharged to surface waters. Discharges to wells must be described where there are also discharges to surface waters from this facility. SEPARATE DESCRIPTIONS OF EACH DISCHARGE ARE REQUIRED EVEN IF SEVERAL DISCHARGES ORIGINATE IN THE SAME FACILITY. All values for an existing discharge should be representative of the twelve previous months of operation. If this is a proposed discharge, values should reflect best engineering estimates.

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

D. Discharge Name Give name of discharge, if any, (see instructions)  C. Previous Discharge Saral Mo. If previous discharge saral momber.  2. Discharge Operating Dates  Discharge Regard Date if the discharge described below a in past estimate) intel discharge in past estimate) intel discharge in past estimate) intel discharge in speaking to Besin Date if the discharge is panned for some foliate date, past estimate) in discharge in service date, make in discharge is serviced below a in past estimate in the discharge is scheduled to be discontinued within the next by year, gived in discharge will end.  2. Eingineering Report Available Creek it an emplementing peort is distable for reviewing agency upon remest. Ice instructions)  State County		a. Discharge Serial No. (see instructions)	2012	001		
If previous permit application was made for this discharge (see item 4, Section 1), provide previous discharge (see item 4, Section 1), provide previous discharge seems another (item 4, Section 1), provide previous discharge seems another (item 6, Section 1), provide previous discharge seems and the discharge described below is in operation, give the date (within best estimate) the discharge began.  b. Discharge to Begin Date. If the discharge began.  c. Discharge to Begin Date. If the discharge will begin.  c. Discharge to End Date. If discharge will begin.  d. Discharge to End Date. If discharge will begin.  c. Discharge to End Date. If discharge will begin.  d. Discharge to End Date. If discharge will begin.  d. Discharge to End Date. If discharge is included. If the discharge will end.  3. Engineering Report Available. Check if an engineering report is discharge to reviewing agency upon request. (see instructions)  4. Discharge Location. Name the positical boundaries within which the point of discharge is focated.  5. Discharge Foint Description. State.  County  (if applicable) City in: Town  5. Discharge Foint Description. Provided and other intermittent watercourses)  Stream (includes disches, arroyos, and other intermittent watercourses)  Stream (includes disches, arroyos, and other intermittent watercourses)  England Conditional Sanitary and		Give name of discharge, if any.	2015	Normal Station Discharge		· · ·
Agency Use  State  County  (if applicancy Circles)  State  County  Circles  County  Circles  County  Circles  C		If previous permit application was made for this discharge (see Item 4, Section I), provide previ-	201e	001		
discharge described below is no operation, give the date (within best estimate) the discharge began.  b. Discharge to Begin Date. If the discharge strong for the discharge strong for the discharge he discharge strong for the discharge strong for the discharge strong for the discharge with edit (within best estimate) the discharge will begin.  c. Discharge to End Date. If discharge is foreduled to be discontinued within the next 5 years, give the date (within best estimate) the discharge will end.  J. Engineering Report Available. Check if an engineering report is available to reviewing agency upon request. (see instructions).  Discharge Location. Name the political boundaries within which the point of discharge is located.  State  County  (if applicable) City n: Town  5. Discharge Point Description Discharge is into (check one); Itsu instructions;  Stream (includes disches, arroyos, and other intermittent watercourses)  Like  Coens  Check in the watercourses of the intermittent watercourses; 205a and other intermittent wat	2.	Discharge Operating Dates				
discharge has never occurred but is planned for some future date, give the date (within best estimate) the discharge will begin.  c. Olischarge to End Date if discharge is scheduled to be discontinued within ben east 5 years, give the date (within best estimate) the discharge will estimate) the discharge will end.  3. Engineering Report Available Check if an engineering report is available to reviewing agency upon request. (see instructions)  4. Olischarge Location Name the political boundaries within which the point of discharge is located.  State  County  (if applicante) City in: Town  5. Discharge Point Description Obscharge is into (check one): (tee instructions)  Stream (includes disches, arroyos, and other intermittent watercourses)  Like City and Check one): (tee instructions)  Stream (includes disches, arroyos, and other intermittent watercourses)  County  City includes disches, arroyos, and other intermittent watercourses)  City includes disches and the country of the coun		discharge described below is in operation, give the date (within best estimate) the discharge	2020	74 O1 MO		
charge is scheduled to be discontinued within the next 5 years, give the date (within best estimate) in discharge will end.  3. Engineering Report Available Check if an engineering report is available to reviewing agency upon request. (see instructions)  4. Discharge Location Name the political boundaries within which the political boundaries within the political boundaries within the political boundaries wit	**	discharge has never occurred but is planned for some future date, give the date (within best esti-	2025	annual contraction of the contra		
Check if an engineering report is dividable to reviewing agency upon request. (see instructions)  4. Discharge Location Name the political boundaries within which the point of discharge is located.  State  County  (if applicable) City o: Town  5. Discharge Point Description Discharge is into (check one); (see instructions)  Stream (includes ditches, arroyos, and other intermittent watercourses)  Lake  Citean  County (Includes ditches, arroyos, and other intermittent watercourses)  City on the point of the p		charge is scheduled to be discon- tinued within the next 5 years, give the date (within best esti-	202¢			
political boundaries within which the point of discharge is located.  State  County  Dauphin  Londonderry Township  5. Discharge Point Description Discharge is into (check one): (see instructions)  Stream (includes ditches, arroyos, and other intermittent watercourses)  Londonderry Township  Final Point and Wastemater  Cisean  Cisea	3.	Check if an engineering report is available to reviewing agency upon	203	□ N/A		
State  County  County  (if applicable) City is Town  5. Discharge is into (check one); (see instructions) Stream (includes diches, arroyos, and other intermittent watercourses)  1 33.6  Cotean  Cote	4.					Annous Line
County  County  (if applicable) City of Town  Dauphin  Londonderry Township  5. Discharge Point Description Oischarge is into (check one): (see instructions)  Stream (includes ditches, arroyos, and other intermittent watercourses)  Take  Citean  City of Town  Dauphin  Londonderry Township  Zoda  Londonderry Township  Zoda  Londonderry Township  Coda  Consultation of the control				P		
County   2046   Continued Capitary and   County   Count		State	2043		204d	
5. Discharge Point Description Discharge is into (check one): (see instructions) Stream (includes ditches, arroyos, and other intermittent watercourses)  Lake  Cicean  Cicean		County	2045	Dauphin	2040	
5. Discharge Point Description Discharge is into (check one): (see instructions)  Stream (includes ditches, arroyos, and other intermittent watercourses)  Lake  Cicean  Cicea		(if applicable) City or Town	204c	Londonderry Township	2049	
Stream (includes ditches, arroyos, and other intermittent watercourses)  Lake  Circan  Circan  Consider Suntary Wastemater  Consider System  Constituted Sanitary and	5.	Discharge Point Description (Discharge is into (check one):				
Citean OCE  Citean OCE  Citean OCE  Citean OCE  Citean Compact Systemater  Citean Compact Compact Compact Systemater  Citean Compact Comp		Stream (includes ditches, arroyos,		Deta		
Circumstant Systems Continued Sanitary and			2053			
CIMIS  Compact System  Compact						
Compact System  Continued Sanitary and				Lioca		
Chambinal Conditional Sunitary and Control Control System				CIMIC		
				☐wcs		

1. Discharge Serial No. and Name

	1		FOR AGENCY USE
	Municipal Storm Water Transport System		CISTS
	Well (Injection)		□WFL
	Other		Потн
	If 'other' is checked, specify	2050	
	is dense is consisted, speaking		
6.	Discharge Point - Lat/Long Give		
	of discharge to the nearest second.		10 00 10
	Latitude	206a	40 DEGMIN 10 SEC .
			76 DEG 4311N 40 SEC
	Longitude	2065	TO DEG
7.	Discharge Receiving Water Name Name the waterway at the point of discharge (see instructions)	2073	Susquehanna River
			For Assert Uta
fall	the discharge is through an out- treat extends beyond the shore- e or is below the mean low ter line, complete item 8.	2075	For Agency Use  Major Minor Sub  207c  For Agency Use  303e
8.	Offshore Discharge	2033	Oteet
	a. Discharge Distance from Shore	2033	Discharge Pipe
	<ul> <li>Discharge Depth Below Water Surface</li> </ul>	2080	inv. elevation = 275'0" pipe size = 72"
9.	Discharge Type and Occurrence		P100 0100 . (1
	<ul> <li>Type of Discharge Check whether the discharge is con- tinuous or intermittent. (see instructions)</li> </ul>	2093	* normal river elevation is 278'0" and run: through center of discharge pipe
	b. Discharge Occurrence Days per		7
	Week Enter the average num- ber of days per week (during periods of discharge) this dis- charge occurs.	2095	L.days per week
	c. Discharge Occurrence -Months		DIAN DEEB MAR DAPR N/A
	If this discharge normally	209c	DJAN DEEB DMAR DAPR N/A
	operates (either intermittently, or continuously) on less than		DMAY DJUL DAUG
	a year around basis (excluding shutdowns for routine mainte-		OSEP OCT ONOV ODEC
	nance), check the months dur-		
	ing the year when the discharge is operating. (see instructions)		
		1	
	interest is checked in Item 9.3.		
0	nerwise, proceed to Item 12.	1	
	. Intermittent Discharge Quantity		N/A
10	State the average volume per dis- charge occurrence in thousands of gallons.	210	thousand gallons per discharge occurrence. N/A
13	Intermittent Discharge Duration and Frequency		
	Intermittent Discharge Duration     Per Day State the average     number of hours per day the     discharge is operating.	211a	hours per day N/A
	b. Intermittent Discharge Frequency State the average number of discharge occur- rences per day during days when discharging.	2115	discharge occurrences per day N/A
	Which discharging		
12	Maximum Flow Period Give the time period in which the maximum flow of this discharge occurs.	212	From to month N/A

I	F	0	R	AG	En	4C	Y 1	US	E
					•			I	Г

13. Activity Description Give a narrative description of activity producing this discharge (see instructions)

process is the generation of electri The specific activities which cause this discharge are as follows:

a. Natural draft cooling tower blowdown water

b. Filtered boiler makeup waste water

c. Neutralized demineralizer regeneration waste

d. Service cooling water

e. Decontaminated radioactive liquid waste

f. Tertiary treated sanitary wastes\*

g. Treated industrial wastes

14. Activity Causing Discharge For each SIC Code which describes the activity causing this discharge. supply the type and maximum amount of either the raw material consumed (Item 14a) or the product produced (Item 14b) in the units specified in Table I of the Instruction Booklet. For SIC Codes not listed in Table i, use raw material or production units normally used for measuring production.(see instructions)

\* Sanitary wastes are presently being removed for offsite treatment and disposal. Sanitary waste treatment system may be re-activated at a later date.

a. Raw Materials N/A

SIC Code	Name	Maximum Amount/Day	Unit (See Table I)	Shared Discharges (Serial Number)
(1)	(2)	(3)	(4)	(5)
				A COUNTY OF THE PARTY OF THE PA
		<u> </u>		

	200			
D.	P	 -	14.40	

SIC Code	Name	Maximum Amount/Day	Unit	(Serial Number)
(1)	(2)	(3)	(4)	(5)
4911	Electric	1.706	Z-1	**
	Services	Sand and an		

\*\* Note: Outfalls 002, 003, 004 are emergency outfalls for Outfall 001.

FOR	AGE	NCY L	SE
	H	1	

#### 15. Waste Abatement

Waste Abatement Practices
 Clascribe the waste abatement
 practices used on this discharge
 with a brief parrative. (see
 instructions)

b. Waste Abatement Codes Using the codes listed in Table II of the Instruction Booklet, describe the waste abatement processes for this discharge in the order in which they occur if possible.

215a	Nargative:	*		
154	ivarçative:			
				· £.
				1.1
				1
		-		
				٠.
2156	(1) *	. (2)		
	(4)	, (5)	, (6)	
	(7)	, (8)	. (9)	
	(10)	. (11)		
	(13)	, (14)	. (15)	
	(16)	, (17)		
	(19)	, (20)	. (21)	
	(22)	. (23)	. (24)	
	(25)			

<sup>\*</sup> See narrative on attached page 1 and simplified flow diagram.

FOR	R A	G	EN	C,	41	151	
							ı
	1						L

#### 16. Wastewater Characteristics

Check the box beside each constituent which is present in the offluent (discharge water). This determination is to be based of actual analysis or best estimate.()

Parameter 216	Present	Parameter	Present
Color 00080	X,	Copper 01042	x
Ammonia 00610	χ.	Iron 01045	х
Organic nitrogen 00605		Lead 01051	
Nitrate 00620	x	Magnesium 00927	Х
Nitrite 00615	x	Manganese 01055	X
Phosphorus 00665	x	Mercury 71900	
Sulfate 00945	x	Molybdenum 01062	
Sulfide 00745		Nickel 01067	X
Sulfite 00740		Selenium 01147	
Bromide 71S70		Silver 01077	
Chloride 00940	х	Potassium 00937	
Cyanide 00720	x	Sodium 00929	х
Fluoride 00951	х	Thallium 01059	
Aluminum 01105		Titanium 01152	
Antimony 01097		Tin 01102	
Arsenic 01002		Zinc 01092	Х
Beryllium 01012	x	Algicides* 7405 l	)
Barium 01007		Chlorinated organic compounds* 74052	
Boron 01022	X	Pesticides* 74053	
Cadmium 01027		Oil and grease 00550	)
Calcium 00916	х	Phenois 32730	2
Cobalt 01037		Surfactants 38260	
Chromium 01034	х	Chlorine 50060	
Fecal coliform bacteria 74055	x	Radioactivity* 74050	3

<sup>\*</sup>Specify substances, compounds and/or elements in Item 26.

Pesticides (insecticides, fungicides, and rodenticides) must be reported in terms of the acceptable common names specified in Acceptable Common Names and Chemical Names for the Ingredient Statement on Pesticide Labels. 2nd Edition, Environmental Protection Agency, Washington, D.C. 20250, June 1972, as required by Subsection 162.7(b) of the Regulations for the Enforcement of the Federal Insecticide, Fungicide, and Rodenticide Act.

#### DISCHARGE SERIAL NUMBER

F	OF	R A	G	EN	C	71	ISI	3

#### 17. Description of Intake and Discharge

For each of the parameters listed below, enter in the appropriate box the value or code letter answer called for (see instructions)

In addition, enter the parameter name and code and all required values for any of the following parameters if they were checked in Item 16; ammonia, cyanide, aluminum, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, zinc, phenols, oil and grease; and chlorine (residual).

	Infla	ent			Effluent		a P	31
Parameter and Code 217a	Uniteated Intake  Water (Daily Average)	In-Plant Treated  Bally Average)	G Daily Average	Minimum Valug Observed or Expected During Discharge Activity	Maximum Value Observed or Expected During Discharge Activity	Frequency of Analysis	Number of Analyses	S Sample Type Fee.
Flow MGD · MGD · MGD · MGD · MGD	N/A	159.12	144.72	N/A	159.12	•	*	*
pH Units 00400	6.0-9.0	N/A	X	** 6.0 or back- ground	** 9.0 or back- ground	**	**	**
Temperature (winter) ° F 74028	**	**	**	**	**	**	**	**
Temperature (summer) ° F 74027	**	**	**	**	**	**	**.	**
Biochemical Oxygen Demand (BOD 5-day) mg/1 00310	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chemical Oxygen Demand (COD) mg/l 00340	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Suspended (nonfilterable) Solids mg/t 00530	35		72		560			
Specific Conductance micrombos/cm at 25° C 00095	326	326	X	500	1100	-		
Settleable Matter (residue) mt/i 00545	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/1

<sup>\*</sup>Other discharges sharing intake flow (sorial numbers),(see instructions)

<sup>\*</sup> Flows estimated based on pump capacity. Same data supplied to PaDER in our letter dated 6/3/77 (GQL 0759).

<sup>\*\*</sup> See Item 26 - Additional Information

RA	4G	EN	24	US	E
1			T	T	
	RA	RAG	RAGEN	RAGENCY	R AGENCY US

17. (Cont'd.) \*

	In	tluent ;			Effluent	••	. 40	
Parameter and Code 2:7a	Untreated Intake Water (Daily Awerage)	In-Plant Treated  Daily Average)	G Daily Average	Minimum Value Observed or Expected During Discharge Activity	Maximum Value Observed or Expected During Discharge Activity	Frequency of Analysis	Number of Analyses	S Sample Type
Ammonia 00610	u		u				,	
	u		u					
Oil and Grease 00550 50060 Chlorine (residual)	u		u					
Phenols		0.0461	u					T
Zinc		0.0067	u					T
Nickel		0.0576	u					T
		0.0037	u	1				T
Chromium		-	u	+			+-	+
Copper	u	0.0113						1
Cyanide Beryllium	u	1	u	-			1	
Alternate power source for major pumping facility.  Alarm or emergency procedure for power or equipment failure  Complete item 19 if discharge is from cooling and/or steam water generation and water treatment additives are used.  Water Treatment Additives If the discharge is treated with any conditioner, inhibitor, or algicide, enswer the following:  a. Name of Material(s)		Maps  Ckalm  u = Undeter	mined					
b. Name and address of manu- facturer	2195	*						-

<sup>\*</sup> See Item 26 - Additional Information

FOR	RAG	EN	ıc	Y 1	JS	E
		4		1	1	

d. Chemical composition of these additives (see instructions).

7194	_	_	_	- 15
	2	7	3	đ

220

Complete items 20-25 if there is a thermal discharge (e.g., associated with a steam and/or power generation plant, steel mill, perroleum refinery, or any other manufacturing process) and the total discharge flow is 10 million gallons per day or more. (see instructions)

20. Thermal Discharge Source Check the appropriate item(s) indicating the source of the discharge. (see instructions)

Boiler Blowdown

Boiler & a meat Cleaning

Ash Pond Overflow

Boiler Water Treatment - Evaporator Blowdown

Oil or Coal Fired Plants - Effluent from Air Pollution Control Devices

Condense Cooling Water

Cooling Tower Blowdown

Manufacturing Process

21. Discharge/Receiving Water Temperature Difference

> Give the maximum temperature difference between the discharge and receiving waters for summer and winter operating conditions.
> (see instructions)

Summer

Winter

22. Discharge Temperature, Rate of Change Per Hour

> Give the maximum possible rate of temperature change per hour of discharge under operating conditions. (see instructions)

23. Water Temperature, Percentile Report (Frequency of Occurrence) In the table below, enter the temperature which is exceeded 10% of the year, 5% of the year, 1% of the year and not at all (maximum

yearly temperature). (see instructions)

Frequency of occurrence

- a. Intake Water Temperature (Subject to natural changes)
- b. Uncharge Water Temperature
- 24. Water Intake Varacity (see instructions)
- 25. Retention Time Give the length of time, in minutes, from start of water temperature rise to discharge of cooling water. (see Instructions)

	100	_		
- 1		$\Box$	BL	0
		1 2	2	152

- BCCL
- DAPOF
- □ EPBD
- DOCFP
- COND
- ₩ CTBD
- MEPR
- MOTHR \*
- 2212
- 12 221b
- 5 OF./hour 222

Maximum 10% OF OF OF OF 2232 OF OF OF OF 2235

N/A

Approx. 0.2'/second

feet/sec. 224

> N/A minutes

\* See Item 26 - Additional Information

#### DISCHARGE SERIAL NUMBER

F	01	2 4	G	ÉN	C	·u	SE	-
							1	1

26. Additional Information

25	Item	Information
100	and the second	
-		
_		
_	17	See Attached Page 3
	19	This information being compiled for later submittal.
_	20	TMI thermal criteria resolved in PaDER Permit No. 2277206 issued to
_		Met-Ed 2-22-78
_		
_		
_		
_		
_		
_		
_		
-		
_		
	Tray and	

(Refer to attached simplified flow diagram)

Raw river water enters the plant via the Unit 1 and Unit 2 Intake Screen Houses. The water passes through automatic bar rakes and traveling screens (PSCREE). The accumulated leaves and trash are then removed for landfill disposal (SLANDD). This water is periodically chlorinated. The water is then pumped through automatic strainers and heated in the service water heat exchangers. A portion of the heated water is used as makeup water for the circulating water system (RECOVE) and the . balance of the water is mixed with several other wastes and returned to the river via the mechanical draft cooling towers. The circulating water is cooled by four natural draft cooling towers (PTEMPE) and then returned to the condensors (ESURFA). This flow remains in this cycle (RCYCL) however it is regularly blown down in order to prevent a high concentration of solids from building up in the cooling towers. Approximately once/year, the basins of the cooling towers for each unit need to be thoroughly cleaned. This cleaning operation will usually occur during a unit outage. Flow from the cooling towers will be blown down as far as possible and be discharged as detailed in our letter dated May 15, 1979 GQL 0691. The remainder of the flow will be discharged out through outfall 005. The flow going out 005 will be treated by settling v 'll be accomplished by the cooling tower desilting basin and east dam area \_\_\_\_iM). In order to maintain settling areas of an effective size, they are periodically dredged out and the accumulated solids are then land filled (SLANDD). An additional contributory source to outfall 005 is the yard drain system which effectively channels all surface and construction runoff to the east dam where it is provided with settling (PSEDIM) prior to discharge.

The normal blowdown from the cooling towers — combines with heated service water along with intermittent releases of regeneration wastes, which are first neutralized (CNEUT). These regeneration wastes come from the Units 1 and 2 neutralizer tanks which are currently known as NPDES discharges 105 and 108. Additional wastes from current NPDES discharges 103 and 107 also combine with this flow. Discharge 103, consists of two basins which were used for treatment of pre-operational wastes. These basins may be used in the future for chemical cleaning of the plant. Chemical cleaning is expected to occur every 10 years for each unit. The basins regularly fill up due to rainfall. In order to prevent an overflow, they are regularly drained. The treatment mechanism afforded by these basins is sedimentation (PSEDIM), pH adjustment (CPHADJ) and lime addition (COTHER), as required, to precipitate phosphates and iron. This is followed by removal of accumulated solids (SLANDD) as necessary.

Discharge 107 also known as the Industrial Waste Treatment System treats various wastes from Units 1 and 2. The wastes are pumped to a large sump, from there coagulants/coagulant aids are added (CCOAGU) to remove suspended solids and iron. This settled sludge is then routed to the Industrial Waste Filter System for further treatment. Waste oils are skimmed (PSKIMC) away while passing through an air floatation unit (PFLOAT). The waste oils are removed for offsite disposal (SLANDD). The effluent is pH adjusted prior to discharge (CPHADJ).

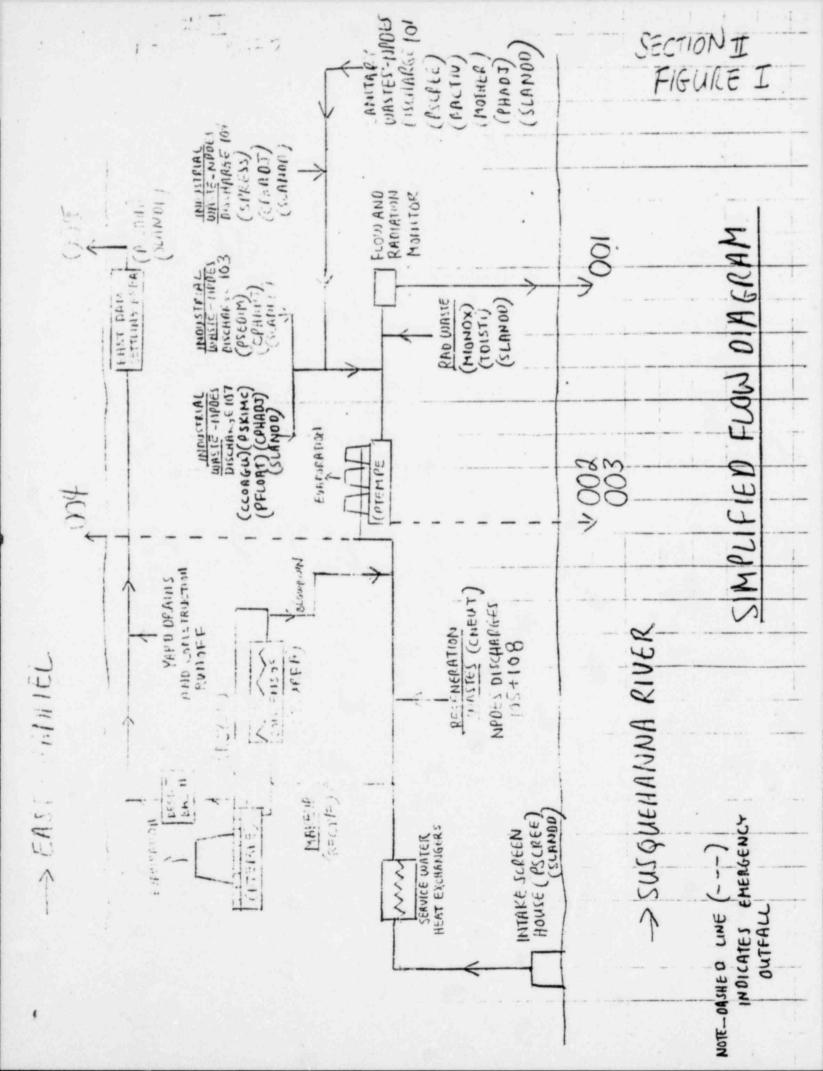
The combined flow now enters the mechanical draft cooling towers where it is further cooled (PTEMPE). Intermittent batches (7500 gallons) of radioactive liquid wastes are then added at flow rates varying from 5-50 gpm in order to provide a combined effluent which meets regulatory requirements. Prior to combining with the main effluent flow, the radioactive wastes pass through an evaporator (TDISTI) and a demineralizer (MIONOX) for treatment. All concentrates produced from the evaporator are either claimed for re-use or packaged for offsite disposal (SLANDD). Also, all slurries produced as a result of radioactive systems are packaged for offsite shipment, treatment, and disposal (SLANDD).

In addition to the radioactive liquid wastes, sanitary waste from current MPDES discharge 101 would be added (if the sewage plant becomes operable) to the main waste flow effluent after the mechanical draft compling towers. All sanitary wastes are treated by an activated sludge treatment system (BACTIV). In addition phosphates are removed (MOTHER) and the pH is adjusted (PHADJ) prior to discharge. Waste sludge is removed for offsite disposal (SLANDD). At the time of this application all sanitary wastes are being removed for offsite treatment until such time that the sewage plant becomes operational.

Prior to combining with the main waste flow, the sanitary wastes (when the sewage plant becomes operable) combine with the effluent from the Industrial Waste Filter System which is known as NPDES Discharge 104. The wastes from discharge 104 go through a filter press (SPRESS) to remove solids. These solids are periodically removed for offsite disposal (SLANDD). Once the solids are removed, the effluent is treated for pH adjustment (PHADJ) prior to discharge.

#### NOTE:

The preceeding narrative describes the TMI treatment systems in a general manner.



The following is a summary of thermal data which was obtained during 1978.

In 1978, during normal operation of Three Mile Island Nuclear Station, the temperature of the ambient intake water, the temperature of the discharge water at outfall 001, and the flow rate of the discharge water 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	(OF)	of	Intake	Water

Month	Min.	Ave.	Max.	Month	Min.	Ave.	Max.
Jan.	31.2	34.1	42.5	July	63.5	77.2	87.7
Feb.	32.0	33.0	37.4	Aug.	71.5	77.0	82.9
March	32.5	36.2	42.9	Sept.	63.1	70.8	78.7
April	41.4	48.2	59.1	Oct.	51.2	56.7	63.5
May	52.0	60.5	76.1	Nov.	36.5	47.5	52.3
June	56.9	74.2	82.0	Dec.	31.8	36.1	44.4

# Temperature (OF) of Discharge Water

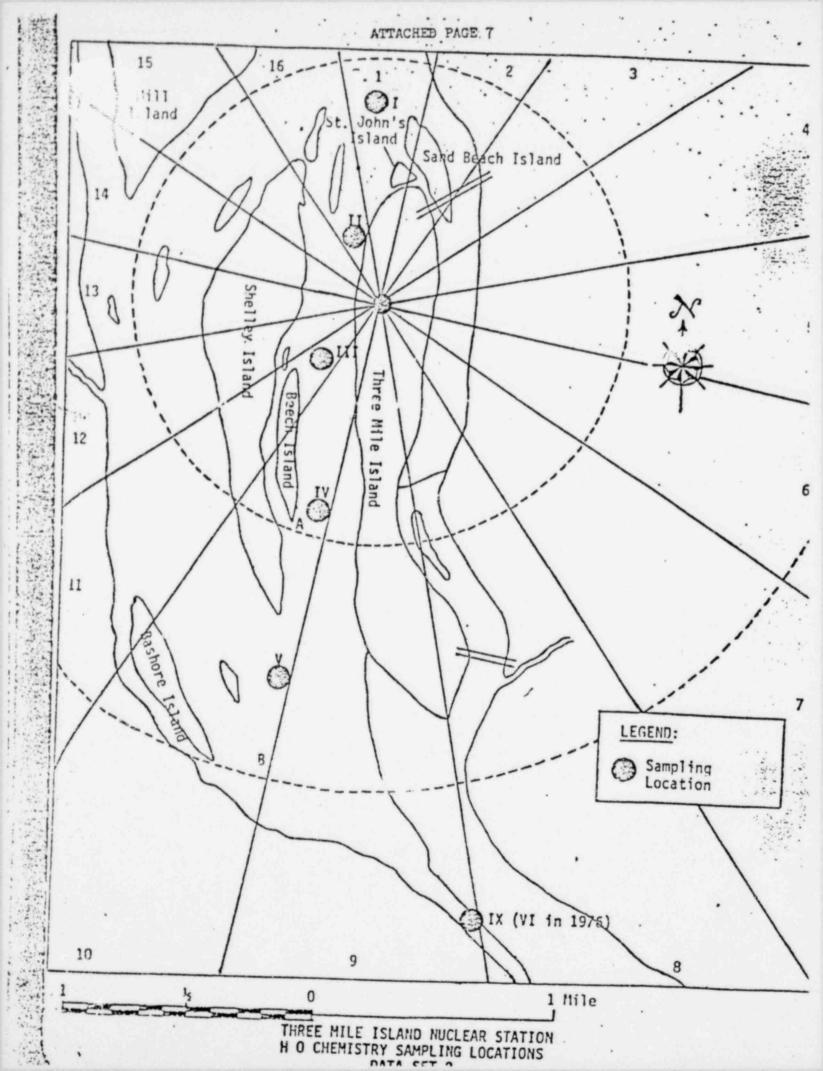
Month	Min.	Ave.	Mex.	Month	Min/	Ave.	Max.
Jan.	32.1	36.0	44.6	July	64.8	78.1	89.1
Feb.	22.7	35.7	42.9	Aug.	71.5	78.1	84.5
March	32.6	38.5	46.4	Sept.	59.3	71.5	80.9
April	45.8	50.3	60.7	Oct.	48.8	57.7	68.8
May	52.0	62.5	79.0	Nov.	37.1	119.9	62.1
June	49.6	75.2	83.2	Dec.	33.4	39.9	58.4

#### Influent/Efluent Parameters

The reports entitled "Three Mile Island Nuclear Station Operational.

Aquatic Chemistry Study June 74 - December 76" details extensively the chemical constituents of the Susquehanna River both upstream and downstream of TMI.

Essentially, the report describes 2 data sets which were taken over the three year period. Figures 2 and 3 detail the sampling locations for each data set and tables 2 through 12 list the data.



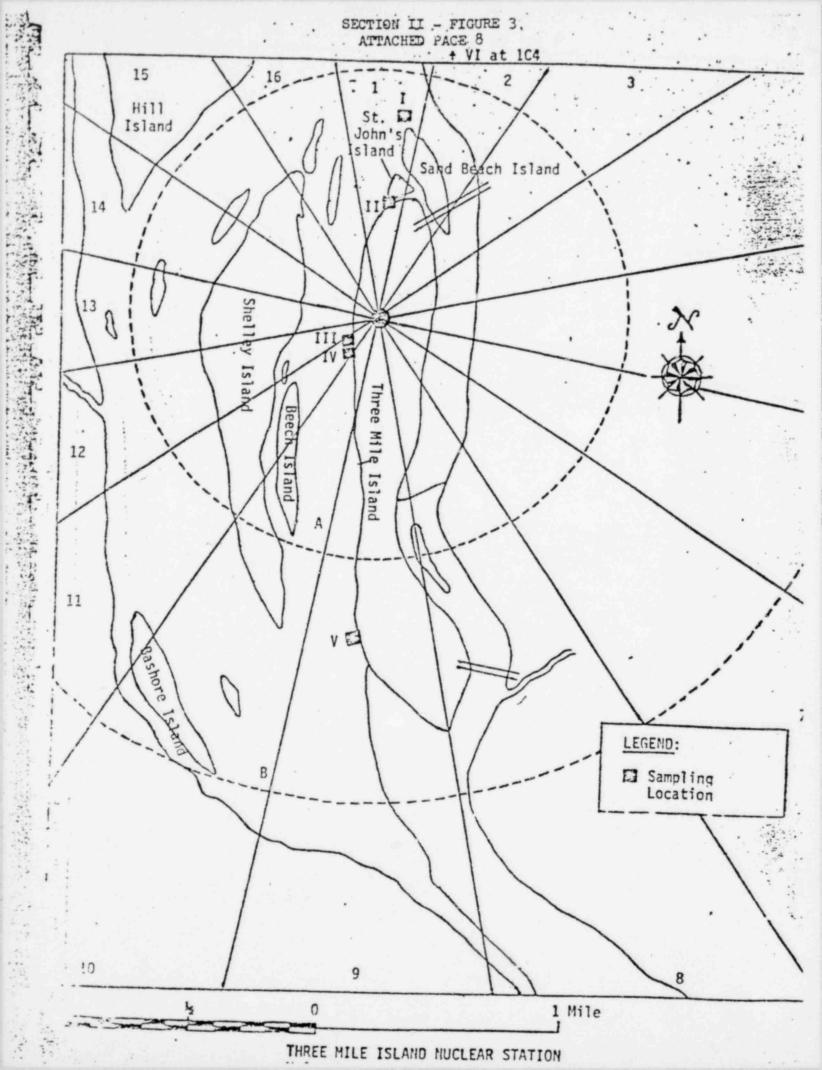


TABLE F-1

WATER CHEMISTRY - YEARLY RESULTS PER STATION - 1974 to 1976

	,	,		í
	***	ė	ē	
	۰		,	
ì	ä	4	ŀ	
3		Š		
,		9	۱	

DATA SET 1	esults in ma/1
	Re

000000000000000000000000000000000000000			Film	734	BP*4B* 0	E	min	Site 1 - 1	- 1			Sire I	1034
1.0.0020		=:	0.0005	0.027	0.0078 10.0030			-	i	-	min	NCA.	1
10 0.021   0.0515   0.0515   0.0515   0.15		==	0.263	10.001	0.002520.0015	- 6	0.0012	0.0160	0.005410.0024	23	0.0040	0	
10   10   10   10   10   10   10   10		==	0.130	1.50	0.435:0.516	0 0	0.79	10.0	1.96:2.07	22	0.00042	C ==	
1   17.0   39.2   27.6.17.4   19 0.0076   0.9520   0.0246.00110   17 0.0010   0.2040   1.2.0   19 0.0076   0.9520   0.0246.00110   17 0.0010   0.1170   1.2.2   1.2.0   1.2.		_	0.0030	0.1500	0.0111:0.0120	13	0.Ch18	0.0730	0.43:0.14	11	0.150		
11   2.23   15.4   11.25.2   15.4   19.4   2.2   19.5			17.0	39.2	29.617.7	12	9,000.0	0.9520	0.0216:0.0110	12	0.0030		
1			0.0	15.6	11.2,3,2	10	8.0	33.0	19.6,9.2	11	12 M	0.1170	
Site   1 - 1974   Site   1 - 1975   Site   1 -				2.5	9.523.0	19	4.3	0.07	9.5.4.2	11	2.5	12.0	
Site II - 1974   Coon   Site II - 1975   Coon   Site II - 1975   Coon   Site II - 1976   Coon   Site II - 1976   Coon   Site II - 1975   Coon   Site		6)		0.0156	3.03:0.67	19	0.95	4.0	2 10.0 04	17	4.5	14.0	
1					0.001.0.000	11	0.0034	0.0110	0.0056:0.0027	11	0.6000	3.2	1.57-0
1				*								0.0110	C347.10.
1	1	-	1			-	- 1	1	1975				
1		11 </td <td>3000</td> <td>0</td> <td>-</td> <td>-</td> <td>MIN</td> <td>W.J.X</td> <td>meant o</td> <td></td> <td></td> <td>-</td> <td>- 1</td>	3000	0	-	-	MIN	W.J.X	meant o			-	- 1
1		=======================================	0.0011	0.029	0.006210.0030	19	₹0.0005			-		F-3 ×	means o
1			0.330	11.0	0.0022:0.0012	19	0.00043		0.001310.0030	13	0.0044	0.0120	0 000 A. COUR
1			091.1	1.7	0.364+0 446	19	09.00		1.81.1.81	2:	900000	0.0180	0.0037:0.0041
1   10.00   0.0291.0.035   19   0.0012   0.0012   0.0013   0.035   0			0.0024	0.0510	0.0106:0.0136	61	0.14		0.40:0.16	12	0.44	1.30	1.0010.37
1   5.5   11.7   22.413.1   19   6.50   35.0   0.019410.0102   17   12.2   36.05   19.018.2   17   12.2   36.05   19.018.2   17   12.2   36.05   19.018.2   17   12.2   36.05   19.018.2   17   12.2   36.05   19.018.2   17   12.2   36.05   19.018.2   17   12.2   36.05   19.018.2   19.0	4		2.0045 6 6	0.1300	0.0293:0.0352	10	0.0051		0.0243:0.0196	12	0.0075	0.550	0.300:0.113
1			. 5.	11.7	22,413,1	19	6.20		0.019410.0102	17	0.0013	0.0350	0.05/629,1031
Site   III - 1974		2	2.1	12.0	8.4.2.1	19	3.5		8.612.5		12.2	36.0	24.217.3
Site III - 1974		2 8	3100	3.9	3.11:0.53	10	6.2		7.7.2.3		4.2	0.5	7.312.3
*0.0005		)	0100	0.0019	0.003110.0012	12	*0.0035		2.411.0	11	0.00	3.0	7.712.4
40,0005									6.003120.0028	11	0.0003	0.0064	0.003610.0016
40,0005	41			e III - 1	974								
-0.0005	1	-		CAX		c		11.	- 1		S	111	910
1 0.0016 0.0049 0.004516,0083 19 <0.0055 0.0150 0.00045.0.0035 17 0.0054 0.0150 1 0.0016 0.0045 0.0150 0.0045.0.0035 17 0.0054 0.0150 0.0210 0		1 .0	. 0000	0000		-	-	THE THE PERSON	mean+la	0		200	- }
0.056   0.00   1.745.2.161   19 0.0170   0.0045.0.0035   17 0.0044   0.0150   0.0210   0.0206   1.3 0.363.0.314   19 0.97   10.00   2.301.97   17 0.53   2.0 0.0210   0.0210   0.0200   0.0210   0.0200		0	.0016	0.0000	0.0037±0,0033	19	<0.0005		0,0004,0.0046	**		The K	mean! lo
1 0.005 0.0410 0.0314 19 0.13 0.77 0.3540.15 17 0.53 2.01 0.0090 0.1200 0.0209 0.0111.0.0100 0.0111.0.0100 0.0111.0.0100 0.0111.0.0100 0.0111.0.0111 0.0111.0.0111 0.0111.0.0111 0.0111.0.0111 0.0111.0.0111 0.0111.0.0111 0.0111.0.0111 0.0111.0.0111 0.00011		-	.350	8.00	1.745:2.161	10	0.00075		0.0045:0.0035		0.0004	0.0150	0.0131:0.0052
1 0.0000 0.1200 0.0346.0.0305 19 0.0011 0.1100 0.03140.023 17 0.150 0.509 1 0.0000 0.1200 0.1200 0.0346.0.0305 19 0.0002 0.1000 0.02060.0218 17 0.0012 0.4000 1 0.0013 0.0050 0.00013 0.0050 0.100013 0.0050 0.00013 0.0050 0.0050 0.0013 0.0050 0.11113.5 17 2.0 16.0 16.0 17 3.0 16.0 17 3.0 16.0 17 3.0 16.0 17 3.0 16.0 17 3.0 16.0 17 3.0 16.0 17 3.0 16.0 17 3.0 16.0 17 3.0 16.0 17 3.0 16.0 17 3.0 16.0 17 3.0 16.0 17 3.0 16.0 17 3.0 16.0 17 3.0 16.0 17 3.0 16.0 17 3.0 16.0 17 3.0	_		.0053	0.0410	0.363.0.314	19	0.13		2.3011.97		0.53	2.0	1 26.0 41
1 9.92 4:0 33.623.7 19 0.0092 0.1000 0.029660.0218 17 0.0012 0.4000 1	-	_	0600	0.1200	0.0146.0.0100	13	0.0031		0.0314+0.027		0.150	0.509	0.326.0.106
1 . 2 14.5 10.212.7 19 4.9 17.0 24.1111.0 17 9.5 5.10 17.0 17.0 17.0 17.0 17.0 17.0 17.0 1			20.6	44.0	33.613.7	10	0.0092		0.029610.9218		0.0012	0.4800	0.0675:0.1035
1 .8 5.4 3.61:0.81 19 5.8 22.0 10.123.1 17 2.0 16.0 16.0 16.0 17 3.0 16.0 16.0 16.0 17 3.0 16.0 16.0 17 3.0 16.0 16.0 17 3.0 16.0 16.0 16.0 16.0 16.0 16.0 16.0 16	-		. 36	14.5	10.212.7	19	4.9		24.1411.0		9.5	53.0	0.029410.0180
0.0006 0.0069 0.004010.0021 14 <0.0035 0.0126 0.004910.0029 17 1.00 4.00 0.0022 0	-		8	5.4	3.6120.81	50	5.0		10.414.1		2.0	16.0	9.0.3.9
0.0018 0.0023 0			9000	0.0069		14	c0.0035		3.111.3		1.00	4.80	2.74:1.20
									6700.016.00.0	17	0.0018	0.00.72	0.0036:0.0018

# WATER CHEMISTRY - YEARLY RESULTS PER STATION - 1974 to 1976

DATA SET 1

Results in mg/1

10	Comparison   Com	1	-	min	жеш	riean±10	=	min	max	nean±lo	le	กเก	Site IV -	1976
Court   Cour	Comparison   Com		==	<0.0005	0.023	0.0062±0.0065	19	.0005	0.0110	0019±0.	11			0.0100:0 0046
0.190 1.6 0.1350.400 19 0.16 0.30 0.1380.16 17 0.140 0.5510 0.000 0.5170 0.000 0.0130.00	Control   Cont		:::	0.490	3.0	1.762.2.359	10	.0005	0.0170	0.0037±0.0037	17			0.0049.0.0069
6. 0012 0.01034-0.0037 19 0.0100 0.02550.025 17 0.0100 0.5170 0.5	Control Contro		11	0.130	1.6	0.375:0.409	19		0.00	0.33.1.60	17			0.93,0.39
1,000   0,120   0,075.9.312   19   0,007   0,0210.0.012   17   17   0,010   0,012   17   0,010   0,012   17   0,012	15.5   42.6   9.52.9   19.0079   0.0540   0.021610.0121   17.0000   0.021610.0121   17.0000   0.021610.0121   17.0000   0.021610.0121   17.00002   0.0216		=	0.0012	0.0320	0.0103±0.0097	19		0.1000	0 0275+0 0		9		0.292:0.103
Site V - 1974	Street   S		= :	0.0060	0.1200	0.0353+0.0312	19		0.0540	0.0210+0.0230	17	,		0.062310.1136
\$\begin{array}{c} \frac{5.7}{2.1} & \frac{12.6}{4.2} & \frac{9.52.2}{3.69:0.59} & \frac{19}{3.6} & \frac{15.6}{9.22.9} & \frac{15.6}{17.0} & \frac{6.25.2}{2.11} & \frac{4.2}{4.2} & \frac{3.92.2.4}{3.92.2.4} & \frac{19}{3.6} & \frac{6.52.2}{3.69:0.59} & \frac{17.6}{17.0} & \frac{17.6}{3.92.2.4} & \frac{19.6}{17.0} & \frac{15.6}{3.6} & \frac{17.6}{3.13.2} & \frac{17.6}{17.0} & \frac{17.6}{3.13.2} & \frac{17.6}{17.0} & \frac{17.6}{3.13.2} & \frac{17.6}{17.0} & \frac{17.6}{3.13.2} & \frac{17.6}{3.20.1} &	\$\frac{5.7}{2.1}\$  \frac{12.6}{4.2}\$  \frac{3.9.2.3}{3.92.3}\$  \frac{19.6}{19.6}\$  \frac{1}{9.5}\$  \frac{12.6}{12.4}\$  \frac{3.9.2.3}{3.92.3}\$  \frac{19.6}{19.6}\$  \frac{19.6}{2.6}\$  \frac{19.2}{2.641.1}\$  \frac{12.6}{17}\$  \frac{19.6}{2.641.1}\$  \frac{19.6}{2.641.1}\$  \frac{19.6}{17}\$  \frac{19.6}{2.641.1}\$  \frac{19.6}{17}\$  \frac{19.6}{2.641.1}\$  \frac{19.6}{17}\$  \frac{19.6}{2.641.1}\$  \frac{10.6}{19.6}\$  \frac{19.6}{2.641.2}\$  \frac{10.6}{19.6}\$  \frac{19.6}{2.641.2}\$  \frac{10.6}{19.6}\$  \frac{10.6}{2.641.2}\$  \frac{10.6}{19.6}\$  \frac{10.6}{2.641.2}\$  \frac{10.6}{19.6}\$  \frac{10.6}{2.641.2}\$   \frac{10.6}{19.6}\$  \frac{10.6}{2.641.2}\$   \frac{10.6}{19.6}\$  \frac{10.6}{2.641.2}\$    \frac{10.6}{19.6}\$   \frac{10.6}{10.6}\$    \frac{10.6}{10.6}\$  \q		=:	15.5	42.6	29.7±8.3	19	2.4	36.0		17			9,013350,0121
\$\begin{array}{c} 2.1 & 4.2 & 3.92.4 & 19 & 4.9 & 15.0 & 3.43.7 & 17.0 & 3.43.7 & 17.0 & 3.93.3 & 3.09.0.59 & 4.2 & 2.43.1 & 17.0 & 3.93.3 & 3.09.0.59 & 0.0036.20.00.6 & 17 & 0.0024 & 0.0093 & 0.0052.0.00.6 & 17 & 0.0024 & 0.0093 & 0.0052.0.00.6 & 17 & 0.0024 & 0.0093 & 0.0032.0.00.6 & 17 & 0.0024 & 0.0093 & 0.0032.0.00.6 & 17 & 0.0024 & 0.0093 & 0.0032.0.00.6 & 17 & 0.0032.0 & 0.0032 & 0.0032.0 & 0.0033 & 0.0032.0 & 0.0032 & 0.0032.0 & 0.0032 & 0.0032.0 & 0.0032 & 0.0032 & 0.0032.0 & 0.0032 &	Stee V - 1974		=:	0.0	12.6	9.5±2.3	19	3.6	15.0		17	i r	12.0	7 6.3 7
Site y - 1974	Site V - 1974    Site V - 1974		::		12.8	3.912.4	19		15.0	8.4±3.2	17	i u	11.0	7 3:2 1
Site V - 1974    Site V - 1975	Site V = 1974			0.0003	2.6	3.09:0,59	10		4.2	2.4+1.1	17	0	3.5	2 05.0 60
Site V - 1974	1,000   0.003   0.0053±0.0066   19    0.0013   0.0092   0.0040   0.0031   0.002120.0066   19    0.0013   0.00521.002   19    0.0013   0.00521.0031   0.002120.0006   19    0.0013   0.0150   0.00349.0032   17    0.0013   0.00213   0.002120.0006   19    0.0013   0.0150   0.00349.0032   17    0.0013   0.0050   0.00370   0.011120.297   19    0.02    0.22    0.3211.17   17    0.22    0.0013   0.0050   0.00370   0.011120.297   19    0.004   0.012   0.03291.0032   17    0.013   0.0045   0.0050   0.0050   0.00370   0.011120.297   19    0.004   0.012   0.0044   0.012   0.0044   0.0050   0.00370   0.011120.297   19    0.0044   0.012   0.0044   0.007   0.007   0.0044   0.007   0.00		0	0.0003	0.0065	0.0036±0.0017	14		0.0110		17	0	0.0093	0.004110.0016
40,0005   0.023   0.0053±0.0066   19 40,0005   0.00026   0.0023   0.0053±0.0066   19 40,0005   0.0023±0.0006   19 40,0005   0.0034±0.0026   16 0.0040   0.029   0.0021±0.0006   19 40,0005   0.0034±0.0026   15 0.0012   0.029   0.022±0.0006   19 0.0013   0.0029   0.0021   0.0029   17 0.010   0.029   0.025   0.025   0.0112±0.0006   19 0.0044   0.120   0.0292±0.0129   19 0.004   0.120   0.0292±0.0129   19 0.004   0.120   0.0292±0.014   17 0.130   0.460   0.0050	40,0005   0.023   0.0053±0.0066   19			S	>	74			>	36				
**Co.005*** O.023*** O.00512.0.0066*** 19 **Co.0092*** O.0092*** O	**CO005*** O.923		c	1	x eu		-	1	X EUS	1	10	4112	7	1
## Control	0.0005 0.023 0.005340.0066 19 <0.0005 0.0092 0.00056 16 0.001 0.0038 0.00210.0006 19 0.0013 0.0150 0.00340.0032 17 0.0056 0.0037 0.011790.0006 19 0.013 0.015 0.00340.0032 17 0.0050 0.0037 0.011790.0006 19 0.013 0.02 0.03261.7 17 0.0050 0.0037 0.011790.0005 19 0.004 0.0120 0.0120 0.0120 17 0.0050 0.0050 0.0037 0.0137 0.0037 0.0045 0.0120 0.0120 0.0114 17 0.0050 0.0050 0.0037 0.0137 0.0045 0.01450 0.0114 17 0.0050 0.00047 0.0071 0.00734.0.0025 14 0.0026 0.0038 0.004740.0117 17 0.00047 0.0071 0.00734.0.0025 14 0.0026 0.0038 0.004740.0017 17 0.00047 0.0071 0.00734.0.0025 14 0.0075 0.0130 0.004920.0042 0.00047 0.0071 0.00734.0.0025 14 0.0075 0.0130 0.004920.0042 0.00047 0.0071 0.00734.0.0025 14 0.0038 0.004920.0042 0.00047 0.0071 0.00734.0.0025 14 0.0038 0.004920.0042 0.00047 0.0071 0.00734.0.0025 14 0.0038 0.004920.0042 0.00047 0.0071 0.00734.0.0025 14 0.0038 0.004920.0042 0.00047 0.0071 0.00734.0.0025 14 0.0038 0.004920.0042 0.0074 0.00		:						-		-	11111	YUUX	- 1
0.025 6.30 0.02110.0006 19 0.0013 0.0150 0.00340.0032 17 0.0010 0.0250 0.058 1.2 0.03110.297 19 0.62 9.50 1.611.97 17 0.22 1.80 0.058 1.2 0.0310.297 19 0.62 9.50 1.611.97 17 0.22 1.80 0.0050 0.03297.0.037 19 0.044 0.1200 0.02297.0.037 19 0.0045 0.0450 0.01240.014 17 0.22 1.80 0.0050 0.0297.0.037 19 0.0045 0.0450 0.01240.014 17 0.0012 0.0750 17.5 37.0 9.92.9 19 3.6 17.0 9.92.8 7 17 7.0 40.0 0.0297.0.037 19 0.0045 0.0450 0.01440.014 17 7.0 40.0 0.0550 13.2 3.9 13.2 2.5 13.0 19 3.6 17.0 8.22.9 17 2.7 14.0 2.2 3.9 13.2 2.5 13.0 2.2 3.9 13.2 2.5 13.0 0.00347 0.0071 0.0034.0.0025 14 0.0026 0.0038 0.0047.0.017 17 0.0008 0.0062. 0.0062 0.0039 0.0040.0030 0.0047.0.033 0.0041.0.033 0.0041.0.033 0.0041.0.033 0.0041.0.033 0.0207.0.0252 0.0089 0.0207.0.0207.0.0207.0.0207.0.0207.0.0207.0.0207.0.0207.0.0207.0090 0.0080 0.0080 0.0080 0.0080 0.0080 0.0080 0.0080 0.0080 0.008	0.325 6.30 1.256±1.721 19 0.62 9.50 1.61±1.97 17 0.055 0.034±0.032 17 0.35 1.256±1.721 19 0.62 9.50 1.61±1.97 17 0.0046 0.032 0.031±0.297 19 0.062 0.055 0.032±0.17 17 0.32±0.12 19 0.0049 0.13 0.72 0.32±0.17 17 0.0050 0.0590 0.0590 0.0590 0.0590 0.0590 0.0590 0.0590 0.0590 0.0590 0.0590 0.004±0.014 17 17 0.00047 0.0071 0.0073±0.033 19 0.8 4.0 17.0 19.2±3 17 17 0.00047 0.0071 0.0073±0.0025 14 0.0026 0.0038 0.0047±0.0017 17 17 0.00047 0.0071 0.0073±0.0025 14 0.0005 0.0130 0.0047±0.0017 17 17 0.00047 0.0071 0.0073±0.0025 14 0.0038 0.0200 0.0049±0.0042 0.0041±0.0364 0.0038 0.1200 0.013±0.0364 0.0065 0.0038 0.1200 0.013±0.0364 0.0065 0.0038 0.1200 0.013±0.0364 0.0065 0.0038 0.1200 0.014±0.0364 0.0065 0.0038 0.1200 0.014±0.0364 0.0065 0.0038 0.1200 0.0041±0.0364 0.0065 0.0038 0.0009 0.0007±0.0065 0.0065 0.0099 0.0007±0.0065 0.0099 0.0007±0.0065 0.0099 0.0007±0.0065 0.0099 0.0007±0.0065 0.0099 0.0007±0.0099 0.0007±0.0099 0.0007±0.0099 0.0007±0.0099 0.0007±0.0099 0.0007±0.0099 0.0007±0.0099 0.0007±0.0099 0.0007±0.0099 0.0007±0.0099 0.0007±0.0099 0.0007±0.0099 0.0007±0.0099 0.0007±0.0099 0.0007±0.0099 0.0007±0.0099 0.00099 0.0007±0.0099 0.0007±0.0099 0.00099		==	<0.000.0	0.923	0.0053±0.0066	19	<0.00.0>	0.0092	0.0043±0.0026	16	0		0 0104-0 0044
0.163 1.2 0.1311.0.297 19 0.62 9.50 1.6111.97 17 0.22 1.80 0.055 0.0370 0.011740.095 19 0.004 0.1700 0.0227.177 17 0.130 0.460 0.0050 0.0970 0.0227.177 0.0071 0.0050 0.0972.2.7 17 0.0071 0.0050 0.0972.2.7 17 0.0071 0.0072 0.0950 0.0074 0.1700 0.0287.0.0114 17 0.0012 0.0750 17.5 37.0 9.92.2.9 19 3.6 17.0 9.22.3 17 7.0 40.0 55.9 13.2 2.22.7 17 0.0071 0.0072 0.0075 0.0074 0.0074 0.0071 0.0072 19 3.6 17.0 9.22.3 17 7.0 40.0 5.9 13.2 2.29.0.53 19 0.8 4.0 2.11.1 17 7.0 40.0 0.0052 0.00047 0.0071 0.0073 19 0.00 0.00 0.0072 0.007	0.053 0.31 0.0297 19 0.62 9.50 1.611.97 17 0.00467 0.0370 0.01174.0.0096 19 0.0045 0.0450 0.0174.0.017 17 0.0050 0.0297.0.0237 19 0.0045 0.0450 0.0174.0.011 17 0.0050 0.0297.0.0237 19 0.0045 0.0450 0.0174.0.011 17 0.0050 0.0297.0.0237 19 0.0045 0.0450 0.0174.0.011 17 0.0050 0.0297.0.023 19 0.045 0.0450 0.0174.0.011 17 0.00047 0.0071 0.0073.0.0025 14 0.0026 0.0038 0.0047.0.0017 17 17 0.00047 0.0071 0.0034.0.0025 14 0.0026 0.0038 0.0047.0.0030 0.0047.0.0030 0.0047.0.0030 0.0047.0.0030 0.0047.0.0030 0.0047.0.0252 0.0038 0.00040.0.0030 0.0040.0.0040.0.0030 0.0040.0.0040.0.0040.0.0040.0.0040.0.0040.0.0040.0040.0.0040.0.0040.0.0040.0.0040.0.0040.0.0040.0.0040.0.0040.0.004		:=	100.0	0.0038	0.0021±0.0006	19	0.0013	0.0150	0.0034:0.0032	17			0.0049+0.0059
0.0045 1.5 0.1311.0.297 0.133 0.72 0.32.0.17 17 0.130 0.460 0.0045 1.5 0.0311.0.297 0.0045 19 0.1044 0.1200 0.0287.0.0257 0.0297.0.0237 19 0.0044 0.1200 0.0297.0.0257 17 0.0012 0.0750 0.00550 0.00550 0.0297.0.0237 19 0.0044 0.1200 0.01740.0114 17 7.0 0.0012 0.0750 17.5 0.0012 0.0750 0.0052 0.005	0.0056 0.0370 0.017120.297 19 0.13 0.72 0.3210.17 17 0.0056 0.00370 0.017120.0095 19 0.0044 0.1700 0.028710.0255 17 0.0056 0.0050 0.0045 0.0045 0.017410.0114 17 0.0056 0.0050 0.0045 0.0055 0.		::	0.750	0.30	17/1720271	19	0.62	9.50	1.61±1.97	17			0 91.0 40
0.0050 0.0237 0.01720.0050 19 0.0046 0.1200 0.03750.0125 17 <0.0100 0.55500 0.0050 0.0050 0.0050 0.017440.0114 17 0.0012 0.0750 17.5 0 0.0050 0.0052.0.0114 17.5 0.0012 0.0750 0.0550 17.5 0 0.0228.7 17.0 0.0228.7 17.0 0.0228.7 17.0 0.0228.7 17.0 0.0228.7 17.0 0.0052 0.0052 0.00047 0.0071 0.013420.0025 14 0.0026 0.0038 0.004720.0017 17 0.0008 0.0052. 0.00047 0.0071 0.013420.0025 14 0.0005 0.0130 0.004720.0017 17 0.0008 0.0052. 0.0002 0.00047 0.0071 0.013420.0025 14 0.0005 0.0130 0.004720.0017 17 0.0008 0.0052. 0.0002 0.00047 0.0007 0.00047 0.0007 0.0007 0.0009 0.000420.0042.0 0.0008 0.00042.0 0.0008 0.000420.00420.0042 0.000420.00420.0042 0.000420.0042 0.000420.0042 0.000420.0042 0.000420.00420.0042 0.000420.00420.0042 0.000420.00420.0042 0.000420.00420.00420.0042 0.000420.00420.0042 0.000420.00420.0042 0.000420.004200.00420.00420.00420.00420.00420.00420.00420.00420.00420.00420.004200.00420.00420.00420.00420.004200.004200.004200.004200.00420.004200.004200.004200.004200.004200.004200.004200.004200.004200.0	0.0050 0.0297.0.0237 19 0.0045 0.0450 0.0227.0.0265 17 0.0050 0.0297.0.0237 19 0.0045 0.0450 0.017420.0114 17 0.0297.0.0297.0.0237 19 0.0045 0.0450 0.017420.0114 17 0.0297.0.0297.0.0297.0.0297.0.0297.0.0297.0.0297.0.0297.0.0297.0.0297.0.0297.0.0297.0.0297.0.0297.0.0297.0.0097 0.004720.0017 17 0.00047 0.0071 0.00734.0.0025 14 0.0026 0.0038 0.004720.0017 17 0.00047 0.0071 0.00734.0.0025 14 0.0026 0.0038 0.004720.0047 0.004720.0047 0.0071 0.007420.0047 0.0071 0.00720 0.0039 0.004720.0047 0.00720 0.00720 0.0039 0.004720.0047 0.00720 0.00720 0.0039 0.004720.0047 0.00720 0.00720 0.00720 0.00720 0.00720 0.00720 0.00720 0.00720 0.00720 0.02720.00720 0.00		::	0.103		0.311±0.297	19	0.13	0.72	0.3210.17	17		0.460	0.269+0.111
17.5 37.0 0.0272-0.0237 19 0.0045 0.0450 0.01440.0114 17 0.0012 0.0750 0.0350 13.6 9.922.9 19 3.4 35.0 19.928.7 17 7.0 40.0 0.05.9 13.2 9.922.9 19 3.6 14.0 6.222.9 17 7.0 40.0 0.00047 0.0071 0.0734.0.025 14 0.0026 0.0038 0.004720.0017 17 0.0008 0.0062. 0.00047 0.0071 0.0734.0.025 14 0.0026 0.0130 0.00420.0017 17 0.0008 0.0062. 0.00047 0.0071 0.0734.0.0025 14 0.0072 0.0139 0.004720.0017 17 0.0008 0.0062. 0.00047 0.0072 0.0009 0.004020.0039 0.004020.0039 0.004020.0039 0.004020.0039 0.01240.039 0	17.5 37.0 0.02720.0237 19 0.0045 0.0450 0.017420.0114 177 6.0 13.6 9.22.7.0 19 7.4 35.0 19.928.7 177 6.0 13.6 9.22.7.0 19 7.4 35.0 19.928.7 177 6.0 13.6 9.22.7.3 19 5.0 14.0 6.22.2.9 177 6.0 0.0071 0.0073420.0025 14 0.0026 0.0038 0.004720.0017 17 6.0 0.0071 0.0073420.0025 14 0.0026 0.0038 0.004720.0017 17 6.0 0.0071 0.0073420.0025 14 0.0026 0.0038 0.004920.00420.0		::	0.00.0		0.011/±0.0096	19		0.1200	0.0287±0.0265	17		0.5500	0.0690+0.1263
5.0 13.6 59.22.9 19 7.4 35.0 19.98.7 17 7.0 40.0 59.22.9 13.6 17.0 9.22.3 17 2.7 14.0 59.2 3.3 2.5910.53 19 5.0 14.0 6.2411.1 17 0.59 3.0 0.00047 0.0071 0.00734±0.0025 14 0.0026 0.0088 0.0047±0.0017 17 0.0008 0.0062.  Cu	6.0 13.6 9.922.9 19 3.6 17.0 19.928.7 17 17 5.9 13.6 13.6 9.22.9 17 17 0.00047 0.0071 0.00734.0.0025 14 0.0026 0.0038 0.0047.0.0017 17 17 0.00047 0.0071 0.00734.0.0025 14 0.0026 0.0038 0.0047.0.0017 17 17 17 17 17 17 17 17 17 17 17 17 1		::	13 6	27.000	0.029/20.023/	61		0.0450	0.0174±0.0114	17			0.0200.0175
5.9 13.2 9.22.3 19 5.0 17.0 9.22.3 17 2.7 14.0 7.62.2 2.2 3.3 2.2910.53 19 0.8 4.0 2.41.1 17 0.89 3.0 2.0120. 0.00047 0.0071 0.00734.0.0025 14 0.0026 0.0038 0.004720.0017 17 0.008 0.0062. 0.0035±0. 0.00047 0.0071 0.00734.0.0025 14 0.0026 0.0038 0.004920.0017 17 0.008 0.0062. 0.0035±0. 0.000420.0042 0.004920.0042 0.0038 0.004920.0042 0.004920.0042 0.0038 0.004920.0030 0.004920.0030 0.004920.0030 0.004920.0030 0.004920.0030 0.004920.0042 0.00312 0.0039 0.004920.0030 0.0049202020202020202020202020202020202020	5.9 13.2 9.2.2.3 19 5.0 14.0 8.2.2.9 17 5.2.2 3.8 2.5910.53 19 0.8 4.0 2.41.1 17 0.00047 0.0071 0.00734.0.0025 14 0.0026 0.0038 0.0047.2.0017 17 0.00047 0.0071 0.00734.0.0025 14 0.0026 0.0038 0.0047.2.0017 17 0.00047 0.0071 0.0071 0.0072 0.0009 0.0040.00030 0.0040.004		:=	6.0	13.6	0.727.0	5.0		36.0	19.9±8.7	17		40.0	23.4±10.5
2.2 3.8 2.5910.53 19 0.8 4.0 2.411.1 17 5.5 13.0 7.922. 0.00047 0.0071 0.0134.0.0025 14 0.0026 0.0038 0.004720.0017 17 0.0008 0.0052. 0.00352.0. 2.0120. 0.0071 0.0134.0.0025 14 0.0026 0.0038 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.00402 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.0042 0.004920.004920.0042 0.004920.0042	2.2 2.2 3.8 2.3910.53 19 0.8 4.0 2.41.1 17 0. 0.00047 0.0071 0.00134.0.0025 0.0038 0.0047±0.0017 17 0.  Cu		=	5.9	13.2	9.525.9	10	*	17.0	9.213.3	17		14.0	7.6.2.8
0.00047 0.0071 0.0073±0.0025 14 0.0026 0.0038 0.0047±0.0017 17 0.0008 0.0062. 0.0035±0.    Parameter	Cu   0.0025   14 0.0026 0.0038 0.0047±0.0017   17 0.00047 0.0071 0.0034 0.0049±0.0017   17 0.00047 0.0071 0		11	2.2	3.3	2 3910 53	10			8.212.9	17	5.5	13.0	7.9±2.0
Site VI - 1975  Parameter n min Fax meanifo  Cu 10 <0.0005 0.0130 0.0042.0.0017  Cu 10 <0.0005 0.0130 0.0042.0.0030  Fe 10 0.13 4.2 1.541.56  Nn 10 0.02 0.49 0.020740.0552  Ill 10 0.0038 0.1200 0.0416.0.0364  Zn 10 0.005 0.0030 0.020740.0552  Ca 10 7.8 35.0 19.619.5  Na 10 4.4 5.0 2.21.3  Phenol 1 <0.0035 <0.0035 <0.0035 0.0035	Site VI - 1975  Parameter n min max meantlo  Cu 10 <0.0005 0.0130 0.0049±0.0047  Cr 10 0.0012 0.0099 0.0040±0.0030  Fe 10 0.13 4.2 1.54±1.56  Nn 10 0.02 0.49 0.13±0.13  Nn 10 0.02 0.49 0.13±0.13  Nn 10 0.005 0.0390 0.0207±0.0252  Ca 10 7.8 35.0 19.6±9.5  Na 10 4.4 7.0 5.7±0.80  K 10 1.4 5.0 2.5±1.0  Phenol 1 <0.0035 0.0035 0.0035±0.0		8	0.00047	0.0071	0.0134+0.0025	14		0.00	2.711		o'	e.	0110.
Ameter n min max  10 <0.0005 0.0130  10 0.0012 0.0099  10 0.003 0.1200  10 0.0038 0.1200  10 0.0055 0.0380  10 7.8 35.0  10 7.8 35.0  10 4.4 7.0  10 4.4 5.0	Ameter n min Fiax  10 <0.0005 0.0130 10 0.0012 0.0099 10 0.13 4.2 10 0.02 0.49 10 0.038 0.1200 10 0.065 0.6380 10 7.8 35.0 10 7.8 7.0 10 4.4 5.0 10 4.4 5.0						:		0.000		17	ó	ó	
10 <0.0005 0.0130 10 0.0012 0.0099 10 0.0013 4.2 10 0.002 0.49 10 0.0038 0.1200 10 0.0055 0.0380 10 7.8 35.0 10 7.8 35.0 10 4.4 7.0	10							8		975				
10 <0.0005 0.0130 10 0.0012 0.0099 10 0.13 4.2 10 0.02 0.49 10 0.0038 0.1200 10 0.0055 0.0380 10 7.8 35.0 10 3.9 6.0 10 4.4 7.0	10 <0.0005 0.0130 10 0.0012 0.0099 10 0.13 4.2 10 0.02 0.49 10 0.0038 0.1200 10 0.0055 0.0380 10 7.8 35.0 10 7.8 35.0 10 4.4 7.0 10 4.4 7.0					Parameter	-		XPE	meant o				
10 <0.0005 0.0130 10 0.0012 0.0099 10 0.002 0.49 10 0.0038 0.1200 10 0.0055 0.0380 10 7.8 35.0 10 3.9 0.0 10 4.4 7.0 10 1.4 5.0	10 <0.0005 0.0130 10 0.0012 0.0099 10 0.13 4.2 10 0.02 0.49 10 0.0038 0.1200 10 0.0055 0.0380 10 7.8 35.0 10 3.9 6.0 10 4.4 7.0 10 4.4 5.0							-		-				
10 0.0012 0.0099 10 0.13 4.2 110 0.003 10 0.0038 0.1200 10 0.0055 0.0380 10 7.8 35.0 10 3.9 0.0	10 0.0012 0.0099 10 0.13 4.2 10 0.02 0.49 10 0.0038 0.1200 10 0.0055 0.0380 10 7.8 35.0 10 3.9 0.0 10 4.4 7.0 10 4.4 5.0					3.	01	<0.0005	0.0130	0.0049±0,0042	×,			•
10 0.13 4.2 10 0.02 0.49 10 0.0038 0.1200 10 0.0055 0.0380 10 7.8 35.0 10 3.9 8.0 10 4.4 7.0 10 1.4 5.0	10 0.13 4.2 10 0.02 0.49 10 0.0038 0.1200 10 0.0055 0.0330 10 7.8 35.0 10 4.4 7.0 10 1.4 5.0					5.	0	0.0012	0.0099	0.0040±0.0030				
10 0.0038 0.1200 10 0.0038 0.1200 10 7.8 35.0 10 3.9 8.0 10 4.4 7.0 10 1.4 5.0	10 0.0038 0.1200 10 0.0038 0.1200 10 0.0055 0.0380 10 7.8 35.0 10 3.9 8.0 10 4.4 7.0 10 1.4 5.0					76	01	0.13	2.5	1.54±1.56				100
10 0.0055 0.0330 10 7.8 35.0 10 3.9 8.0 10 4.4 7.0 10 1.4 5.0	10 0.0055 0.0330 10 7.8 35.0 10 3.9 8.0 10 4.4 7.0 10 1.4 5.0 1 0.0035					n n	12	0.00	0.49	0.13:0.13			,	
10 7.8 35.0 10 3.9 8.0 10 4.4 7.0 10 1.4 5.0	10 7.8 35.0 10 3.9 8.0 10 4.4 7.0 10 1.4 5.0 1 *0.0035 *0.0035					Zn	10	0.0055	0.0380	0.091010.0364				
10 3.9 8.0 6.2±1. 10 4.4 7.0 5.7±0. 10 1.4 5.0 2.5±1.	10 3.9 8.0 6.2±1. 10 4.4 7.0 5.7±0. 10 1.4 5.0 2.5±1. 2.5±1.					Ca	10		35.0	19.649.5				
10 4.4 7.0 5.7±0.	10 4.4 7.0 5.7±0. 10 1.4 5.0 2.5±1. 2.5±1. 1 <0.0035 <0.0035 0.0035±0.					Ng	10	3.9	N.0					*
1 <0.0035 <0.0035 0.003	1 <0.0035 <0.0035 0.003					Ma V	9	4.4	0.0	5.7±0.80				
The state of the s						Phenol	-	<0.0035	€0.0035	36	-		•	

# WATER CHEMISTRY - YEARLY RESULTS ALL STATIONS - 1974 to 1976

DATA SET 1 Results in mg/l

			1974	
Parameter	n	min	max	mean±1σ
Cu .	55	<0.0005	0.038	0.0068±0.0073
Cr	55	0.0011	0.0080	0.0023±0.0012
Fe	55	0.260	11.0	1.817±2.532
Mn	5.5	0.130	1.90	0.370±0.392
Ni	55	0.0012	0.0440	0.0113±0.0108
Zn	55	0.0038	0.150	0.0350±0.0320
Ca	55	16.5	44.0	30.1±7.89
Mg	55	5.50	15.8	9.86±2.88
Na	55	5.30	14.7	9.28±2.55
K	55	2.10	5.40	3.176±0.650
Pheno1	40	0.0003	0.0186	0.0039±0.0030
			1975	
Parameter	n	min	max	mean±lσ
c	105	<0.0005	0.015	0.0054±0.0035
Cu Cr	105	0.00043	0.013	0.0037±0.0034
Fe	105	0.130	10.0	1.87±1.87
Mn	105	0.020	0.820	0.358±0.171
Ni	105	0.0031	0.120	0.0286±0.0246
Zn	105	0.0045	0.100	0.0216±0.0154
Ca	105	6.60	41.0	20.25±9.02
Mg	105	3.50	20.0	9.15±3.37
Na	105	4.40	22.0	8.34±3.24
K	105	0.800	5.20	2.52±1.10
Phenol .	71	0.0014	0.0130	0.0050±0.0024
			1976	
Parameter	п	min	max	mean±lo
_			0.700	6 0000+0 0012
Cu	84	0.0034	0.790	0.0098±0.0043 0.0042±0.0051
<u>C</u> r	85	0.00042	0.0250	1.026±0.418
Fe	85	0.180	2.00	0.2942±0.1096
in .	85	0.130	0.570	0.0514±0.1007
li	85	0.0012	0.550	0.0234±0.0218
Zn	85	0.0010 7.00	55.0	25.24±10.63
Ca	85 85	2.00	14.0	7.94±3.08
ig ia	85	3.00	16.0	8.16±2.63
ία (	85	0.800	4.80	2.134±0.835
Phenol	85	0.0008	0.0110	0.0038±0.0019
nenol	00	0.0000	0.0110	0.000010.0010

WATER CHEMISTRY - PROGRAM RESULTS PER STATION - 1974 to 1976

Results in mg/1

=	min	Site I	mean±lo	-	min	Site II	meantlo		1	Site 111	
47	<0.0005	0.0130	0.0053±0.0045	47	<0.000	0.0200	9 00 0-1300 0	:		M3.K	meansio
67	2500.0	0.0160	0.0043:0.0035	47	0.0043	0.0180	0.0032±0.0034	47.	40.0005	0.0290	0.010110.0061
63	000		1/109922.1132	47	0.440	11.0	1.5109+1.8991	47	0 300	170.0	0.004010.0037
47	0.130	1.90	0.3783±0.2752	47	0.140	1.70	0.3554+0.2442	***	0000	10.0	1.79611.674
47	0.000	0.520	0.0292±0.0207	47	0.0024	0.450	0.033340.0652	47	0.100	05.10	0.3564:0.1863
43.	2000	001.00	0.0290±0.0293	47	0.0013	0.130	0.023840.0233	47	2000	0.50	0.019710.0706
47	200	20.00	24.01:10.40	47	6.50	40.0	23.08±8.71	47	8 80	63.00	20.0306:0.0284
47	4 50	16.0	9.4313.71	47	2.20	15.0	8.11±2.65	47	2.00	2.0	10.17:11.5
47	0.00	10.0	8.5113.08	47	4.20	14.0	7.86±2.31	47	3.00	22.0	10.13:3.34
30	0000	2.50	2.32/10.3/2	47	0.800	3.90	2.42±0.83	47	1 00	2 40	20.04:3.32
	-	0.010	0.004910.0035	39	0.0008	0.0130	0.0040±0.0020	39	0.0006	0.0126	0.0041±0.0023
		Site IV				C. 444. W					
	min	m3x	mean+12		-	3116					
			01710	0	m]::	max	meantlo				
~	<0.0005	0.0250	0.0070±0.0050	46	<0.000×	0 790	0 006640 ADES				
- 1	0.0053	0.0300	0.0037±0.0048	47	0.0010	0 0250	100000000000000000000000000000000000000				
-	0.243	8.80	1.52±1.64	47	0 220	0.00	1,000,000,000				
47	0.140	1.60	0.347:0.228	47	0.1.0	0000	1.201111.5193				
47	0.0012	0.517	0.0384±0.0755	47	0.0044	0 550	0.2994±0.1879				
47	0.0224	0.120	0.0235±0,0190	47	0.0012	0.0900	0.030320.0390				
1:	7.40	42.6	23.31±9.71	47	7.00	40.0	23 34+0 50				
14	3.10	15.0	8.57:2.35	47	2.70	17.0	8.79±3.12				
47	000	15.0	8.3±2,64	47	2.00	14.0	8.33±2.47				
0	2000	02.4	2.43±0.93	47	0.800	4.00	2,397±0,9162				
	2000	110.0	0,0043±0,0020	39	0.00047	0.0071	0.003940.0018	,			

TABLE 6

# WATER CHEMISTRY - PROGRAM RESULTS ALL STATIONS - 1974 to 1976

# DATA SET 1

## Results in mg/1

Parameter	n	min	max	mean±lσ	_
Cu	244	<0.0005	0.790	0.0072±0.0051	
Cr	245	0.00042	0.0250	0.0034±0.0034	
Fe	245	0.130	11.0	1.5896±1.7505	
Mn	.245	<0.0200	1.90	0.3418±0.2346	
Ní	245	0.0012	0.550	0.0334±0.0580	
Zn	245	0.0010	0.150	0.0265±0.0228	
Ca	245	6.60	55.0	24.89±9.57	
Mg	245	2.00	20.0	8.99±3.03	
Na	245	3.00	22.0	8.58±2.71	
K	245	0.800	5.40	2.6043±0.9420	
Phenol	196	0.0003	0.011	0.0042±0.0023	

# PATER CHEMISTRY - VEARLY RESULTS PER STATION - 1974 to 1976

DATA SET 2

Results in ma/1

,																	-					~																		
1	CIC 4111 10	76.3.14.1	3.17:0.71	9.21.9	22.6:22.0	22.014.2	6.9:1.6	7.112.6	1. 66.0.21	0.630,0.02	0.37:0.30	0.005440,0034	9.7.3.6	59.6115.5	0.020:0.047	9, 1,30 0, 003	0.006/10,0039	0.013.7.010	0 73.0 40	0.150.0 201	0.0266-0.0230	0.0104:0.0072		1976	mc40219.	76.0133.0	8.37.0.63	9.211.9	27 2.1 6	7.6,2.3	7.1,2.6	1.63.0.22	0.43.0.27	0.007,0.003	9.813.4	56.4,21.5	0.296,0.155	-	0.0136.0.0010	0.75.0.45
Site 1 - 1976	LIUX	117.0	9.46	12.0	55.0	56.0	8.5	10.0	1.9	0.062	0.70	0.005	14.9	73.0	10.0	0.750	0.0016	0.00	1.30	0.55	0.0000	0.0230		Site 11 - 1	LIGA	113.0	36.85	0.21	28.0	10.0	10.0	0.065	0.73	900.0	14.6	0.02	0.55	9.0032	0.0220	1.3
0 00		46.0	7.30	. 6.9	6.3	16.0	4.0	4.2	1.4	0.040	0.03	0.0025	0.0	0.00	0.00	20.0	*0.002n	0.0040	0.37	0.09	0.0140	0.0000		min		47.0		5.0	16.0	9.4 .	4.2	0.040	0.19	0.003	5.5	0.00	0.130	0.000.0	0.000	0.30
le		5		3				5	•	2	•			n 4	•	•			S	S	5				-				- 1.7	S	•	7	4	50	· ·	0 40	10	•		•
meantla		62.3:31.9	E. Jht O. 94	20.022.0	2.1:0:12	0.5:0.0	0.3.6.3	6.013.2	1.9010.24	0 3074:0 2430	0.000 0.0000	11 1.4 3	92 4.10 0	0.063.0.031	0.29610.231	0.0035.0.0	0.002710.0011	0.003910.0017	1.0910.72	0.3240.	0.0169:0.0102		1975	meanslo		0.47.0.83	9.3140.60	29.817.4	25.314.7	10.2.4.7	1.96.0.27	0.094±0.031	0.40:0.25	1.003110.0037	67 0.47 6	0.06710.021	0.2009.0.1323	0.002910.0011	0.004110.0018	1.1740.55
KUI		92.8	10.0	36.36	20.00	12.0		2.0	2.0	0.600	0.100	17.4	143.0	0.101	0.790	<0.0035	0.0046	0.0014	2.0	0.55	0.0330		Site 11 - 19	1	0 70	69.6	10.2	37.7	33.0	16.0	2.3	0.14	0.68	17.4	149.0	0.073	0.4000	0.0049	2900.0	00.1
min	3.4.6	0.67	0.54	3.01	20.0	5.0	1 9	1.6	0.05	0.003	0.0025	2.0	48.0	0,023	0.120	*0.0035	0.0018	2.00.0	0.45	0.000	0.0049		S	min.	27.4	7.30	3,6	20.4	20.0	2.0	1.6	90.0	0.20	5.7	46.0	0.045	40.0734	0.0017	0.0020	
-		7 67	2	2	2	5	2	2	2	3	\$	5	5	\$	2	4		0.4	0 4	2	2			•	5	'n	2	5		יא פ	5	s	~ ~		2	s	n =	·s	w w	o w
max incant o	05.3+7.0	0.57,0.40	13.00-0.35	13,213.8	32.0016.33	12.03:3.66	10.5611.29	2.1210,34	0.053:0.013	0.2300±0.2323	0.006610.0100	13.23:1.94	110.0136.4	0.109:0.168	0.36290, 182	0.0010.010.0	0.0015.0.0000	0 563.0 413	0.160.0.141	0.0076±0.0050	0.0142:0,0035			Endni Io	92, 5:9,9	8.46:0.35	14.7514.60	32 12.6	13.612.37	10,7911,73	2.27.10.35	0.056±0,043	0.0057:0.0099	13.40:2.14	114.1135.6	0.10010.149	0.0031:0.0019	0.0010,0.0003	0.612:0.0030	0.181.0.137
N. E.	96.0	9.25	13.6	0.22	42.50																		Site 11 - 1974	Lax	0.96	8.80	22.0	41.0	10.5	13.60	2.7	0 460	0.0243	16.1	167.0	0.353	0.0054	0.0019	1.060	0.374
	77.6	3.0	6.7	20.00	20.00	20.00	0.0	1.1	0.015	0.0135	0.0013	75.6	0.024	0.024	0.00164	0.0010	<0.000\$	0.170	40.020	0.00343	0.0096		S		68.4	11.5	2.5	27,12	11.0	9.00	13.0	0.0217	0.0013	10.5	E0.3	0.00	0.00.0	0.0012	0.150	0.050
	S	٠.			n u		•	00	,,	n u					*	2	۷۰	L7:	· ·	0	n				ייי	00		2	s	S										
	AIL	0.0	55	Ca	F. 1	lis.		Total	K.1344	H-GH		505	F04(s)	PO;(t)	Phenol	٤.	3.	10	P.S.	7.0	u,		Parareter		AIK	0.0	. 55	2	1.0	2 >	MILL	110311 -	1,201	.00	- 60-6	P04(t)	Phenoi		. Le	u

WATER CHEMISTRY - YEARLY RESULTS PER STATION - 1974 to 1976

3	5	ú	
•			
•		j	
ú	•	,	
	•	t	
•	5	•	
2	ŝ	١	

fesults in 1971

													į.							٠													×			٠.				
976 Pream: Lu	2000	8.17.0.45	0.5.5.0	19.5:16.6	. J. R. J. J	8. 3:2.4	7.3:1.30	2.71:0.34	0.153.0.132	0.000.000.0	10.5.4.1	63.2121.3	460	0.370.0.193	0.007E.0.001	0.0032:0.0013	0.0070.00.0	0 174.0 074	11.00 0 . 1.01.0	0.0205/0.0134		ŧ	rean to	71 6.31 1	3,40,0,63	9.1,2.0	12.1,5.0	23.612.6	7.111.7	1.64.0.25	. 0.690,0.017	0.37,0.39	0.000640.0034	48.2.12.1	0.054.0.613	0.214,0.116	0.0016.0.0006	0.0000,0.0012	0.5010.30	
E3x	110.0	8.75	12.0	44.0	30.3	13.0	2.5	200	0.59	0.0150	16.5	84.0	0.03	0.420	0.0120	0 0120	1 30	0.25	0.0770	0.0120		Site IV - 1976	m3 x	113.0	9.05	12.0	19.0	23.0	0.01	2.0	9.09	0.72	17.00	63.0	0.035	00.00	0.001	0.0160	2.	
min	45:0	3.6	6.0	0.3	0.0	,,,	9	0.00	0.22	0.0014	5.6	. 32.0	0.007	0.140	0.000	0.0016	0.16	0.00	0.0220	\$600.0		1	man.	44.0	7.40	6.7	23.0	0.77		1.3	0.000	0.00	5.6	22.0	0.01%	60.003	0.0001	0.0059	200	
e	5	101		4	•		1		4	s	10	2	<b></b>	~	9 45		5	L?	s	.,				45	so c	o •	- 0	200	. 10	S	w ·	· u	0.0	5	· ·	n w	*	a v		ſ
א ההשחי ט	59.3:27.6	3.4110.93	25.0.7.0	25.615.4	10.616.1	8.212.5	1.9910.33	0.11010.012	0.31510.333	0.006410.0043	11.214.7	87.45.45.8	0 1510.028	0.0012.0 0006	0.003410.0020	0.003310.0015	0.9610.65	0.25,0	0.015710,0069	0.0262:0.0316	1075	mean* la	-	65:2122.0	8.75±0.71	15 1.7 0	23.6.3.7	8.7.4.3	7.3:2.7	1.5610.30	0.102±0.039	0.0309.0.0610	11.415.3	70.2,34.4	0.05619.030	0.003510.0	0.003040.0023	0.65640.700	0 211.0 197	
M.I.X	8, 15	9,48	33.5	34.0	20.02	12.0	5.5	0.13	0.00	0.0140	13.5	0.00	0.96	0 0024	5,000.0	0.0059	1.90	0.46	0.0210	0.0310	Sit, IV - 10	m.3 x	-	63.2	0.00	23.6	29.0	15.0	12.0	2.5	0.10	0.1400	19.6	136.0	0.073	€0.0035	0.0071	1.600	0.520	
HIH	24.6	7.87	13.6	20.0	5.0	6.1	1.6	0.10	0.054	0.0023	21.5	1200	0.0974	*0.0035	0.0018	0.0023	0.28	40.02	0.000	0.000.0		CITE		34.0	8.27	3.0	19.0	4.4	5.7	9.0	0.11	0.0036	6.4	46.0	0.918	€0.0035	0.0016	0.053	0.016	
-	50	0 40	S	2	5	S	0	0	7 1	nu		2	2	*	50		0	nu		,		-		w 0	0	5	S	S	5	ממ	, ,	S	<b>10</b> 1	ou		•	0 50	S	•	
	77.0:14.9	10.15:1.91	15.2.9.1	33.65.5.66	12.6:01.11	2 36.0 33	0 125.0 000	0 1130.0 2000	0.0000000000000000000000000000000000000	13.6112.64	126.1:32.8	0.242.0.494	0.463:0.390	0.00318-0.0024	0.0025:0.0010	2 474.0.40	0.001	0.0074+0.0026	0.0109:0.0046			rean la		E.65:0.46	10.9312,72	15.7112.3	29.90:4.74	10.75±2.69	9.0511.79	0.060.0.030	0.1312±0.2169	0.0073:0.0118	12.4912.33	0.012.0.01	0.20910.121	0.002710.0016	0.002310.0030	0.39610.092	0.0.35.0.036	
	39.6	11.70	30.0	10.01	14.60	2.8.2	0.215	0.517	0.0255	17.1	170.0	1.167	1.107	2/00.0	0.000	0.335	0.202	0.0066	0.0160		Site IV - 1974	F37															0.00			
. 04	6.80	9.00	20.00	10.03	8.90	2.03	90.0	0.0214	0.0016	10.4	20.1	0.011	0.078	0000	*0.0cc5	0.100	0.020	0.0039	0.00412		S	שוש	71 2	7.65	0.6	33.03	7 63	7.62	1.9	0.025	0.0137	0.0013	63.5	0.010	0.119	0.000	€0.0005	0.000	2000	A
	000	22		2									n =2								l.		5	2	~ ~	0 4			2	c	~	n w	'n	S	· ·	• 10	L7 (	ava		,
Alte	700	55	3	Mr.	22	×	NI JA	N.CO.	2002		- 60-	PO3/13	Prenol	5	3.	0	U:.		07		Parameter		Alk	Dil.		33	5.2	lia.	~		ויינטיו		201	0-104	PO4(t)	Cristian	25	Ha Ha	571	

WATER CHEMISTRY - YEARLY RESULTS PER STATION - 1974 to 1976

Results in mg/1

1.0   1.2   1.0   1.0	rareter.	-	nin	73.x	Pe3n: 10	e	nim	X0.	meant la		014	Site V - 1976	3/6
1.0   1.0	Alk	5	41.0	94.4	61.4:17.6	5	31.6	72.4					1
1.0		200	00.30	9.05	R.40:0.49	2	6.95	9.62	100		0.10	110.0	C4. N. 32.5
1.00   1.00			0.0	15.23	10.62:2.23	2	n.2	10.1		•	7.1	12.73	67.0182.0
1.0   1.0			17.0	13.0	n	5	2.0	19	9.216.9	*	0 11	17.0	14 6.9 6
1.000   1.00		5		11.5	35.1	<b>S</b>	13.0	28 9	18.0,6.2	57	15.0	26.0	19.614.5
1.00   1.00		s	5.15	9.40	3411	0 12	3.0	13.0	7.313.6	S	4.4	6.5	6.3:1.9
0.0038		S	1.8	2.3	1.90:0.42			200	5.413.5	0	3.5	10.0	6.212.9
0.0033  0.1354 0.1554	11	m	0.028	0.032	0.053:0.040		*0.100	0.000	0.022.0.31			5.0	1.66:0.32
\$ 0.0012 0.0218 0.0218 0.0019	-:	-	0.0030	0.3450	0.1E64±0.1686		0.10	0.63	\$20.036.0.0		-	0.0750	0.095:0.011
\$ 7.15	-	5	0.0012	0.0215	0.0077±0.0055	2	11000	0.00	0.0000.000	•	0.18	0.71	0.41:0.26
1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,			7.15	12.5	9.59.2.45		3.95	16.4	7 61.6 00		0.003	9.000	0.007:0.003
Comparison   Com	9.		57.5	9.66	32.1117.4	10	39.0	100.0	67 1:28 9	n v	2.4.0		0.4.4.1
Comparison   Com	(1)	~ ~	0.015	0.010	0.23510.435	S	0.023	0.076	0.07410.031		0000	0.70	43.4:16.0
Court   Cour	100	7	0.002	1.010	0.12010.389	•	0.120	0.250	0.17310.060		0.00	0.00	0.01/10.653
Stee   N			2000	0.000	0.005710.0057	s	<0.0035	0.0030	0.003410.0002	5	0.0010	0 0//03	0 0003.0 0013
Steel   Stee		• 45	*0.000	0.000	0.0015±0.0001	2	0.0007	0.0003	0.003110.0035	2	0.0007	0 002	0.0016.0.0006
Ste   IX - 1974   O. 0.0095 0.0037   O. 0.0095 0.0095   O. 0.0095 0.0095   O. 0.0095 0.0095   O. 0.0095 0.0095   O. 0.0095 0.			0.142	0 350	0.200.01010		0.0013	0.0029	0.002910.0020	2	0.0012	0.0250	0
\$ 0.00593 0.015 0.0056.0.0037 5 0.0016 0.0076 0.004640.0029 5 0.111 0.00593 0.015 0.0056.0.0037 5 0.0016 0.0076 0.004640.0029 5 0.0119 0.00593 0.015 0.0056.0.0037 5 0.0016 0.0076 0.004640.0029 5 0.0119 0.00593 0.015 0.0056.0.0037 5 0.0016 0.0076 0.004640.0029 5 0.0119 0.00593 0.0019 0.0079 0.0099 0.0079 0.009		100	0.050	0.10	201 0 000 0	0.	0.13	1.10	0.4310.42	s	0.44	1.30	
\$ 0.00593 0.015 0.0095.0.0037 \$ 0.0016 0.0076 0.004640.0027 \$ 0.0035 0.015 0.0035 0.015 0.0095.0.0037 \$ 0.0015 0.0035 0.015 0.0095.0.0037 \$ 0.0015 0.0035 0.015 0.0095.0.0037 \$ 0.0015 0.0035 0.015 0.0095.0.0037 \$ 0.0015 0.0095.0.0037 \$ 0.0015 0.0095.0.0037 \$ 0.0015 0.0095 0.0017 0.0015 0.0017 0.0		2	0.0052	0.00605	0.000110000		*0.020 0.020	0.260	0.12710.095	S	0.11	0.16	0.13:0.02
Stee   IX - 1974   Stee   IX - 1975   Stee   IX -		S	0.00593	0.015	0.000 0.000 0	0 4	0.0039	0.0230	0.014910.0099	S	0.0053	0.0730	029310.
5 ffe   X - 1973         n   nin						,	0.0010	0.0076	0.004610.0027	s	0.0036	0,0420	0.012920.0163
\$ 66.0 119.0 21.6±21.0 1			\$	Ite 1x - 19	174			11 m	0.76				
66.0         113.0         31.6121.0         4.64.9         111.0         81.3121.0         5.20.0         11.07	aneter			E.d.x	1	=	-	MAIX		-	10	1.	1976
13.60   13.62   1.0								-		-	-	THE WAY	Mean? 10
13.60   13.60   13.6010.0   17.11.2   18.00   10.00   10.00   11.00   13.6010.0   13.601		0 10	2000	119.0	-		64.9	111.0	81.3121.0	8	20.0	110.0	66.2,13.3
\$ 2.3		-	13.60	13.60	13.60.00		2.35	1,82	A.07±0.01	S	7.60	8.71	3.26.0.51
\$ 17.0 30.5 \$24.50.4.97 \$15.0 \$24.0 \$20.01.9 \$10.0 \$20.01.9 \$20.01		~	2.3	29.0	9.1111.2		10.9	22.0	6.811.3	•	9.9	11.0	8.6:1.7
\$ 5.24 11.0 0.75±1.79 4 2.5 5.6 4.3±1.3 5 4.2 6.3  1.3 2.3 1.0 0.75±1.79 4 2.5 5.6 4.3±1.3 5 4.2  3 0.029 0.025 0.060±0.036 3 <0.100 0.0460 0.03±0.031 5 0.030 0.0  3 0.029 0.025 0.060±0.1348 3 0.12 1.07 0.03±0.031 5 0.030 0.0  5 0.039 0.024 0.060±0.1348 3 0.012 1.07 0.03±0.031 5 0.030 0.0  5 0.039 0.024 0.060±0.1348 3 0.012 1.07 0.011±0.0077 5 0.030 0.0  5 0.039 0.024 0.060±0.1348 3 0.025 0.0011±0.0077 5 0.031 0.0  5 0.031 0.563 0.157±0.231 4.00370 0.0900 0.065±0.0264 5 0.007 0.0  5 0.031 0.563 0.157±0.231 4.00370 0.0900 0.065±0.0264 5 0.007 0.0  5 0.031 0.0563 0.003±0.0018 3 0.0074 0.0010 0.004±0.0017 5 0.003 0.003  5 0.030 0.0011 0.0015±0.0005 4 0.0011 0.0014±0.0017 5 0.0041 0.003  5 0.030 0.0071 0.002±0.0035 4 0.0011 0.0014±0.0027 5 0.0041 0.0034 0.0034 0.0007 0.0034 0.0007 0.0034 0.0007 0.0034 0.0007 0.0034 0.0007 0.0034 0.0007 0.0034 0.0007 0.0034 0.0007 0.0034 0.0007 0.0034 0.0007 0.0034 0.0007 0.000		S	17.0	30.5	50:4	-	15.0	24.0	20.00	•	0.01	20.0	14.5,1.1
5         4.40         8.70         6.301.73         4.55         5.6         4.31.4         5.25         1.6310.26         5.11         5.25         1.6310.26         1.11         5.25         1.11         5.25         1.11         5.25         1.11         5.25         1.11         5.25         1.11         5.25         1.11         5.25         1.11         5.25         1.11         5.25         1.0310.03         0.03210.031         5.0030         0.0254         0.0540.0134         0.031         0.0254         0.0554.01030         0.0210         0.0310.0031         0.031         0.0554         0.031         0.055         0.031         0.031         0.055         0.031         0.031         0.031         0.032         0.031         0.032         0.031         0.032         0.031         0.032         0.031         0.032         0.031         0.032         0.031         0.032         0.031         0.032<			6.24	11.0	0.75:1.79	•	5.1	0.0	6 1.1 3		12.0	25.0	19.414.7
3         0.029         0.0510.42         4         1.3         1.9         1.6310.26         5         1.1         2.030         0.032.0.031         5         1.13         0.032.0.031         5         1.13         0.032.0.031         5         0.030         0.032.0.031         5         0.030         0.032.0.031         5         0.030         0.032.0.031         5         0.030         0.032.0.031         0.030         0.032.0.031         0.030         0.030         0.030         0.030         0.030         0.030         0.030         0.030         0.030         0.030         0.030         0.030         0.031         0.032         0.031         0.032         0.031         0.032         0.032         0.031         0.032         0.031         0.032         0.033         0.033         0.033         0.033         0.033         0.033         0.033         0.033			4.40	8.70	6.30:1.73	*	2.5	5.6	4.3.1.4	n w	2.5		9.6.1.5
3				5.3	1.0910.42	-	1.3	1.9	1.69,0.26		:-		3.116.6
5 0.0009 0.024 0.00570.0100 4 0.0012 0.012 0.012.0 0.010.51 4 0.16 0.001 0.0009 0.024 0.00570.0100 4 0.0001 0.01011.0.0077 5 0.001 0.001 0.024 0.0012 0.011.2 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	= 7	~ ~	620.0	0.051	0.060±0.036	~		0.0460	0.03210.031	• •	0.030	0.04	0.074.0.43
\$ 6.21 6.40 6.00 6.00 6.00 6.00 6.00 6.00 6.00	200	2 00	16000	0.734	0.164019.1348		0.12	1.07	0.4910.51	-	0.16	0.93	0.46,0.37
\$ 40.3 67.0 60.1411.2 4 22.0 7.0 5.241.2 5 4.1 111 6.011 0.001 0.553 0.15740.231 4 0.0070 0.05540.025 5 5 4.1 111 0.0011 0.0553 0.15740.231 4 0.0070 0.05540.025 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5			6.0003	10.054	0.0007:0.0000	•	11.00.0	0.0210	0.0101:0.0077	•	0.003	900.0	0.00610.001
\$ 0.031 0.563 0.15740.231 4 0.0370 0.06540.264 5 0.007 0.007 0.06540.0264 5 0.007 0.007 0.007 0.007 0.00540.0264 5 0.007 0.007 0.0012 0.0054 0.0032 0.007 0.0054 0.007 0.0054 0.0054 0.0054 0.0054 0.007 0.0	-	2	49.3	67.0	60.1411.2		23.0	7.6	5.21.2	· ·	-:		7.3:2.6
\$ 0.057 0.621 0.28020.214 1 0.0673 0.250 0.0074 0.0055 0.0	(8):	~	0.031	0.563	0.15710.231		0,000	00000	36.018.7		420.0	52.0.	40.4:16.0
\$ 0.0012 0.0054 0.003210.0018 3 *0.0015 0.0064 0.00450.0017 5 *0.0015 0.0051 0.0011 0.0011 0.00110 0.00410.0017 5 *0.0015 0.0011 0.00110 0.001	3	٠.	0.057	0.621	0.28010.214		0.0673	0.3600	0.2068.0.1468	n v		0.05	0.048,0.047
0.0071 0.002510.0073 4 0.0011 0.0110 0.004040.0047 5 0.0001 0. 0.255 0.0071 0.002510.0059 4 0.07 0.00 0.01740.0022 5 0.0041 0. 0.140 0.02540.045 4 0.07 0.21 0.09340.076 5 0.00 0. 0.00903 0.007440.0012 4 0.0039 0.0110.0126 5 0.0055 0. 0.0114 0.005240.0012 4 0.0074 0.0050 0.003740.0156 5 0.0055 0.	100	<b>*</b>	0.0012	0.0024	0.0032+0.0018	-	€0.0015	0.0054	0.0045±0.0017		€0.0035	0.0059	0.0046.0 0033
0.285 0.21540.069 4 0.07 0.60 0.3140.22 6 0.0041 0.0.00903 0.007640.0022 6 0.0041 0.0.00903 0.007640.0032 4 0.004 0.21 0.09910.076 5 0.003 0.00310 0.09910.076 5 0.0075 0.00114 0.006220.0003 4 0.0074 0.0075 0.001740.0126 5 0.0075 0.00114 0.006220.0040 4 0.0074 0.0075 0.007740.0126 5 0.0075 0.0075 0.007740.0015 5 0.0055 0.0055			*0.0005	10000	0.001610.0005	••	0.00	0.0110	0.001010.0047	•	0.0003	0.001	0.001510.0009
0.140 0.007640.045 4 0.04 0.21 0.0940.076 5 0.052 0.00903 0.007440.0012 4 0.0039 0.0110 0.013740.0126 5 0.0075 0.00714 0.005640.6040 4 0.00724 0.0050 0.003740.0015 5 0.0055 0.		2	0.130	0.285	0.21910.069	• •	0.00	0.0003			0.0041	0.0130	0.0000,0.0035
0.0114 0.0000210.0040 4 0.0024 0.0110 0.01110.0126 5 0.0075 0.01114 0.0000210.0040 4 0.0024 0.0050 0.001110.0015 5 0.0055 0.0055			€0.020	0.140	0.07640.045	-	0.04	0.21	0	• •	0.050	200	0.4320.10
0.0030 4 0.0030 0.003710.0015 5 0.0055 "0.		n v	1000	0.00303	0.007410.0032	•	0.0039	0.0310	0	w	0.0075	0.034	D.031310.0305
					0.000000000		4310°0	Ocno.o	0	0	0.0055	0.0310	0.012510.0108

MATER CHEMISTRY - YEARLY RESULTS ALL STATIOHS - 1974 to 1976

Results in mq/1

	1974					1975					1976	
min max meantlo n min , x meantlo	חוש ח שוע א א מיש שוע א א א	meanalo n min , x	x v uju u	X	X	x means	Meant	10	=	nin	m3 X	re3n:10
03 29 24.6 111.0	03 29 24.6 111.0	03 29 24.6 111.0	03 29 24.6 111.0	111.0	111.0		60.97+2	111	30	20.0	118.0	11 17.10 01
4 29 6.89 9.69	4 29 6.89 9.69	4 29 6.89 9.69	4 29 6.89 9.69	69.63	9.69		8.25+0	RS	30	7 30	200	20.00.00
63 29 7.01 11.3	63 29 7.01 11.3	63 29 7.01 11.3	63 29 7.01 11.3	7.01	11.3		9.01:0	88		6.50	12.0	0 01:10.37
34 29 2.00 37.7	34 29 2.00 37.7	34 29 2.00 37.7	34 29 2.00 37.7	2.00 37.7	37.7		19.93+10	77	20	6 30	26.0	17 32-13 30
13.0	.r6 29 13.0 33.0	.r6 29 13.0 33.0	.r6 29 13.0 33.0	13.0 33.0	33.0		23.16±5.1	. 9	30	12.0	30.00	21 93.4 20
245 29 4.40 20.0	245 29 4.40 20.0	245 29 4.40 20.0	245 29 4.40 20.0	4.40 20.0	20.0	20.0 8.64±4.00	8.6414.0		30	4.20	11.0	7 03.1 93
530 29 2.50 14.0	538 29 2.50 14.0	538 29 2.50 14.0	538 29 2.50 14.0	2.50 14.0	14.0		7.37±3.1	3	30	2.50	12.0	6 72.2 64
2.00 2.13±0.39 29 1.30 2.50	2.00 2.13±0.39 29 1.30 2.50	29 1.30 2.50	29 1.30 2.50	1.30 2.50	2.50		1.839±0.2	95	30	1.10	2.20	62.0.20
0.215 0.0678.0.0489 28 0.0420 0.160	0.215 0.0678.0.0489 28 0.0420 0.160	0.0678±0.0489 28 0.0420 0.160	28 0.0420 0.160	0.0420 0.160	0.160		0.0962±0.0	315	30	0.030	0.300	0.0905.0.0464
0.517 0.216510,1040 13 0.0021 1.07	0.517 0.216510,1040 13 0.0021 1.07	0.2165±0.1040 13 0.0023 1.07	13 0.0023 1.07	0.0023 1.07	1.07		0.3670±0.3	021	53	0.0600	0.930	. 0.427:0.274
0.0289 0.0075±0.0091 29 0.0028 0.140	0.0289 0.0075±0.0091 29 0.0028 0.140	0.0075±0.0091 29 0.0028 0.140	29 0.0023 0.140	0.0023 0.140	0.140		0.0113±0.02	51	30	0.0020	0.0150	0.006910.0033
17.1 11.8012.91 29 3.95 19.8	17.1 11.8012.91 29 3.95 19.8	11.8012.91 29 3.95 19.8	29 3.95 19.8	3.95 19.8	19.8		9.87±4.54		30	4.10	16.5	9.20:3.38
22.0	170.0 97.78±34.34 29 22.0 160.0	97.78134.34 29 22.0 160.0	29 22.0 160.0	22.0 160.0	160.0		72.32±38.9	_	30	<20.0	04.0	. \$1.70:18.82
1.10/ 0.1475±0.2798 29 0.0230 0.101	1.10/ 0.1475±0.2798 29 0.0230 0.101	0.1475±0.2798 29 0.0230 0.101	29 0.0230 0.101	0.0230 0.101	0.101		0.067810.02	64	30	0.0070	0.0350	0.0498:0.0419
1.10/ 0.311:0.260 27 0.0673 0.790	1.10/ 0.311:0.260 27 0.0673 0.790	0.311:0.260 27 0.0673 0.790	27 0.0673 0.790	0.0673 0.790	0.790		0.2556±0.20	124	30	0.0200	0.550	0.233:0.114
0.00964 0.0037±0.0023 28 <0.0035 0.0064	0.00964 0.0037±0.0023 28 <0.0035 0.0064	0.0037±0.0023 28 <0.0035 0.0064	28 <0.0035 0.0004	<0.0035 0.0064	0.0004		0.0035±0.0	900	30	0.000.0	0.0094	0.005310.0026
0.0043 0.001810.0006 29 0.0007 0.0110	0.0043 0.001810.0006 29 0.0007 0.0110	0.001810.0006 29 0.0007 0.0110	29 0.0007 0.0110	0.0007 0.0110	0.0110		0.0031±0.00	124	30	0.0007	0.0035	0.0017:0.0007
0.0038 0.0026±0.0027 29 0.0013 0.0065	0.0038 0.0026±0.0027 29 0.0013 0.0065	0.0026±0.0027 29 0.0013 0.0065	29 0.0013 0.0065	0.0013 0.0065	5900.0		0.0035±0.00	911	30	0.0016	0.0300	0.0097:0.0068
1.06 0.418±0.290 29 0.0700 2.00	1.06 0.418±0.290 29 0.0700 2.00	0.418±0.290 29 0.0700 2.00	90 29 0.0700 2.00	0.0700 2.00	2.00		0.788±0.6	16	30	0.300	1.30	0.642+0.358
0.374 0.137±0.095 29 <0.0200 0.640	0.374 0.137±0.095 29 <0.0200 0.640	0.137±0.095 29 <0.0200 0.640	95 <0.0200 0.640	<0.0200 0.640	0.640		0.230±0.1	69	30	0.0520	0.550	0.142310.922
0.0154 0.0074±0.0031 29 0.0039 0.0320	0.0154 0.0074±0.0031 29 0.0039 0.0320	0.0074±0.0031 29 0.0039 0.0320	0031 29 0.0039 0.0320	0.0039 0.0320	0.0320		0.015410.	0092	30	0.0050	0.0840	0.0319:0.0242
0.0290 0.0094±0.0052 29 0.0016 0.0310	0.0290 0.0094±0.0052 29 0.0016 0.0310	0.0094±0.0052 29 0.0016 0.0010	.0052 29 0.0016 0.0310	0.0016 0.0310	0.0310		0.0111110.	0154	30	0.0036	0.0420	0.0137+0.0104

NATER CHEMISTRY - PRICERN RESULTS PER STATION - 1974 to 1976

Results in ma/1

	:							٠							í							*													4			
meant lo	60 7.44 61	E 16.0 76	9.13:1.69	20.43111.31	27.69:6.72	9 03:3 04	2 93.0 47	0.1133:0.050	0.396610.2379	0.000200.0001	11.7713.93	0.123.0.275	0.378:0.292	0.00:310.0027	0.0027:0.0014	0.7313:0.4343	0.1946±0.1298	9.020910.0192	0.000			meant 10.	76.01127.75	8.27,0.57	11 75.03	21.39.4.87	7.07,1.97	5.3,1.9	1.7110.33		0.007410.0072	7.41,2.15	0.0919:0.1409	0.232310.1519	0.001110.0014	0.0017.0.0037	0.329910.1559	0.0177.0.0210
Site III	110.0	9.48	12.0	44.0	20.5	14.6	2.80	0.300	0.000	6.0255	170.0	1.107	1.107	0.0120	0.0068	1.90	0.480	0.0710		Site VI	MAX	T T T T T T T T T T T T T T T T T T T	118.0	13 6	29.0	30.5	0.11	3.70	0.0510	1.07	0.0240	6.0			0.000		0.500	
cje	24.6	6.80	6.90	08.80	5.00	4.30	1.40	0.0300	0.0214	200.5	32.0	0.0070	0.0790	0.000.0	<0.00cs	0.160	€0.0200	0.0039			min		20.0	6.60	2.30	12.0	4.20	1 10	0.0530	1600.0	0.0000	420.0	0.0070	0.0350	0.0003	_		
6	15	2	21	2	15	15	15	2:	2 :	25	12	15	2:	15	15	51	22	15				:	==	==	2	7	* *	2	12	2:	==	=	=:	22	=	=:	==	=:
Reant o	72.27125.74	10.010.01	22.45:11.47	26.8716.06	10.4111.07	8,4912.82	1.9510.35	0.1163:0.0556	0.0072+0.0059	11.413.58	86.13:40.37	0.07210.0068	0.0016:0.0019	0.002210.0010	0.0067:0.0068	0.845610.5032	0.0192+0.0167	0.0105:0.0051		-	meant, s	\$6 01.23 £1	8.22.0.75	9.2621.56	10.5415.46	7 65.3 74	6.31.2.76	1.7310.35	0.0815±0.0295	0.0071-0 0052	8.5313.82	60.93125.94	0.118610.2497	0.0047:0.0018	0.002110.0020	0,004710,0060	0.1186±0.0563	0.01/6±0.0184
Site II	113.0	18.0	44.0	41.0	18.5	2 30	0.10	0.730	0.0243	17.4	167.0	0.550	0.0032	0.0049	0.0250	0.640	0.0000	0.0220	Ī	Site V	YE	118.0	9.65	12.23	13.0	13.0	11.0	2.30	0.00750								0.200	
ulu .	7.38	6.00	2.50	16.0	4.60	1.40	0.0150	0.0217	0.0013	5.30	0.000	0.0500	0.0010	0.0007	0 150	0.0500	0.00482	0.0010		min		31.0	6.95	2.10	11.0	3.30	2.50	1.20	0.0230	.0012	3.95		0.0620		40.0007		.0200	0.0016
2	15	12	*	2	25	15	13	10	15	5 2	15	15	=	2 2	15	15	15	15		-	-	15	15	21	15	15	15	5.	20	15	25	25	2 5	=:	25	2	125	15
74.9-27.03	8.43:0.69	9.94:1.32	22 27.6 45	9.0913.45	8, 22, 2, 83	1.89:0.32	0.079940,0399	0.309410.2692	11 34.3 61	83.67:37.39	0.0756±0.0980	0.263610,1922	0.0031.0.0032	0.0062±0.0070	0.791:0.5406	0.22210.171	0.017/10.0163	0.012020.0036		meantlo		73,1:21.82	0.43:0.61	14.53:8.87	25.7914.65	8.85:3.26	9.22.22.52	0.0376.0 916	0.3103.0.2720	0.015110.0352	71 57:34 01	0.0506.0.0337	0.2013:0.0962	0.004020.0020	0.004010.0040	0.5373±0.4379	0.016210.0197	0.000010.0052
117.0	8.96	20.0	42.5	13.5	13.7	2.60	0.170	0.700	17.4	163.2	0.403	0.790	0.0016	0.0300	2.00	0.550	0.0330		Site IV	F.3 X		113.0	12.85	31.0	36.5	15.0	2.75										0.0320	
24.6	6.53	5.00	16.0	4.30	6.20	0.49	1,000	0.0015	5.00	40.0	0.0070	0.00164	0.0010	*0.000\$	0.170	0.00343	0.0049			min		7.34															0.0015	
e 2:	12		5:	51	2 2	2	10	15	15	52	2 2	::	15			15			-	-	15	15	12	-	22	25		_				أسا						
Alk	0.0	25	3,	7.72	<b>x</b>	N-GHY	N-10N	N-2CN	.55	(3) 104	(3) 104	2	53	2		, N.	uz.			rarameter.	Alk	Н	0.0	25	2.2	Na Na	× .		N3-2		204	(3)	Phone	۵.	200	F.	Zn	

TABLE 12

# WATER CHEMISTRY - PROGRAM RESULTS ALL STATIONS - 1974 to 1976

# DATA SET 2

# Results in mg/1

Parameter	n	min	max	mean±lo
Alk pH D.O. SS Ca Mg Na K NH3-N NO3-N NO2-N C1 SO4 PO4(t) Phenol Cr Cu Fe Mn Nf Zn	89 70 88 89 89 89 76 89 89 89 89 89 89 89 89	20.0 6.80 6.60 2.00 12.0 3.80 2.50 1.10 0.0150 0.0023 0.0009 3.95 <20.0 0.0070 0.0290 0.0010 0.0003 <0.0005 0.0580 0.0160 0.0015 0.0010	118.0 9.62 18.0 55.0 42.5 20.0 14.6 2.70 0.300 1.07 0.140 19.8 170 1.107 1.107 1.107 0.0130 0.0110 0.0300 2.00 0.640 0.0840 0.0810	70.14±24.17 8.33±0.63 10.05±2.31 17.10±10.55 24.99±6.06 9.0283±3.5374 7.8026±2.8407 1.8796±0.3650 0.0848±0.0422 0.3368±0.2591 0.0085±0.0147 10.29±3.63 73.93±35.69 0.0883±0.1601 0.2682±0.1917 0.0041±0.0020 0.0022±0.0015 0.0052±0.0052 0.616±0.4455 0.1697±0.1244 0.0182±0.0175 0.0114±0.0106

F	0	R	AC	EN	10	Y	USE
•		Г				4	
-			1.				- 1

#### STANDARD FORM C - MANUFACTURING AND COMMERCIAL

# SECTION III. WASTE ABATEMENT REQUIREMENTS & IMPLEMENTATION (CONSTRUCTION) SCHEDULE

This section requires information on any uncompleted implementation schedule which may have been imposed for construction of waste abatement facilities. Such requirements and implementation schedules may have been established by local, State, or Federal agencies or by court action. In addition to completing the following items, a copy of an official implementation schedule should be attached to this application. IF YOU ARE SUBJECT TO SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES, EITHER BECAUSE OF DIFFERENT LEVELS OF AUTHORITY IMPOSING DIFFERENT SCHEDULES (Item 1a.) AND/OH STAGED CONSTRUCTION OF SEPARATE OPERATION UNITS (Item 1c), SUBMIT A SEPARATE SECTION III FOR EACH ONE.

Improvements	300	N/A	2744 TO 304 TO 1975
Discharge Serial Number     Affected List the discharge serial numbers, assigned in Section II, that are covered by this implementation schedule.	3013	1/4	SCHEO.NO.
b. Authority Imposing Require- ments Check the appropriate item indicating the authority for implementation schedule. If the identical implementation schedule has been ordered by more than one authority, check			
instructions)			
Locally developed plan	3015	DLOC N/A	
Areawide Plan	1 11	DARE	
Basic Plan		□BAS	
State approved implementa- tion schedule		□sas	
Federal approved water quality standards implementation plan.		□wqs	
Federal enforcement proced- ure or action		DENF	
State court order		CRT	
Federal court order		DFED	
c. Facility Requirement. Specify the 3-character code of those listed below that best describes in general terms the require-		3-character N/A	
ment of the implementation schedule and the applicable six- character abatement code(s)	301c		
from Table II of the Instruction booklet. If more than one schedule applies to the facility because of a staged construction schedule, state the stage of con-	3014	6-character (specific) (see Table II)	
struction being described here with the appropriate general action code. Submit a separate			
Section III for each stage of			

New Facility	NEW
Modification (no increase in capacity or treatment)	MOD
Increase in Capacity	INC
Increase in Treatment Level	INT
Both increase in Treatment Level and Capacity	ICT
Process Change	PRO
Etimonation of Unchange	ELI

#### N/A

2. Implementation Schedule and 3. Actual Completion Dates

Provide dates imposed by schedule and any actual dates of completion for Implementation steps listed below. Indicate dates as accurately as possible. (see instructions)

Implementation Steps	2. Schedule (Yr./	10. (Day) . 3. A	ctual Completion (*F./	1 2 2 2 7
a. Preliminary plan complete	302>//_	. 303» -	/	• ••
b. Final plan submission	3025//_	3035		
c. Final plan complete	302c//_	303e _		
d. Financing complete & contract awarded	302d//_	_ 3034 _		
e. Site acquired	2020//_	3034	_/_/_	
f. Begin action (e.g., construction)	3021//_	303+	_/_/_	
g. End action (e.g., construction)	3029//_	3039	//_	
h. Discharge Began	302h//_	3037		
I. Operational level attained	3021//_	3031		

F	0	R /	46	En	Ç	4 1	151	E
		L						

## SECTION IL BASIC DISCHARGE DESCRIPTION

Complete this section for each discharge indicated in Section 1, Item 9, that is to surface waters. This includes discharges to municipal sewarage by stems in which the waters are also discharges to surface waters from this facility. SEPARATE DESCRIPTIONS OF EACH DISCHARGE ARE DESCRIPTIONS OF EACH DISCHARGE ARE PEQUIRED EVEN IF SEVERAL DISCHARGES ORIGINATE IN THE SAME FACILITY. All values for an existing discharge should be representative of the twelve previous months of operation. If this is a proposed discharge, values should reflect best engineering estimates.

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

			그 없는 이 경기는 사람들은 사람들이 되었다. 그 나는 그 사람들이 가지 않아 없었다.
1,	Discharge Serial No. and Name  a. Discharge Serial No.	2014	002
	(see instructions)		TMI-2 Emergency Discharge
	b. Discharge Name Give name of discharge, if any. (see instructions)	2015	TMI-2 Emergency Discussed
	c. Previous Discharge Serial No.  1º previous permit application was made for this discharge (see item 4, Section I), provide previous discharge serial number.	201c	_002
2	Discharge Operating Dates	1 1	
	Discharge Began Date. If the discharge described below is in operation, give the date (within best estimate) the discharge began.	202>	74 01 VR MO
	b. Discharge to Begin Date If the discharge has never occurred but is planned for some future date, give the date (within best estimate) the discharge will begin.	2025	N/A YR MO
	c. Discharge to End Date If dis- charge is scheduled to be discon- tinued within the next 5 years, give the date (within best esti- mate) the discharge will end.	2020	N/A YR MO
3.	Engineering Report Available Check if an encineering report is available to reviewing agency upon request. (See instructions)	203	□ N/A
á.	Discharge Location Name the		Agency Use
	the point of discharge is located		Penneyl yani a
	State	2644	Pennsylvania
	County	2045	Dauphin 2040
	(if applicable) City or Town	204c	Londonderry Township 2041
5.	Discharge Point ription Discharge is into sick one); (see instructions)		
	Stream (includes ditches, arroyos, and other intermittent watercourses)	2050	CIXTR
			CILKE
	Care		COCE
	Ocean  It a second Speciary Wastenater		
	Land to the state of the state		(TMTG
	Municipal Combined Sandary and Special France of System		Стись

			TITLE TITLE
	Municipal Storm Water Transport System		□srs
	Well (Injection)	**	OWEL .
	Other		□отн .
	It tother is checked, specify	2055	1.27
6.	Discharge Point - Lat/Long Give the precise location of the point of discharge to the nearest second.		
	Latitude	2054	40 DEG 09 MIN 10 SEC
	Langitude	206b	76 DEG 43 MIN 40 SEC
7.	Discharge Receiving Water Name Name the waterway at the point of discharge (sea instructions)	2072	Susquehanna River
fa	the discharge is through an out- I that extends beyond the shore- e or is below the mean low iter line, complete Item 8.	207ь	For Agency Use  Major Minor Sub  207c  For Agency Use  303e
2.	Offshore Discharge	2084	Approx. 100 Discharge Pipe
	a. Discharge Distance from Shore		N/A Inv. elevation = 289'0"
	<ul> <li>Discharge Depth Below Water Surface</li> </ul>	2080	Pipe size = 48"
9.	Discharge Type and Occurrence		
	a. Type of Discharge Check whether the discharge is con- tinuous or intermittent. (see instructions)	2093	(con) Continuous *
	b. Discharge Occurrence Days per Week Enter the average num- ber of days per week (during periods of discharge) this dis- charge occurs.	2095	days per week
	c. Discharge Occurrence —Months  If this discharge normally operates (either intermittently, or continuously) on less than a year-arrent basis (excluding shutdowns for routine mainte- nance), check the months dur- ing the year when the discharge is operate—(see instructions)	209¢	DIAN DEB MAR DAPR DIAN DIUL DAUG *
	omplete Items 10 and 11 if "inter- littent" is checked in Item 2 a. Itherwise, proceed to Item 12.		
1	O. Intermittent Discharge Quantity State the average inclume per dis- charge occurrence in thousands of gattons.	210	the sand gallons per discharge occurrence. *
٠,	1. Intermittent Discharge Duration		
	and Frequency a. Intermittent Discharge Duration Per Day State the average number of hours per day the discharge is operating.	2113	——hours per day *
	b. Intermittent Discharge Frequency State the average	2115	discharge occurrences per day *
	norther of distance occur- rates per day during days when distance in		*See Item 26- Additional Information
	2. Maximum Flow Period Give the time period in which the maximum	212	From to*

on printinger of		*
FOR	ACEN	Y USE
TT	777	
11	111	111
1.1	1 1 1	

13. Activity Description. Give a nurrative description of activity producing this discharge (see and activities).

-	Discharg	A THE RESIDENCE	AMERICA STATES	CANADA SERVICE CO.					
	would be	used	in	the	event	that	dischar	ge . 001	beca
	inoperat	le.							- 4.
_									72
									. 27
-									
_									
_									
-									

14. Activity Causing Discharge For each SIC Code which describes the activity causing this discharge, supply the type and maximum amount of either the raw material consumed (Item 14a) or the product produced (Item 14b) in the units specified in Table I of the Instruction Booklet. For SIC Codes not listed in Table I, use raw material or production units normally used for measuring production.(see instructions)

a. Raw Materials

N/A

SIC Code	Name	Maximum Amount/Day	Unit (See Table I)	Shared Discharges (Serial Number)
1 (1)	(2)	(3)	(4)	(5)
- 1.7				A A A A A A A A A A A A A A A A A A A
	4.14.	The Market of the Control of the Con		

Products *	Name	Maximum Amount/Day	Unit (See Table !)	Shared Discharges (Serial Number)
4b (1)	(2)	(3)	(4)	(5)

FOR	AGE	NCY	USE

and the same	Anna Contract				
15	VV.341	186	Sec. Sty a	200	ment

Waste Abatement Practices
 Describe the waste abatement
 practices used on this discharge
 with a brief narrative. (see
 instructions)

Narrati	ve: '			
	,			6.1
4			Bar Tilefyreigi	
	militar e			• • • • • • • • • • • • • • • • • • • •
			1.3 4 1.3%	
	149 1 00	ica ici cu ici	a er ei ine iden id	Arte First In
			e e del rist-lità c	
Jou				
		(2)	, (3)	
(1) _			, (6)	

(8)

(17)

(11)

(14) \_\_\_

(20) \_\_\_

(9) -

(12) \_\_\_

(15) \_\_

(21) \_\_\_

(24) \_\_\_

b. Waste Abatement Codes #
Using the codes listed in Table
If of the instruction Booklet,
describe the waste abatement
processes for this discharge in
the order in which they occur
if possible.

(22)		 	 (23)	
(25)	_	 		

(16) \_\_\_

(19) \_\_

F	01	2 /	٩G	EN	C	11	ISI	E.
*						۱		

#### 16. Wastewater Characteristics

Check the box beside each constituent which is present in the effluent (discharge water). This determination is to be based on actual analysis or best estimate (see instructions)

Parameter 216	Present	Parameter 216	Present
Color 90080	1 222	Copper	
Ammonia 90610		Iron 01045	
Organic nitrogen 00605		Lead 01051	
Nitrate 00620		Magnesium 00927	1
Nitrite 00615		Manganese 01055	1
Phosphorus 00665		Mercury 71900	1
Sulfate		Molybdenum 01062	1
Sulfide 00745		Nickel 01067	_
Sulfite 00740		Sclenium 01147	
Bromide 71870		Silver 01077	
Chloride 00940		Potassium 00937	
Cyanide 00720	-	Sodium 00929	
Fluoride 00951		Thallium 01059	
Aluminum 01105		Titanium 01152	
Antimony 01097		Tin 01102	
Arsenic 01002		'Zinc 01092	
Beryllium 01012		Algicides* 74051	
Barium 01007		Chlorinated organic compounds* 74052	
Boron 01022		Pesticides* 74053	
Cadmium 01027		Oil and grease 00550	
Calcium 00916		Phenols 32730	
Cobalt 01037		Surfactants 38260	
Chromium 01034		Chlorine 50060	
Fecal coliform bacteria 74055		Radioactivity* 74050	

<sup>\*</sup>Specify substances, compounds and/or elements in Item 26.

Pesticides (insecticides, fungicides, and rodenticides) must be reported in terms of the acceptable common names specified in Acceptable Common Names and Chemical Names for the Ingredient Statement on Pesticide Labels, 2nd Edition, Environmental Protection Agency, Washington, D.C. 20250, June 1972, as required by Subsection 162.7(b) of the Regulations for the Enforcement of the Federal Insecticide, I angleide, and Rodenticide Act.

<sup>\*</sup> See Item 26 - Additional Information

#### DISCHARGE SERIAL NUMBER

FOR AGENCY USE							
	٦					П	

#### 17. Description of Intake and Discharge

For each of the parameters listed below, enter in the appropriate box the value or code letter answer called for (see instructions)

In addition, enter the parameter name and code and all required values for any of the following parameters if they were checked in Item 16; ammonia, cyanide, atuminum, arsenic, beryllium, cadinium, chromium, copper, lead, mercury, nickel, selenium, zinc, phenois, oil and grease, and chlorina (residual).

and chlorine (residual).								_
	Influ	ient			Eftluent		itige	_
Parameter and Code 217a	Untreated Intake Water (Daily Average)	In-Plant Treated .  (Duily Average)	Daily Average	Minimum Value Observed or Expected During Discharge Activity	Maximum Value Observed or Expected During Discharge Activity	Frequency of Analysis	-	Sample Type
Flow* Gallons per day 00056								_
pH Units 00400			X					
Temperature (winter) F 74028								
Temperature (summer) * F 74027								
Biochemical Oxygen Demand (BOD 5-day) mg/l 00310								
Chemical Oxygen Demand (COD) - mg/l 00340								
Total Suspended (nonfliterable) Solids Ing/1 00530								
Specific Conductance micromhos/cm at 25° C 00095			X					
Settleable Matter (residue) ml/1 00545								

<sup>\*</sup>Other discharges sharing intake flow (serial numbers).(see instructions)

<sup>\*</sup>See Item 26 - Additional Information

FO	RA	46	EN	15	71	JSE
		-				I

17. (Cont'd.)

	Inth	ient .			Effluent	• •		
Parameter and Code 217a	Unitested Intake Water (Daily Average)	In-Plant Treated .  Entake Water (Daily Average)	(3) Daily Average	Minimum Value Observed or Expected Daring Discharge Activity	Maximum Value Observed or Expected Furing Discharge Activity	Frequency of Analysis ,	Number of Analyses 1955	Sumple Type
							1	
,							+	-
						٠.		
							+	-
	-			-	1 1 1 1	Testing.	+	+

		* 5 N. P. 1, L. C.	
18.	Plant Controls Check if the fol- lowing plant controls are available for this discharge.	219	
	Alternate power source for major pumping facility.		M APS
	Alarm or emergency procedure for power or equipment failure		[XALM
	Complete item 19 if discharge is from cooling and/or steam water generation and water treatment aggitives are used.		

- 19. Water Treatment Additives If the discharge is treated with any conditioner, inhibitor, or algicide, answer the following:

  a. Name of Material(s)

  219a
  - b. Name and address of manufacturer # 2195
  - Chantity (pounds added per 2196 \*

milition gallions of water treated).

FOI	RAG	ENC	YU	SE

d.	Chemical	con	position of these
	additives	(see	instructions).

Complete items 20-25 if there is a thermal discharge (e.g., associated with a steam and/or power generation plant, shell mill, petroleum ratingry, or any other manufacturing process) and the total discharge flow s 10 million gallons per day or more. (see instructions)

20.	Thermal Discharge Source	
	the appropriate item(s) indi-	cating
	the source of the discharge.	(see
	instructions)	

Boiler Blowdown

Boiler Chemical Cleaning

Ash Pond Overflow

Boiler Water Treatment - Evaporator Blowdown

Oil or Coal Fired Plants - Effluent from Air Pollution Control Devices

Condense Cooling Water

Cooling Tower Blowdown

Manufacturing Process

Other

21. Discharge/Receiving Water Temperature Difference

> Give the maximum temperature difference between the discharge and receiving waters for summer and winter operating conditions.
> (see instructions) Summer

Winter

22. Discharge Temperature, Rate of Change Per Hour

> Give the maximum possible rate of temperature change per hour of discharge under operating conditions. (see instructions)

23. Water Temperature, Percentile Report (Frequency of Occurrence) In the table below, enter the

temperature which is exceeded 10% of the year, 5% of the year, 1% of the year and not at all (maximum yearly temperature). (see instructions)

Frequency of occurrence

- Intake Water Temperature (Subject to natural changes)
- b. Dischurge Water Temperature
- 24. Water Intake Velocity (see instructions)

25. Retention Time Give the length of time, in minutes, from start of water temperature rise to discharge of cooling water. (see Instructions)

	B		n	Ċ
-		-	•	-

- BCCL
- APOF.
- □ EPBO
- OCFP
- COND
- СТВО
- MEPR
- DOTHR

2212

2233

225

2216

222

Maximum	1%	5%	10%
o <sub>F</sub>	0F	oF	o <sub>F</sub>
o <sub>F</sub>	oF	oF	OF

N/A

2230 teet/sec. N/A 224

minutes N/A

#### DISCHARGE SERIAL NUMBER

FOR	AGEN	EY USE
	III	TI

26. Additional Information

Item	Information
9, 10, 11,	Under normal operating conditions discharge 002 will not be used.
12	Discharge 002 is only used under emergency conditions.
14,15,16,	In the remote event of a discharge from outfall '002, the
17,19,21,	characteristics of the effluent and the treatment it would
22,23	receive are the same as that which has been detailed for
- 11-11-11-11-11-11-11-11-11-11-11-11-11	discharge 001.
20,21,22,23	TMI thermal criteria resolved in PaDER Permit No. 2277206 issued to
	Met-Ed 2-22-78.
	•
21,22,23	NOTE: Outfall 002 provides for the emergency discharge of
21,22,23	effluent in the event that outfall 001 is blocked. In the
21,22,23	effluent in the event that outfall 001 is blocked. In the remote event that the Unit 2 MDCT becomes blocked, a bypass
21,22,23	effluent in the event that outfall 00l is blocked. In the remote event that the Unit 2 MDCT becomes blocked, a bypass line is provided. Should an emergency ever necessitate the
21,22,23	effluent in the event that outfall 001 is blocked. In the remote event that the Unit 2 MDCT becomes blocked, a bypass
21,22,23	effluent in the event that outfall 00l is blocked. In the remote event that the Unit 2 MDCT becomes blocked, a bypass line is provided. Should an emergency ever necessitate the
21,22,23	effluent in the event that outfall 00l is blocked. In the remote event that the Unit 2 MDCT becomes blocked, a bypass line is provided. Should an emergency ever necessitate the use of this bypass, the thermal characteristics of the
21,22,23	effluent in the event that outfall OOl is blocked. In the remote event that the Unit 2 MDCT becomes blocked, a bypass line is provided. Should an emergency ever necessitate the use of this bypass, the thermal characteristics of the discharge would be higher than normal as the flow would not
21,22,23	effluent in the event that outfall 00l is blocked. In the remote event that the Unit 2 MDCT becomes blocked, a bypass line is provided. Should an emergency ever necessitate the use of this bypass, the thermal characteristics of the discharge would be higher than normal as the flow would not
21,22,23	effluent in the event that outfall OOl is blocked. In the remote event that the Unit 2 MDCT becomes blocked, a bypass line is provided. Should an emergency ever necessitate the use of this bypass, the thermal characteristics of the discharge would be higher than normal as the flow would not
21,22,23	effluent in the event that outfall 00l is blocked. In the remote event that the Unit 2 MDCT becomes blocked, a bypass line is provided. Should an emergency ever necessitate the use of this bypass, the thermal characteristics of the discharge would be higher than normal as the flow would not
21,22,23	effluent in the event that outfall 00l is blocked. In the remote event that the Unit 2 MDCT becomes blocked, a bypass line is provided. Should an emergency ever necessitate the use of this bypass, the thermal characteristics of the discharge would be higher than normal as the flow would not
21,22,23	effluent in the event that outfall OOl is blocked. In the remote event that the Unit 2 MDCT becomes blocked, a bypass line is provided. Should an emergency ever necessitate the use of this bypass, the thermal characteristics of the discharge would be higher than normal as the flow would not

F	01	R A	GEN	+C	4	US	E
9		T	1.				ľ

## SECTION III. WASTE ASATEMENT REQUIREMENTS & IMPLEMENTATION (CONSTRUCTION) SCHEDULE

This section requires information on any uncompleted implementation schedule which may have been imposed for construction of waste abatement funities. Such requirements and implementation schedules may have been established by local, State, or Federal agencies or by court action. In addition to completing the following items, a copy of an official implementation schedule should be attached to this application. IF YOU ARE SUBJECT TO SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES, EITHER BECAUSE OF DIFFERENT LEVELS OF AUTHORITY IMPOSING DIFFERENT SCHEDULES (Item 1s.) AND/OR STAGED CONSTRUCTION OF SEPARATE OPERATION UNITS (Item 1c), SUBMIT A SEPARATE SECTION III FOR EACH ONE.

11	nprovements	300			SCHED. NO.	A ( REC !! " VA
a.	Discharge Serial Number Affected List the discharge serial numbers, assigned in Section II, that are covered by this implementation schedule.	3013			N/A	
D	Authority Imposing Requirements Check the appropriate item indicating the authority for Implementation schedule. If the identical Implementation schedule has been ordered by more than one authority, check the appropriate items. (see instructions)					
	Locally developed plan	3016	□ Loc	N/A		
	Areawide Plan		DARE	N/A		
	Basic Plan		BAS			
	State approved implementa- tion schedule		□sqs			
	Federal approved water quality standards implementa- tion plan.	1.9	□w <b>qs</b>			
	Federal enforcement proced- ure or action	1	DENF			
	State court order		CRT			
	Federal court order		DFED			
c.	Facility Requirement, Specify the 3-character code of those listed below that best describes in general terms the require-		3-character (general)			
	ment of the implementation schedule and the applicable six- character abatement code(s)	3010		N/A		
	from Table II of the Instruction booklet. If more than one schedule applies to the facility because of a staged construction	3014	6-character (specific) (see Table II)	N/A		
	schedule, state the stage of con- struction being described here with the appropriate general action code. Submit a separate Section III for each stage of construction planned			a/A		

New Facility	NEW
Modification (no increase in capacity or treatment)	MOD
Increuse in Capacity	INC
Increase in Treatment Level	INT
Both increase in Treatment Level and Capacity	ICT
Process Change	PRO
Francision of Orchards	ELI

2. Implementation Schedule and 3. Actual Completion Dates

N/A

Provide dates imposed by schedule and any actual dates of completion for implementation steps listed below. Indicate dates as accurately as possible. (see instructions)

Implementation Steps	. 2	Schedule (Yr./Mo./Oay)		3. Actual Completion (Yr./Mo./Day)
a. Pretiminary plan complete	302>		3032	_/_/_
b. Final plan submission	302b		3035	· · · · · · · · · · · · · · · · ·
c. Final plan complete	302e		303e	
d. Financing complete & contract awarded	3024		3034	
e. Site acquired	3020		3030	_/_/
f. Begin action (e.g., construction)	3021	//_	3031	/
g. End action (e.g., construction)	3029		3039	_/_/_
h. Discharge Began	302h		303h	
i. Operational level attained	302i		3031	

FOR	A	GEI	ve	7	151	E
	T		П			ı
11	1	1				_

## SECTION II. BASIC DISCHARGE DESCRIPTION

Conserve this section for each dicharge indicated in Section I, Item 9, that is to surface waters. This includes discharges to municipal sewerage systems in which the wastewater does not go through a treatment works prior to being discharged to surface waters. Discharges to waits must be described where there are also discharges to surface waters from this facility. SEPARATE DESCRIPTIONS OF EACH DISCHARGE ARE REQUIRED EVEN IF SEVERAL DISCHARGES ORIGINATE IN THE SAME FACILITY. All values for an existing discharge should be representative of the twelve previous months of operation. If this is a proposed discharge, values should reflect best engineering estimates.

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

			003		
	a. Discharge Serial No. (see instructions)	2012			
	b. Discharge Name Give name of discharge, if any. (see instructions)	2015	TMI-1 Emergency Discharge		
	c. Previous Discharge Serial No. If previous permit application was made for this discharge (see Item 4, Section I), provide previous discharge serial number.	201c	003		
2.	Discharge Operating Dates				
	a. Discharge Began Date If the discharge described below is in operation, give the date (within best estimate) the discharge began.	2023	74 01 YR MO		
	b. Discharge to Begin Date If the discharge has never occurred but is planned for some future date, give the date (within best estimate) the discharge will begin.	2025	N/A VR MO		
	c. Discharge to End Date If discharge is scheduled to be discontinued within the next 5 years, give the date (within best estimate) the discharge will end.	2026	N/A VR MO		
3	Engineering Report Available Check if an engineering report is available to receiving agency upon request. (see instructions)	203	□ N/A		
4	Discharge Location Name the political boundaries within which the point of discharge is located.				Agency Use
	the point of six norm is to	1	Pennsylvania	2044	
	State	2043			
	County	204b	Dauphin	2040	
	(if applicable) City or Town	2046	Londonderry Township	2041	
5.	Discharge Point Description Discharge is into (check une); (see instructions)				
	Stream (includes ditches, arroyos, and other intermittent waterchurses)	205a	XDSTR		
			CILKE .		
	1.0-4				
	Ocean		OCF		
	Application of the Wastersafer		idens.		
	Shanding Combined Sandary and Street Franciscot System		□vcs		

1. Discharge Serial No. and Name

			FOR AGENCY USE
	Managar Scholl Water Francport System		Lisis
	Weri (fiele to an)		
	Other		□ o,m ·
	If 'other' is checked, specify	2050	
6.	Discharge Point - Lat/Long Give the pracise receiped of the point of discharge to the nearest second.		
	Latinush	2053	40_ DEG 09_MIN 10_SEC
	Longitude	2050	76_DEG . 43 MIN 40_SEC
7.	Discharge Receiving Water Name Name the natorinary at the point of discharge (see instructions)	2075	Susquehanna River
fall	the discharge is through an out- that extends beyond the shore- e or is below the mean low ter line, complete Item 8.	207b	For Agency Use    Major Minor Sub   207c   303e   3
3.	Offshare Discharge		Approx. 90 Discharge Pipe
	a. Discharge Distance from Shore	2033	Inv. elevation = 289'0"
	b. Discharge Depth Below Water Surface	2035	O Pipe size = 48"
9.	Discharge Type and Occurrence		
	a. Type of Discharge Check whether the discharge is con- tinuous or intermittent. (see instructions)	2093	(con) Continuous *
	<ul> <li>Discharge Occurrence Days per Week Enter the average num- ber of days per week (during periods of discharge) this dis- charge occurs.</li> </ul>	2095	days per week *
	c. Discharge Occurrence —Months if this discharge normally operates (either intermittently, or continuously) on less than a year around basis (excluding shuddowns for routing mainte- nance), check the months dur- ing the year when the discharge is operating, (see instructions)	209c	DJAN DFEB MAR DAPR DMAY DJUN DJUL DAUG *
m	implete Items 10 and 11 if "inter- itions" is converd in Item 9.3, incresse, protect to Item 12.		
10	State the average volume per dis- charge occurrence in thousands of gallons.	210	thousand gallons per discharge occurrence.
1.1	. Intermittent Discharge Duration		
	and Frequency  a. Intermittent Discharge Duration Per Day State the average number of hours per day the discourse is operating.	2112	hours per day *
	b. Intermittent Discharge Frequency State the average recovered by hardy occur-	2115	discharge occurrences per day *
	syne of color part		*See Item 26 -
1	Maximum Flow Period Give the	1	Additional Information

time cound in which the maximum

F	0	R	AG	EN	ić.	Y (	JS	E
+						П	۱	

 Activity Description Give a narrative description of activity producing this discharge (see instructions)

2133	As described in Section I, Item 9 (facility discharges), Discharge 003 is an emergency	
	discharge which would be used in the event	-audin
	discharge 001 became inoperable.	100
	discharge .	. 25
		11.05
		110
1,182		
St 449		
35.		

14. Activity Causing Discharge For each SIC Code which describes the activity causing this discharge, supply the type and maximum amount of either the raw material consumed (Item 14a) or the product produced (Item 14b) in the units specified in Table I of the Instruction Booklet For SIC Codes not listed in Table I, use raw material or production units normally used for measuring production.(see instructions)

a Ray Materials N/A

	Name	Maximum Amount/Day	(See Table I)	(Serial Number)
SIC Code	(2)	(3)	(4)	(5)
(1)	12)			

Products *	Name	Maximum Amount/Day	Unit (See Table I)	(Serial Number)
SIC Code	(2)	(3)	(4)	(5)
40 (1)				
	The Allender of the			
		1		

FOR	R A	G	EN	C	41	151	2

15. Waste Abatemi	125

**	iste Abatement			and the first term of the second		
3.	Waste Abatement Practices Describe the waste abatement practices used on this discharge	2150	Narrative:		· · · · · · · · · · · · · · · · · · ·	. 12
	with a brief narrative. (see instructions)					
						1,14
						+ + + + + + + + + + + + + + + + + + + +
b.	Waste Abatement Codes *	2150	(1)	, (2)		
	Using the codes listed in Table II of the Instruction Booklet,		(4)			
	describe the waste abatement processes for this discharge in the order in which they occur		(7)	, (8)	. (9)	
	if possible.		(10)	, (11)	, (12)	
			(13)	. (14)	. (15)	
			(16)	. (17)	, (18)	
	depois a piece de		(19)	, (20)	. (21)	

\*See Item 26 - Additional Information

(25) \_\_\_

FOR AGENCY USE									
		1	-			_			

#### 16. Wastewater Characteristics

Check the box beside each constituent which is present in the effluent (discharge water). This determination is to be based on actual analysis or best estimated (see instructions)

Parameter 216	Present	Parameter . 216	Present
Color 20080		Copper 01042	
Ammonia 00610		Iron 01045	
Organic nitrogen		Lead 01051	
Nitrate 00620		Magnesium 00927	-
Nitrite 00615		Manganese 01055	-
Phosphorus 00665		Mercusy 71900	-
Sulfate 00945		Molybdenum 01062	-
Sulfide 00745		Nickel 01067	
Sulfite 00740		Selenium 01147	
Bromide 71870		Silver 01077	
Chloride 00940		Potassium 00937	_
Cyanide 00720		Sodium 00929	_
Fluoride 00951		Thallium 01059	
Aluminum 01105		Titanium 01152	-
Antimony 01097		Tin 01102	
Arsenic 01002		Zinc 01092	
Beryllium 01012		Algicides* 74051	
Barium 01007		Chlorinated organic compounds* 74052	
Boron 01022		Pesticides* 74053	
Cadmium 01027		Oil and grease 00550	
Calcium 00916		Phenols 32730	
Cobalt 01037		Surfactants 38260	
Chromium 01034		Chlorine 50060	
Fecal coliform bacteria 74055		Radioactivity* 74050	

<sup>\*</sup>Specify substances, compounds and/or elements in Item 26.

Pesticides (insecticides, fungicides, and rodenticides) must be reported in terms of the acceptable common names specified in Acceptable Common Names and Chemical Names for the Ingredient Statement on Pesticide Labels, 2nd Edition, Environmental Protection Agency, Washington, D.C. 20250, June 1972, as required by Subsection 162.7(b) of the Regulations for the Enforcement of the Federal Insecticide, Fungicide, and Rodenticide Act.

<sup>\*</sup> See Item 26 - Additional Information

T	JSE	Y 1	ויוֹש	A C	R	OF	F
-	T	T			I		
ì		1			L		

#### 17. Description of Intake and Discharge

For each of the parameters listed below, enter in the appropriate box the value or code letter answer called for (see instructions)

In addition, enter the parameter name and code and all required values for any of the following parameters if they were checked in Item 15, ammonia, cyanide, aluminum, arsenic, berythum, cadmium, chromium, copper; lead, mercury, nickel, selenium, zinc, phenois, oil and grease, and chlorina (residual).

and chloring (residual).							*	
	Infle	sent .			Effluent		• **	-
Parameter and Code 217a	Untreated Intake  Water (Daily Average)	In-Plant Treated  In Inake Water (Daity Average)	(a) Daily Average	Minimum Value Observed or Expected During Discharge Activity	Maximum Value Observed or Expected During Discharge Activity	Frequency of Analysis '	Number of Analyses	Sample Type
Flow* Gallens per day 00056								
pH Units 00400			X					
Temperature (winter) F 74028								
Temperature (summer) ° F 74027								
Brochemical Oxygen Demand (BOD 5-day) mg/l 00310								
Chemical Oxygen Demand (COD) ing/1 00340								
Total Suspended (nonfilterable) Solids mg/t (mis 30)								
Specific Conductance micromhov/em at 25° C			X					
Sau leable Matter (risidue) mi/t 00545								

<sup>\*</sup>Other discharges sharing intake flow (serial numbers),(see instructions)

<sup>\*</sup>See Item 26 - Additional Information

FOR AGENCY USE									
	_		_	_	_	_	_		

17. (Cont'd.)

	Inth	ient .			Effluent	٠.		
Parumeter and Code 217a	Untreated Intake  Water (Daily Average)	In-Plant Treated S Intake Water (Daily Average)	G Daily Awrage	Minimum Value Observed or Expected During Discharge Activity	Maximum Value Observed or Expected During Discharge Activity	Frequency of Analysis	Number of Analyses	S Sample Type
							1	
							-	
							+	
							+	-
			1					

18.	Plant Controls Check if the fol- lowing plant controls are available for this discharge.	218	
	Alternate power source for major pumping facility.		₩ APS
	Alarm or emergency procedure for power or equipment failure		₫ ALM
	Complete item 19 if discharge is from cooling and/or steam water generation and water treatment additives are used.		
19.	Water Treatment Additives If the discharge is treated with any conditioner, inhibitor, or algicide, answer the following:		
	a. Name of Material(s)	2192	
	<ul> <li>Name and address of manu- facturer</li> </ul>	2195	*
		P. T	
			*
	c. Quantity (pounds added per million gallons of water treated).	219c	

	DISCHARGE	SERIAL NUMBER	•		
	v 1			*	FOR AGENCY USE
	*				
d. Chemical composition of these additives (see instructions).				n. F.E	
Complete items 20-25 If there is a thermal discharge (e.g., associated with a steam and/or power generation					- 4
plant, steel mill, petroleum refinery, or any other manufacturing process) and the total discharge flow is		Y			
10 million gallons per day or more. (see instructions)					
20. Thermal Discharge Source Check 220					1-7-2

0.	Thermal Discharge Source Check the appropriate item(s) Indicating the source of the discharge. (see instructions)	220					
	Boiler Blowdown		BLBO				
	Boiler Chemical Cleaning	E L	BCCL				
	Ash Pand Overflow	100	DAPOF.				
	Boiler Water Treatment — Evaporator Blowdown		□ EPBD				
	Oil or Coal Fired Plants — Effluent from Air Pollution Control Devices		OCFP				
	Condense Cooling Water		COND				
	Cooling Tower Blowdown		Ø CTBD				
	Manufacturing Process		MEPR				
	Other		MOTHR				
	Discharge/Receiving Water Temper- ature Difference						
	Give the maximum temperature difference between the discharge and receiving waters for summer and winter operating conditions.  (see instructions)	2212	°F.	*			
		2215	o <sub>F</sub>	*			
	Winter	2215				1.00	
	Discharge Temperature, Rate of Change Per Hour	222	of./	hour *			
	Give the maximum possible rate of temperature change per hour of discharge under operating conditions. (see instructions)						
3.2	Water Temperature, Percentile Report (Frequency of Occurrence) In the table below, enter the temperature which is exceeded 10% of the year, 5% of the year, 1% of						
	the year and not at all (maximum yearly temperature). (see instructions)	1					
	Frequency of occurrence		10%	5%	1%	Maximum	
		222.	0¢	0F	0F	°F	
	a. Intake Water Temperature (Subject to natural changes)	223a	0F	o <sub>F</sub>	°F	0F	
	b. Discharge Water Temperature	-235			. / .		
١.	Water Intake Velocity (see instructions)	224	feet	/360.	I/A		
5.	Retention Time Give the length of time, in minutes, from start of water temperature rise to discharge of cooling water. (see instructions)	225	min	utes N	1/A		

# DISCHARGE SERIAL NUMBER

FOR	A	G	EN	ic.	• 1	JS	E
							* *

26. Additional Information

Item	Information	-
9,10,11,12	Under normal operating conditions, Discharge 003 will not	* \$15.
	be used. Discharge 003 is only used under emergency	. 37
	conditions.	
		. 71%
14,15,16,17,	In the remote event of a discharge from outfall 003,	
19,21,22,23	the characteristics of the effluent and the treatment it	
	would receive are the same as that which has been detailed	
	for Discharge 001.	
20,21,22,23	TMI thermal criteria resolved in PaDER Permit No. 2277206 is	sued
	to Met-Ed 2-22-78.	
	•	

FOR AGENCY USE							
	4					I	•

#### SECTION III. WASTE ABATEMENT REQUIREMENTS & IMPLEMENTATION (CONSTRUCTION) SCHEDULE

This section requires information on any uncompleted implementation schedule which may have been imposed for construction of waste abatement facilities. Such requirements and implementation schedules may have been established by local, State, or Federal agencies or by-court action. In addition to completing the following items, a copy of an official implementation schedule should be attached to this application. IF YOU ARE SUBJECT TO SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES, EITHER BECAUSE OF DIFFERENT LEVELS OF AUTHORITY IMPOSING DIFFERENT SCHEDULES (Item 1a.) AND/OR STAGED CONSTRUCTION OF SEPARATE OPERATION UNITS (Item 1c), SUBMIT A SEPARATE SECTION III FOR EACH ONE.

	1 1			
Improvements	300			SCHED. NO.
Discharge Serial Number     Affected List the discharge     serial numbers, assigned in     Section II, that are covered by	3012			N/A
this implementation schedule.				
b. Authority Imposing Require- ments. Check the appropriate item indicating the authority for implamentation schedule. If the identical implementation schedule has been ordered by more than one authority, check the appropriate items. (see instructions)				
Locally developed plan	3015	□ LOC		
Areawide Plan	1	DARE		
Basic Plan		BAS	N/A	
State approved implementa- tion schedule		□sqs	,	
Federal approved water quality standards implementa- tion plan.		□wqs		
Federal enforcement proced- ure or action	100	DENF		영영 목소리는 경기 위기를
State court order	1. 199	CRT		
Federal court order		DFEO		
c. Facility Requirement. Specify the 3-character code of those listed below that best describes in general terms the require-		3-character (general)		
ment of the implementation schedule and the applicable six- character abatement code(s)	301e		N/A	
from Table II of the Instruction booklet. If more than one schedule applies to the facility because of a staged construction schedule, state the stage of con-	3014	6-character (specific) (see Table II)		
struction being described here with the appropriate general action code. Submit a separate Section III for each stage of construction planned.	The second secon		N/A	

New Facility	NEW
Modification (no increase in capacity or treatment)	MOD
Increase in Capacity	INC
increase in Treatment Level	INT
Both increase in Treatment Level and Capacity	ICT
Process Change	PRO
Farmatan of Lastaure	ELI

F	0	R A	40	E	+C	Y 1	JS	E
							-	
			-				-	

							27 / 2
	Implementation Schedule	and	3.	Actual Completion Dates	*	*	N/A
-	The Distance of Sauconie						

Provide dates imposed by schedule and any actual dates of completion for implementation steps listed below. Indicate dates as accurately as possible. (see instructions)

Implementation Steps	2. Schedula (Yr/Mo./Day)	3. Actual Completion (Yr./Mo./Day)
a. Preliminary plan complete	3023//	303>/
b. Final plan submission	3026//	3035
c. Final plan complete	3020//	303e//_
d. Financing complete & contract awarded	3024//_	3034//
e. Site acquired	3020	303•//
f. Begin action (e.g., construction)	3021//_	303+//
g. End action (e.g., construction)	3029//_	3039//
h. Discharge Began	302h/	3037//
i. Operational level attained	3021//_	3034/

USE
T

## SECTION II. BASIC DISCHARGE DESCRIPTION

Complete this section for each discharge indicated in Section I, Item 9, that is to surface waters. This includes discharges to municipal sewerage systems in which the wastewater does not go through a treatment works prior to being discharged to surface waters. Discharges to wells must be described where there are also discharges to surface waters from this facility. SEPARATE DESCRIPTIONS OF EACH DISCHARGE ARE REQUIRED EVEN IF SEVERAL DISCHARGES ORIGINATE IN THE SAME FACILITY. All values for an existing discharge should be representative of the twelve previous months of operation. It this is a proposed discharge, values should reflect best engineering estimates.

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

	a. Discharge Serial No. (see instructions)	201a		
	b. Discharge Name Give name of discharge, if any, (see instructions)	2016	TMI -1 Emergency Discharge	
	c. Previous Discharge Serial No. if previous permit application was made for this discharge (see item 4, Section I), provide previ- ous discharge serial number.	201c	004	
2.	Discharge Operating Dates			
	Discharge Began Date. If the discharge described below is in operation, give the date (within best estimate) the discharge began.	2023	74 01 YR MO	
	b. Discharge to Begin Date if the discharge has never occurred but is planned for some future date, give the date (within best esti- mate) the discharge will begin.	2025	N/A YR MO	
	c. Discharge to End Date If discharge is scheduled to be discontinued within the next 5 years, give the date (within best estimate) the discharge will end.	2020	N/A YR MO	
3.	Engineering Report Available Check if an engineering report is a suitable to receiving agency upon request. (see instructions)	203	□ N/A	
4.	Discharge Location Name the political boundaries within which			Agency Use
	the point of discharge is located.		Pennsylvania	204d
	State	2043	Dauphin	
	County	2045		2046
	(if applicable) City or Town	2046	Londonderry Township	204+
5.	Discharge Point Description Discharge is into (check one): (see instructions)			
	Stream (includes ditches, arroyos, and other intermittent watercourses)	2050	(XSTR	
		1	CILKE	
	(-cc):		[]oce	
	Stages and Smithery Washwater		□wts	
	recommend that the same and the		Chics	

1. Discharge Serial No. and Name

		FOR AGENCY USE
Manicipal Storm Water Transport		12s1s
West (Injection)		Ower.
Other		□отн '
If 'other' is checked, specify	2050	
<ol> <li>Discharge Point — Lat/Long Give the precise location of the point of discharge to the nearest second.</li> </ol>		10 00 10
Latitude	205a	40 DEG . 09MIN 10 SEC
Longitude	208-	76 DEG . 43 MIN 20 SEC
7. Discharge Receiving Water Name Name the waterway at the point of discharge (see instructions)	2072	Susquehan a River
If the discharge is through an out- fall that extends beyond the shore- line or is below the mean low water line, complete Item 8.	2076	For Agency Use  Major Minor Sub  207c  For Agency Use  303e
8. Offshore Discharge		Approx. 10,cet Discharge Pipe
a. Discharge Distance from Shore	203a	Inv. elevation = 280'10"
b. Discharge Depth Below Water Surface	2085	N/A Pipe size = 48"
9. Discharge Type and Occurrence		[일시] 경기 [기] 그는 그는 그리고 있는 그리고 일부모였다.
<ul> <li>Type of Discharge Check whether the discharge is con- tinuous or intermittent. (see instructions)</li> </ul>	209a	(con) Continuous *
<ul> <li>Discharge Occurrence Days per Week Enter the average num- ber of days per week (during periods of discharge) this dis- charge occurs.</li> </ul>	2095	days per week *
c. Discharge Occurrence —Months  If this discharge normally operates (either intermittently, or continuously) on less than a year-around basis (excluding shutdowns for routine mainte- nance), check the months dur- ing the year when the discharge is operating. (see instructions)	2096	DJAN, DFEB DMAR DAPR  DMAY DJUN DJUL DAUG *
Complete Items 10 and 11 if "inter- mitten!" is checked in Item 9.a., Otherwise, proceed to Item 12.		
<ol> <li>Intermittent Discharge Quantity         State the average volume per discharge occurrence in thousands of gallons.     </li> </ol>	210	thousand gallons per discharge occurrence.
11. Intermittent Discharge Duration and Frequency		
a. Intermittent Discharge Duration Per Day State the average number of hours per day the discharge is operating.	211a	hours per day **
b. Intermittent Discharge Frequency State the average results but of discharge to the formation of the control	2118	discharge occurrences per day *
12. Maximum Flow Period Cive the time period in which the maximum	212	*See Item 26 - Additional Information

F	R	A	GEI	NC	Y	JSE
T	T	Γ	T	T	I	T
- 1	ł	Γ	1	1	1 -	

13.	Activity Description Give a
	narrative description of activity
	producing this discharge (see
	matructions)

2133	004 is an emergency discharge. Discharge	004	would
	be used in the event that the Unit I MDCT	bec	omes
	blocked and can not be used.		700
			100
			- 34
		Н	11-12
			- 1

14. Activity Causing Discharge For each SIC Code which describes the activity causing this discharge, supply the type and maximum amount of either the raw material consumed (Item 14b) or the product produced (Item 14b) in the units specified in Table I of the Instruction Bookiet. For SIC Codes not listed in Table I, use raw material or production units normally used for measuring production.(see instructions)

a. Raw Materials

SIC Code	Name	Maximum Aniount/Day	Unit (See Table I)	Shared Discharges (Serial Number)
(1)	(2)	(3)	(4)	(5)
	Carlot Market	and advantage to		
	ATTACA CANADA CAN			

Name	Maximum Amount/Day	Unit (See Table I)	Shared Discharges (Serial Number)
(2)	(3)	(4)	(5)
			Line in the contract
	Name (2)	Name Amount/Day	Name Amount/Day (See Table I)

FO	RA	GEN	CY	JSE
T	П	TI	T	П
		$\perp$		

1.6	Waste	Abrets	men and
1.26	11.75	MORTE	TALKET & P.

a. Waste Abatement Practices	1		
Describe the waste abatement	2150	Narrative:	
practices used on this discharge			
with a brief narrative. (see			-
instructions)			
		***************************************	
	1		
	1		
	1		
	1		
		The state of the s	
	1		

b. Waste Abstement Codes
Using the codes listed in Table
II of the Instruction Booklet,
describe the waste abatement
processes for this discharge in
the order in which they occur
if possible.

2156	(1)	(2),	(3),
		(5)	
		(8),	
		(11)	
	(13)	(14)	(15),
		(17)	
		(20)	
	(22)	(23),	(24)
	(25)		

F	28	e A	G	EN	C	, ,	ISI	=
								1

#### 16. Wastewater Characteristics

Check the box beside each constituent which is present in the effluent (discharge water). This determination is to be based on actual analysis or bost estimate. (see instructions)

Parameter 216	Present	Parameter 216	Present
Color 00080		Copper 01042	
Ammonia 00610		1ron 01045	
Organic nitrogen 00605		Lead 01051	
Nitrate 00620		Magnesium 00927	
Nitrite 00615		Manganese 01055	
Phosphorus 00665		Mercury 71900	
Sulfate 00945		Molybdenum 01062	
Sulfide 00745		Nickel 01067	
Sulfite 00740		Selenium 01147	
Bromide 71870		Silver 01077	
Chloride 00940		Potassium 00937	
Cyanide 00720		Sodium 00929	
Fluoride 00951		Thallium 01059	
Aluminum 01105		Titanium 01152	
Antimony 01097		Tin 01102	
Arsenic 01002		Zinc 01092	
Beryllium 01012		Algicides* 74051	
Barium 01007	-1	Chlorinated organic compounds* 74052	
Boron 01022	414	Pesticides* 74053	
Cadmium 01027		Oil and grease 00550	
Calcium 00916		Phenols 32730	
Cobalt 01037		Surfactants 38260	
Chromium 01034		Chlorine 50060	
Fecal coliform bacteria 74055		Radioactivity * 74050	

<sup>\*</sup>Specify substances, compounds and/or elements in Item 26.

Pesticides (insecticides, fungicides, and rodenticides) must be reported in terms of the acceptable common names specified in Acceptable Common Names and Chemical Names for the Ingredient Statement on Pesticide Labels, 2nd Edition, Environmental Protection Agency, Washington, D.C. 20250, June 1972, as required by Subsection 162.7(b) of the Regulations for the Enforcement of the Federal Insecticide, Eungicide, and Podenticide Act.

#### . DISCHARGE SERIAL NUMBER

POR AGENCY USE								
				1				
_	_							

#### 17. Description of Intake and Discharge

For each of the parameters listed below, enter in the appropriate box the value or code letter answer called for (see instructions)

In addition, enter the parameter name and code and all required values for any of the following parameters is they were checked in Item 16; ammonia, cyanide, aluminum, arsenic, peryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, zinc, phenols, oil and grease, and chlorina (residual).

and chloring (residual).	,					٠.		
	Intl	uent			Etfluent		2.64	
Parameter and Code 217a	Untreated Intake  Sater (Daily Average)	in-Plant Treated in Intake Water (Daily Average)	(c) Daily Average	Minimum Value Observed or Expected Buring Discharge Activity	Maximum Value Observed or Expected During Discharge Activity	Frequency of Analysis	1	Sample Type
Flow* Gallons per day 00056								
pH Units 00400			X					
Temperature (winter) F 74023								
Temperature (summer) ° F 74027								
Biochemical Oxygen Demand (BOD 5-day) mg/l 00310								
Chemical Oxygen Demand (COD) mg/1 00340								
Total Suspended (nonfilterable) Solids n g/1 00530								
Specific Conductance micrombos/cm at 25° C 00095			X					
Settleable Matter (residue) ml/I (00545								

<sup>\*</sup>Other dividages sharing intake flow (serial numbers).(see instructions)

\* See Item 26

FO	4.5	1G	EN	ic.	1	JSI	3
					4.7		

17. (Cont'd.)

*	Intlu	ent			Effleent			
Parameter and Code 227a	Untreated intake  Water (Daily Average)	In-Plant Treated '	Daily Awrage	Minimum Vaine Observed or Expected Buring Discharge Activity	Maximum Value Observed or Expected During Discharge Activity	Frequency of Analysis,	Number of Analyses of the part	Sumple Type Tiet
							١,	
				+			+	-
							-	_
							+-	-
							1	

18.	Plant Controls Check if the fol- lowing plant controls are available for this discharge.	218	
	Alternate power source for major pumping facility.		☑ APS
	Alarm or emergency procedure for power or equipment failure		Á ALM
	Complete item 19 if discharge is from cooling and/or steam water generation and water treatment additives are used.		
19.	Water Treatment Additives If the discharge is treated with any conditioner, inhibitor, or algicide, answer the following:		
	a. Name of Material(s)	2195	
	b. Name and address of manu- facturer	2195	*
	Quantity founds added per million gallons of water treated).	2196	*

DISCHARGE	SERIAL	NUMBER .

			$\Box$	Т		
1 1	1	1	1 1		1	î.
1 1	- 1	1	1 1		1	1

d. Chemical composition of these additives (see instructions).

2194

220

Complete items 20-25 if there is a thermal discharge (e.g., associated with a steum and/or power generation plant, steel mill, petroleum refinery, or any other manufacturing process) and the total discharge flow is 10 million gallons per day or more. (see instructions)

20. Thermal Discharge Source Check the appropriate item(s) indicating the source of the discharge. (see instructions)

Boiler Blowdown

Boiler Chemical Cleaning

Ash Pond Overflow

Boller Water Treatment - Evaporator Blowdown

Oil or Coal Fired Plants - Effluent from Air Pollution Control Devices

Condense Cooling Water

Cooling Tower Blowdown

Manufacturing Process

Other

21. Discharge/Receiving Water Temperature Difference

> Give the maximum temperature difference between the discharge and receiving waters for summer and winter operating conditions. (see instructions)

Summer

Winter

22. Discharge Temperature, Rate of Change Per Hour

> Give the maximum possible rate of temperature change per hour of discharge under operating conditions. (see instructions)

23. Water Temperature, Percentile Report (Frequency of Occurrence) In the table balow, enter the temperature which is exceeded 10% of the year, 5% of the year, 1% of the year and not at all (maximum yearly temperature). (see instructions)

Frequency of occurrence

- a. Intake Water Temperature (Subject to natural changes)
- b. Discharge Water Temperature
- 24. Water Intake Velocity (see instructions)
- 25. Retention Time Give the length of time, in minutes, from start of water temperature rise to discharge of cooling water. (see Instructions)

1				
1 1		63		BI
	w	0	٠.	DI

- MECCL DAPOF
- DEPBO
- OCFP
- COND
- E CTBD
- MEPR
- OTHR \*

2212

2215

OF./hour 222

Maximum 1% 10% 5% OF OF OF OF 2232 OF OF OF OF 2235

N/A feet/sec. 224

> N/A minutes

F	OF	2 4	G	EN	c	,	is	E

26. Additional Information

Item	, Information	
9,10,11,12	Under normal operating conditions, discharge 004 will not be	***
	used. Discharge 004 is only used under emergency conditions.	
		- E
14,15,16,17	In the remote event of a discharge from outfall 004, the	
19	characteristics of the effluent are the same as that which	. 19.74
777	has been detailed for discharge 001.	
-		
	In the remote event that the Unit 1 MDCT becomes blocked and	
,21,22,23		
	cannot be used, the discharge would then go out outfall 004 and	
	would not receive the additional cooling which would normally	
	be provided by the MDCT. Therefore, the discharge temperature	
	can be expected to be higher than which would normally occur.	
Tarani		
		- 4
		Himi

### SECTION III. WASTE ABATEMENT REQUIREMENTS & IMPLEMENTATION (CONSTRUCTION) SCHEDULE

This section requires information on any uncompleted implementation schedule which may have been imposed for construction of waste abatement facilities. Such requirements and implementation schedules may have been established by local, State, or Federal agencies or by court action. In addition to completing the following items, a copy of an official implementation schedule should be attached to this application. IF YOU ARE SUBJECT TO SEVERAL DIFFERENT IMPLEMENTATION SCHEDULZS, EITHER BECAUSE OF DIFFERENT LEVELS OF AUTHORITY IMPOSING DIFFERENT SCHEDULES (Item 1a.) AND/OR STAGED CONSTRUCTION OF SEPARATE OPERATION UNITS (Item 1c), SUBMIT A SEPARATE SECTION III FOR EACH ONE.

	1 1			and the last of
Improvements	300		SCHED. NO.	
Discharge Serial Number     Affected List the discharge serial numbers, assigned in	3012			
Section II, that are covered by				
this implementation schedule.			N/A	
b. Authority Imposing Require-			,	
ments Check the appropriate	1000			
item indicating the authority for				
Implementation schedule. If				
the identical implementation	2.00			
schedule has been ordered by	14 50			
more than one authority, check	1 6			
the appropriate items. (see instructions)				
Locally developed plan	3016	OLOC		
Areawide Plan		DARE	N/A	
Basic Plan	1 1	□BAS		
State approved implementa- tion schedule		□sqs		
Federal approved water				
quality standards implementa-		□wqs		
tion plan.		Dwds		
Federal enforcement proced-				
ure or action	1 Maria	DENF		
State court order		CRT		
Federal court order		□ FED		
c. Facility Requirement, Specify				
the 3-character code of those		3-character		
listed below that best describes		(general)		
in general terms the require-			**/*	
ment of the implementation	301c		N/A	
schedule and the applicable six-				
character abutoment code(s)	1			
from Table II of the Instruction booklet. If more than one	301d	6-character		
schedule applies to the facility		(specific)		
because of a staged construction	1	(see Table II)	N/A	
schedule, state stage of con-			A/A	
struction beit scribed here				
with the appr - ate general				
action corte,amit a separate				
Section III for each stage of construction planned.				
construction planned.				

New Facility	NEW
Modification (no increase in capacity or treatment)	MOD
Increase in Capacity	INC
Increase in Treatment Level	INT
Both increase in Treatment Level and Capacity	ICT
Process Change	PHO
Elimination of Discharge	E.L.I

FOR AGENCY USE								
			-	T	I	-		
			Li	1				

#### 2. Implementation Schedule and , 3. Actual Completion Dates

Provide dates imposed by schedule and any actual dates of complétion for implementation steps listed below. Indicate dates as accurately as possible. (see instructions)

10	nplementation Steps	2.	Schedula (Yr/Ma./UJy)		3. Actual Completion
a.	Preliminary plan complete	3022		3032	
b.	Final plan submission	3026		3035	
c.	Final plan complete	302c		303a	
d.	Financing complete & contract awarded	3024		3034	/
e.	Site acquired	3020	_/_/_	303.	//
f.	Begin action (e.g., construction)	3021	//_	303#	
g.	End action (e.g., construction)	3029	//_	3039	
h.	Discharge Began	302h	//_	3037	
1.	Operational level attained	3021		3031	

FO	RA	G	EN	ici	,	JS	E
T							
			_			L	L

# SECTION II. BASIC DISCHARGE DESCRIPTION

Complete to a section for each distharge indicated in Section, I. Item III, that is to surface waters. This includes discharges to municipal sewerage systems in a section for each distharge indicated in Section, I. Item III, that is to surface waters. This includes discharges to municipal sewerage systems in a section for each discharge to waters from this facility. SEPARATE DESCRIPTIONS OF EACH DISCHARGE ARE DESCRIPTIONS OF EACH DISCHARGE ARE NOTICE waters from this facility. All values for an existing discharge should be represented by the twelve previous months of operation. If this is a proposed discharge, values should reflect best engineering estimates.

ADDITION - INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

1.	Discharge Serial No. and Name  a. Discharge Serial No.	2012	005		7
	(see Astructions)		N/A		
	b. Discharge Name Give name of discharge, if any. (see instructions)	2016	N/ K		
	c. Previous Discharge Serial No. If previous permit application was made for this discharge (see Item 4, Section I), provide previous discharge serial number.	2016	_N/A		
2.	Discharge Operating Dates				
	Discharge Began Date If the discharge described below is in operation, give the date (within best estimate) the discharge began.	2023	73 01 VR MO		
	Discharge to Begin Date If the discharge has never occurred but is planned for some future date, give the date (within best esti- mate) the discharge will begin.	2026	N/A YR MO		
	c. Discharge to End Date If dis- charge is scheduled to be discon- tinued within the next 5 years, give the date (within best esti- mate) the discharge will end.	2026	N/A YR MO		
3.	Engineering Report Available Check if an engineering report is available to reviewing agency upon request. (see instructions)	203	O N/A		
4.	Discharge Location - flame the political boundaries within which				Agency Use
	the point of discharge is located.	204a	Pennsylvania	2	1040
	State	204b	Dauphin	:	2040
	County		Londonderry Township		2041
	(if app capie) City or Town	204c	Bondone		
5.	Discharge Point Description Discharge is into (check one); (see instructions)				
	Stream (includes ditches, arroyos, and other international watercourses)	2053	ØSTR		
	Lake		OCKE		
	Ccs		Cloce		
	er an en Sundary Wastewater		77116		
	And the state of t		(Zints		
	Must be a Sur-based Suretary and Store are espect System		Dace		
			11-1		e de la company

With crast Storm Water Transport . System		Osrs
(Self-(Line Shan))		□WEL
Other		Потн
1/ father! is checked, specify	2050	· · · · · · · · · · · · · · · · · · ·
Discharge Point — Lat/Long Give the precise focation of the point of discharse to the nearest second.		
Latitude	2063	40 DEG 09 MIN 10 SEC
Longitude	2060	76 DEC 43 MIN 35 SEC
7. Discharge Receiving Water Name Name the waterway at the point of discharge (see instructions)	207#	Susquehanna River
If the discharge is inrough an out- fall that extends beyond the sh- line or is below the mean low water line, complete item 8.	207Ь	For Agency Use  Major Minor Sub  207c  For Agency Use  303e
8. Offshore Discharge		Approx. 40 Discharge Pipe
a. Discharge Distance from Shore	2033	Inv. elevation = 281'05"
<ol> <li>Discharge Depth Below Water Surface</li> </ol>	2035	N/A reet Pipe size = 60"
9. Discharge Type and Occurrence a. Type of Discharge Check whether the discharge is con- tinuous or intermittent. (see instructions)	2093	(con) Continuous
<ul> <li>b. Discharge Occurrence Days per Week Enter the average num- ber of days per week (during periods of discharge) this dis- charge occurs.</li> </ul>	2095	days per week #
c. Discharge Occurrence —Months if this discharge normally operates (either intermittently, or continuously) on less than a year around basis (excluding shutdowns for routine mainte- nance), check the inoriths dur- ing the year when the discharge is operating, (see instructions)	20%	DJAN DFEB DMAR DAPR DMAY DJUN DJUL DAUG *
Complete Items 16 and 11 if "inter" mittent" is checked in Item 9.a., Otherwise, proceed to Item 12.		
<ol> <li>Intermittent Discharge Quantity State the average volume per dis- charge occurrence in thousands of gallions.</li> </ol>	210	thousand gallons per discharge occurrence.
11. Intermittent Discharge Ouration and Frequency		
a. Intermittent Discharge Duration Per Day. State the average mission of nours per day the discharge isoperating.	2113	* Intermittent flow dependent on rainfal
b. Intermittent Discharge Frequency State the average to approve of discharge accurately to the day guide days	2115	* discharge occurrences per day and scheduling of cooling tower cleani operations.

12. Maximum Flow Period Give the

	0	R A	40	EN	+C	Y 1	US	E
Г								
L								

13.	Activity Description Give a
	producing this discharge (see
	iosceuntents)

2133	Construction runoff associated with TMI Unit rainfall runoff from the TMI site and the cooling tower cleaning operations are the maj	- T
	activities which comprise this discharge.	
		-21
		٠

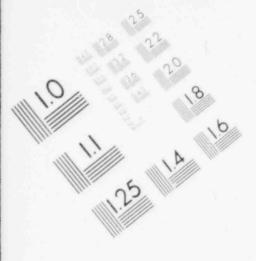
14. Activity Causing Discharge For each SIC Code which describes the activity cairsing this discharge, supply the type and maximum amount of either the raw material consumed (Item 14b) or the product produced (Item 14b) in the units specified in Table I of the Instruction Book et. For SIC Codes not listed in Table I, use raw material or production units normally used for measuring production.(see instructions)

N/A

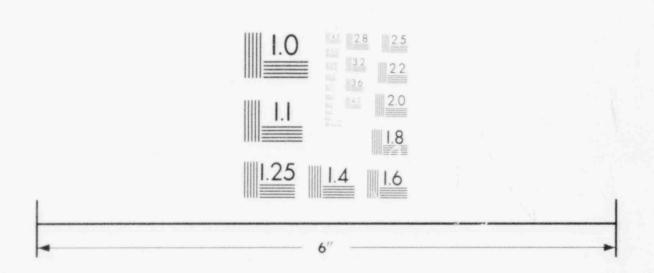
a. R aterials N/A

SIC Code	Name	Maximum Amount/Day	Unit (See Table I)	Shared Discharges (Serial Number)
(1)	(2)	(3)	(4)	(5)
-				
Section of the Control of the Contro				

Products SIC Code	Name	Maximum Amount/Day	(See Table I)	(Serial Number)
b (1)	(2)	(3)	(4)	(5)
4911	Electric	1.706	Z-1	N/A
	Services			



# IMAGE EVALUATION TEST TARGET (MT-3)



# MICROCOPY RESOLUTION TEST CHART



FO	RA	G	EN	CY	UŞE
T			T	T	IT
				1	11

VY 23		

à.	Waste Abatement Practices
	Describe the waste abatement
	practices used on this discharge
	with a brief narrative. (see
	instructions)

5.	Waste Abatement Codes
	Using the codes listed in Table
	If of the Instruction Booklet,
	describe the waste abatement
	processes for this discharge in
	the order in which they occur
	If early his

Narrative: All fl	ows which are	directed to the	nis.
discha	rge are first	collected and	
channe	lled to the sec	dimentation ba	sin.
Follow	ing sedimentat	ion, the flow	is discharge
to the	Susquehanna R	iver	* 3-1
*			
			-
			***************************************
(1) PSEDIM	. (2)		
(4)	. (5)		
(7)	_, (8)	. (9)	
(10)	. (11)		
(13)	. (14)	, (15)	·
(16)	_, (17)		
(19)	. (20)	. (21)	
(22)	(23)	. (24)	

FOR AGENCY USE								
	П	T	T				۱	
		1	1				Ŀ	

#### 16. Wastewater Characteristics

Check the box buside each constituent which is present in the effluent (discharge water). This determination is to be based on actual analysis or pest estimate (see instructions)

Parameter 2,16	Present	Parameter 216	Presont
Color 00080		Copper 01042	
Ammonia 00610		Iron 01045	
Organic nitrogen 00605		Lead 01051	
Nitrate 00620 .		Magnesium 00927	_
Nitrite 00615		Manganese 01055	
Phosphorus 00665		Mercury 71900	_
Sulfate 00945		Molybdenum 01062	_
Sulfide 00745		Nickel 01067	
Sulfite 00740		Selenium 01147	
Bromide 71870		Silver 01077	
Chloride 00940		Potassium 00937	
Cyanide 00720		Sodium 00929	
Fluoride 00951		Thallium 01059	
Aluminum 01105		Titanium 01152	
Antimony 01097		Tin . 01102	
Arsenic 01002		Zinc 01092	
Beryllium 01012		Algicides* 74051	
Barium 01007		Chlorinated organic compounds* 74052	
Boron 01022		Posticides* 74053	
Cadmium 01027		Oil and grease 00550	
Calcium .		Phenois 32730	
Cobait 01037		Surfactants 38260	
Chromium 01034		Chlorine 50060	
Fecal coliform bacteria 74055		Radioactivity* 74050	

<sup>\*</sup>Specify substances, compounds and/or elements in Item 26.

Pesticides (insecticides, fungicides, and re-fenticides) must be reported in terms of the acceptable common names specified in Acceptable Common? ones and Chemical Names for the Ingredient Statement on Pesticide Labels, 2nd Edition, Environmental Protection Agency, Washington, D.C. 20250, June 1972, as required by Subsection 162.7(b) of the Regulations for the Enforcement of the Federal Insecticide, Fungicide, and Rodenticide Act.

## DISCHARGE SERIAL NUMBER

F	OR	A	CÉ	No	Y 1	JS	•
	T	T	T	T	T		1
-	1	-1	1	1	1	1	

#### 17. Unscription of Intake and Discharge

For each of the parameters listed below, enter in the appropriate box the value or code letter answer called for (see instructions)

In addition, enter the parameter name and code and all required values for any of the following parameters if they were checked in Item 15; ammonia, cyanide, aluminum, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, zinc, phenois, oil and grease, and chloring (residual).

and chioring (residual).	Infli	ant.	1		Efficient		244	-
Parameter and Code 217a	Untreated Intake  Water (Daily Average)	In-Plant Treated .  Daily Average)	G Daily Average	Minimum Vaiue Observed or Expected During Discharge Activity	Maximum Value Observed or Expected During Discharge-Activity	Frequency of Analysis ,	-	Sample Type
Flow Callons per day	*	*	*	à	*	•	*	*
pli Units 00400			X					
Temperature (winter) F 74028	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/
Temperature (summer) * F 74027	N/A	N/A	N/A	· N/A	N/A	N/A	N/A	N/A
Biochemical Oxygen Demand (BOD 5-day) mg/l 30310	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/
micel Oxygen Demand (COD)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/
Total Suspended (nor filterable) Solids mg/1 00530								
Specific Conductance micromhodom at 25° C 00093	N/A	N/A	X	II/A	N/A	N/A	N/A	N/
Settleable Matter (residue) mt/I 00545	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/

<sup>\*</sup>Other discharges sharing intake flow (serial numbers) (see instructions)

<sup>\*</sup>See Item 26 - Additional Information

FOR AGENCY USE										
					100					

17. (Cont's.)

	· Intlu	ent			Effluent -			
Parameter and Code 217a	Untreated Intake  Water (Daily Average)	In-Plan: Treated  Daily Awrage)	C Daily Average	Minimum Value Observed or Expected During, Discharge Activity	Maximum Value Observed or Expected During Discharge Activity	Frequency of Analysis	3 Number of Analyses : 1823, 345	S Sample Type !!
		THE REAL PROPERTY.						
	-			-			+	
				-		•	+	

18.	Plant Controls Check if the fol- lowing plant controls are available for this discharge.	218		
	Alternate power source for major pumping facility.		□ APS N/A	
	Alarm or emergency ocedure for power or equipment failure		DALM N/A	
	Complete item 19 if discharge is from cooling and/or steam water generation and water treatment additives are used.			
19.	Water Treatment Additives If the discharge is treated with any conditioner, innipitor, or algicide, answer the following:			
	a. Name of Material(s)	2193	N/A	
	b. Name and address of manu- facturer	2195	N/A	
	c. Quantity (pounds added per	2190	N/A	
	million gations of water treated).	1		

FO	RAC	ENCY	USE
F			Ti:

d. Chemicsi composition of these additives (see instructions).

2194

220

N/A

Complete items 20-25 if there is a thermal discharge (e.g., associated with a steam and/or power generation plant, steel mill, petroleum refinery, or any other manufacturing process) and the total discharge flow is 10 million gallons per day or more. (see instructions)

 Thermal Discharge Source Check the appropriate item(s) indicating the source of the discharge. (see instructions)

Boiler Blowdown

Boiler Chemical Cleaning

Ash Pend Overflow

Boiler Water Treatment - Evaporator Blowdown

Oil or Coal Fired Plants - Effluent from Air Pollution Control Devices

Condense Cooling Water

Cooling Tower Blowdown

Manufacturing Process

Other

21. Discharge/Receiving Water Temperature Difference

Give the maximum temperature difference between the discharge and receiving waters for summer and winter operating conditions. (see instructions)

Summer

Winter

22. Discharge Temperature, Rate of Change Per Hour

Give the maximum possible rate of temperature change per hour of discharge under operating conditions. (see instructions)

23. Water Temperature, Percentile Report (Frequency of Occurrence)

in the table below, enter the temperature which is exceeded 10% of the year, 5% of the year, 1% of the year and not at all (maximum yearly temperature). (see instructions)

Frequency of accurrence

- a. Intake Water Temperatura (Subject to natural changes)
- b. Discharge Water Temperature
- 24. Water Intake Velocity (see instructions)
- Retention Time. Give the length of time, in minutes, from start of water temperature rise to discharge of cooling water. (see instructions)

U	8	L	日	£
[	-	-	,	4

DAPOF .

APOP N/A

□ EPBD

OCFP

COND

MEPR

OTHR

2212 \_\_\_\_o<sub>F</sub>. N/A

221b \_\_\_\_\_ OF. N/A

222

2233

2235

224

225

\_\_\_\_oF./hour N/A

0F 0F 0F 0F 0F

N/A

\_\_\_fcet/sec.

\_\_\_minutes N/A

N/A

# DISCHARGE SERIAL NUMBER

F	OF	A	G	EN	c	,	ISI	Ē

26. Adultional Information

	The state of the s
16, 17.	Intermittent flow, dependent on rainfall. Cooling tower cleaning flo
	is as described in our letter of May 15, 1979 CQL 0691.
	· **:
	Data on suspended solids and pH to be supplied after the conclusion
	of the Unit 1 cooling tower cleaning operation which began in late
	July 1979.
4-1-4	

FO	RA	CE	ic	Y	USA	Ē
T	IT	T	T	T.	1	4
	1 1	-				

## STANDARD FORM C - MANUFACTURING AND COMMERCIAL

#### SECTION III. WASTE ABATEMENT REQUIREMENTS & IMPLEMENTATION (CONSTRUCTION) SCHEDULE

This section requires information on any uncompleted implementation schedule which may have been imposed for construction of waste abatement facilities. Such requirements and implementation schedules may have been established by local, State, or Federal agencies or by court action. In addition to completing the following items, a copy of an official implementation schedule should be attached to this application. If YOU ARE SUBJECT TO SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES, EITHER BECAUSE OF DIFFERENT LEVELS OF AUTHORITY IMPOSING DIFFERENT SCHEDULES (Item 1a.) AND/OR STAGED CONSTRUCTION OF SEPARATE OPERATION UNITS-(Item 1c), SUBMIT A SEPARATE SECTION III FOR EACH ONE.

- 1			FOR AG	ENCY USE
00			SCHED. NO.	
012			N/A	
015	DLOC			
1	DARE	N/A		
	□BAS			
	□sqs			
	□wqs			
	DENF			
	CRT			
	□ FED			
010	3-character (general)	N/A		
014	6-character (specific) (see Table II)			

New Facility	NEW
Modification (no increase in capacity or treatment)	MOD
Increase in Capacity	INC
Increase in Treatment Level	INT
Both increase in Treatment Level and Capacity	ICT
Process Channe	PRO
Elimination of Discharge	ELI

F	OR	A	GE	NC	Y	us	2
	T	T	T	T			
	1	1	1				L

2. Implementation Schedule and \*3. Actual Completion Dates

N/A

Provide dates imposed by schedule and any actual dates of completion for implementation steps listed below. .
Indicate dates as accurately as possible. (see instructions)

Implementation	on Steps	. 2	Schedule (Yr./Mo./Day)		3. Actual Completion (Yr./Mo./Qar
a. Preliminary	y plan complete	3023	//	3032	
b. Final plan	submission	3025		3035	
c. Final plan	complete	302c		303e	_/_/_
d. Financing o	complete & contract awarded	3024		3034	
e. Site acquire	ed	3020		3039	//
f. Begin actio	n (e.g., construction)	302f		3034	
g. End action	(e.g., construction)	3029		3039	. —/—/—
h. Discharge E	Began	302h		3037	/
i. Operationa	l level attained	3021		3031	

RECEIVED COMMONWEALTH OF PENNSYLVANIA

RECEIVE COMMONWEALTH OF PENNSYLVANIA

RECEIVE COMMONWEALTH OF PENNSYLVANIA

RECEIVE COMMONWEALTH OF PENNSYLVANIA

RECEIVE COMMONWEALTH

Mr. Eric Nielsen Metropolitan Edison Company P. O. Box 542 Reading, Pennsylvania 19603

Dear Mr. Nielsen:

We have considered your proposal to discharge water from the cooling towers serving Unit 1. We understand that the purpose of this discharge is to drain the water from the cooling towers so that they can be cleaned. The plan for discharging such water is set forth in a letter by Mr. Troffer to the Department on December 28, 1978, supplemented by a letter from Mr. Troffer on May 15, 1979.

The proposal is hereby approved, subject to the following condition:

- 1. Before discharging any water from the cooling towers, you are to analyze the water in the cooling towers for gross Alpha, gross Beta, and Tritium. Should any of these materials appear in the analysis above the minimum detectable limits, you are to notify me immediately.
- You are to notify James Flesher, Chief, Operations Section, in our Harrisburg Regional
  Office, at least one day prior to the dewatering operation.
- 3. Monitoring of the discharge shall consist of one sample collected two to three hours after the start of the discharge and again after 75% of the water has been discharged. The sample should be analyzed for chlorine, residual and total suspended solids.
- 4. Monitoring of the discharge from the desilting basin on the east side of the Island shall consist of a daily sample and be analyzed for pH, total suspended solids, and iron.

- be submitted to Mr. James Flesher no later than two weeks after completion of the cleaning operation. Initially, Mr. Flesher shall be notified immediately by telephone if the pH is ever less than 6 or greater than 9, the suspended solids exceed 100 mg/l, or if the total iron exceeds 7 mg/l.
- 6. You are also to notify Mr. Flesher immediately on completion of the cleaning operation.

If you have any questions concerning these conditions, please call James Flesher.

inderely yours

Ernest F. Giovannitti, Chief

Division of Non-Point and Industrial Sources

DEPARTMENT OF ENVIRONMENTAL RESOURCES, IL -! " C',

407 South Cameron Street
Harrisburg, Pennsylvania 17101
(717) 787-9655
January 29, 1979

Copies M

Industrial Waste
Metropolitan Edin
Londonderry To ...ship
Dauphin County

Eric S. Nielsen Metropolitan Edison Company P.O. Box 542 Reading, PA 19603 Copies M 3CC- AUT 1CC- A

RE: Three Mile Island Nuclear Station (TMI)

Dear Mr. Nielsen:

As we have discussed, we have completed the review of your request to discharge water from the natural draft cooling towers serving unit #1 during the refueling outage. This would consist of discharging 12 million gallons of water in the cooling tower basins directly to the river through outfall 001 and of approximately 1 million gallons which would remain in the tower basins, plus water used to flush any accumulated solids in the cooling tower basins during the cleaning operation. All of this flow will be treated through the desilting basin in the east dam area and discharged at that point.

This is to notify you that this scheme, as described in Mr. Troffer's letter of December 28, 1978, is approved provided that the following conditions are met:

- You are notify this office at least 1 day prior to the start up of the dewatering operation.
  - 2. Monitoring of the 12 million gallons of water discharged through outfall and should consist of one sample collected two to times hours after the start of discharge, and again after app oximately 15% of the water has been discharged, and analyzed for chlorine residual and total suspended solids. This sample should be collected prior to mixing with other wastewater from outfall 001. In addition to the above monitoring, a sample should be collected of the combined discharges at outfall 001 at about the same time the sample at the 75% mark is collected on the cooling water discharge. This sample should also be analyzed for chlorine residual and total suspended solids.

Metropolitan Edison Page 2 January 29, 1979

- 3. Monitoring of the discharge from the desilting basin at the east dam should consist of a daily sample collected at the discharge side of the effluent weir and analyzed for pH, total suspended solids, and total iron.
- 4. Results of the analyses of all the above listed monitoring should be submitted to this office no later than two weeks after the completion of the cleaning operation. Additionally, we should be notified immediately by telephone if the pH is outside the limit of 3 to 9, suspended solids exceed 100 mg/l, or if total iron exceeds 7.0 mg/l for the discharge from the desilting basin in the east dam area.
- You are to notify this office upon completion of the cleaning operation.

If the above conditions are mat, we believe that the water quality of the river will be protected during this opeariton. If you have any questions concerning these conditions, please call me.

Very truly yours,

James T. Flesher, Chief

Operations Section

Harrisburg Regional Office

JTF:kew

02.0016.0003.0050.01 63 0050, 0021, 0007 COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES Room 1002 Health & Welfare Building Copies to Harrisburg, Pennsylvania 17120 (717) 787-9665 300 GUT February 22, 1978 ICC JGH Ive Chrono Orig Hold File Industrial Waste Londonderry Township ICE RMK Dauphin County 100 GPM. Har ice subject J. G. Herbein, Vice President Generation Metropolitan Edison Company 2800 Pottsville Pike Reading, Pennsylvania 19603 SUBJECT: Industrial Waste Permit No. 2277206 Gentlemen: Water Quality Permit No. 2277206 is enclosed. This permit covers thermal effluent criteria for the mechanical draft cooling towers' discharge. The thermal effluent criteria supersedes the thermal conditions i. ermit No. 2270204; however, other conditions and terms in Permit No. 2270204 remain effective. Special Conditions B and C in Permit No. 2277206 refer to a chlorine residual limit and to submission of a report six months after Units I and 2 are in operation. The report to be submitted shall contain documentation to support cooling water flow-through times for the anticipated minimum, maximum and average discharge volumes at discharge point 001 and documentation of total residual chlorine concentrations at discharge point 001 for periods when chlorination is not occurring. At least three 24-hour surveys for maximum, minimum and average discharge volumes should be conducted, and each survey should consist of total residual chlorine measurements at intervals to be agreed upon at a later date. Very truly yours, Terry R. Fabian Regional Water Quality Manager Harrisburg Regional Office TRF: kew Enclosure cc: Cerald L. Master, P.E. 100% recycled paper.

# COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES BUREAU OF WATER QUALITY MANAGEMENT

WATER	OHALITY	MANAGEMENT	PERMIT
THE PARTY	C C C C C C C C C C C C C C C C C C C		A STATE OF THE PARTY OF THE PAR

NO. \_2277206

	TER QUALITY MAN	B. PROJECT LOCATIO		
Metropolitan Edison Comp 2800 Pottsville Pike Reading, Pennsylvania		County Dauphin  D. NAME OF MINE, PLANT, AREA SERVED, OUTFALL NO., ETC.		
Nuclear Electric Power	and the second second second	Three Mile 1 Outfall 001	Island - Units 1 and 2;  4. The Operation of a Mine	
Plans For Construction Of:  Pump Stations; Sewers and Appurtenances  Sewage Treatment Facilities  Industrial Wastes	a. X Treated c. Sewage	b. Untreated  d. X Industrial Wastes	Maximum Area to be Deep Mined Acres  5. An Erosion and Sedimentation Control Plan  Project Area is	
d. Treatment Facilities  Mine Drainage Treatment Facilities  e. Outfall & Headwall  f. Stream Crossing  g. Impoundment	3. Discharge To:  a. X Surface Water  Name of Str water discha	Susquehanna eam to which discharginge takes place or important	ad or drainage area ill willer	
OF THE Industria  AND CONDITIONS NUMBERED	1/6/78  MADE A PART OF THIS  3, 7, 8, 9, 14,  Waste  WHICH CON	10/10/77 SUCH APPLICATION  16, 20 and 21  STANDARD CONDIT  OF THE EROSION CONDITIONS ARE ATTACHS	ATION, IT'S SUFFORTING	
3. SPECIAL CONDITION(S) DESIGNATION ARE ATTACHED AND ARE	IS MADE A FARI OF	A P. Marian Company of the Company o	OVALIEICATIONS:	
			A PLIES OF TALL PROPERTY.	
1. IF THERE IS A CONFLICT BETW STANDARD OR SPECIAL COND: 2. FAILURE TO COMPLY WITH TH OF THIS PERMIT SHALL VOID	E RULES AND REGULATIONS THE AUTHORITY GIVEN	O THE FOLLOWING FUI OR ITS SUPPORTING DO OR SPECIAL CONDITION HONS OF THE DEPARTM TO THE PERMITTEE BY HEAMS LAW, ACT OF JUNI HION ACT, ACT OF JUNI LL NOT HELIEVE THE I	RTHER QUALIFICATIONS:  COUMENTS AND AMENDMENTS AND THE  SSHALL APPLY.  SENT OR WITH THE TERMS OR CONDITION THE ISSUANCE OF THE PERMIT.  INE 22, 1937, P.L. 1987 AS AMENDED, E 25, 1913, P.L. 555 AS AMENDED, PERMITTEE OF ANY RESPONSIBILITY  ENT OF SHIVIRONMENTAL RESOURCES	

Londonderry Township Industrial Waste Page 2 Dauphin County Permit No. 2277206 This permit is issued subject to all Department of Environmental Resources Rules and Regulations now in force and the following Special Conditions: The quality of effluent discharged from Outfall 001, Combined Mechanical Draft Cooling Tower Blowdown, shall be limited at all times as follows: 1. The permittee shall at all times maintain in good working order and operate the Mechanical Draft Cooling Towers (MDCT's) as efficiently as possible so as to minimize temperature differential between ambient river temperature and the temperature of the discharge; provided, however, the MDCT's may be shut down when in the judgment of the responsible TMINS personnel a combination of atmospheric conditions and river temperature may exist which causes the waste water to be heated as it passes through the MDCT's or ice formation is observed to occur within the MDCT's. 2. The temperature of the discharge shall never exceed a maximum of 87° F, except when the ambient river temperature exceeds 8) F, in which case, the discharge temperature shall not exceed the ambient river temperature; the temperature of the discharge shall not change by more than 50 F during any one hour period. Ambient river temperature is the temperature of the river upstream of the heated waste discharge. The ambient temperature sampling point should be unaffected by any sources of waste heat. The temperature of the intake water will be considered as ambient river temperature so long as the intake water is unaffected by TMI's or any other nearby heated water discharge.

The following temperature limitations shall never be exceeded:

a. During the period November 1 through April 30 the temperature of the discharge shall not exceed 12° F above ambient river temperature.

b. During the period May 1 through October 31 the temperature of the discharge shall not exceed 7° F above ambient river temperature.

 During plant 'ooldown operations the temperature of the discharge shall not exceed 12° F above ambient river temperature.

#### COMMONWEALTH OF PENNSYLVANIA

## DEPARTMENT OF ENVIRONMENTAL RESOURCES

STANDARD CONDITIONS RELATING TO INDUSTRIAL WASTES

For use in Water Quality Management Permits

1971

## General

- 1. The plans for which this permit is issued are approved subject to the condition that the waste treatment plant constructed under said plans will produce an effluent satisfactory to the Department. By this approval, neither the Department nor the Commonwealth of Pennsylvania assumes any responsibility for the feasibility of the plans or the operation of the plant to be constructed thereunder.
- All relevant and non-superseded conditions of any prior water quality management permits, decrees, or orders issued to the herein permittee or his predecessor shall be continued in full force and effect and together with the provisions of this permit shall apply to his successors, lessees, heirs and assigns.
- The responsibility for the carrying out of the conditions of this permit shall rest upon the owner, lessee, assignee, or other party in responsible managerial charge of the operation producing the wastewaters and of the waste treatment works herein approved, such responsibility passing with each succession in said control. Approval of a discharge or facilities under a permit shall not be effective as to a new owner until a transfer has been executed and filed on forms provided by the Department and the transfer is approved by the Department.
- 4. The permittee shall secure any necessary permission from the proper federal authority for any outfall or industrial waste treatment structure which discharges into or enters navigable waters and shall obtain approval of any stream crossing, encroachment or change of natural stream conditions coming within the jurisdiction of the Department.
- 5. In order to avoid obsolescence of the plans of waste treatment works, the approval of the plans herein granted, and the authority granted in the permit, if not specifically extended, shall cease and be null and void two years from the date of this permit unless the works covered by said plans shall have been completed and placed in operation on or before that date.

efers to functional design and n

6. Approval of plans refers to functional design and not structural stability, which is assumed to be sound and in accordance with good structural design. Failure of the works herein approved because of faulty structural design or poor construction will render the permit void.

7. The Department may at a subsequent time modify, suspend or revoke this permit whenever the waters affected by the presently authorized waste discharge have become so improved in character through natural or artificial processes of conservation or reclamation as to render inimical or harmful the effluent from the works herein approved, or whenever the Department increases treatment requirements for wastes generally.

Therefore, the permittee is hereby notified that when the Department shall have determined that the public interest requires the further treatment of such of the permittee's industrial wastes as are discharged to the waters of the Commonwealth, then upon notice by the Department and within the time specified, the permittee shall submit to the Department for its approval, plans and a report providing for the required degree of treatment, and after approval thereof, shall construct such works in accordance with the requirements of the Department.

- 8. If at any time the industrial waste treatment works of the permittee, or any part thereof, or the discharge of the effluent therefrom, shall have created a public nuisance, or such discharge is causing or contributing to pollution of the waters of the Commonwealth, the permittee shall forthwith adopt such remedial measures as are acceptable to the Department.
- 9. Nothing herein contained shall be construed to be an intent on the part of the Departm + to approve any act made or to be made by the permittee inconsistent with the permittee's lawful powers or with existing laws of the Commonwealth regulating industrial wastes and the practice of professional engineering, nor shall this permit be construed to sanction any act otherwise forbidden by any of the laws of the Commonwealth of Pennsylvania or of the United States.

## Construction

- 10. The works shall be constructed under expert engineering supervision and competent inspection, and in accordance with plans, designs, and other data as herein approved or amended, and with the conditions of this permit.
- 11. No radical changes shall be made in the works herein approved without approval of the Department. Revisions which do not increase the rate of flow or change the quality of the effluent, the treatment processes or the point of discharge, may be approved by the Regional Sanitary Engineer upon submission of plans. Other revisions must be approved by a permit.

- 12. The outfall sewer or drain shall be extended to low water mark of the receiving body of water in such a manner as to insure the satisfactory dispersion of its effluent thereinto; insofar as practicable it shall have its outlet submerged; and shall be constructed of cast iron, concrete, or other material approved by the Department; and shall be so protected against the effects of flood water, ice, or other hazards as to reasonably insure its structural stability and freedom from stoppage.
- 13. When the herein approved industrial waste treatment works is completed and before it is placed in operation, the permittee shall notify the Department so that an inspection of the works may be made by a representative of the Department.

# Operation and Maintenance

- No matter how well designed and carefully constructed a waste treatment works may be, full effectiveness cannot be developed unless it is efficiently operated. In order to secure such efficiency, protect the waters of the Commonwealth, and insure the most effective and economical dosage when chemicals are used, the permittee is required to place the works under the used, the permittee is required to place the works under the regular charge of a responsible plant official, and its operation under the control of the designer of the works or other qualified person approved by the Department, for at least one year after completion. Moreover, upon written notice from the Department, the permittee shall maintain one or more skilled operators regularly on duty for such daily periods as the Department may direct.
- The right to discharge the effluent from the herein approved industrial waste treatment works into the waters of the Commonwealth is contingent upon such operation of these works as will at all times produce an effluent of a quality satisfactory to the Department. If, in the opinion of the Department, these works are not so operated or if by reason of change in the character of wastes or increased load upon the works, or changed use or condition of the receiving body of water, or otherwise, the said effluent ceases to be satisfactory for such discharge, then upon notice by the Department the right herein granted to discharge such effluent shall cease and become null and void unless within the time specified by the Department, the permittee shall adopt such remedial measures as will produce an effluent which, in the opinion of the Department, will be satisfactory for discharge into the said receiving body of water.
- 16. No untreated or ineffectively treated wastewaters shall at any time be discharged into the waters of the Commonwealth, and especial care shall be used to prevent accidental "spills" or similar unusual discharges of all raw, finished and waste materials.

- 17. No storm water, sewage or other industrial wastes not specifically approved herein, shall be admitted to the works for which this permit is issued, unless with the approval of the Department.
- 18. The various structures and apparatus of the industrial waste treatment works herein approved shall be maintained in proper condition so that they will individually and collectively perform the functions for which they were designed. In order to insure the efficacy and proper maintenance of the treatment works, the permittee shall make periodic inspections at sufficiently frequent intervals to detect any impairment of the structural stability, adequate capacity, or other requisites of the herein approved works which might impair their effectiveness, and shall take immediate steps to correct any such impairment found to exist.
- 19. Any screenings, and any settled or floated solids, shall at no time be permitted to accumulate in sedimentation basins to a depth sufficient to interfere with the settling efficiency thereof. Any such material removed shall be handled and disposed of so that a nuisance is not created and so that every reasonable and practical precaution is taken to prevent the said material from reaching the waters of the Commonwealth.
- 20, The permittee shall keep records of operation and efficiency of the waste treatment works and shall submit to the Department, promptly at the end of each month, such report thereon as may be required by the Department.
- The discharge of untreated or improperly treated industrial wastes to the waters of the Commonwealth is contrary to the requirements of the Department. If, because of accidental breakdown of the treatment works or plant equipment or for other reason, any such discharge should occur, then the operation of the mill or process producing such discharge shall be discontinued until repairs to the treatment works or other satisfactory measures to prevent wa'er pollution shall have been completed.

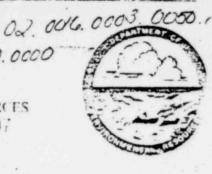




63.0000.0000

DIPARIMINT OF INVIRONMENTAL RESOURCES

407 South Cameron Street 377 Harrisburg, Pennsylvania 17101 (717) 787-9665 00. August 23, Company 17011 UNISION.



Sewerage Permit No. 2275419 Three Mile Island Met-Ed Londonderry Township Dauphin County

Mr. J. F. Hilbish Metropolitan Edison Company P. O. Box 542 Reading, PA 19640

Dear Mr. Hilbish:

Sewerage Permit No. 2275419 has been extended to January 23, 1982, as requested by your letter of August 7, 1979.

Very truly yours,

frmes 1 Lount

James V. Donato, P.E. Chief, Facilities Section Harrisburg Regional Office

JVD:smw

