(22)

1004
Revision 11
08/15/78

APR 2 3 1979

CONTROLLED COPY

CENTRAL FILE

THREE MILE ISLAND NUCLEAR STATION

STATION ADMINISTRATIVE PROCEDURE 1004
EMERGENCY PLAN
Volume I - Units I and II
Table of Effective Pages

Page	Date	Revision	Page	Date	Revision	Page	Date	Revision
		Revision						Date
Section 1		Uncontrolled						
Section 2		2						02/15/78
Section 3		0 Letters of Agreement						01/16/78
Section 4		Uncontrolled (State Supplied)						
Section 5		Emergency Plan Implementing Procedures (1670 Series)						
1670.1		6						02/13/78
1670.2		8						02/13/78
1670.3		6						02/13/78
1670.4		3						02/15/78
1670.5		0						01/16/78
1670.6		2						01/16/78
1670.7		3						02/15/78
1670.8		0						01/16/78
1670.9		5						02/15/78
1670.10		0						01/16/78
1670.11		0						01/16/78
1670.12		5						01/16/78
1670.13		1						06/23/77
1670.14		6						06/29/78
1670.15		0						01/16/78

Unit 1 Staff Recommends Approval

Approval N/A Date —
Cognizant Dept. Head

Unit 2 Staff Recommends Approval

Approval N/A Date —
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

[signature] Date 8/7/78
Chairman of PORC

Unit 2 PORC Recommends Approval

R P Warren Date 8/9/78
V- Chairman of PORC

189 089

Unit 1 Superintendent Approval

J. P. O'Hanlon Date 8/15/78

Unit 2 Superintendent Approval

G. K. Hellings Date 8/15/78

Manager Generation Quality Assurance Approval N/A Date —

TMI 55 A Rev 8/77

1004
Revision 1
01/16/78

TABLE OF CONTENTS

THREE MILE ISLAND EMERGENCY PLAN

1.0 INTRODUCTION AND SITE DESCRIPTION

This plan deals with all types of emergencies that can be encountered at Three Mile Island. Operational emergencies are covered in the 1200 operational procedures and in alarm responses.

2.0

The attached figure shows the interrelationship of all the emergencies covered in this plan. (See Enclosure I.)

2.1 LOCATION OF PLANT

The Three Mile Island Nuclear Station is located on Three Mile Island in the Susquehanna River about 10 miles southeast of Harrisburg, Pennsylvania. It is in Londonderry Township of Dauphin County, about 2½ miles north of the southern tip of Dauphin County, where Dauphin is coterminal with York and Lancaster Counties. Its location with respect to the surrounding topographic and cultural features is indicated on Figure 2.1-1.

Three Mile Island is one of the largest of a group of several islands in the Susquehanna River and is situated about 900 feet from the east bank. It is elongated parallel to the flow of the river, with its longer axis oriented approximately due north and south. Upstream, the southeasterly flowing Susquehanna River makes a sharp change in direction to nearly due south in the vicinity of Middletown. After this directional change just north of Three Mile Island, the channel widens to appproximately 1.5 miles.

Figure 2.1-2 is a drawing of the site showing the location of the plant buildings, cooling towers, and the character of the immediate surroundings.

An access bridge now used by Met-Ed personnel, connects State Highway Route 441 with the north end of the island across Sand Beach Island. A wood access bridge connects the south end of the island with Route 441. This bridge is used for other site personnel, visitors, and construction equipment. After construction is completed, this bridge will be used for recreational development and access. Route 441 is a two-lane, black top road, which runs north and south parallel to Three Mile Island on the east bank of the Susquehanna River and is more than 2000 feet from the reactors at the closest point.

The plant site is surrounded, except along its southern border by the York Haven pond, formed by a low dam east and south of the site. This York Haven Dam does not have locks, and there is no commercial water transportation

on the river adjacent to the site. On the east bank of the river there is a Penn-Central Railroad one-track line adjacent and parallel to Route 441. On the west bank there is a multitrack Penn-Central line at the river's edge about 1½ miles west of the site and a black top, two-lane road parallel to it. There is a one-track spur across the bridge on the north end of the island to be used for site related activities.

The site is part of an 814-acre tract consisting of Three Mile Island and several adjacent islands which were purchased by a predecessor company of Met-Ed in the early 1900's. These lands are part of the York Haven licensed power project - FPC 1888. This land is used primarily for recreational purposes.

Of the 470 acres which comprise Three Mile Island approximately 200 acres on the northern portion of the island are set aside for the plant. The island is relatively flat land and wooded on the periphery and on the southern portion.

2.2 HUMAN ACTIVITIES IN THE ENVIRONS

The present and projected population distribution as a function of distance and direction from the plant location based on 1970 census is shown on Figure 2.2-1.

The population of surrounding residential areas, school districts, hospitals and industries are tabulated in Tables 2.2-1, 2.2-2, 2.2-3, and 2.2-4 respectively.

The land within a ten mile radius of the site is used primarily for farming, as shown on Figure 2.2-2. Farm produce includes diary, tobacco, poultry, vegetable, fruit, alfalfa, corn, wheat and other products.

A summary of land use for Dauphin County, in which the site lies, and for the two other nearest counties (York and Lancaster) is shown on Table 2.2-5.

There are two airports in the site region, Harrisburg International Airport, 2⅗ miles northwest and Capital City Airport, eight miles WNW.

The present uses of the streams in the vicinity are for water supply, both public and industrial, power generation, boating, fishing, and recreation. Sport fishing is done in all streams in the general area of the site; however, commercial fishing is not practiced in the area. Figure 2.2-3 shows the location of lakes and reservoirs within a 50-mile radius of the site. Table 2.2-6 lists pertinent data for these lakes and reservoirs.

The only power station in the immediate upstream vicinity of the project is Crawford Station, owned and operated by Metropolitan Edison Company. Crawford is located about 2½ miles upstream from the site on the east bank of the Susquehanna River.

Immediately downstream from the site is the York Haven hydroelectric project, consisting of: Main dam averaging approximately 10 feet in height, extending about 4,970 feet across the main river channel to Three Mile Island; a secondary dam, about 8 feet high extending 950 feet across the east channel of the river; a pool extending approximately 3½ miles upstream from the dams, containing about 10,000 acre-feet of volume; and a head race wall about 20 feet in height extending from the west end of the main dam approximately 3000 feet to the powerhouse, which contains 20 units generating a total capacity of about 20,000 Kw.

The small reservoir formed by the York Haven Dam is the principal source of recreational use of the river at the site. Sport fishing is done along the river, but the primary recreational use of the reservoir is for pleasure boating.

The York Haven Station is operating on a run-of-the-river bases, and its power output is dependent primarily upon the water available. However, the reservoir is used for peaking operation during periods of low river flow; and under these conditions the drawdown of the pool is 1.1 feet maximum, which provides about 20,000 Kwh for use in peak load periods.

Brunner Island Station, a large steam-electric generating plant owned by the Pennsylvania Power and Light Company, is located on the Susquehanna River approximately one mile downstream from York Haven Powerhouse. This station uses water from the river on a run-through basis for cooling water. York Haven Station maintains a minimum flow in the river of 1,000 cfs for Brunner Island.

Three other hydroelectric generating stations are located downstream from the project, with each project having a dam and reservoir on the Susquehanna River. The three stations are Safe Harbor, Holtwood, and Conewingo Hydroelectric projects, located approximately 25, 31, and 47 miles south of Three Mile Island, respectively. There is also a coal fired, steam-electric plant at Holtwood, and the Muddy Run pumped storage project is associated with Conewingo Station. The Peach Bottom nuclear generating station is located along the west bank of the Susquehanna River, about 41 miles downstream of Three Mile Island, just north of the Maryland-Pennsylvania border and is the only other nuclear plant within a 50-mile radius of Three Mile Island.

ENCLOSURE 1

PROTECTIVE ACTION LEVELS DEFINED WITHIN THE COMMONWEALTH OF PENNSYLVANIA RADIATION EMERGENCY PLAN ARE AS FOLLOWS:

CLASSIFICATION	WHOLE BODY DOSE		THYROID DOSE	ACTION
Protection Action Guide I	<.5 Rem	or a	<3 Rem	a. Increased Radiological environmental surveillance will be conducted. b. Eating and drinking local foods and water will be controlled. c. Control of access to affected area will be maintained.
Protection Action Guide II	greater than .5 Rem but less than 5 Rem	or a	greater than 3 but less than 30 Rem	a. Direction to the public to take over will be initiated. b. Possible evacuation of selected individuals may be conducted.
Protection Action Guide III	greater than 5 Rem	or a	greater than 30 Rem	a. Actions planned include increased Rad. Env. surveillance. b. Probable evacuation of high risk individuals. (i.e., those in poor health and more susceptible to effects of radiation) and probable evacuation of general population in the affected area.

APR 2 3 1979

TABLE 2.2-1

MAJOR RESIDENTIAL AREAS

Population Centers greater than 500 within a 5-mile radius of the Site

Area	Population	Distance and Direction from Site
Goldsboro	576	1 1/2 W
York Haven	671	2 S
Royalton	1040	2 1/2 N

Population Centers greater than 2000 within a 10-mile radius of the Site

Area	Population	Distance and Direction from Site
Middletown	9080	4 N
Steelton	8555	6 WW
Elizabethtown	8072	6 ESE
High Spire	2946	7 NW

Population Centers greater than 10,000 within a 30-mile radius of the Site

Area	Population	Distance and Direction from Site
Harrisburg	68,061	12 NW
York	50,335	14 S
Columbia	11,237	15 SE
Lebanon	28,572	20 NE
Lancaster	57,690	25 ESE
Carlisle	18,079	27 W
Hanover	15,623	29 SSW

189 095

TABLE 2.2-2

ENROLLMENT AND SCHOOLS LOCATED WITHIN A 10-MILE RADIUS OF THE SITE

School	Area	Employment	Enrollment
Elizabethtown Area Public Schools	Elizabethtown	272	3720
Lower Dauphin School District	Harrisburg	410	4092
Milton Hershey School	Hershey	840	1448
Bishop McDevitt High School	Harrisburg	77	1205
Harrisburg School District	Harrisburg	1130	11248
Middletown Area School District	Middletown	276	3349
Steelton-Highspire School District	Steelton-Highspire	150	2100
West Shore School District	New Cumberland	625	10417
Northeast York County School District	Mt. Wolf	253	3270
St. John's Elementary	Enhant	4	109
St. Peter's Elementary	Elizabethtown	4	106
Holy Family Elementary	Harrisburg	9	305
Holy Name of Jesus	Harrisburg	11	393
Our Lady of the Blessed Sacrament	Harrisburg	10	369
Sacred Heart	Harrisburg	7	250
St. Catherine Laboure	Harrisburg	11	270
St. Francis of Assisi	Harrisburg	8	288
The Cathedral School	Harrisburg	8	184
St. Margaret Mary	Harrisburg	17	493
St. Joan of Arc. Elementary	Hershey	11	328
Seven Sorrows B.V.M. Elementary	Middletown	10	246
St. Theresa Elementary	New Cumberland	14	341
Assumption of the B.V.M. Elementary	Steelton	8	158
Bishop Neuman	Steelton	9	193
St. Peter's	Steelton	4	81
Penn State University (Capitol Campus)	Middletown	248	2006
Milton Hershey Medical Center	Hershey	1123	300
Elizabethtown College	Elizabethtown	305	1732
Harrisburg Area Community College	Harrisburg	250	4400

TABLE 2.2-3

HOSPITALS LOCATED WITHIN A 10-MILE RADIUS OF THE SITE

Hospital	Area	Employment	Patients
Community General Osteopathic Hospital	Harrisburg	400	7
Dauphin County Hospital	Harrisburg	500	500
Harrisburg Hospital	Harrisburg	1668	665
Harrisburg Polyclinic Hospital	Harrisburg	1300	700
Harrisburg State Hospital	Harrisburg	1060	1261
Milton Hershey Medical Center	Hershey	1123	162
Elizabethtown State Hospital for Crippled Children	Elizabethtown	250	100

TABLE 2.2-4

APR 2 3 1979

TYPICAL MAJOR INDUSTRIES WITHIN A 10-MILE RADIUS OF THE SITE
WITH MORE THAN 50 EMPLOYEES

Company	Product	Town & Location	Employment
Pachman Shoes, Inc.	Footwear	Middletown, 3 mi. N.	110
Rough Wear Clothing Co., Inc.	Leather & Sheeplined Clothing	Middletown, 3 mi. N.	115
Hostess Manufacturing Co., Inc.	Children's Clothing	Hummelstown, 8 mi. N.	88
Dauphin Steel & Eng. Co., Inc.	Fabricated Structural Steel	Swatara Twp., 6 mi. NNW.	60
Progressive Service Co.	Special Dies & Tools	Swatara Twp., 6 mi. NNW.	68
Smith and Company	Meat Packing (Slaughtering)	Harrisburg, 10 mi. NW.	196
Hershey Creamery Co., Inc.	Ice Cream	Harrisburg, 10 mi. NW.	100
Harrisburg Dairies, Inc.	Fluid Milk	Harrisburg, 10 mi. NW.	200
Capital Bakers	Bakery	Harrisburg, 10 mi. NW.	115
Harrisburg Coca-Cola Bottling	Bottled and Canned Soft Drinks	Harrisburg, 10 mi. NW.	92
Mogs Macaroni Co.	Macaroni, Spaghetti, Vermicelli, and Noodles	Harrisburg, 10 mi. NW.	166
Cameron Dress Co.	Apparel and Related Products	Harrisburg, 10 mi. NW.	220
Harrisburg Children's Dress Co.	Girls', Children's and Infants' Dresses, Blouses	Harrisburg, 10 mi. NW.	209
Capital Bedding Co., Inc.	Mattresses and Bedsprings	Harrisburg, 10 mi. NW.	68
Patriot-News Co.	Printing, Publishing and Allied	Harrisburg, 10 mi. NW.	451
Telegraph Press	Book Printing Only	Harrisburg, 10 mi. NW.	229
McFarland Co.	Miscellaneous Publishing	Harrisburg, 10 mi. NW.	93
Evangelical Press	Letterpress Printing	Harrisburg, 10 mi. NW.	228
Harsco Corp.	Fabricated Plate Work	Harrisburg, 10 mi. NW.	777
Stanley Spring Works, Inc.	Steel Springs	Harrisburg, 10 mi. NW.	76
Hilbert Manufacturing Co.	Printing-Trades Machinery	Harrisburg, 10 mi. NW.	61
AMP, Inc.	Current-Carrying Wiring Devices	Harrisburg, 10 mi. NW.	107
Thompson Ramo Woolridge, Inc.	Aircraft Engines	Harrisburg, 10 mi. NW.	2212
Deborah Dress Co., Inc.	Dresses	Steelton, 7 mi. SW.	52
Bethlehem Steel Co.	Steel Works	Steelton, 7 mi. SW.	4345
Tri-Way Shoe Co.	Footwear	New Cumberland, 9 mi. WNW.	105
Sandine Sons	Miscellaneous Fab. Wire Products	New Cumberland, 9 mi. WNW.	140
Berg Electronics, Inc.	Current Carrying Wiring Devices	New Cumberland, 9 mi. WNW.	311
Beman Manufacturing, Inc.	Electronic Components	Fairview Twp., 8 mi. W.	109
Frank Electric Corp.	Switchgear and Switchboard Appar.	Manchester Twp., 9 mi. SSW.	56
Katherine Beecher Candies	Candy	Manchester, 7 mi. S	52

APR 2 3 1979

TYPICAL MAJOR INDUSTRIES WITHIN A 10-MILE RADIUS OF THE SITE WITH MORE THAN 50 EMPLOYEES

Company	Product	Town & Location	Employment
Klein Chocolate Co.	Candy	Elizabethtown, 7 mi. E.	222
Reese Candy Co.	Candy	Hershey, 10 mi. NNE.	446
Hershey Foods Corp.	Chocolate and Cocoa Products	Hershey, 10 mi. NNE.	3636

Reference: 1970 Industrial Census
Commonwealth of Pennsylvania

TABLE 2.2-5

PERCENT OF LAND USED

Use	Dauphin	York	Lancaster
Forest & Woodland	45.2	22.6	13.7
Crops	31.9	49.8	62.5
Pasture	4.8	10.1	9.4
Urban	8.6	6.5	7.8
Water Area	.6	.4	.4
Federal	.2	.2	.1
Other	8.7	10.4	6.1

APR 23 1979

TABLE 2.2-4

DATA ON RESERVOIRS & LAKES WITHIN A 50 MILE RADIUS

No.	Reservoir	Stream	Owner	Total Storage (Acre-Feet)	Surface Area (Acres)	Dead Storage (Acre-Feet)	Surface Area (Acres)	Average Flow (CFS)	Distance Miles	Elevation
1	Lake Williams	Codorus Creek	York Water Company	2,440	270	0	0	*	[illegible]	[illegible]
2	(1)	E.Br.Codorus Creek	York Water Company	[illegible]	[illegible]	0	0	*	[illegible]	[illegible]
3	Pinchot Lake	Beaver Creek	Pa.Dept.Forest & Waters	2,[illegible]	342	0	0	30	[illegible]	[illegible]
4	Lake Fa ra Co Co.	Branch of Bunch Creek	P.H. Glatfelter Co.	1,350	137	0	0	*	[illegible]	[illegible]
5	(1)	W.Br.Codorus Creek	P.H. Glatfelter Co.	45,[illegible]	1725	0	0	*	[illegible]	[illegible]
6	Indian Rock Res.	Codorus Creek	U.S.Corp of Engineers	28,000	1433	0	0	97	[illegible]	[illegible]
7	Long Arm Reservoir	Long Arm Creek	Hanover Municipal Water Works	3,770	155	0	0	*	[illegible]	[illegible]
8	[illegible]	Long Arm Creek	Hanover Municipal Water Works	615	46.8*	0	0	*	[illegible]	[illegible]
9	*	Trout Run	Chippensburg Borough Authority	640	35				[illegible]	[illegible]
10	*	Carbaugh Run	Pa. Dept. Health	*	20	0	0	*	[illegible]	[illegible]
11	Lake Heritage	Plum Creek	Lake Heritage, Inc.	*	145	0	0	*	[illegible]	[illegible]
12	Lake Meade	Mud Run	Lake Meade, Inc.	3,[illegible]	2[illegible]	0	0	*	[illegible]	[illegible]
13	[illegible] Dam	S.Br.Roaring Creek	Roaring Creek Water Company	4,[illegible]	11[illegible]	0	0	*	[illegible]	[illegible]
14	[illegible] Dam	Trout Creek	Roaring Creek Water Company	105	12	0	0	*	[illegible]	[illegible]
15	[illegible] Dam	S.Br. Roaring Creek	Bear Gap Water Company	502	65	0	0	*	[illegible]	[illegible]
16	Clark Valley	Clark Creek	City of Harrisburg	23,600	450	0	0	*	[illegible]	[illegible]
17	(1)	Muddy Run	Philadelphia Electric Company	60,500	905	*	4.9	*	[illegible]	[illegible]
18	Conowingo	Susquehanna River	Philadelphia Electric Company	*	[illegible]	*	*	[illegible] (4)	[illegible]	[illegible]
19	Holtwood Dam	Susquehanna River	Pennsylvania Power & Light Co.	*	23.8	*	*	[illegible] (5)	[illegible]	[illegible]
20	Safe Harbor Dam	Susquehanna River	Safe Harbor Power Co.	93,[illegible]	*	*	*	*	[illegible]	[illegible]
21	Dock Street Dam	Susquehanna River	City of Harrisburg		*	[illegible]	[illegible]	*	[illegible]	[illegible]
22	*	Hammer Creek	Penna. Fish Commission	*	105.4	0	0	*	[illegible]	[illegible]
23	*	Conodoguinet Creek	U.S. Corps of Engineers Letterkenny Ordnance Depot	1,012	[illegible]	0	0	*	[illegible]	[illegible]
24	No. 1	W.Br.Hammer Creek	City of Lebanon	57	*	0	0	*	[illegible]	[illegible]
25	No. 2	W.Br.Hammer Creek	City of Lebanon	150	*	0	[illegible]	*	[illegible]	[illegible]
26	[illegible] Lake	Trib.Tulpehocken Creek	[illegible] Water Co.	[illegible]	35.	*	*	*	[illegible]	[illegible]
27	Octoraro Lake	Octoraro Creek	Chester Municipal Authority	7,[illegible]	[illegible]	0	[illegible]	1[illegible]	[illegible]	[illegible]
28	Blue Marsh (2)	Tulpehocken Creek	U.S. Corp of Engineers	49,[illegible]	1200 (3)	[illegible]	*	*	[illegible]	[illegible]
29	Antietam	Stony Creek	City of Reading	313	*	0	[illegible]	*	[illegible]	[illegible]
30	Angelica	Angelica Creek	City of Reading	157	22.5	0	0	*	[illegible]	[illegible]
31	Lake Ontelaunee	Maiden Creek	City of Reading	11,[illegible]	1082	0	[illegible]	*	[illegible]	[illegible]
32	*	[illegible] Creek	[illegible] Auth.	165	*	0	[illegible]	*	[illegible]	[illegible]
33		[illegible] Spring Run	Maiden Creek Township	9[illegible]	15	0	[illegible]	*	[illegible]	[illegible]
34	[illegible]	[illegible] Creek	City of Lebanon	1,170	[illegible]	0	[illegible]	*	[illegible]	[illegible]
35	Wolf Creek	Tar Run	Pottsville Water Co.	[illegible]	[illegible]	0	[illegible]	*	[illegible]	[illegible]
36	Indian Run	Indian Run	Pottsville Water Co.	1,[illegible]	52	0	0	*	[illegible]	[illegible]
37	Upper [illegible]	Tumbling Run	Borough of Schuylkill Haven	[illegible]	[illegible]	0	0	*	[illegible]	[illegible]
38	Lower [illegible]	Tumbling Run	Borough of Schuylkill Haven	[illegible]	[illegible]	0	[illegible]	*	[illegible]	[illegible]
39	[illegible]	Mill Run	[illegible] Township Authority	[illegible]	[illegible]	0	[illegible]	*	[illegible]	[illegible]
40	No. 2 Dam	Little Mahanoy Creek	Borough of Ashland	3[illegible]	11	0	0	*	[illegible]	[illegible]
41	[illegible]	Hyde Run	Minersville Water Co.	20[illegible]	21.7	0	0	*	[illegible]	[illegible]
42	[illegible] Lake	E. Br. Swatara Creek	Pennsylvania Power & Light Co.	1,100	10[illegible]	0	0	*	[illegible]	[illegible]
43	[illegible]	Kauffman Run	Pottsville Water Co.	3[illegible]0	19	0	[illegible]	*	[illegible]	[illegible]
44	[illegible] Run Dam	Rock Run	City of Coatesville	1,0[illegible]	[illegible]	0	0	*	[illegible]	[illegible]
45	Liberty	N.Br. Patapsco River	City of Baltimore	13[illegible],000	31[illegible]	0	0	*	[illegible]	[illegible]
46	Pretty Boy	Gun Powder Falls	City of Baltimore	61,[illegible]	[illegible]	0	0	*	[illegible]	[illegible]
47	Loch Raven	Gun Powder Falls	City of Baltimore	70,[illegible]	2[illegible]	0	0	*	[illegible]	[illegible]
48	Long Pine Run Dam (1)	Long Pine Run	Borough of Chambersburg	3,2[illegible]	150	0	0	*	[illegible]	[illegible]
49	Chambersburg Reservoir	Conococheague Creek	Borough of Chambersburg	1,037	[illegible]	0	0	*	[illegible]	[illegible]
50	Little Buffalo Dam	Little Buffalo Creek	Pa. Dept. Forest & Waters	600	63	0	0	*	[illegible]	[illegible]

* Information not available

(1) Dam under construction but near completion

(2) Proposed construction to be completed in 1971, begin about 1968. Multi-purpose, flood control, water supply, recreation

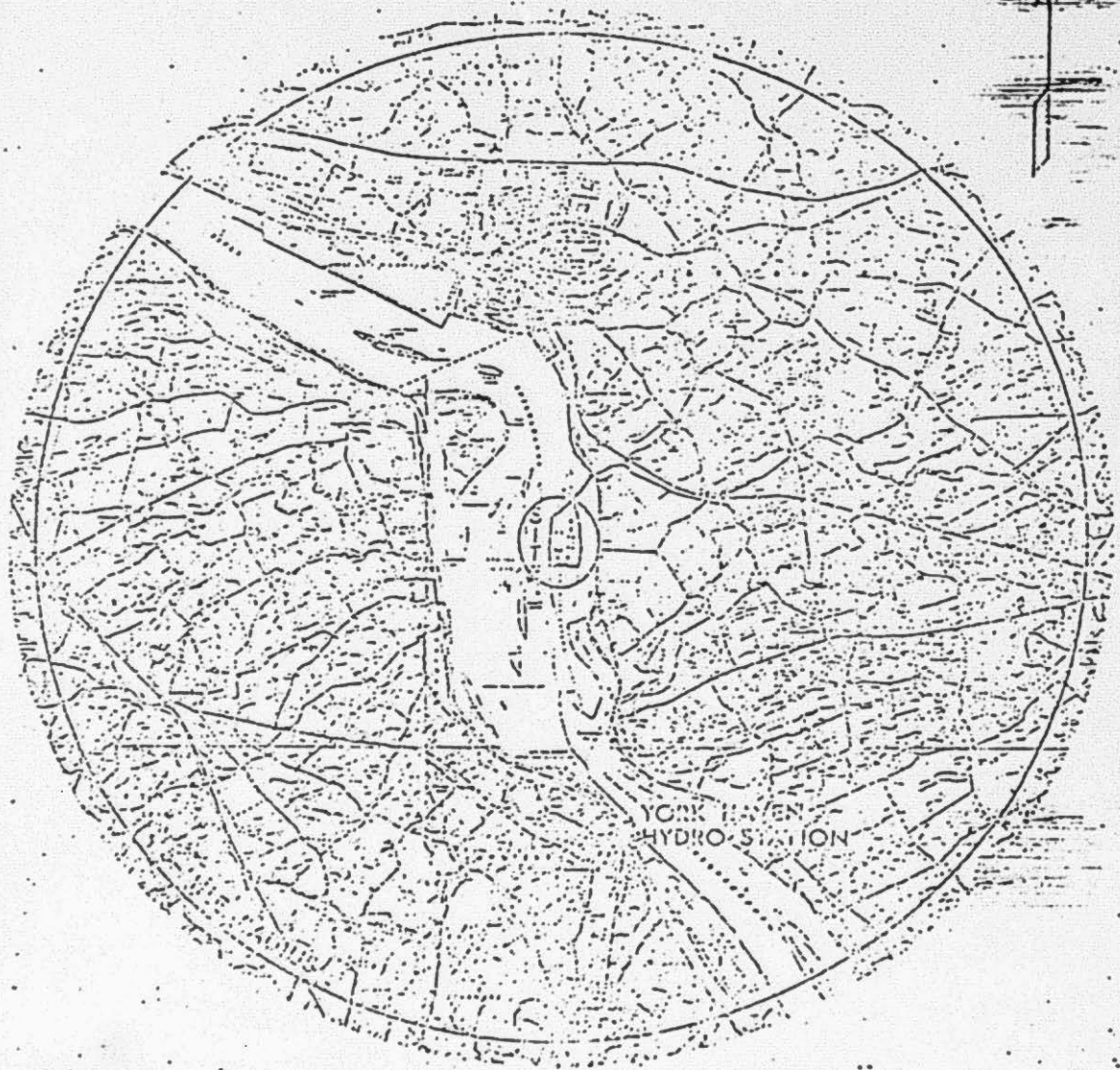
(3) Area of recreation pool at storage capacity of 14,500 acre-feet

(4) [illegible] of time as recorded for 33 year period

(5) [illegible] of time as recorded for 31 year period

189 101

APR 23 1979



CONTOUR INTERVAL 20 FEET

1 MILE

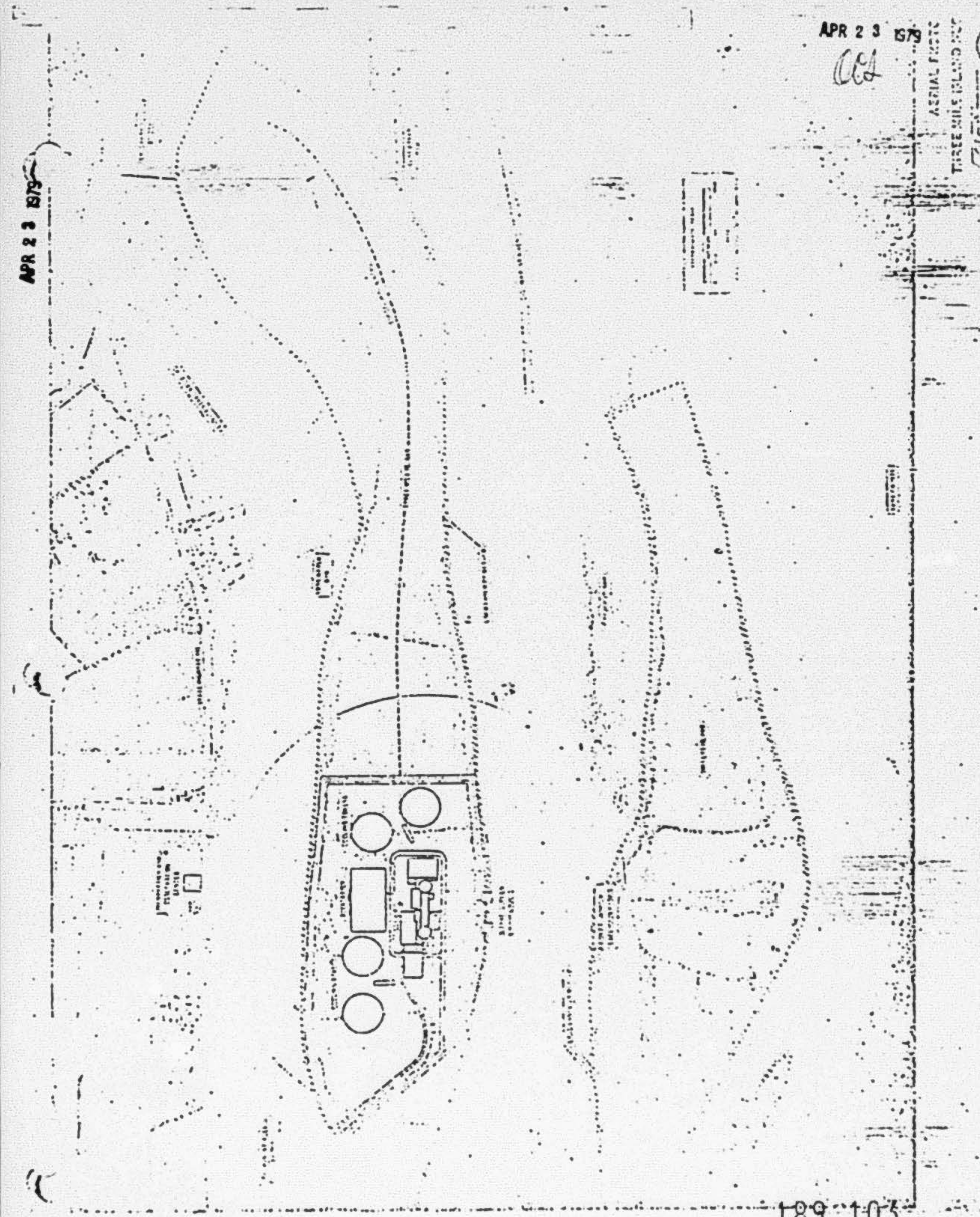
APPROX. SCALE

SITE TOPOGRAPHY – 5 MILE RADIUS
THREE MILE ISLAND NUCLEAR STATION

FIGURE 2.1-1

189 102

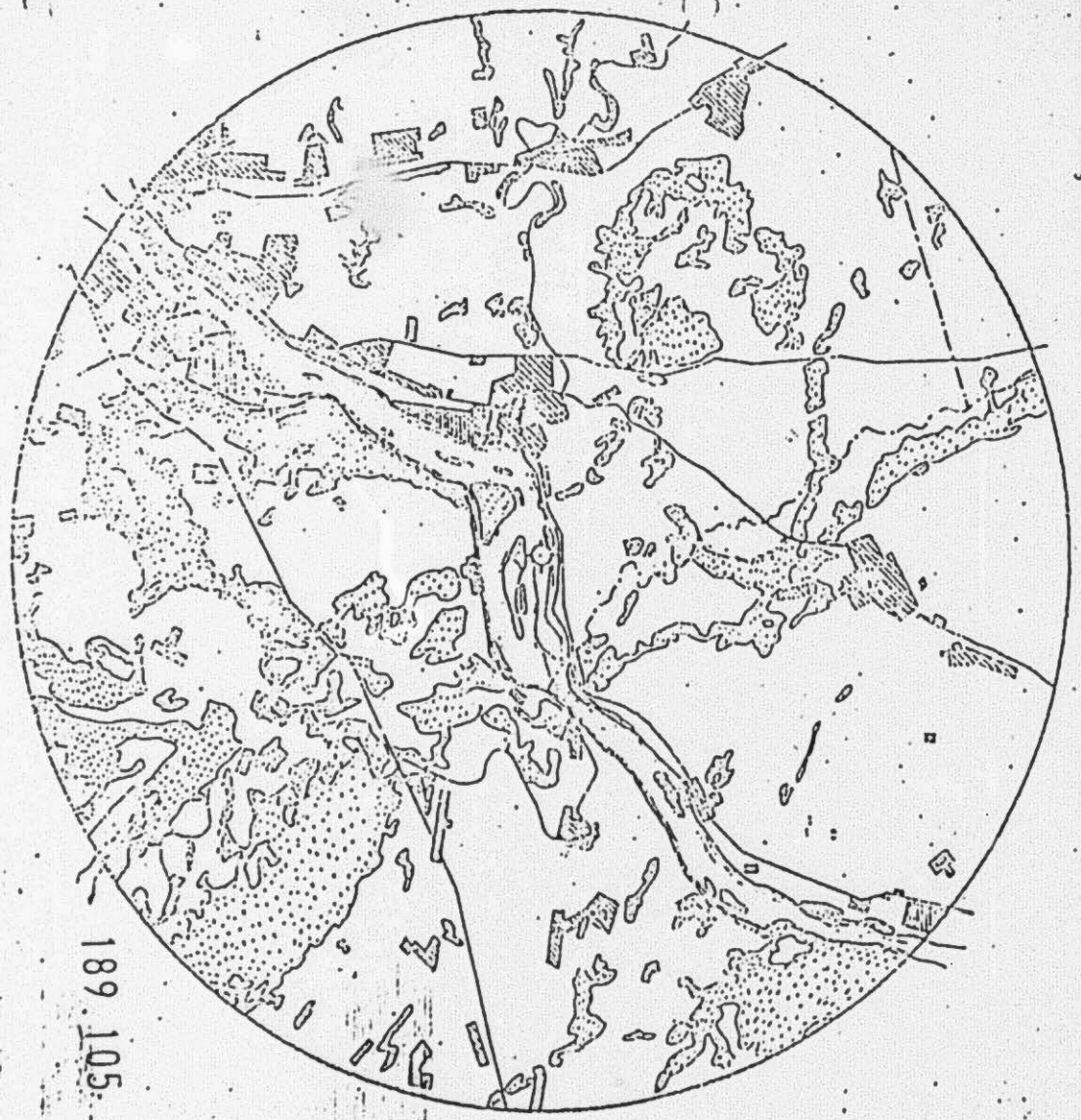
APR 2 3 1979



APR 2 3 1979

189 103

POPULATION DISTRIBUTION
THREE MILE ISLAND NUCLEAR STATION

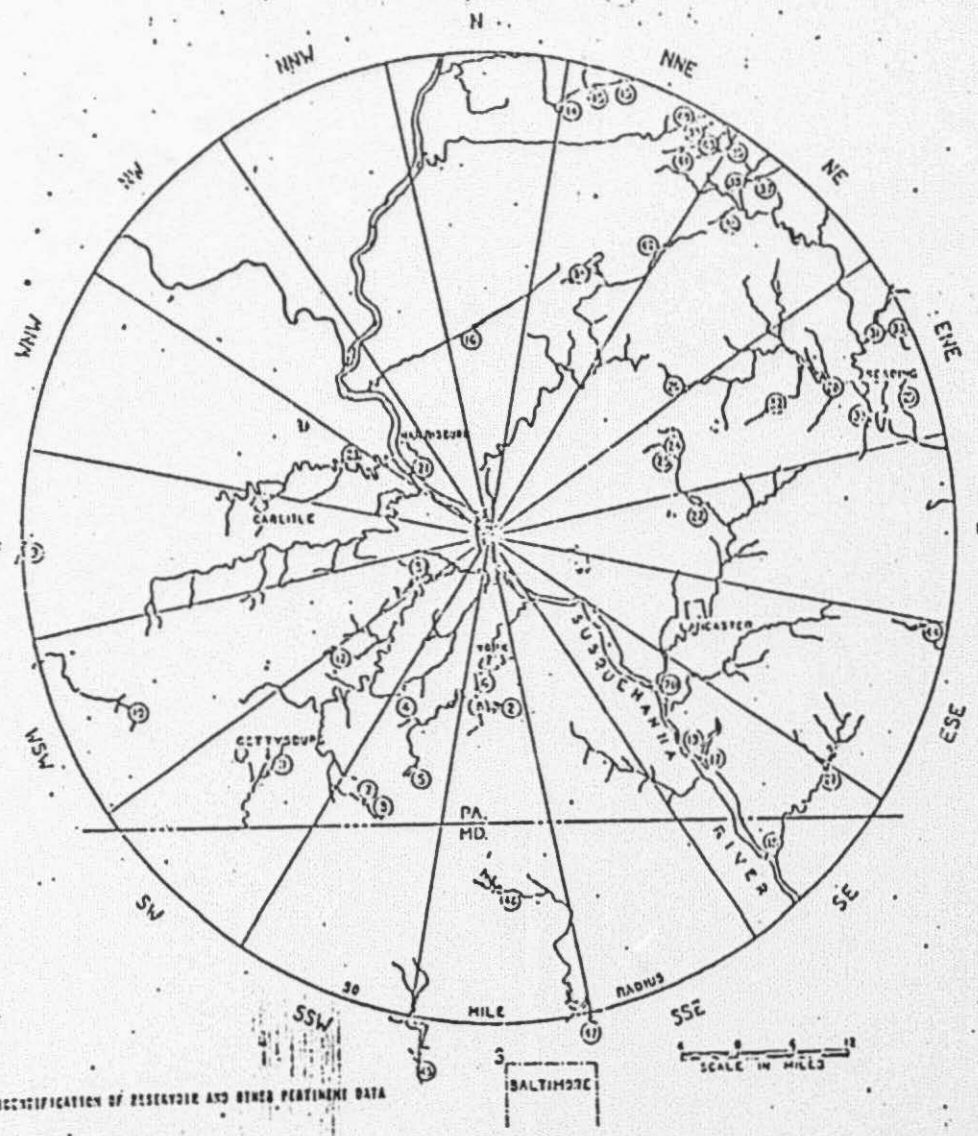


RESIDENTIAL
COMMERCIAL
INDUSTRIAL
PUBLIC
AGRICULTURAL
WOODED AREA

LAND USE WITHIN A 10 MILE
THREE MILE ISLAND NUCLEAR

FIGU

APR 2 3 1979



REFERRING TABLE 2.2-5 FOR IDENTIFICATION OF RESERVOIR AND OTHER PERTINENT DATA

189 106

APR 2 3 1979

RESERVOIRS AND LA
WITHIN A 50 MILE RAD
THREE MILE ISLAND NUCLEA

Fig. 2.2-3

THREE MILE ISLAND NUCLEAR STATION

ANNEX TO THE

PENNSYLVANIA PLAN FOR THE IMPLEMENTATION

OF PROTECTIVE ACTION GUIDES

DRAFT

THREE MILE ISLAND NUCLEAR STATION

THREE MILE ISLAND SITE EMERGENCY PLAN 1004 - SECTION 2

Table of Contents

Table of Contents (cont'd) Page #

Table of Contents (cont'd)

Table of Contents (cont'd)

189 1.11

THREE MILE ISLAND NUCLEAR STATION

THREE MILE ISLAND EMERGENCY PLAN

PROCEDURE NO. 1004

CONTROLLED COPY

CENTRAL FILE

1.0 SUMMARY

The Emergency Plan for the Three Mile Island Nuclear Station, Units I and II, describes the overall emergency planning logic with respect to the implementing procedures. Classification System for emergency conditions of varying degrees of severity is provided with a description of the emergency action levels used to recognize and declare each class of emergency. The emergency organizations that respond, including their responsibilities are identified. Responsive actions taken by the emergency organization are catagorized by assessment actions, protective actions, and corrective actions. In addition, the plan includes a complete description of the emergency facilities and equipment used to implement the emergency plan of action.

2.0 EMERGENCY CONDITIONS

2.1 Classification System

Table 1 covers the spectrum of possible situations, as well as enumerating some possible preliminary actions to be taken by the designated emergency organization personnel.

A description of each emergency classification is given, which will allow the Emergency Director to characterize the emergency according to the scope and character of the situation.

It should be noted that the Actions listed are possible actions to be taken, and will be considered for each class of emergency, but will be taken only when appropriate.

189 112

It should be noted also that the Station Superintendent/Senior Unit Superintendent, Unit Supt./Shift Supervisor/Unit Supt.-Technical Support in the Control Room will, after reviewing the emergency conditions, classify the emergency as one of the following:

1. Personnel or Local Emergency
2. Site Emergency
3. General Emergency

He will make this classification according to the conditions in Table 1 of this Plan, and initiate actions according to the Emergency Plan Implementing Procedures, and according to his own best judgment.

189 115

EMERGENCY CONDITIONS

Table 1

Emergency Classification	Description	Conditions	Possible Actions
Personnel Emergency or Local Emergency	Involves accidents or incidents concerning one or more individuals and/or protective evacuation of one or more buildings. A personnel emergency may require local off site services such as fire, police, ambulance or medical. This category includes injuries which may be complicated by radioactive contamination or excessive radiation exposure.	a) Personnel injuries may involve contamination or excessive radiation exposures. b) More than 1 radiation monitor in a single building reaches their alarm setpoint. c) Report of an unexpected increase in the level of radiation or airborne activity in a work area. d) Report of a radioactive spill in a work area. e) Flooding or localized fire, that could affect a release of radioactivity.	Emergency Treatment of individuals. Possible activation of first aid team and/or ambulance and medical services. Local area evacuation. Possible evacuation of an entire building or the controlled area. Perform personnel accountability for the affected areas. NRC notification.
Site Emergency	A Site emergency exists upon the occurrence of an incident which could potentially result in an uncontrolled release of radioactivity to the immediate environment. Such an emergency may require site evacuation by personnel not essential to combating the emergency. This emergency is a potential off-site hazard which could result in an off-site radiological dose.	a) A unit vent gas monitor indicated 100 times the instantaneous release limit specified in the technical specifications. b) The radiation level at the station security fence is 125 mR/hr. c) Loss of primary coolant pressure, coincident with high reactor building pressure and/or high reactor building sump level. d) Reactor building evacuation alarm from the source range instrumentation (Unit 1, manual initiation (Unit 2).	Evacuation of all affected buildings. Accountability of evacuees. State notifications. Perimeter monitoring. NRC notification. Possible off-site protective actions.

EMERGENCY CONDITIONS

Table 1 - Continued

Emergency Classification	Description	Conditions	Possible Actions
Site Emergency	Continued	e) Reactor building high range gamma monitor alert alarm. f) The high alarm of the Radiation Monitoring System in two separate buildings due to a single event.	See preceding page
General Emergency	A General emergency is an incident which has the potential for serious radiological consequences to the health and safety of the general public. Coordination with off-site support agencies provides for prompt initiation of protective actions.	A General emergency will be declared when a site emergency has been declared and one or more of the following conditions exists: a) Reactor building high range gamma monitor high alarm. b) The Radiation level at the station boundary is $\geq$125 mR/hr. c) The liquid effluent radiation monitor indicates >6.8×10^{-3} µCi/cc. d) Off-site projected doses downwind from the site boundary are >25 Rem thyroid and/or 5 Rem whole body.	Actions as per Site Emergency plus off site monitoring. Notifications of State, NRC, etc. Establish ECS as soon as possible.

2.2 Spectrum of Postulated Accidents

2.2.1 Discussion

A high degree of protection against the occurrence of postulated accidents in the Three Mile Island Nuclear Station is provided through correct design, manufacture, and operation, and the quality assurance program used to establish the necessary high integrity of the reactor system, as will be considered in the NRC's Safety Evaluation. Deviations that may occur are handled by protective systems to place and hold the plant in a safe condition. Notwithstanding this, the conservative postulate is made that serious accidents might occur, even though they may be extremely unlikely; and engineered safety features are installed to mitigate the consequences of those postulated events which are judged credible. The probability of occurrence of accidents and the spectrum of their consequences to be considered from an environmental effects standpoint have been analyzed using best estimates of probabilities and realistic fission product release and transport assumptions. For site evaluation in the NRC's safety review, extremely conservative assumptions are used for the purpose of comparing calculated doses resulting from a hypothetical release of fission products from the fuel against the 10CFR part 100 siting guidelines. NRC estimates of the dose which might be received by an assumed individual standing at the site boundary in the downwind direction, using the assumptions in the proposed Annex to Appendix D of 10CFR50 are maximized in the large break loss of coolant accident. This accident results in an estimated 1.2% fraction of the 10CFR50 limit at the site boundary.

2.2.2 Accident Analysis Utilizing TID 14-844 Conservative Assumptions

Hypothetical accidents involving a gross release of fission products are evaluated below. Cases I and II have no mechanisms whereby such a release is postulated, since this would require a multitude of failures of the engineered safety features which are provided to prevent such occurrences.

The 5 cases listed below assume the very conservative site boundary X/Q of 6.1×10^{-4} sec/m^3. In an actual emergency, the existing X/Q at the time of the emergency would be used. In the very unlikely event of a situation where the radiation monitoring system used to monitor containment and/or the plant vent is out of service or off scale, a contingency procedure is provided in the emergency implementing procedures. This procedure allows the operator to calculate the site boundary doses utilizing the conservative assumptions which are listed below for each of the 5 cases.

2.2.3 Case I LOCA

A LOCA assuming severe core damage - fuel melting (Regulator Guide 1.4 assumptions) 100% of the noble gases and 25% of the iodines contained in the core are assumed released to the containment. The containment initially leaks at the maximum design leak rate. The 2 hour site boundary thyroid dose would be ~111 rem.

2.2.4 Case II LOCA

Primary coolant leaks at a rate fast enough to increase the temperature of the core to the point where there is damage to the fuel rods. For this case it is assumed that all the gap

activity (the gases contained between the fuel and fuel rod) is released to the containment. The containment is assumed to initially leak at the maximum design leak rate. The 2 hour thyroid dose at the exclusion boundary would be ~0.11 rem.

2.2.5 Case III Gas Decay Tank Rupture

Rupture of a waste gas decay tank would result in the premature release of its radioactive contents to the auxiliary building and to the atmosphere through the vent. The conservative assumption is made that the inventory in the tank at the time of release exceeds the Tech Spec maximum allowable inventory. Using all of these conservative assumptions, the 2 hour whole body dose at the exclusion boundary is 3.6 rem.

2.2.6 Case IV Fuel Handling Accident

The maximum potential source of a radioactive release during operations is the gross mechanical damage of the entire outer row of fuel rods in the assembly (56 fuel rods suffer mechanical damage). Although there is evidence that a portion of noble gas will remain in water, no retention of noble gases is assumed. The Fuel Handling Building vent discharges through charcoal filters to the Unit vent. The 2 hour thyroid dose at the exclusion boundary would be 23 rem.

2.2.7 Case V Steam Generator Tube Rupture

This accident assumes a double ended rupture of the steam generator tube occurs, with unrestricted discharge from each end to the secondary side of the steam generator. It assumes that all fission products leaking from reactor coolant system go directly to the secondary system. Some of the radio-noble

gases and iodines would be released to the atmosphere through the condenser air removal system and the steam line safety valves. The 2 hour thyroid dose at the exclusion boundary would be 6.8 rem.

3.0 ORGANIZATION CONTROL OF EMERGENCIES

3.1 On-site Emergency Organization

The emergency organization that may be activated on site during an emergency include the following categories:

a. Directors of the Emergency Organization
b. Accident Assessment Personnel
c. Radiological Monitoring Teams
d. First Aid Rescue Team
e. Fire Brigade Team
f. Repair Party Team
g. Operations Personnel
h. Security Personnel

Specific Personnel duties and responsibilities are described in the Local, Site, and/or General Emergency Procedures 1670.1-1670.3.

3.1.1 The Emergency Director is responsible for both supervising and implementing the Radiation Emergency Plan at the time of an emergency. The Station Superintendent is the primary Emergency Director, however the alternates for this positior includes the following TMI job classifications:

a. Unit Superintendents
b. Unit Superintendents - Technical Support
c. Supervisor of Operation
d. Shift Supervisor
e. Shift Foremen

189 119

3.1.2 The Accident Assessment Personnel are responsible for assessing the emergency situations at the time of an emergency. Assessment will include plant status and also off-site radiological dose. The primary/alternates are as follows:

1. Primary: Supervisor Radiation Protection and Chemistry.
   Alternates: a. Radiation Protection Supervisor
   b. Nuclear Engineer.
   c. Shift Supervisor
2. Primary: Radiation Protection Supervisor.
   Alternates: a. Radiation Protection Foreman.
   b. Radiation/Chemistry Technicians.
3. Primary: Supervisor of Operations.
   Alternate: Shift Supervisor.
4. Primary: Lead Engineers (Nuclear, I&C, Electrical, Mechanical).
   Alternate: a. Shift Supervisor.
5. Primary: Chemistry Supervisor.
   Alternate: a. Radiation/Chemitry Technician.

3.1.3 The Radiological Monitoring Teams are responsible for performing radiation surverys, providing monitoring services for all emergency recovery and re-entry activities and supervising decontamination operations. Rad/Chem Technicians are primary members of the Radiological Monitoring Team and alternates are "A" Auxiliary Operators.

3.1.4 The First Aid Rescue Team is responsible for rescuing injured personnel and for providing first aid during a medical emergency. Primary members include Rad/Chem Techs and "A" Auxiliary Operators.

189 120

3.1.5 The Fire Brigade Team, responds to emergencies involving a fire under the direction of the Shift Supervisor, responds to emergencies involving a fire. Primary members includes Rad/Chem Techs and Auxilary Operators.

3.1.6 The Repair Party Team provides the assessment of equipment damage and the subsequent repair work necessary for recovery. Primary members are Maintenance Shift Personnel.

3.1.7 The Operations Personnel are responsible for the safe operation & recovery of all systems during an emergency situation.

3.1.8 Security Personnel provide protection & security services for the site. They also have the responsibility of personnel accountability during an emergency.

3.2 Division Support

3.2.1 The Metropolitan Edison Headquarters in Reading will provide technical support in the following areas:

a. Radiation Protection (including consultants specializing in Emergency Response)
b. Environmental Surveillance and Effects Analysis
c. Engineering
d. Public Relations and Information Services
e. Security and Safety Services
f. Administration
g. Medical Consultants
h. Backup Radiochemistry and Radiation Counting Lab Services, via consultants.
i. GPUSC engineering and technical services.

189 121

3.3 Local Services Support

Ambulance - Londonderry, Middletown, or Bainbridge Fire Departments

Fire - Londonderry, Middletown, or Bainbridge Fire Departments

Local Police - Middletown State Police - Troop H, Harrisburg

3.4 State and County Agencies Support

The prime agencies of the Commonwealth of Pennsylvania which are responsible for the planning for and/or management of radiation emergencies at nuclear power reactors are a) the State Council of Civil Defense (SCCD) and b) the Bureau of Radiological Health (BRH) in the Department of Environmental Resources.

The "Pennsylvania Plan for the Implementation of Protective Action Guides" (PIPAG) is the applicable coordinating document, along with its "Three Mile Island Nuclear Station Annex" which is located in the TMI Emergency Implementing Procedures Document.

The SCCD provides the initial communication link from the Station to the Pennsylvania agencies; transportation, housing and accounting for personnel, supplementary personnel and equipment for monitoring of affected areas, special communications resources and interstate notifications. The BRH provides radiation protection guidance, qualified personnel and equipment for evaluation of accident conditions, plus laboratory staff and equipment for sample evaluation, as well as coordination of Pennsylvania Agency response to a radiation emergency.

The Dauphin, Lancaster and York Country Civil Defense Organizations are all participating agencies in the Pennsylvania PIPAG and are working closely with Pennsylvania State in the overall nuclear radiation incident emergency planning.

3.5 Federal Agencies Support

3.5.1 Department of Energy (DOE)

The DOE has the responsibility for the nationwide Radiological Assistance Plan (RAP). Specializing in radiation safety, medicine and public information and safety, they assist the Emergency Director at his request. He may obtain this assistance by dialing the 24 hour number listed in the Emergency Plan Procedures 1670.14.

3.5.2 U.S. Coast Guard

During a radiation incident which could involve exposure to off-site personnel, the U.S. Coast Guard will assist by maintaining traffic control on the Susquehanna River. The Coast Guard may also be utilized to keep unauthorized personnel from entering the site until the emergency conditions are remedied. Assistance is obtained by calling the 24 hour number.

3.5.3 Nuclear Regulatory Commission - Region I

Early notification is required as per Technical Specifications and Code of Federal Regulations Title 10, Part 20. The NRC is primarily a regulatory and investigatory agency, however they may render emergency assistance.

4.0 EMERGENCY MEASURES

4.1 Activation of Emergency Organization

4.1.1 Authorization to Declare an Emergency

The following individuals are authorized to declare an emergency:

a. Manager Generation Operations

b. Station Superintendent/Senior Unit Superintendent

c. Unit Superintendent

189 123

d. Unit Supt-Technical Support

e. Supervisor of Operations

f. Supervisor of Radiation Protection and Chemistry

g. Supervisor of Maintenance

h. Radiation Protection Supervisor

i. Shift Supervisor

j. Shift Foreman

4.1.2 Station Notification Channels

Personnel detecting an actual or potential emergency condition will immediately notify the control room. Notification of station personnel of an emergency will be accomplished by one or more of the following methods:

a. Local alarm of the Radiation Monitoring System

b. Station public address system

c. Sounding of the Radiation Emergency Alarm

4.1.3 Met Ed Station Personnel

The Shift Supervisor/Foreman is responsible for notifying:

a. The Station Superintendent/Senior Unit Superintendent

b. The Duty Section Head as indicated on the "Call List Duty Board" in the Control Room

The Duty Section Head is responsible for notifying personnel assigned in his duty group.

4.1.4 Pennsylvania State Officials

The Pennsylvania Bureau of Radiological Health or the State Council of Civil Defense (as required) will be notified by the Station Superintendent/Senior Unit Superintendent or his alternate as per the following criteria:

a. Site or General Emergency

b. Personal Radiation Emergency requiring use of ambulance or hospital

c. Other incidences with off-site consequences (as per reference 6)

4.2 Assessment Actions

4.2.1 Surveillance of Instrumentation and Associated Surveys

Instrumentation is provided at selected points in and around the station to detect and record radiation levels. This instrumentation includes area monitors and the liquid and gaseous effluent monitors. In the event radiation levels rise above specified values, an alarm is actuated in the Control Room. The Radiation Monitoring System operates in conjunction with routine and special radiation surveys and with chemical and radiochemical analyses performed by the station staff. The Shift Supervisor/Foreman will be guided by the conditions in Section 2.0 (Emergency Conditions) and will direct actions to inform station personnel of the emergency. Conditions may warrant the use of the Radiation Emergency Alarm which sounds in the Control Room and throughout the station in the event of a unit or general emergency. This audible signal is unique and distinguishable.

Appropriate on-site assessment surveys performed by the Radiation Monitoring Teams include general in-plant and site B-Y surveys, airborne particulate and gas sampling, assisting repair and rescue teams, personnel monitoring at access control points, and manning the North or South Gate monitoring points or assembly areas. Specific guidelines are outlined in 1670.4-1670.6.

4.2.2 On/Off-Site Monitoring

Continuous air monitors and thermoluminescent dosimeters are placed on the site perimeter and off site. These may be useful in adding to the off-site monitoring data. Conditions at the time of occurence of the emergency will dictate the specific areas where intense radiological monitoring efforts will be required. Emergency Monitoring Kits contain all instrumentation, protective clothing and supplies needed for on/off-site field radiation monitoring. These are located at the Security Search Facility.

4.3 Protective Actions

4.3.1 On-Site Protective Actions

The criteria for protective actions are briefly outlined in Section 2.0, Emergency Conditions, as well as being discussed in detail in the Emergency Plan Implementing Procedures. Also included are evacuation routes and accountability procedures for all personnel, including non-emergency duty employees, all visitors and all contractor and construction personnel. The procedures for radiological monitoring of evacuees and associated vehicles are also included.

4.3.2 Off-Site Protective Actions

Metropolitan Edison is responsible for prompt notification of appropriate Pennsylvania State Authorities if a TMI accident is causing or is threatening to cause significant off-site exposure as defined in Refer : 6. The State of Pennsylvania, Bureau of Radiological Health, is responsible for the management of all off-site aspects of a radiation emergency and the

Pennsylvania State Council of Civil Defense is responsible for carrying out the required protective actions.

4.4 Aid to Affected Personnel

4.4.1 Emergency Exposure Criteria

When emergency on-site action is necessary to reduce a hazard potential to acceptable levels to prevent substantial loss of property or exposure to the public, volunteers may be requested to perform jobs which will exceed 5 rem exposure. The radiation exposure guidelines for these jobs and lifesaving operations, described in 1670.8, are in accordance with the recommendations of the National Council on Radiation Protection and the International Commission on Radiological Protection.

4.4.2 First Aid and Decontamination

First-aid facilities are maintained at the Unit #1 ECS and Unit #1 Service Building, and Unit #2 Service Building. The Control Buildings also have facilities for monitoring and decontamination of personnel. Portable first-aid kits are available for medical care of the injury at the station. The training & composition of the First-Aid Rescue Team is outlined in 1670.9. In addition, on site professional medical assistance is available from local doctors contracted as Station Medical Consultants. Additional medical support is outlined in Section 4.4.4.

4.4.3 Medical Transportation

The injured, contaminated personnel will be transported to the hospital via ambulance services provided by the Middletown, Bainbridge or Londonderry Fire Departments.

189-127

Training is provided for all the ... services so that they all have experience in handling a contaminated (simulated) patient.

4.4.4 Medical Treatment

The first level of treatment can be given on-site, either within the controlled area (if necessary), or in the First Aid Room.

Met Ed has agreements with local private physicians for medical services when needed. If the severity of the injury requires more extensive or prolonged treatment, the patient will be transported to the second level of assistance. For conventional injures (that is, non-radiation related), the patient will be transported to the Harrisburg Hospital.

Arrangements have been made with the Hershey Medical Center to provide Met Ed with a local facility which will receive and treat contaminated and injured personnel. Met Ed has retained a radiation medical consultant who has trained the hospital personnel and has also set up a radiation emergency plan for Hershey Medical Center.

4.4.5 Backup Definitive Medical Treatment

In addition to the local arrangements with Hershey Medical Center, Met Ed has available to them the services and facilities of Radiation Management Corporation, which include a radiation chemistry laboratory, exposure evaluation services including a whole body mobile counter, a radiation emergency medical team, and a special van designed to transport contaminated patients; as well as access to and the use of the Hospital of the University

OCS

APR 2 3 1979

1004
Revision 1
01/16/78
Section 2

of Pennsylvania special emergency medical accident plan facility which includes a radiosurgery decontamination suite with auxiliary traffic flow control and contamination control features.

5.0 Emergency Facilities

5.1 Emergency Control Centers for a Unit 1 Emergency

5.1.1 ECC (Emergency Control Center)

The Unit 1 ECC is located in the Unit 1 Control Room. If, for some reason effective emergency control direction cannot be given from the Unit 1 Control Room, the AECC (Alternate Emergency Control Center) is located in the Unit 2 Control Room.

5.1.2 ECS (Emergency Control Station)

The ECS is located in the 306' Elevation in the Unit 1 Control Building and will be used to coordinate duties (assembly, dispatch, communications) of emergency teams and laboratory personnel during an emergency in either Unit 1 or Unit 2. The alternate ECS in located in the Unit 2 Shift Supervisors Office.

5.2 Emergency Control Centers for a Unit 2 Emergency

5.2.1 ECC (Emergency Control Center)

The Unit 2 ECC is located in the Unit 2 Control Room. The AECC is located in the Unit 1 Control Room.

5.2.2 ECS (Emergency Control Station)

The ECS is located in the 306' Elevation in the Unit 1 Control Building and will be used to coordinate duties (assembly, dispatch, communications) of emergency teams and laboratory personnel during an emergency in either Unit 1 or Unit 2. The alternate ECS is located in the Unit 2 Shift Supervisors Office.

189 129

5.3 Off Site Emergency Control Station

This alternate ECS is located just off-site at the TMI Observation Center. Necessary emergency equipment will be transported to the off-site ECS coincident with evacuation of personnel from the Station ECC and/or ECS.

5.4 Communications

The following methods for normal or emergency communications exist at the Three Mile Island Nuclear Station:

a. Radiation Emergency Alarm

b. Public Address System

c. Dial Telephone (Met-Ed Tie Line)

d. DC (Battery) Powered Telephones (6 Bell telephones have this option)

e. Pennsylvania Bell Telephone

f. Met-Ed System Radio (Lebanon Frequency)

g. Dauphin Country Radic Frequency (Monitor Frequency) plus Transmit to Country on Utility Frequency

h. FM Radio Walkie-Talkies

i. NAWAS (National Warning System connected directly to the Main Pennsylvania State Emergency Operations Center in the Capital Complex in Harrisburg, as well as State Police Troop Headquarters).

5.5 Assessment Facilities

5.5.1 Natural Phenomena Monitors

The site meteorological tower has installed sensors at various heights on the tower. If provides wind speed, wind direction and the Pasquall Stability Category information to the Control Room.

Seismic monitoring is also provided for each unit. 189 170

OCT

1004 APR 2 3 1979
Revision 1
01/16/78
Section 2

5.5.2 Radiological Monitors

A Radiation Monitoring System with local alarms and remote readouts is installed throughout both Units. There are fixed process (air, liquid and gas) monitors and fixed area radiation monitors. All of these monitors have audible and visual local alarms, as well as remote readouts and strip chart recorders in the Control Room where the monitor alarms are indicated.

5.5.3 Non-Radiological Monitoring (On-Site)

Reactor coolant system pressure and temperature, containment pressure and temperature, liquid levels and flow rates are monitored and indicated in the Control Room.

Fire detectors are strategically located in the plant with alarms annunciated in the Control Room.

5.5.4 Facilities and Equipment for Environmental Monitoring

At least two vehicles can be quickly equipped with walkie-talkies, air samplers, single channel analyzers and portable survey meters, as well as personnel dosimetry, protective clothing and respirators for off-site monitoring. The on-going off-site TMI Radiological Environmental Monitoring Program routinely includes direct gamma measurements (TLD) at least 20 points within a 10 mile radius of the plant, 8 air particulate and 4 radioiodine sampling stations, 6 water sampling points, as well as seasonal aquatic and land vegetation samples at 5 points.

At least 50 pre-selected locations have been established within a 10 mile radius for emergency radiological monitoring. Laboratory facilities exist on site for TLD interpretation as well as for post-accident sample preparation and counting.

189 131

GCL

APR 2 3 1979

1004
Revision 1
01/16/78
Section 2

5.6 Damage Control Equipment and Supplies

The Maintenance Department has special equipment in the Maintenance Shop and in the Hot Tool Locker that could be used for damage control. Included in this equipment is a series of assorted wrenches and handles for manually cranking valves closed (or open).

6.0 MAINTAININ CEMERGENCY PREPAREDNESS

6.1 Organization Preparedness

6.1.1 Training

6.1.1.1 Personnel with emergency responsibility

Members of the Three Mile Island Staff having responsibilities in relation to the Emergency Plan will be required to participate in appropriate training programs or drills. Certain off-site agencies with emergency responsibilities will also be invited to participate in appropriate training programs and drills conducted at TMI.

6.1.1.2 Categories of On-site Emergency Personnel requiring specialized Training

TMI Staff personnel as assigned to the following emergency job categories will be required to attend the appropriate training programs associated with their assignemnts.

1. Directors of the Plant Emergency Organization
2. Accident Assessment Personnel
3. Radiological Monitoring Team
4. Fire Brigade Team
5. Repair Party Team

189 132

6. First Aid Rescue Team
7. Operations Personnel
8. Corporate Division Support Personnel
9. Security Personnel

6.1.1.3 On-Site Emergency Personnel Training Program Administration

Training Programs for each on-site emergency job category will be conducted annually. Lesson plans or outlines will be provided for each program and will include periodic examinations or assignments. The identification and correction of weak areas, as identified in each training program, will be the responsibility of the instructor. The Supervisor of Training or his designate will be responsible for the scheduling of all training programs, assigning of instructors and the maintaining of program documentation.

6.1.1.4 Categories of Off-site Emergency Personnel

The following off-site organizations or individuals provide assistance in emergency situations. Each organization will be invited to attend training programs and drills consistant with their responsibility.

1. Civil Defense
   a) State Council of Civil Defense
   b) Dauphin Country Civil Defense
   c) York Country Civil Defense
   d) Lancaster Country Civil Defense
2. State Bureau of Radiological Health
3. State Police
4. Local Fire Companies
5. Local Hospital Radiation Emergency Personnel

189 133

6.1.1.5 Off-site Emergency Organization/Personnel Training Programs

The off-site emergency organizations or personnel listed in Paragraph 6.1.1.4 will be invited to attend training programs consistant with their responsibility on an annual basis. When possible, these programs will be conducted in conjunction with the on-site training programs. The Supervisor of Radiation Protection/Chemistry will be responsible for the scheduling, preparing of program invitations, program administration, and documentation.

6.1.1.6 Training Program for TMI Staff members not having specific Emergency Duties

Annually, Three Mile Island staff members, except the Operations Department personnel, receive one day General Employee Training Program. This program includes a review of the Radiation Emergency Plan plus the duties and responsibilities of the staff during an emergency.

6.1.1.7 Operation Department Training Program

Annually, the Operations Personnel receive radiation emergency training during their requalification training program. This program includes a review of the Radiation Emergency Plan as related to their duties and responsibilities.

6.1.2 Drills

To insure continual readiness in the event of a radiation emergency, drills will be conducted. The drills will provide a means of testing the emergency equipment and to ensure that the emergency organization personnel are familiar with their duties. Provisions will be made to conduct the following drills with the frequency indicated each year:

DRILL	FREQUENCY
1) Site or General Emergency Drill	Annually
2) Medical Emergency Drill	Annually
3) Fire Brigade Drills	Quarterly
4) Fire Emergency Drill with Off-Site Fire Department invited to attend.	Annually
5) Repair Party Team Drill	Annually

6.1.2.1 Site or General Emergency Drill

Annually, the Supervisor of Training in conjunction with the Station Superintendent will select and prepare a scenario which will simulate an accident which, were it to occur, could result in a Site or General Emergency.

The drill will require the complete participation of the on-site emergency teams and site emergency organizations. This drill will also be held in cooperation with off-site agencies such as the Pennsylvania Bureau of Radiological Health.

Following each drill a critique will be held to determine the effectiveness of the drill. Any weak areas identified will be corrected through personnel task assignments. The Supervisor of Training or his designate will be responsible for administering the critique and assigning the task. The Station Superintendent will give final approval for the satisfactory completion of the drill and follow up actions.

6.1.2.2 Medical Emergency Drill

Annually, a Medical Emergency Drill will be conducted in 189 135 cooperation with the Hershey Medical Center and local ambulance

crew. The purpose of this drill will be to insure the effectiveness of the plant staff and off-site medical assistance personnel to respond to emergency situations involving injured of contaminated personnel. This Supervisor of Radiation Protection will be responsible for the administration, coordination, follow up critique, and documentation of this drill.

6.1.2.3 Fire Brigade Drills

Quarterly, Fire Brigade Drills will be held to insure that the TMI Fire Brigade can effectively respond to Nuclear Plant Fires. The TMI Representative of Safety will be responsible for the scheduling, scenario preparation, administration, follow up critique and documentation of each drill.

6.1.2.4 Fire Emergency Drill With Off-Site Fire Department

Annually, off-site fire companies will be invited to attend a Fire Emergency Drill at TMI. The drill will be conducted as realistically as possible in order that the effectiveness of fighting fires at TMI can be determined and deficiencies corrected. The representative of safety will be responsible for the scheduling, scenario preparation, administration, follow-up critique and documentation of each drill.

6.1.2.5 Repair Party Team Drill

Annually, a Repair Party Team Drill will be held to insure the effectiveness of the Repair Party to respond and make corrective repairs under emergency conditions. The Supervisor of Maintenance will be responsible for scheduling, scenario preparation, administration, follow-up critique and documentation of each drill.

6.1.2.6 Emergency Plan Review and Updating

On an annual basis, the Supervisor of Radiation Protection will be responsible for reviewing and updating the Emergency Plan. The results of drill critiques or training programs will serve as the basis for updating or improving both the Emergency Plan and Procedures.

7.0 RECOVERY AND RE-ENTRY

7.1 General Considerations for Recovery

In order for the recovery phase of the emergency to commence, the conditions which caused the incident to be declared must no longer exist. It is the responsibility of the Station Superintendent/Unit Superintendent to determine that the facility and/or surroudings are safe, together with the mutual agreement of the NRC.

Although the emergency situation may transcend the normal requirements of limiting exposure, every reasonable effort to minimize exposure must be made, even in emergencies.

1. Four categories of risk versus benefit must be considered:
   a. Saving human life.
   b. Personnel rescue.
   c. Protection of health and safety of public.
   d. Protection of property.

7.2 Emergency Exposure Guidelines

In order to avoid restricting actions that may be necessary to save lives, it shall be left up to the judgement of the individual in charge to determine the amount of exposure that will be permitted in order to perform the emergency mission. The radiation emergency exposure guidelines are NCRP and ICRP recommendations and are described in 1670.8.

189 137

In situations where the bodies of accident victims are in areas inaccessible because of high radiation fields, special planning and remote recovery will be used to retrieve the bodies.

7.3 Re-Entry

Once the hazard potential has passed, steps will be taken to recover from the incident. All actions will be preplanned in order to limit exposures. Areas should be roped off and posted with radiation levels based on the results of surveys. Portable shielding material should be used whenever possible. Access to the areas should be controlled and exposures of personnel documented.

8.0 WRITTEN AGREEMENTS FOR THE COORDINATION OF EMERGENCY PLANNING

Written agreements have been reached with Local, State and Federal Agencies and private medical facilities with regard to the type of support to be provided to the Three Mile Island Nuclear Station in the event of an emergency. The written agreements ensure that there is a clear understanding of assigned responsibilities and that there will be proper coordination of activities in the event of an emergency. Copies of these agreements are included in Section 3.

9.0 REFERENCES

1. U.S. Nuclear Regulatory Commission, Office of Standards Development, Regulatory Guide 1.101, "Emergency Planning for Nuclear Power Plants".

2. U.S. Code of Federa; Regulations, Title 10, Part 50, Appendix E, "Emergency Plans for Production and Utilization Facilities".

3. NUREG-0112, TMI Unit 2 Final Supplement to the Final Environmental Statement, December 1976, U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation.

187 138

4. Final Safety Analysis Report, Three Mile Island Nuclear Station Units 1 and 2.

5. Three Mile Island Nuclear Station Radiation Emergency Procedures, Series 1670, as amended.

6. Pennsylvania Plan for the Implementation of Protective Action Guides (and its Three Mile Island Site Annex), Pennsylvania Bureau of Radiological Health, Department of Environmental Resources, Harrisburg, Pennsylvania, as amended.

A21

APR 2 3 1979

GENERAL PUBLIC UTILITIES CORPORATION

260 Cherry Hill Road
Parsippany New Jersey 07054
201 263-4900

September 1, 1977

Mr. Walter M. Creitz
President
Metropolitan Edison Company
P. O. Box 542
Reading, PA 19603

Dear Mr. Creitz:

In the licensing of nuclear power plants such as Three Mile Island Generating Station, the Nuclear Regulatory Commission requires the operating utility company to obtain letters of agreement from other organizations which are willing to provide assistance in the event of an emergency.

As Chairman of the Board of General Public Utilities Corporation, President of GPU Service Corporation, President of Jersey Central Power & Light Company, and President of Pennsylvania Electric Company, we, the undersigned, hereby agree on behalf of our respective organizations that these organizations will provide assistance upon the request of Metropolitan Edison Company in the event of an emergency at Three Mile Island Generating Station. This assistance will consist of appropriate personnel and equipment to the extent they are available.

Sincerely,

GENERAL PUBLIC UTILITIES CORPORATION

BY _____
W. G. Kuhns, Chairman of the Board

GPU SERVICE CORPORATION

BY _____
H. M. Dieckamp, President

JERSEY CENTRAL POWER & LIGHT COMPANY

BY _____
S. Bartnoff, President

PENNSYLVANIA ELECTRIC COMPANY

BY _____
W. A. Verrochi, President

189 140

OCL

APR 2 3 1979

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS
Commander (o)
Third CG District
Governors Island
New York NY 10004

3130

Mr. J.G. Herbein
Vice President
Metropolition Edison Company
P.O. Box 542
Reading, Pennsylvania 19603

Re: Three Mile Island Generating Station Nuclear Plant, Susquehanna River, Middletown, Pennsylvania

Dear Mr. Herbein:

This is to advise you that upon notification by the Station Superintendent or his designee of an emergency situation involving a disaster which has occurred or is impending at the Three Mile Island Generating Station, the Coast Guard will provide its traditional response. It should be understood that most of our facilities are located some distance away and are primarily oriented toward reponse in coastal and maritime areas. Due to involvement in primary mission areas such as search and rescue, maritime pollution and fisheries law enforcement, a further delay may be encountered due to the time that would be involved in recalling and redirecting Coast Guard resources, if warranted, to your area.

Sincerely,

R.L. JACOBS
Captain, U.S. Coast Guard
Chief, Operations Division
Third Coast Guard District
By direction of the
District Commander

189 141

54

OGI

APR 2 3 1979

DEPARTMENT OF THE ARMY
56TH ORDNANCE DETACHMENT (EOD)
FORT INDIANTOWN GAP
ANNVILLE, PA 17003

12 September 1977

Mr. J. G. Herbein
Vice President Generation
Metropolitan Edison Company
Reading, Pennsylvania 19603

Dear Mr. Herbein

This is to advise you that this unit will respond to a actual or suspected Improvised Explosive Device (Bomb) or Bombing at Three Mile Island Nuclear Station. You may designate individuals at Three Mile Island to call us direct. Your other operating facilities will receive our response after a notification by you to the Pennsylvania State Police or Local Police Departments. These agencys will in turn notify this unit.

This unit may respond to a Bomb Threat at Three Mile Island at our discretion. The requesting Agency will locate suspect items. Explosive Ordnance Disposal (EOD) personnel will not search for Improvised Explosive Devices (IED) because there are not enough EOD personnel to perform this function. During IED searches. EOD personnel may act as tehnical consultants/advisors and check all suspect items located. We also request that your representative be immediately available to the EOD personnel while they are at the scene. The following is quoted from Army Regulation 75-15 for your information. If the Render Safe Procedure (RSP) is to be attempted by Army EOD personnel and the requesting agency's representative does not concur in the approach to be used. the EOD personnel may withdraw from the RSP attempt. revert to an advisor role or return to home station. after coordination with the responsible official of the requesting agency.

Sincerely yours,

CHARLES R. PUCKETT
2LT, OrdC
Commanding

189 142

55

APR 2 3 1979

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES

BUREAU OF RADIOLOGICAL HEALTH
P. O. Box 2063
Harrisburg, PA 17120
Tel: 717 787-2480

July 18, 1977

Mr. John Herbein
Vice President
Metropolitan Edison Company
Box 542
Reading, Pennsylvania 19603

Dear Mr. Herbein:

This responds to a recent request for updating our letter of support to your company for the management of off-site consequences of radiation accidents at Three Mile Island Nuclear Station Units 1 and 2.

The role of this agency in the event of such episodes remains unchanged; that role being one of accident consequence assessment and technical advisement to state and local civil defense. This condition will prevail unless and until our staffing should change substantially in a negative direction. In that event we will advise you accordingly.

Thank you for your continuing interest and cooperation in this matter.

Sincerely yours,

Thomas M. Gerusky

Thomas M. Gerusky, Director
Bureau of Radiological Health

TMG:MAR:m

189 143

56

Headquarters, Troop H
PENNSYLVANIA STATE POLICE
21st and Herr Streets
P.O. Box 1343
Harrisburg, Pa. 17120

APR 2 3 1979

Telephone (717) 234-4051

23 August 1977

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

Dear Mr. Herbein:

This is to acknowledge receipt of your letter dated 19 August 1977. The Three Mile Island Nuclear Station is located in Royalton Borough, Pennsylvania which comes under the exclusive jurisdiction of the Pennsylvania State Police, Troop "H", Harrisburg.

Troop "H" Headquarters, 21st and Herr Streets, Harrisburg, Pennsylvania 17120 will respond to all situations that require police participation in their jurisdiction. The telephone numbers for the Harrisburg Station are 717-234-4051 and 234-0331; Network phone - 443-1900.

The use of the State Police helicopter to transport Radiation Monitoring Teams is not within the realm of authority of this officer. Policy and commitment of State Police helicopters are formulated by Departmental Headquarters and Captain Nicholas Pauley, Aviation Division Director.

You can be assured of our cooperation in all matters of mutual concern.

Very truly yours,

JOSEPH I. C. EVERLY, Captain
Commanding, Troop "H"
Pennsylvania State Police

189 144

57

APR 2 3 1979

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

Dear Mr. Herbein:

This is to advise you that the Middletown Police Department will, upon request of the station superintendent or his designee or the Pennsylvania State Police, provide the following assistance in the event of an emergency:

Provide traffic control, back-up communications, and support protective action for the public within their jurisdication.

Very truly yours,

Middletown Police Department

Date: 21 NOV 77 Signed: Sgt George Miller
acting Chief.

189 145

58

OCS

APR 2 3 1979

Mr. John G. Herbein
Vice President Generation
Metropolitan Edison Company
P. O. Box 542
Reading, Pennsylvania 19603

Dear Mr. Herbein:

This is to advise you that, upon notification by the station superintendent or his designee of an emergency situation existing at the Three Mile Island Nuclear Station, the Bainbridge Fire Company will provide the following assistance if available:

✓ 1. Men and equipment to fight fires. Men and Three Trucks.

✓ 2. Ambulance service. — One Ambulance

Very truly yours,
Earl Fuhrman

Bainbridge Fire Co.
Bainbridge, PA

Date: August 31, 1977

Signed: Chief: Earl Fuhrman

189 146

59

APR 2 3 1979

Mr. John G. Herbein
Vice President Generation
Metropolitan Edison Company
P. O. Box 542
Reading, Pennsylvania 19603

Dear Mr. Herbein:

This is to advise you that, upon notification by the station superintendent or his designee of an emergency situation existing at the Three Mile Island Nuclear Station, the Liberty Fire Company will provide the following assistance if available:

1. Men and equipment to fight fires.

2. Ambulance service.

Very truly yours,

Liberty Fire Co.
Middletown, PA

Date:

Sept 6, 1977

Signed:

(Illegible)

189 147

60

APR 2 3 1979

Mr. John G. Herbein
Vice President Generation
Metropolitan Edison Company
P. O. Box 542
Reading, Pennsylvania 19603

Dear Mr. Herbein:

This is to advise you that, upon notification by the station superintendent or his designee of an emergency situation existing at the Three Mile Island Nuclear Station, the Londonderry Township Fire Company will provide the following assistance if available:

1. Men and equipment to fight fires.

2. Ambulance service.

Very truly yours,

Londonderry Township Fire Co.
Middletown, PA

Date: 10/1/77

Signed: Dennis Kinney (Fire Chief)

189 148

APR 2 3 1979

Mr. John G. Herbein
Vice President Generation
Metropolitan Edison Company
P. O. Box 542
Reading, Pennsylvania 19603

Dear Mr. Herbein:

This is to advise you that, upon notification by the station superintendent or his designee of an emergency situation existing at the Three Mile Island Nuclear Station, the Union Hose Company will provide the following assistance if available:

1. Men and equipment to fight fires.

2. Ambulance service.

Very truly yours,
William E Wisner
Chief
Union Hose Co.
Middletown, PA

Date: 9-12-77

Signed: William E Wisner

189 149

62

APR 2 3 1979

Mr. John G. Herbein
Vice President Generation
Metropolitan Edison Company
P. O. Box 542
Reading, Pennsylvania 19603

Dear Mr. Herbein:

This is to advise you that, upon notification by the station superintendent or his designee of an emergency situation existing at the Three Mile Island Nuclear Station, the Rescue Hose Company No. 3 will provide the following assistance if available:

1. Men and equipment to fight fires.
2. Ambulance service.

Very truly yours,

Rescue Hose Co. No. 3
Middletown, PA

Date: October 3, 1977

Signed: [signature]
Chief Rescue Hose Co #3

189 150

63

OCA

APR 2 3 1979

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

Dear Mr. Herbein:

This is to advise you that, upon notification by the Station Superintendent or his designee of an emergency situation existing at the Three Mile Island Nuclear Station, our Civil Defense Unit will provide assistance as available.

Very truly yours,

Civil Defense of Dauphin County

Date: [illegible] Signed: [illegible]

189 151

64.

APR 2 1979

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

Dear Mr. Herbein:

This is to advise you that, upon notification by the Station Superintendent or his designee of an emergency situation existing at the Three Mile Island Nuclear Station, our Civil Defense Unit will provide assistance as available.

Very truly yours,

Civil Defense of York County

Date: 11/19/79 Signed: [signature]

189 152

65

APR 23 1979

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

Dear Mr. Herbein:

This is to advise you that, upon notification by the Station Superintendent or his designee of an emergency situation existing at the Three Mile Island Nuclear Station, our Civil Defense Unit will provide assistance as available.

Very truly yours,

Civil Defense of Lancaster County

Date: November 18, 1977

Signed: Paul L. Leese
Paul L. Leese
Director

189 153

APR 2 3 1979

COMMONWEALTH OF PENNSYLVANIA
STATE COUNCIL OF CIVIL DEFENSE
HARRISBURG

August 18, 1977

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

Dear Mr. Herbein:

Pursuant to the provisions of Section 4 of the State Council of Civil Defense Act of 1951, P.L. 28, as amended, the Commonwealth Government has, in the attached "Disaster Operations Plan", outlined its basic plans for emergency operations. Additional supportive plans are being developed for actions associated with possible radiation accidents occurring at nuclear power stations located within the State.

Insofar as Metropolitan Edison's Three Mile Island Plant is concerned, we are pleased to tell you that the Dauphin, Lancaster and York County civil defense organizations, which are legally recognized governmental agencies established pursuant to the provisions of State law, are actively working with us in the current planning. Further, in consonance with existing statutes, the three organizations have pledged full and active assistance in all emergency operations which might be necessitated by nuclear radiation incidents occurring at Three Mile Island.

We appreciate Metropolitan Edison's assistance in the present planning effort and shall keep you informed of future developments in the matter.

Sincerely,

Oran K. Henderson
Director of Civil Defense

OKH/mgr
Attch.

189 154

CONRAIL

APR 2-3-1979

August 29, 1977

Mr. J. G. Herbein
Vice President
Metropolitan Edison Company
Post Office Box 542
Reading, Pennsylvania 19603

Dear Mr. Herbein:

Your letter of August 9, 1977, addressed to Amtrak, Washington, D.C., concerning your nuclear power facilities at Three Mile Island Nuclear Station, has been referred to this office for reply, inasmuch as this is Consolidated Rail Corporation property.

This is to advise that upon request by the Station Superintendent or his designee, Consolidated Rail Corporation will take reasonable steps to cooperate to see that the crossing is not blocked by trains or railroad equipment.

Very truly yours,

W.C. Wieters

W. C. Wieters
General Manager

189 155

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

APR 2 3 1979

Docket Nos. 50-289
50-320

Metropolitan Edison Company
ATTN: Mr. J. G. Herbein
Vice President
Post Office Box 542
Reading, Pennsylvania 19603

Gentlemen:

This is in response to your request for an updated letter regarding the participation of the Nuclear Regulatory Commission (NRC) in the event of a radiological emergency at the Three Mile Island Nuclear Station.

The primary role of the NRC during a radiation emergency is that of conducting investigative activities associated with the incident and verifying that emergency plans have been implemented and proper agencies notified. In addition, however, if NRC personnel are dispatched to the scene, they will, as needed, assist in coordination with the Energy Research and Development Administration Radiological Assistance Team and provide to state and local agencies advisory assistance associated with investigating and assessing hazards to the public.

Sincerely,

Robert V. Carlson

Boyce H. Grier
Director

cc:
L. L. Lawyer, Manager, Generation Operations - Nuclear
G. P. Miller, Superintendent
J. P. O'Hanlon, Unit 1 Superintendent
R. W. Heward, Project Manager, GPUSC
R. L. Wayne, QA Manager, Design & Construction
T. H. Crimmins, Jr., Safety & Licensing Manager
R. C. Arnold, Vice President, Design & Construction
J. L. Seelinger, Unit 2 Superintendent
Gerald Charnoff, Esquire
Miss Mary V. Southard, Chairman, Citizens for a Safe Environment

189 156

OCS

APR 2 3 1979

This is to confirm that I agree to the following:

In the event of an accident at Three Mile Island Nuclear Power Station involving radiation exposure of personnel, I will supply medical assistance on the site and assume the responsibility for the medical supervision of the patient(s) until he/they arrive(s) at a medical facility such as The Milton S. Hershey Medical Center, Hershey Pennsylvania, or until such time that my services are no longer required; all this provided that no other urgent medical duties, in my judgment, preclude my availability for the purpose mentioned above, in which case I will take steps to reduce the period of non-availability to a minimum.

It is understood that a Radiation Emergency Medical Team will be dispatched immediately upon notification of a radiation emergency at the plant by Radiation Management Corporation, Philadelphia, Pennsylvania, and that the physician on this team, upon arrival, will assist me in the duties described above.

Elizabethtown, Pennsylvania
(City and State)

6/24/77
(Date)

Miles H. Newman D.O.
Miles Newman, M.D.
Physician Licensed in the State of Pennsylvania, Lic. No. 24[illegible]

189 157

WILLIAM J. ALBRIGHT III, M. D.
225 BROAD STREET
HIGHSPIRE, PA. 17034
TELEPHONE 939-7831

APR 2 3 1979

August 30, 1977

This is to confirm that I agree to the following:

In the event of an accident at Three Mile Island Nuclear Power Station involving radiation exposure of personnel, I will supply medical assistance on the site and assume the responsibility for the medical supervision of the patient(s) until he/they arrive(s) at a medical facility such as The Milton S. Hershey Medical Center, Hershey, Penna., or until such time that my services are no longer required; all this provided that no other urgent medical duties, in my judgement, preclude my availability for the purpose mentioned above, in which case I will take steps to reduce the period of non-availability to a minium.

It is understood that a Radiation Emergency Medical Team will be dispatched immediately upon notification of a radiation emergency at the plant by Radiation Management Corporation, Philadelphia, Penna., and that the physician on this team, upon arrival, will assist me in the duties described above.

Highspire, Penna.
(City and State)

August 30, 1977
(Date)

William J Albright
William Albright III, M.D.
Physician Licensed in the state of Pennsylvania,
Lic. no. [illegible]

189 158

APR 2 3 1979

This is to confirm that I agree to the following:

In the event of an accident at Three Mile Island Nuclear Power Station involving radiation exposure of personnel, I will supply medical assistance on the site and assume the responsibility for the medical supervision of the patient(s) until he/they arrive(s) at a medical facility such as The Milton S. Hershey Medical Center, Hershey Pennsylvania, or until such time that my services are no longer required; all this provided that no other urgent medical duties, in my judgment, preclude my availability for the purpose mentioned above, in which case I will take steps to reduce the period of non-availability to a minimum.

It is understood that a Radiation Emergency Medical Team will be dispatched immediately upon notification of a radiation emergency at the plant by Radiation Management Corporation, Philadelphia, Pennsylvania, and that the physician on this team, upon arrival, will assist me in the duties described above.

Middletown, Pennsylvania
(City and State)

3/22/79
(Date)

John Barnoski M. D.
Physician Licensed in the State of Pennsylvania, Lic. No. MD015436E

189 159

1-13-78

APR 2 3 1979

VERBAL COMMUNICATIONS FORM

Date: 7-27-77

NAME OF OTHER PARTY AND HIS ORGANIZATION: Mr. Ken Miller, Hershey Medical Center

SUBJECT OF COMMUNICATION: Letters of Agreement

SUMMARY OF DISCUSSION:

Mr. Miller spoke with Dr Weidner of the HMC and it was concluded that the January 15, 1974 agreement was still in effect and, with this telephone conversation, was satisfactorily updated.

cc: _____

_____

_____

_____

Subject File: 61.0050.0005.0003

:tas

D. G. Mitchell

Submitted By

189 160

13

APR 2 3 1979

rmc

November 22, 1977

Mr. James O'Hanlon
Superintendent
Three Mile Island Nuclear Station
P.O. Box 480
Middletown, PA 17057

RE: EMAP Agreement

Dear Mr. O'Hanlon:

As required, please find enclosed an updated letter of agreement between RMC and Metropolitan Edison Company for an Emergency Medical Assistance Program (EMAP).

Sincerely yours,

Roger E. Linnemann, M.D.
President

REL:sk
cc: F. Rocco (w/enclosure)
Dave Mitchell, Metropolitan Edison Company (w/enclosure)

Enclosure

radiation management corporation

UNIVERSITY CITY SCIENCE CENTER

3528 MARKET STREET
PHILADELPHIA, PA 19104
(215) 243-2950

189 161

APR 2 3 1979

rmc

November 21, 1977

Mr. James O'Hanlon
Superintendent
Three Mile Island Nuclear Station
P.O. Box 480
Middletown, PA 17057

SUBJECT: Emergency Medical Assistance Program

Dear Mr. O'Hanlon:

This confirms an agreement between Radiation Management Corporation (RMC) and Metropolitan Edison Company, wherein RMC agrees to furnish certain services to nuclear generating stations operated by Metropolitan Edison Company. These services comprise a program that is identified by RMC as an Emergency Medical Assistance Program (EMAP). With regard to Three Mile Island Nuclear Power Station, the EMAP contains the following provisions:

1. Semi-annual review of plant and hospital procedures, equipment and supplies; one of these audits will be in conjunction with (5.) below;

2. Twenty-four-hour-per-day availability of expert consultation on management of radiation accidents;

3. Availability of Bioassay Laboratory for evaluation of radiation accidents;

4. Twenty-four-hour-per-day access to a Radiation Emergency Medical Team consisting of a physician, certified health physicist, and technicians with portable instrumentation to location of accident victim;

5. Availability and access to a medical center equipped for the definitive evaluation and treatment of radiation injuries;

6. Annual training for the plant, ambulance and hospital personnel who may be directly or indirectly involved in the execution of the radiation medical emergency program;

7. Preparation of an "accident" scenario for use as a training aid in a radiation medical emergency drill;

radiation management corporation

UNIVERSITY CITY SCIENCE CENTER

3508 MARKET STREET
PHILADELPHIA, PA 19104
(215) 243-2950

189 162

continued ...

RMC

Metropolitan Edison Company
Three Mile Island Nuclear Power Station
Page Two

8. Coordination of a radiation medical emergency drill based on the scenario; umpired, video taped and critiqued by RMC;

9. Submission of two Drill Evaluation Reports; one relating to the observations made at the station, and another relating to observations made at the hospital; and ...

10. Participation in an annual one-day seminar in Philadelphia on the management of radiation accidents for physicians. Each plant may send one physician, and each utility company may send one physician.

ACCIDENT RESPONSE

Consultation and laboratory services by RMC personnel are at no charge, except incremental costs associated with consultative activities, such as travel, lodging and other related expenses.

RADIATION MANAGEMENT CORPORATION

Roger E. Linnemann, M.D.
PRESIDENT

REL:sk

cc: F. Rocco

189 163

76

APR 2 3 1979

UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
BROOKHAVEN AREA OFFICE
UPTON, NEW YORK 11973

COM'L: 516-345-2200
FTS : 664- 2200

August 31, 1977

Mr. J. G. Herbein
Vice President
Metropolitan Edison Company
Post Office Box 542
Reading, Pennsylvania 19603

Dear Mr. Herbein:

SUBJECT: METROPOLITAN EDISON COMPANY

Since your nuclear facility is located in Region I, the Brookhaven Area Office is charged with the responsibility for providing radiological assistance in the event of an emergency. Such assistance can be requested, at all times, by calling 516-345-2200 and asking for radiological assistance indicating the nature of the incident, the location, and how to contact responsible authorities to coordinate our response.

The Energy Research & Development Administration (ERDA) will respond to requests for radiological assistance from licensees, Federal, state and local agencies, private organizations, or individuals involved in or cognizant of an incident believed to involve source, byproduct, or special nuclear material as defined by the Atomic Energy Act of 1954, as amended, or other ionizing radiation sources.

Unless the ERDA or an ERDA contractor is responsible for the activity, ionizing radiation source, or radioactive material involved in an incident, ERDA radiological assistance will be limited to advice and emergency action essential for the control of the immediate hazards to health and safety. Radiological emergency assistance will be terminated as soon as the emergency situation is under control. Therefore, responsibility for postincident recovery, including further action for the protection of individuals and the public health and safety, should be assumed by the appropriate responsible Federal, state or local government, or private authority as soon as the emergency conditions are stablized.

AMERICAN REVOLUTION BICENTENNIAL 1775-1976

189 164

APR 2 3 1979

If you have any further questions or desire further information, feel free to contact me.

Very truly yours,

Robert A. Friess

Robert Friess, Acting Chief
Operations & Safety Section

cc: J. P. O'Reilly, Director, Office of Inspection & Enforcement, NRC, Region I
H. Hollister, Director, Division of Safety, Standards, & Compliance, HQ

189 165

PART I

SITE DESCRIPTION

The Three Mile Island Nuclear Station (TMI) is located on Three Mile Island in the Susquehanna River in Dauphin County, Pennsylvania. The site is occupied by two pressurized water reactors, Unit I being rated at 871 Mw(e) and Unit II at 959 Mw(e). The facilities are owned by Pennsylvania Electric Company, Metropolitan Edison Company and Jersey Central Power and Light Company. The facilities are operated by Metropolitan Edison Company (Met Ed).

The exclusion distance is 2000 feet, or about 0.4 miles.

The distance to the outer edge of the low population zone is 2 miles. The population within the low population zone is projected to approximate 4000.

The site is characterized by four hyperbolic natural draft cooling towers having an elevation above grade to the order of 370 feet.

The nearest population center is Harrisburg, 10 miles northwest of the site, with a population of 68,000. Communities located within the low population zone include Goldsboro with 600 at 1½ miles west of the site in York County, and York Haven with 700 at 2 miles south of the site in York County. Royalton in Dauphin County, with 1100 is located just outside the low population zone at 2½ miles north of the site. The low population zone includes a portion of Dauphin, York and Lancaster Counties, Pennsylvania.

No hospitals are located within the low population zone.

No schools are located within the low population zone.

The facility is situated on Three Mile Island in the Susquehanna River. Other islands within the low population zone include Shelly, Beech, Goosehorn, Henry, Kohr, Hill, Poplar and Bashore. Seasonal inhabitants of these islands gain access by private boat.

The normal pool elevation of the river in the Three Mile Island vicinity is 278 feet (MSL). The facility is flood protected by dikes to a river discharge rate of 1.1 million cfs. Component protection to 1.625 million cfs is provided. The discharge rate at Three Mile Island is approximately 1.015 that at Harrisburg.

The exclusion zone is transversed by the right-of-way of the Penn-Central Railroad on the east shore of the Susquehanna. Pennsylvania Route 441 also crosses the exclusion zone on the east shore of the Susquehanna.

Metropolitan Edison Company plans to make the south end of the island available to the general public for recreational purposes including picnicking and boating. Visitors load to the facility could approach 1000.

Airports in the site environs include Harrisburg International north of the site which services commercial traffic to the order of large jets, and Capital City northwest of the site, which services smaller commuter and private aircraft.

PART II

DEFINITIONS

AEC	United States Atomic Energy Commission
BE	Basin Engineer - Bureau of Water Quality Management - DER
BNL	Brookhaven National Laboratory
BRH	Bureau of Radiological Health - DER
CDDO	State Council of Civil Defense Duty Officer
DAG	Chief, Division of Milk Sanitation - Pennsylvania Department of Agriculture
DBA	Design Basis Accident
DER	Pennsylvania Department of Environmental Resources
DRC	Division of Radiation Control - Maryland Department of Health
ECCS	Emergency Care Cooling System
HIA	Harrisburg International Airport
IM-BRH	Incident Manager - Bureau of Radiological Health
LOGO	Logistician - Bureau of Radiological Health
Met Ed	Metropolitan Edison Company - the facility operator
PCCo	Penn Central Company
PIO	Public Information Officer - DER
RAP	Radiological Assistance Plan (Team) at BNL
SCCD	State Council of Civil Defense
TMI	Three Mile Island Nuclear Station Unit I and/or Unit II

APR 2 3 1979

81

PART III

TELEPHONE DIRECTORY
THREE MILE ISLAND

THIS PART IS CIRCULATED TO PLAN PARTICIPANTS ONLY

PART IV

PREPARED MESSAGES

Initial Notifications:

Prepared messages are offered for the convenience of participants in notification rosters.

In all instances the following items of information, at least, must be exchanged, as pertinent:

1. This is a (test/emergency).
2. This is (name) _____.
3. (title) _____.
4. (Organization) _____.
5. At (phone number) _____.
6. At (time).
7. (facility) _____ sustained a nuclear incident.
8. Please notify the Bureau of Radiological Health.

8a. Please notify (organization).

9. This is a (test/emergency).

This message may be repeated as necessary, in whole or in part.

It is of mutual interest to all parties in the notification sequence to keep messages as short as possible.

Public Notification

Notification of inhabitants in areas affected by the consequences of airborne releases of radioactive material is accomplished by vehicle mounted public address systems.

If it becomes necessary that individuals in affected areas "take cover", the following message is recommended:

This is an emergency.

This is an emergency.

An accident has occurred at Three Mile Island Nuclear Station. You are advised to "take cover" and remain indoors until further notice. Please remain in your homes with doors and windows closed. Turn off fans and air conditioning.

Keep your homes secured until advised otherwise.

This is an emergency.

This is an emergency.

(Repeat as needed)

If it becomes necessary that individuals be evacuated from an affected area, the following message is recommended:

This is an emergency.

This is an emergency.

An accident has occurred at Three Mile Island Nuclear Station. It is necessary that you prepare to be evacuated to a safe area.

You will be evacuated to _____ and _____.

Turn off stoves, ovens, heaters, air conditioners and fans. Prepare to be evacuated. Children now attending school will be taken care of, and will be reunited with parents at the evacuation centers.

This is an emergency.

This is an emergency.

(Repeat as needed)

PART V

TYPE 1 ACCIDENT
UNPLANNED RELEASE TO THE SUSQUEHANNA RIVER

Postulated Events: This type accident involves the unplanned release of substantial quantities of waterborne radioactive material to the Susquehanna. Substantial releases to the river include those events which are likely to lead to water concentrations of mixed unidentified by-product materials in excess of 1000 pCi/l (10^{-6}uCi/cc) at the intake structure of any downstream user.

Populations-at-Risk: Potential downstream users of the Susquehanna include the following treatment facilities:

Brunner Island Steam Electric Station; west bank; 5 miles downstream.

Wrightsville Water Supply Company; west bank; 16.25 miles downstream.

Borough of Columbia; east bank; 16.75 miles downstream.

City of Lancaster; east bank; 16.75 miles downstream.

Safe Harbor Water and Power Corporation; east bank, 27.25 miles downstream.

Holtwood Reservoir; east bank; 34.75 miles downstream.

City of Chester Water Authority; east bank; 43 miles downstream.

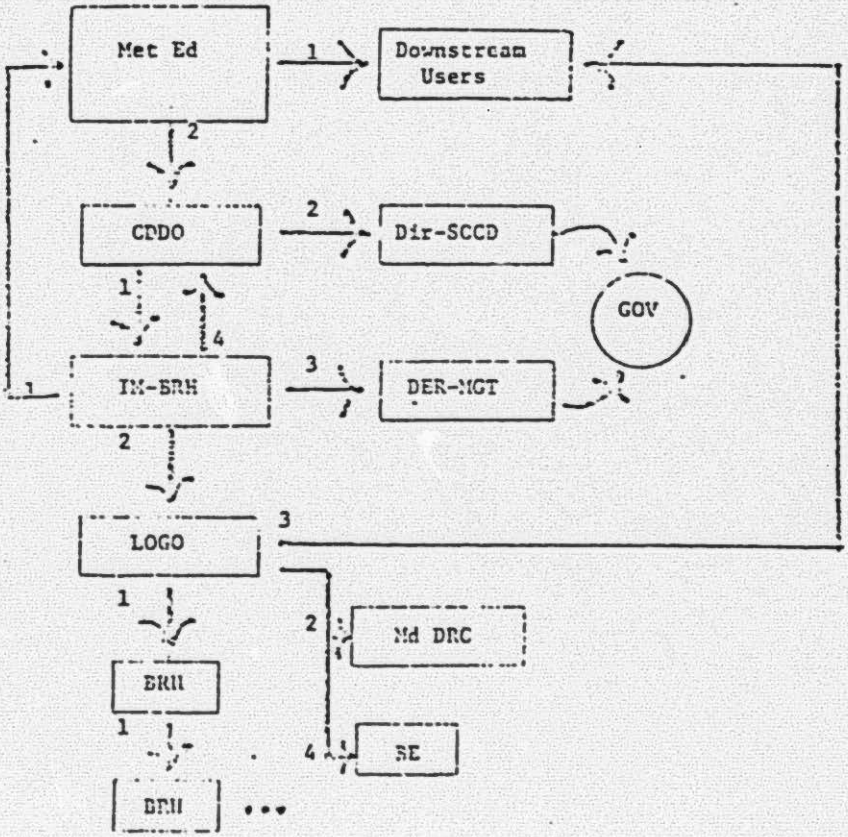
Sequence of Events:

1. Met Ed detects a failure which leads to an unplanned release of waterborne radioactive material to the Susquehanna.
2. Met Ed estimates:
   a. inventory of the release (excluding tritium);
   b. concentration in the flume upon arrival at the intake structure of the downstream users;
   c. time of flume arrival; and,
   d. duration of release.
3. Met Ed contacts downstream users, and advises as to the need to discontinue intake until advised otherwise.
4. Met Ed initiates contact with the Commonwealth through the CDDO using a message similar to that given in Part IV of this Annex.
5. CDDO contacts BRH and relays the Met Ed message.
6. BRH contacts Met Ed and ascertains estimated:
   a. quantity (inventory) of the release;
   b. concentration at intake structure of downstream users;
   c. time of arrival;
   d. duration of the release;
   e. identity of downstream users contacted;
   f. status of downstream users (intake curtailed due to warning, intake from river not currently being used, etc.)
7. BRH dispatches staff for water monitoring at Columbia.
8. BRH advises DER management of the occurrence.

9. BRH contacts Maryland DRC to advise as to the occurrence.
10. BRH contacts CDDO giving incident detail.
11. BRH advises BE of the occurrence.
12. News releases are dispatched through PIO.
13. BRH and AEC determine factors leading to the incident; and implement actions to preclude recurrence.

TYPE 1 ACCIDENT

UNPLANNED RELEASE TO THE SUSQUEHANNA RIVER



Recovery: Recovery actions include those activities necessary to verify flume passage and those activities necessary to verify the effectiveness of intake curtailment. This is accomplished by sampling and gross analysis of reservoirs and intakes. In-stream concentrations of 1000 pCi/l as mixed unidentified by-product material are grounds for curtailing intake. Concentrations of these materials should not exceed 100 pCi/l in the reservoir.

Intake is continued upon authorization by BRH-DER following flume passage.

PART VI

TYPE 2 ACCIDENT
POTENTIAL RELEASE TO THE ATMOSPHERE

Postulated Events: This type accident includes those occurrences at TMI which have the potential to lead to unplanned releases to the atmosphere. These events include system failures which are precursors of events leading to unplanned releases, for example, the free-fall of a loaded spent fuel cask, complete loss of cooling capability for the spent fuel pool, and so forth. This type includes events which may necessitate site and/or station evacuation.

This type includes events related to design basis accidents (DBA) which have not yet deteriorated to DBA station setpoint parameters, for example, primary system leaks of such proportion as not to have caused containment pressures to actuate the high pressure injection system, but as not to have excluded deterioration of the station status.

Failures and conditions outside the control of Met Ed are also included in this type accident. These conditions include the impact of an aircraft on any critical (Class I) structure.

Populations-at-Risk: The identification of populations-at-risk is predicated upon the outcome of the events leading to the type 2 emergency and their senarios.

Sequence of Events:

1. Met Ed detects and identifies an air strike on-site, or a system failure with a potential to lead to a release of radioloactive material to off-site areas.
2. Met Ed initiates contact with the Commonwealth through the CDDO, using a message similar to that given in Part IV of this Annex.
3. The CDDO contacts BRH through the callout sequence and relays the Met Ed message.
4. The first BRH staff member contacted by CDDO becomes, temporarily, the Incident Manager (IM-BRH) IM-BRH returns the call to Met Ed. The following checklist, used by IM-BRH, in conversation with Met Ed, serves to assess station status:

   a. Basis of Notification: Notes

      (1) System failure

      (2) Air strike

      (3) Threatened DBA

   b. Station Status:

      (1) Stand by; outage

      (2) On line, less than full power

      (3) Full power

   c. Time of Event?

   d. Plant evacuation indicated?

   e. Site evacuation indicated?

   f. Destination of plant and/or station evacuees?

g. Estimated wind speed?

h. Estimated wind direction?

i. Any reason to expect a deterioration in the situation?

j. Appropriate comments from Met Ed.

5. IM-BRH continues BRH callout sequence. The first contact becomes the logistician (LOGO). IM-BRH relays information to LOGO.

6. LOGO continues BRH callout.

7. IM-BRH contacts CDDO, relaying incident information.

8. IM-BRH contacts DER management relaying incident information.

9. LOGO contacts HIA for appropriate information if the episode was initiated by aircraft strike.

10. LOGO alerts RAP team.

11. LOGO alerts DAG.

12. IM-BRH maintains contact with Director of SCCD.

13. LOGO maintains contact with Met Ed for the durations of the episode.

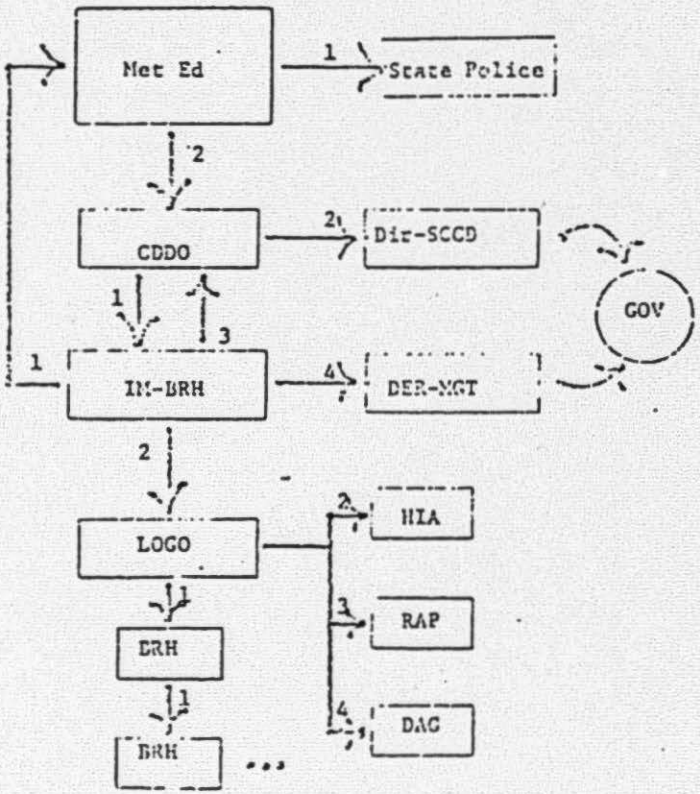
14. LOGO maintains contact with the Response Team Captain for the duration of the episode.

15. IM-BRH prepares a news release for dissemination through PIO.

16. BRH and AEC initiates, investigates cause of the episode, and implement actions to preclude recurrence.

TYPE 2 ACCIDENT

POTENTIAL RELEASE TO THE ATMOSPHERE



Recovery:

In the event that no significant radioactivity is released to off-site areas, no protective measures are indicated.

If events lead to the release of radioactive material such as to suggest possible milk contamination, protective actions and recovery activities for milk protection are employed. These activities are described in Section X: Milk Management in PaPIPAG.

In the event that the quantities of material released demand protective action against direct exposure, the event has deteriorated to a type 3 event, or worse. The plans for dealing with accidents of that severity are described in succeeding Parts of this Annex.

TYPE IN
RELEASE TO SPHERE AS A
RESULT OF FAILURE

Postulated Events: This typ[illegible] includes those failures which are likely to lead to the re[illegible] significant quantities of radioactive material to off-site [illegible]At TMI these events include:

Design Basis Accidents:

Fuel handling acci[illegible]

Rod ejection accid[illegible]

Loss-of-coolant acc[illegible]

Waste gas tank rupt[illegible]

Abnormal Transients:

Loss of load transi[illegible]

Loss of a-c power

Steam line failure

Steam generator tube ure[illegible]

Populations-at-Risk: For design[illegible]sis accidents, the population risk regarding direct exposure m[illegible]t as large as a major fract[illegible] of an area corresponding to the l[illegible]opulation zone (distance [illegible] miles). This estimation includes [illegible]itors and construction [illegible] the site.

189 183

Time of occurrence?

Station evacuation indicated?

Yes - ? destination?

No - OK

Site evacuation indicated?

Yes - ? destination?

No - OK

Station status?

outage ?

on-line ?

Estimated age of fuel?
(time since irradiation)

Supplied air to fuel handling building stopped?

Yes - OK

No - ? exhaust fan

Exhaust fan operating?

Yes - OK

No - possible type 4 --

(On hi-radiation signal from exhaust from fuel handling building, supplied air should cut off and the exhaust fan should continue to operate. Fan exhausts to station vent. Fuel handling building is not air tight.)

Estimated wind speed?

Estimated wind direction?

Estimated source term?

Any reason to expect deterioration in situation?

Notes

Sequence of Events:

1. Met Ed detects a system failure or a failure which has led or is likely to lead to an unplanned release of airborne radioactive material.
2. Met Ed initiates contact with the Commonwealth through CDDO using a message similar to that provided in Part IV of this Annex.
3. CDDO makes contact with BRH-DER. The first person contacted is the Incident Manager (IM-BRH).
4. IM-BRH contacts Met Ed by return call for accident identification and to assess the status of engineered safeguards and consequence mitigating features.

Check lists for accident identification and status of safeguards are given in items 5 through 12.

Fuel handling accident (5)

Rod ejection accident (6)

Loss of coolant accident (7)

Waste gas tank rupture (8)

Loss of load transient (9)

Loss of a-c power (10)

Steam line failure (11)

Steam generator tube failure (12)

5. Fuel Handling Accident:

Mechanical failure of the cladding of spent fuel

Estimated off-site doses?

Evacuation of downwind individuals indicated?

Define area.

6. Rod Ejection Accident:

Failure of control rod drive pressure boundary leads to upward expulsion of a control rod resulting in a reactivity transient. This condition threatens fuel cladding integrity. It also results in expulsion of coolant through the pressure boundary.

Time of occurrence?

Station evacuation indicated?

Yes - ? destination?

No - OK

Site evacuation indicated?

Yes - ? destination

No - OK

Rod scram achieved?

Yes - OK

No - possible type 4

Secondary (steam) system isolated?

Yes - OK

No - increases source term.

Any indication of pressure vessel deformity?

Yes - possible type 4

No - OK

Reactor building isolated?

Yes - OK

No - possible type 4

Reactor building heat removal system actuated?

Yes -(pressure >4 psig)

No - OK

Reactor building spray actuated?

Yes -(pressure >30 psig)

No - OK

(These 2 items above answered 'yes', suggest deterioation to LOCA. See item 7.)

Estimated wind speed?

Estimated wind direction?

Radiation dose rate in dome of the reactor building?

(8 R/hr -- 0.54 Rem/2 hr. to adult thyroid at edge of exclusion zone; 2000 ft.) (Gives estimation of proximity to DBA-LOCA)

Any reason to expect deterioration in situation?

Estimated off-site doses?

Evacuation of downwind individuals indicated?

Define areas.

7. Loss of Coolant Accident:

Rupture of a primary coolant system pipe

Time of occurrence?

Station evacuation indicated?

Yes - ? destination?

No - OK

Site evacuation indicated?

Yes - ? destination?

No - OK

Rod scram achieved?

Yes - OK

No - possible type 4

Reactor building isolated?

Yes - OK

No - possible type 4 -

implies possible loss of containment

Off-site power retained?

Yes - OK

No - ? diesels and/or batteries available as needed?

Yes - OK

No - possible type 4 -

implies loss of power to engineered safeguards

High pressure injection system actuate as needed?

Yes - OK - (primary pressure <1500 psig)

No - possible type 4 - indicates failure of one ECCS component.

Core flooding system actuate as needed?

Yes - OK -(primary pressure <600 psig)

No - possible type 4 - indicates failure of one ECCS component.

Low pressure injection system actuate as needed?

Yes - OK -(primary pressure <100 psig)

No - possible type 4 - indicates failure of one ECCS component.

Reactor building temperature declining?

Yes - OK

No - possible type 4 - implies possible failure of ECCS

Reactor building pressure declining?

Yes - OK if temperature is also declining.

No - possible type 4 - implies possible failure of ECCS.

(By the time IM-BRH contacts Met Ed both temperature and pressure should be declining if ECCS is effective. If pressure is declining more rapidly than expected with temperatures rising ahead of expectations, there is reason to suspect a breach of containment)

Reactor building heat removal system actuated as needed?

Yes - OK - (pressure >4 psig)

No - possible type 4

Reactor building spray actuated as needed?

Yes - OK -(pressure >30 psig)

No - possible type 4 - necessary for iodine control.

Estimated wind speed?

Estimated wind direction?

Radiation dose rate in dome of the reactor building?

(8 R/hr. -- 0.54 Rem/2 hr. to adult thyroid at edge of exclusion zone; 2000 ft.)

Any reason to expect deterioration in situation?

Estimated off-site doses?

Evacuation of down wind individuals indicated?

Define area.

8. Waste Gas Tank Rupture:

Essentially complete instantaneous loss of waste gas tank inventory.

Time of occurrence?

Estimated inventory?

Noble Gases (max = 97 K Ci)

Halogens (max = 50 Ci)

Estimated age of inventory?

Estimated wind speed?

Estimated wind direction?

9. Loss of Load Transient: Event leading to release of secondary coolant (steam).

   Time of occurrence?

   Prior evidence of steam generator tube leakage?

   Yes - extent?

   (Max. = 1% failed fuel; 1 gpm 1^{o}-to-2^{o} leak)

   No - OK

   Station evacuation indicated?

   Yes - destination?

   No - OK

   Site evacuation indicated?

   Yes - destination?

   No - OK

   Current station status? (information only)

   < 15% full power

   > 15% full power

   (If station or site evacuation is indicated additional failures are suggested.)

   Estimated wind speed?

   Estimated wind direction?

10. Loss of a-c Power: Event leading to release of secondary coolant (steam)

Time of occurrence?

Rod scram achieved?

Yes - OK

No - possible type 4

Steam relief realized?

Yes - OK

No - may lead to steam-line break

Condensate storage available for condenser cooling ?

Yes - OK

No - may lead to steam-line break

Prior evidence of steam generator tube leakage ?

Yes - extent (max = 1% failed fuel; 1 gpm 1^{o}-to-2^{o} leak)

No - OK

Current station status? (information only)

stand-by

on line

Station evacuation indicated?

Yes - ? destination?

No - OK

Site evacuation indicated?

Yes - ? destination?

No - OK

Estimated wind speed?

Estimated wind direction?

(If station or site evacuation is indicated, additional failures are suggested.)

11. Steam Line Failure: Rupture of secondary coolant (steam) line. May occur inside or outside the reactor building, between the steam generator and turbine. Severity depends on steam generator tube leakage.

Time of occurrence?

Station evacuation indicated?

Yes - ? destination?

No - OK

Site evacuation indicated?

Yes - ? destination?

No - OK

Rod scram occur?

Yes - OK

No - possible type 4

Unaffected steam generator isolated?

Yes - OK

No - possible type 4 since decay heat removal is accomplished through the unaffected steam generator

High pressure injection actuated? (Information only)

Yes - (indicates large area steam line break.)

No - OK

Prior evidence of steam generator leakage?

Yes - extent? (Max = 1% failed fuel; 1 gpm 1^{0}-to-2^{0} leak)

No - OK

Location of break? (information only)

inside reactor building.

turbine building.

Any reason to expect deterioration in the situation?

Yes - describe

No - OK

Any injuries?

Yes - number & destination

No - OK

Estimated wind speed?

Estimated wind direction?

(Indication of station or site evacuation implies multiple failures)

12. Steam Generator Tube Failure: Rupture of the primary to secondary coolant boundary. More acute and substantial than tube leakage. Leads to dumping of steam to atmosphere.

Time of occurrence?

Station evacuation indicated?

Yes - ? destination?

No - OK

Site evacuation indicated?

Yes - ? destination?

No - OK

Rod scram achieved?

Yes - OK

No - possible type 4

High pressure injection system actuate?

Yes - OK

No - possible type 4

Any reason to expect deterioration in the situation?

Yes - describe

No - OK

Steam relief realized?

Yes - OK

No - may lead to steam line break

Associated steam line intact?

Yes - OK

No - add steam line break considerations

(Indication of station or site evacuation indicates multiple failures.

Estimated wind speed?

Estimated wind direction?

13. Design Basis Site Boundary Doses:

Distance = 2000 ft.

Time interval = 2 hr.

Design Basis = 1% defective fuel, 1 gpm tube leak, end of core life.

Meteorology = $\chi/Q > 4.5 \times 10^{-4}$ sec/m^3

Accident	Whole Body (Rem)	Adult Thyroid (Rem)	Child Thyroid (Rem)	Duration
Fuel Handling	0.17	0.28	2.8	< 2 hr.
Rod Ejection	0.0053	2.1	21	> 2 hr.
Loss-of-Coolant	0.017	0.54	5.4	> 2 hr.
Waste Gas Tank Rupture	1.2	1.6	16	< 2 hr.
Loss of Load	--	0.0053	0.053	< 2 hr.
Loss of a-c power	--	0.101	1.01	< 2 hr.
Steam line failure (outside RB with SG tube leak)	0.002	0.5	5.0	> 2 hr.
Steam generator tube rupture	0.155	0.002	0.020	> 2 hr.

14. IM-BRH contacts next BRH staff member who becomes the LOGO. Pertinent details of the accident are relayed.

15. IM-BRH contacts CDDO and relays appropriate information.

16. LOGO continues BRH callout.

17. CDDO contacts Director SCCD.

18. IM-BRH contacts DER management.

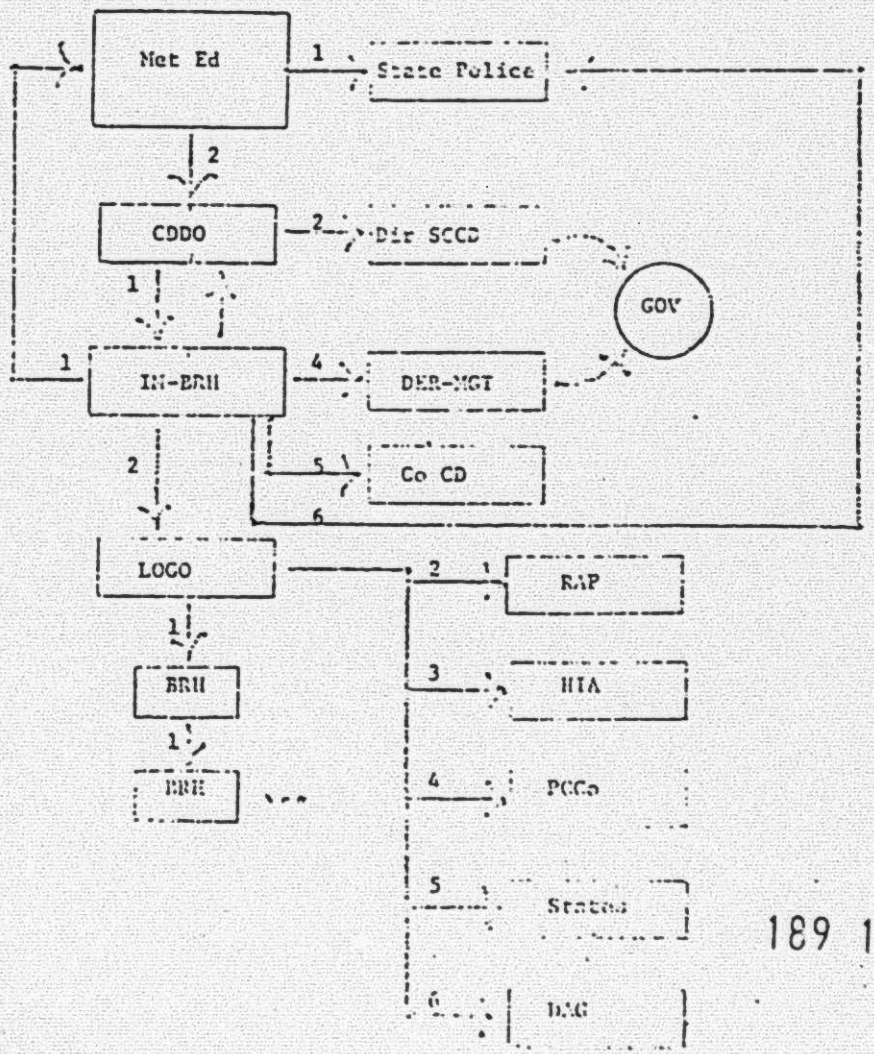
19. LOGO contacts RAP at BNL.

189 196

20. IM-BRH contacts State Police - Troop H, as conditions warrant, and advises as nature and extent of the emergency:
    a. specific area
    b. specific protective action for inhabitants
    c. need to limit access
21. IM-BRH contacts Dauphin County C.D., as conditions warrant, indicating nature and extent of the emergency including the welfare of boaters and islanders.
22. LOGO contacts HIA to advise as to appropriate alteration of activities at the airport.
23. LOGO contacts PCCo to advise as to appropriate alteration of activities in rail traffic through the LPZ.
24. LOGO alerts radiological health agencies in adjoining states.
25. LOGO alerts DAG.
26. Response Team Captain assigns staff to response teams.
27. IM-BRH prepares a news release for dissemination through PIO.
28. LOGO maintains contact with TMI, the Response Teams and appropriate outside agencies.
29. IM-BRH maintains contact with DER management.

TYPE 3 ACCIDENT

RELEASE TO THE ATMOSPHERE AS A RESULT
OF SYSTEMS FAILURE



Recovery: In the event that no direct protective actions are indicated as a result of the off-site consequences of the Type 3 Accident, discussion recovery activities is not necessary.

In the event that "take cover" advisories or alerts are needed as protective actions against direct exposure, the advisory or alert is lifted when residual radiocontamination is unlikely to lead to doses in excess of 0.5 Rem whole body and/or 3 Rem to the thyroid of a one-year old infant.

In the event that evacuation is indicated as the protective action against direct exposure, reentry is permitted when the effluent source is terminated and the residual radiocontamination is unlikely to lead to doses in excess of 0.5 Rem whole body and/or 3 Rem to the thyroid of a one-year old infant.

In the likely event that milk supplies are at risk as a result of the accident, controls are imposed and removed in accordance with Section X of PaPIPAG.

PART VIII

TYPE 4 ACCIDENT
MAJOR FAILURE WITH FAILED SAFEGUARDS

Postulated Events: This type accident involves those events which are the result of the failure of the primary coolant pressure boundary accompanied by single or multiple failure of engineered safeguards or consequence mitigating features.

During a Loss-of-Coolant Accident:

1. Failure to attain a rod scram;
2. Failure of ECCS components to actuate;
3. Failure of ECCS to prevent substantial fuel melting;
4. Failure of ECCS to prevent substantial metal-water reaction (hydrogen generation), leading to the need for reactor building purge in the first several days post-LOCA;
5. Failure of reactor building cooling and spray systems to actuate or to reduce pressure;
6. Failure to isolate reactor building;
7. Breach of containment;
8. Failure to start emergency diesels or battery systems following a loss of off-site power;
9. Failure of steam generator pressure boundary;
10. Any combination of the above.

During a Rod Ejection Accident:

1. Failure of high pressure injection system or other ECCS component called upon;
2. Failure to achieve rod scram;
3. Pressure vessel rupture below the top of the core;
4. Failure to isolate reactor building;
5. Breach of containment;
6. Failure of reactor building cooling and spray systems to actuate or to reduce pressure;
7. Any combination of the above.

During a Steam Line Break Accident:

1. Loss of unaffected steam generator as a decay heat removal device;
2. Failure of affected steam generator pressure boundary;
3. Failure to achieve a rod scram;
4. Any combination of the above.

During a Steam Generator Tube Failure:

1. Failure to achieve a rod scram;
2. Failure of ECCS components if called upon;
3. Loss of unaffected steam generator as a decay heat removal device;
4. Rupture of affected steam line;
5. Any combination of the above.

Also included is the sudden rupture of the reactor vessel at a location below the top of the core.

Populations-at-Risk: For the near term the population-at-risk is considered to be all the inhabitants and occupants of the low population zone, with the likely extension to downwind populations.

Sequence of Events:

1. Met Ed detects a failure or series of failures which lead to a rupture of the primary coolant boundary accompanied by failure or threatened failure of engineered safeguards and/or consequence mitigating features.
2. Met Ed contacts CDDO.
3. CDDO contacts BRH-DER. The first person contacted is the Incident Manager (IM-BRH).
4. IM-BRH contacts Met Ed. In the event that the failure is very obviously a catastrophic event, the information exchange is limited to: (as available)
   a. type accident
   b. source term estimate
   c. wind speed
   d. wind direction
   e. dose estimates
   f. failure prognosis.
5. IM-BRH contacts the next BRH staff member who becomes the LOGO. Pertinent details are relayed.
6. IM-BRH contacts CDDO and relays appropriate information, including the likelihood of a declaration of a state of emergency.

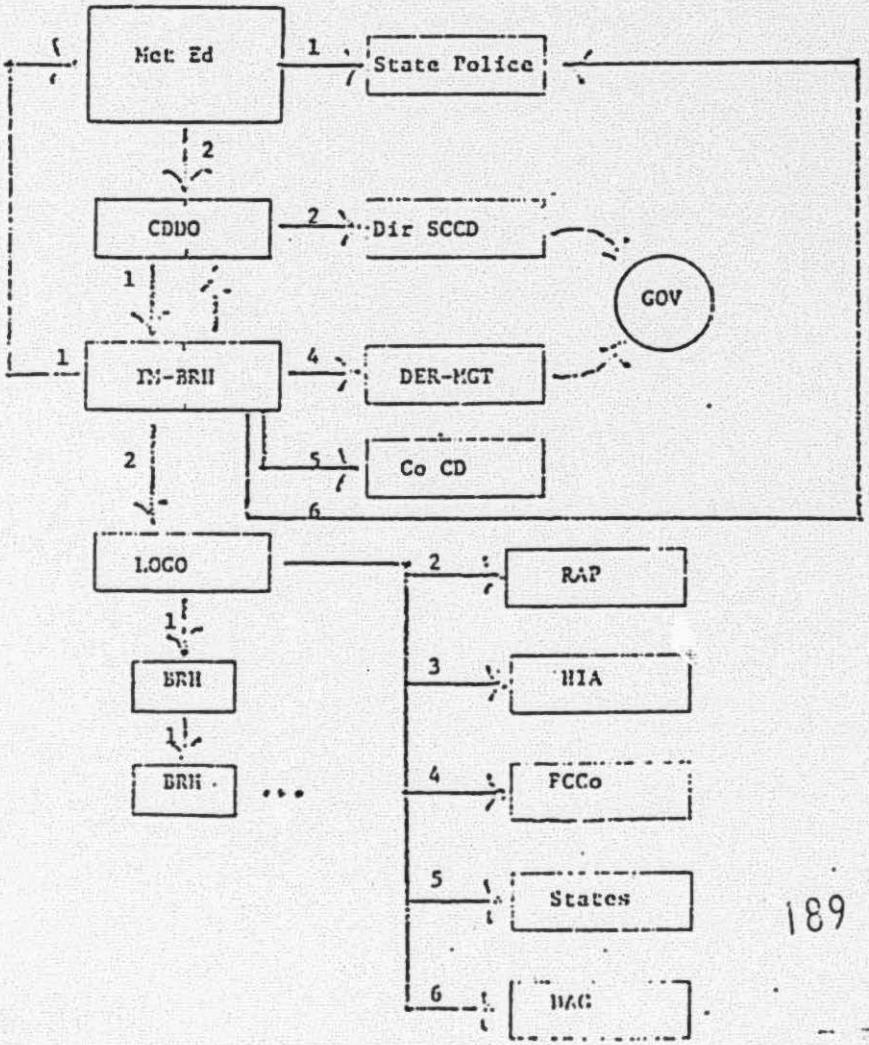
7. LOCO continues BRH callout.
8. CDDO contacts the Director, SCCD.
9. IM-BRH contacts DER Management advising of the probable need for a declaration of a state of emergency.
10. IM-BRH contacts Dauphin, York and Lancaster County Civil Defense as to the need to evacuate areas within 2 miles of the plant. IM-BRH asks for identification of evacuation centers at distances more than 10 miles from the site.
11. IM-BRH contacts State Police, Troop H, Harrisburg as to the need to evacuate the threatened area, the need to restrict access, and the need for evacuation notification. Specify evacuation centers. Request relay of information to the York Substation and to Troop J, Lancaster.
12. LOGO contacts HIA to advise closing and evacuation.
13. LOGO contacts PCCo to advise curtailment of rail traffic between Harrisburg and Elizabethtown (freight and passenger) between Middletown and Bainbridge (freight) and between New Cumberland and Brunner Island (freight).
14. LOGO contacts RAP at BNL.
15. LOGO alerts radiological health agencies in adjoining states.
16. LOGO alerts DAG, and recommends implementation of stored feed regimen.
17. Response Team Captain assigns responding staff to teams for surveillance as well as evacuee monitoring.
18. LOGO maintains contact with the Response Team Captain, with TMI and other off-site respondents.

19. IM-BRH maintains contact with DER management.

20. News releases are made through PIO.

TYPE 4 ACCIDENT

MAJOR FAILURE WITH FAILED SAFEGUARDS



Recovery:

Reentry of evacuation areas is permitted when the effluent source is terminated and the residual radiocontamination is unlikely to lead to doses in excess of 0.5 Rem whole body, and/or 3 Rem to the thyroid of a one-year-old infant.

Recovery of the local agricultural industry is dependent on the magnitude of the accident, time of year, and the quantities of long-lived materials released. (Refer also to Section X, Milk Management, and Section VI, Dose Committment Criteria in PaPIPAG.)

Radiation workers and members of the public will undergo internal contamination assessment no earlier than day 2, and no later than day 9 after exposure.

APR 2 3 1979

PART III

TELEPHONE DIRECTORY
THREE MILE ISLAND NUCLEAR STATION

NOTE: This directory is circulated to plan participants only.

Operator

Three Mile Island Nuclear Station	944-4041
Metropolitan Edison Company (Reading)	(215) 929-3601

Commonwealth of Pennsylvania

Civil Defense Duty Officer (24 hour)	783-8150
Bureau of Radiological Health (8:00 am to 4:00 pm)	787-2480 787-3720 787-3479 787-2163
Laboratory	787-4314

Bureau of Radiological Health (Home telephone number)

T. Gerusky	233-5316
M. Reilly	545-3404
D. McDonald	732-9128
J. Kopenhaver	921-8659
D. Beaver	938-2862
E. Burtsavage	238-5573
S. Prince	(1) 385-4614
C. High	(1) 758-4098
D. Brunner	738-5361

Access to Fulton Building (After hours)	787-8550 652-5715
Chief, Bureau of Milk Sanitation DAG	787-4316

	Office	Home
DER Management		
Secretary Maurice Goddard	787-2814	737-6873
Deputy Secretary Wesley Gilbertson	787-5027	761-3456
Associate Deputy Secretary Howard Chapman	787-4248	761-0481
Deputy Secretary Edward Seladones	787-7116	652-4711
DER Meteorologist		
D. Lohman	787-6547	761-0338
Susquehanna Basin Engineer		
T. Clista	787-9637	732-9161
Public Information Officer		
John Hope	787-1323	

County Civil Defense		
Dauphin - Richard Guth	238-1693	564-4672
Lancaster - Paul Leese	(1) 394-0739	393-4532
York - Lester Gross	(1) 843-0761	764-4703

State Police	Network	Outside
Troop H - Harrisburg	447-2341	234-4051
York Substation	463-3251	(1) 764-1181
Troop J - Lancaster	482-2366	(1) 299-0441

Federal Assistance	
RAP Team - Brookhaven National Laboratory	(516) 345-2200
USAEC Region I Compliance King of Prussia	(215) 337-1150

Water Plant Operators

Brunner Island Steam Electric Station	266-3691
Columbia Water Company	684-2712
Lancaster Water Company	684-5056
Wrightsville Water Supply Company	252-5092
Safe Harbor Water and Power Corporation	872-5441
Holtwood Reservoir	284-4101
City of Chester Water Authority	529-2244

Schools (within 5 miles of TMI)

Middletown Area District (Dauphin County)

Superintendent	944-7431
Northumberland	944-6698
Fink	944-5242
Mansberger	944-4921
Feaser JHS	944-7426
Kunkel	939-6862
Grandview	944-9831
Middletown SHS	944-7441
Non-Public:	
Middletown Christian	944-9950
Seven Sorrows	944-5371

Lower Dauphin District (Dauphin County)

Superintendent	566-2535
Londonderry Twp.	944-9462

Northeastern District (York County)

Superintendent	266-3667
York Haven - Newberry	266-1423

Elizabethtown Area District (Lancaster County)

Superintendent	367-1533
Bainbridge	426-1292

Neighboring States

New Jersey State Police	(609) 882-2000
Maryland CDDO:	(301) 486-4422

189 209

Transportation

Penn Central Yard Master	732-0341
	732-1635
Harrisburg International-General Manager	787-7701
	787-7707
	787-7702
	787-7703
U. S. Coast Guard Auxiliary	782-3737

TMI DOCUMENTS

7906140121

DOCUMENT NO: TM-01

COPY MADE ON 5/3/79 OF DOCUMENT PROVIDED BY

METROPOLITAN EDISON COMPANY.

WRM

Wilda R. Mullinix, NRC

7906140121