

THREE MILE ISLAND NUCLEAR STATION

UNIT 2 (TMI-II)

OPERATION LICENSE NO. DPR-73

DOCKET NO. 50-320

SOLID WASTE STAGING FACILITY

SUMP CONTAMINATION REPORT

T. Shelton
January 28, 1981

8102100418

1.0 INTRODUCTION

1.1 General

Liners containing spent ion exchange media from the operation of EPICOR-I and EPICOR-II are stored in an Interim Storage Facility (ISF), and in the Solid Radwaste Staging Facility (SWSF). The latter is provided with drains to a sump from which collected water can be pumped, monitored, and ultimately disposed of in an appropriate manner. Very low levels of radionuclide contamination have been found in this water. This report presents findings to date from investigations of this contamination. In addition, until recently, EPICOR-I and EPICOR II liners were stored in the ISF. Tritium contamination was found in two ISF storage locations after the liners that had been stored were transferred to the SWSF. All the contamination levels are considerable below 10CFR Part 20 limits for discharge to unrestricted areas. However, as the contamination is measurable and above back-ground levels, monitoring of the sump will continue.

1.2 Scope

This report sets forth:

- *Probable sources of water
- *Analytical results
- *Conclusions
- *Future activities

2.0 PROBABLE SOURCES OF WATER

2.1 SWSF

The sump liquid level has been monitored regularly since August of 1980. From that date through January 15, 1981, the sump liquid level has increased 3 inches, which corresponds to approximately 70 gallons. Total water in the sump on January 15, 1981, was about 150 gallons. Visual inspection of the sump indicates that the major constituent of water leakage to the sump is probably rainwater via a defective gasket in the sump access manhole. This was substantiated by covering the A and B storage module drain inlets to the sump for several weeks with plastic bags and observing the amounts of liquid collected. Periodic observation of water volumes in these bags indicated small amounts of water collected as a function of time (on the order of several ml per week) followed by a large volume collected (on the order of a gallon per day). This larger volume collected coincided with start up and test work related to check out of conductivity probes designed to detect the presence of water in the drain outlets, and negated the validity of any water collected and sample analyses were not performed.

Examination of the storage modules has indicated that small amounts of rainwater may be entering some storage cells (and therefore the sump) via faulty sealing between the shield plugs and gaskets, since nylon lifting straps penetrate the sealing surface in all cells containing 6 x 6 liners or stacking platforms.

2.2

ISF

Liquid has been found in the bottom of a number of the cells of the ISF (cells 2 and 20). While no obvious pathway has been observed, it is postulated that the principal source of this water also is rain.

3.0

ANALYTICAL RESULTS

3.1

Data

Several sets of analytical results are appended hereto:

- *Table 3.1-1 SWSF sump sample radioactive analysis results
- *Table 3.1-2 SWSF sump sample and TMI environmental groundwater monitoring well sample chemical analysis.
- *Attachment 1 Teledyne radioactive analysis results of water and sediment samples from areas near the SWSF.
- *Attachment 4 Teledyne radioactive analysis results of SWSF sump water.

3.2

Discussion

3.2.1

SWSF Sump

Results of SWSF sump liquid samples dating back to April 5, 1980 (see Table 3.1-1) have been obtained and analyzed. Initial sump contamination was observed in a July 2, 1980, sample (Gross Beta-Gamma of $6.35 \text{ E-}8 \text{ } \mu\text{Ci/ml}$), and was subsequently verified in a July 16, 1980, sample. Tritium has been detected in samples since July 16, 1980, and has remained virtually constant at $\text{E-}05 \mu\text{Ci/ml}$ levels. Early in November 1980, a sump sample was sent off-site to SAI. Results of this analysis indicate the presence of cesium 137 ($1.22 \text{ E-}08 \mu\text{Ci/ml}$). This presence of cesium has not been verified via other sample results; however, other offsite samples to date have not been counted subsequent to sample liquid evaporation. Teledyne has been instructed to boil down the December 5, 1980 sample and analyze the residue.

Possible inleakage of groundwater

The concentrations of radionuclides determined as shown in Attachment 1 are not abnormal when compared to other groundwater and sediment present at the TMI site. Thus, there is no indication of leakage from the sump to groundwater. However, this subject will continue to be pursued as part of the ongoing monitoring program as in Attachment 3.

3.2.3

ISF Cells

In addition to the analytical results attached hereto, analyses were made of samples of the water found in the ISF cells. The tritium content was found to be only $3.4 \text{ E-}5 \mu\text{Ci/ml}$ in Cell No. 2 and $6.0 \text{ E-}5 \mu\text{Ci/ml}$ in Cell No. 20, while results from other cells from which samples were taken indicate no tritium present.

3.3.4

Comparision to Part 20

Important to consideration of the possible hazard related to the sump water contamination is the fact that the 10CFR Part 20, Appendix B, Table II, Column 2 limit for concentration of tritium in water discharged to unrestricted areas is 3×10^{-3} , well over an order of magnitude higher than the sump water tritium content. Similarly the Part 20 limit for cesium-137 is $2 \times 10^{-5} \mu\text{Ci/ml}$, over two orders of magnitude above the sump water concentration.

4.0

CONCLUSIONS

4.1

Potential hazard

The concentrations of both tritium and cesium-137 in the sump water are significantly below limits in 10CFR Part 20 for water to be discharged to unrestricted areas.

4.2

Source of water

It is probable that the principal source of water found in the sump is rainwater. It is very unlikely that groundwater is leaking into the sump.

4.3

Source of contamination

It is known that air containing water vapor will escape through treaded, plugged connections on the liners at some 2psig. With changes in temperature, the pressure in the liners will fluctuate, making "breathing" a likelihood. This could well be the source of the tritium found. Cesium could come from minor external contamination of the liners carried by water which entered the cell via the nylon lifting straps (Paragraph 2.1, above) and flowing over the liners to the drains and thence to the sump. To date, no conclusive data exist that confirms liner leakage. Neither does conclusive evidence exist that verifies containers not leaking. Based on information to date, it is our opinion that liner "breathing" is the most probable cause of this tritium contamination.

5.0

FUTURE ACTIVITIES

5.1

Water Inleakage

5.1.1

SWSF Sump

In order to limit water inleakage directly into the sump, the sump access manhole gasket will be replaced. Also, the manhole cover will be modified in such a manner so as to limit gasket damage when removing and replacing the manhole cover.

So that contamination sources may be more clearly defined, the A and B module drain inlets to the sump will remain in place and be periodically checked for water collection. If a sufficient amount of water is collected from either drain, the contents will be analyzed and results forwarded to the NRC.

5.1.2

SWSF Modules

As time permits, the nylon straps which penetrate the sealing surface between the shield plugs and gaskets will be modified to alleviate this water transport mode into the storage module cells.

5.2

Monitoring Programs

It is our position that direct leakage of liquid from stored liners can be detected by changes in sump water chemistry and/or radionuclide content. Accordingly, base line information which has been and is being accumulated, can be used for comparison with any future data which might show a marked change in contamination. In support of this, a sampling program has been initiated to obtain periodic onsite and offsite analysis of the SWSF sump liquid. This program will include radioisotopic and chemical analysis of the sump liquid (Attachment 2).

5.2.2

An environmental monitoring program has also been initiated to periodically sample surface water and sediments in the south drainage ditch and water from excavation areas near the SWSF. Additionally, installation of monitoring wells in the SWSF area is currently being studied (Attachment 3).

TABLE 3.1-1 SWSF SUMP SAMPLE RADIOACTIVE ANALYSIS RESULTS

<u>SAMPLE NO.</u>	<u>DATE</u>	<u>TRITIUM ($\mu\text{Ci}/\text{ml}$)</u>	<u>GROSS BETA-GAMMA ($\mu\text{Ci}/\text{ml}$)</u>	<u>GAMMA-SCAN ($\mu\text{Ci}/\text{ml}$)</u>	<u>COMMENTS</u>
36790	4/5/80	LLD	--	LLD	
36791	4/5/80	LLD	--	LLD	
42443	6/12/80	LLD	LLD	LLD	
43365	6/25/80	--	--	LLD	
43366	6/25/80	--	--	LLD	
44275	7/2/80	LLD	6.35E-08	--	
44276	7/2/80	--	--	LLD	
44935	7/9/80	LLD	LLD	LLD	
44936	7/10/80	--	--	LLD	
45483	7/15/80	--	--	LLD	
45484	7/15/80	LLD	LLD	--	
45619	7/16/80	7.75E-05	1.68E-07	LLD	
46068	7/22/80	--	--	LLD	
49144	9/8/80	--	1.34E-07	LLD	
50243	9/29/80	5.4E-05	--	LLD	
50244	9/29/80	1.2E-05	LLD	--	
51681	10/29/80	3.9E-05	--	1.2E-08 (Cs-137)	Gross Beta 1.4E-07 $\mu\text{Ci}/\text{ml}$ sent to SAI-- BOILED
52898	11/25/80	2.8E-05	LLD	LLD	
77121	12/5/80	2.6E-05	--	LLD	TELEDYNE-NOT BOILED

The symbol "--" denotes no analysis of the designated type

TABLE 3.1-2 SWSF SUMP SAMPLE AND TMI ENVIRONMENTAL GROUNDWATER
MONITORING WELL SAMPLE CHEMICAL ANALYSIS

<u>ANALYSIS</u>	<u>SWSF SUMP</u>	<u>GROUNDWATER(RANGE)</u>
ph	7.93	6.47-9.91
CONDUCTIVITY umho/cm	960	
TOTAL SOLIDS mg/l	562	1070
TOTAL DISSOLVED SOLIDS mg/l	555	
TOTAL SUSPENDED SOLIDS mg/l	7	
SULFATE mg/l	58	0.10-0.35
CHLORIDE mg/l	9.7	9-23
SILICA mg/l	13.5 SiO ₂	3.5-13.6
TOTAL PHOSPHORUS mg/l	0.51 PO ₄ -P	0.01-4.16
AMMONIA NITROGEN mg/l	3.63 NH ₃ -N	
NITRATE NITROGEN mg/l	16.0 NO ₃ -N	
SODIUM mg/l	50.0	11-107
TOTAL IRON mg/l	1.82	1.1-11
TOTAL CALCIUM mg/l	27.2	107-1070
TOTAL MAGNESIUM mg/l	7.3	11-107
TOTAL ALUMINUM mg/l	0.1	11-107
TOTAL ZINC mg/l	0.50	0.11-1.1

TELEDYNE ISOTCPPS *pmb*
 REPORT OF ANALYSIS

RUN DATE 12/11/80

WORK ORDER NUMBER: 3-3956
 CUSTOMER P.O. NUMBER: P77121
 DATE RECEIVED: 12/05/80
 DELIVERY DATE: 12/31/80
 PAGE 1

MR W E RIETHLE III
 METROPOLITAN EDISON COMPANY
 THREE MILE ISLAND NUCLEAR STA
 ENV IMPACT ASSESSMENT GROUP
 P O BOX 480 - TRAILER 18G17057
 MIDDLETOWN PA

SEDIMENT/SILT

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE		NUCLIDE	ACTIVITY (pCi/g* DRY)	NUCL-UNIT-X U/M *	MID-COUNT TIME		VOLUME - UNITS ASH-WGHT-X *	LAB.
			START DATE TIME	STOP DATE TIME				DATE	TIME		
02119	TM-55-SO.DRNG DTCH 1*		12/04	1350	EE-7	L.T. 2.	E-01	12/08	1230		
					K-40	7.58+-0.76E 00		12/08			
					MN-54	L.T. 3.	E-02	12/08			
					CO-58	L.T. 3.	E-02	12/08			
					FE-55	L.T. 5.	E-02	12/08			
					CO-60	L.T. 3.	E-02	12/08			
					ZN-65	L.T. 6.	E-02	12/08			
					ZR-95	L.T. 1.	E-02	12/08			
					HU-103	L.T. 3.	E-02	12/08			
					HU-106	L.T. 2.	E-01	12/08			
					I-131	L.T. 4.	E-02	12/08			
					CS-134	L.T. 3.	E-02	12/08			
					CS-137	9.46+-3.03E-02		12/08			
					PA-140	L.T. 4.	E-02	12/08			
					CF-141	L.T. 5.	E-02	12/08			
					CE-144	L.T. 2.	E-01	12/08			
					RA-226	1.16+-0.46E 00		12/08			
TH-232	6.17+-0.62E-01		12/08								
02120	TM-55-SO.DRNG DTCH 2		12/04	1400	EE-7	4.85+-2.52E-01		12/08	1230		
					K-40	7.55+-0.75E 00		12/08			
					MN-54	L.T. 4.	E-02	12/08			
					CO-58	L.T. 3.	E-02	12/08			
					FE-55	L.T. 8.	E-02	12/08			
					CO-60	L.T. 4.	E-02	12/08			
					ZN-65	L.T. 8.	E-02	12/08			
					ZR-95	L.T. 4.	E-02	12/08			
					HU-103	L.T. 4.	E-02	12/08			
					HU-106	L.T. 3.	E-01	12/08			
I-131	L.T. 5.	E-02	12/08								

POOR ORIGINAL

*Sampling locations are indicated on page 6 of this attachment

DEC 15 1980

Attachment 1

TELETYPE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 12/11/80

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE
3-3956	F77121	12/05/80	12/31/80	2

MR W R RIETHLE III
METROPOLITAN EDISON COMPANY
THREE MILE ISLAND NUCLEAR STA
ENV IMPACT ASSESSMENT GROUP
P O BOX 480 - TRAILER 18617057
MIDDLETOWN PA

SEDIMENT/SILT

TELETYPE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE		NUCLIDE	ACTIVITY (pCi/gm DRY)	NUCL-UNIT-X U/M *	MID-COUNT TIME		VOLUME - UNITS ASH-WGHT-X *	LAB.
			START DATE TIME	STOP DATE TIME				DATE	TIME		
02120	TM-55-SO.DRNG DTCH 2		12/04	1400	CS-134	L.T. 4. E-02		12/08			
					CS-137	1.08+-0.39E-01		12/08			
					PA-140	L.T. 5. E-02		12/08			
					CE-141	L.T. 7. E-02		12/08			
					CF-144	L.T. 3. E-01		12/08			
					RA-226	L.T. 9. E-01		12/08			
					TH-228	5.21+-0.52E-01		12/08			
02121	TM-55-SO.DRNG DTCH 3		12/04	1400	DE-7	1.48+-0.44E 00		12/08	1230		
					K-40	1.16+-0.12E 01		12/08			
					MN-54	L.T. 6. E-02		12/08			
					CO-58	L.T. 5. E-02		12/08			
					FE-59	L.T. 1. E-01		12/08			
					CO-60	L.T. 6. E-02		12/08			
					ZN-65	L.T. 1. E-01		12/08			
					ZH-95	L.T. 6. E-02		12/08			
					RU-103	L.T. 6. E-02		12/08			
					RU-106	L.T. 5. E-01		12/08			
					I-131	L.T. 9. E-02		12/08			
					CS-134	L.T. 7. E-02		12/08			
					CS-137	4.08+-0.65E-01		12/08			
					PA-140	L.T. 8. E-02		12/08			
					CE-141	L.T. 9. E-02		12/08			
					CF-144	L.T. 3. E-01		12/08			
					RA-226	2.54+-0.98E 00		12/08			
					TH-228	9.84+-0.98E-01		12/08			

POOR ORIGINAL

Attachment 1

p. 2 of 6

TELETYPE ISOTOPIES

REPORT OF ANALYSIS

RUN DATE 12/11/80

WORK ORDER NUMBER 3-3956 CUSTOMER P.O. NUMBER P77121 DATE RECEIVED 12/05/80 DELIVERY DATE 12/11/80 PAGE 3

FR W E WIRTHLE III
METROPOLITAN EDISON COMPANY
THREE MILE ISLAND NUCLEAR STA
ENV IMPACT ASSESSMENT GROUP
P O BOX 400 - TRAILER 18617057
MIDDLETOWN PA

SEDIMENT/SILT

TELETYPE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE		NUCLIDE	ACTIVITY (pCi/g DRY)	NUCL-UNIT-X U/M *	MID-COUNT TIME		VOLUME - UNITS ASH-WGHT-% *	LAB.
			START DATE TIME	STOP DATE TIME				DATE	TIME		
02122	TX-ES-SO.I WST ST PND		12/04	1400	EE-7	L.T. 3. E-01		12/08	1230		
					K-40	5.48+-0.55E 00		12/08			
					MN-54	L.T. 3. E-02		12/08			
					CO-58	L.T. 3. E-02		12/08			
					FM-59	L.T. 6. E-02		12/08			
					CO-60	L.T. 4. E-02		12/08			
					ZN-65	L.T. 7. E-02		12/08			
					ZR-95	L.T. 3. E-02		12/08			
					RU-103	L.T. 3. E-02		12/08			
					RU-106	L.T. 3. E-01		12/08			
					J-133	L.T. 5. E-02		12/08			
					CS-134	L.T. 4. E-02		12/08			
					CS-137	L.T. 3. E-02		12/08			
					EA-140	L.T. 4. E-02		12/08			
					CF-141	L.T. 6. E-02		12/08			
					CE-144	L.T. 2. E-01		12/08			
					RA-226	L.T. 7. E-01		12/08			
					TH-232	4.91+-0.49E-01		12/08			

POOR ORIGINAL

Attachment 1

P. 3 01 0

TELETYPE ISOTOPIES *hmb*

REPORT OF ANALYSIS

RUN DATE 12/11/80

WORK ORDER NUMBER: 3-1956
 CUSTOMER P.O. NUMBER: P77121
 DATE RECEIVED: 12/05/80
 DELIVERY DATE: 12/31/80
 PAGE: 4

MR R P BIRNLE III
 METROPOLITAN EDISON COMPANY
 THREE MILE ISLAND NUCLEAR STA
 ENV IMPACT ASSESSMENT GROUP
 P O BOX 480 - TRAILER 18617057
 MIDLESTOWN PA

WATER - SURFACE

TELETYPE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE		NOCLIDE	ACTIVITY (pCi/liter)	NUCL-UNIT-X U/M *	MID-COUNT TIME		VOLUME - UNITS ASH-WGHT-X *	LAB.
			START DATE TIME	STOP DATE TIME				DATE	TIME		
02117	TM-SV-SC.DRNG DTCH 2		12/04	1130	PE-7	L.T. 5. E 01		12/08	0106		
					K-40	L.T. 2. E 02		12/08			
					MN-54	L.T. 7. E 00		12/08			
					CO-5E	L.T. 6. E 00		12/08			
					PE-59	L.T. 1. E 01		12/08			
					CO-6C	L.T. 7. E 00		12/08			
					ZN-6E	L.T. 1. E 01		12/08			
					ZR-9E	L.T. 7. E 00		12/08			
					RU-102	L.T. 6. E 00		12/08			
					RU-10E	L.T. 6. E 01		12/08			
					I-131	L.T. 1. E 01		12/08			
					CS-134	L.T. 7. E 00		12/08			
					CS-127	L.T. 7. E 00		12/08			
					BA-140	L.T. 9. E 00		12/08			
					CE-141	L.T. 1. E 01		12/08			
					CF-144	L.T. 6. E 01		12/08			
					RA-22E	L.T. 2. E 02		12/08			
TH-22E	L.T. 1. E 01		12/08								
H-3	4.8 +-1.0 E 02		12/09	0310							
02118	TM-SV-WST STOR AR PHD		12/04	1130	PE-7	L.T. 5. E 01		12/08	0106		
					K-40	L.T. 1. E 02		12/08			
					MN-54	L.T. 5. E 00		12/08			
					CO-5E	L.T. 6. E 00		12/08			
					PE-59	L.T. 1. E 01		12/08			
					CO-6C	L.T. 6. E 00		12/08			
					ZN-6E	L.T. 1. E 01		12/08			
					ZR-9E	L.T. 6. E 00		12/08			
					RU-102	L.T. 6. E 00		12/08			
					RU-10E	L.T. 5. E 01		12/08			
					I-131	L.T. 9. E 00		12/08			

POOR ORIGINAL

Attachment 1

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TELETYPE ISOTOPES
REPORT OF ANALYSIS

RUN DATE 12/11/80

MR W P RIETHLE III METROPOLITAN EDISON COMPANY THREE MILE ISLAND NUCLEAR STA ENV IMPACT ASSESSMENT GROUP P O BOX 480 - TRAILER 18617057 MIDDLETOWN PA	WORK ORDER NUMBER 3-3956	CUSTOMER P.O. NUMBER P77121	DATE RECEIVED 12/05/80	DELIVERY DATE 12/31/80	PAGE
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WATER -- SURFACE

TELETYPE SE-PLP NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE		NUCLIDE	ACTIVITY (pCi/liter)	NUCL-UNIT-X U/M *	MID-COUNT TIME		VOLUME - UNITS ASH-WGHT-X *	LAB.
			START DATE TIME	STOP DATE TIME				DATE	TIME		
02118	TH-SW-4ST STOR AR PND		12/08	1130	CS-134	L.T. 6. E 00		12/08			
					CS-137	L.T. 7. E 00		12/08			
					BA-140	L.T. 8. E 00		12/08			
					CS-141	L.T. 1. E 01		12/08			
					CS-144	L.T. 5. E 01		12/08			
					BA-226	L.T. 1. E 02		12/08			
					TH-228	1.06+-0.55E 01		12/08			
					H-3	1.1 +-0.8 E 02		12/09	0310		

LAST PAGE OF REPORT

J.D. Martin
APPROVED BY O.D. MARTIN 12/11/80

SEND 2 COPIES TO M27905 MR W P RIETHLE III

2 - GAS LAB.

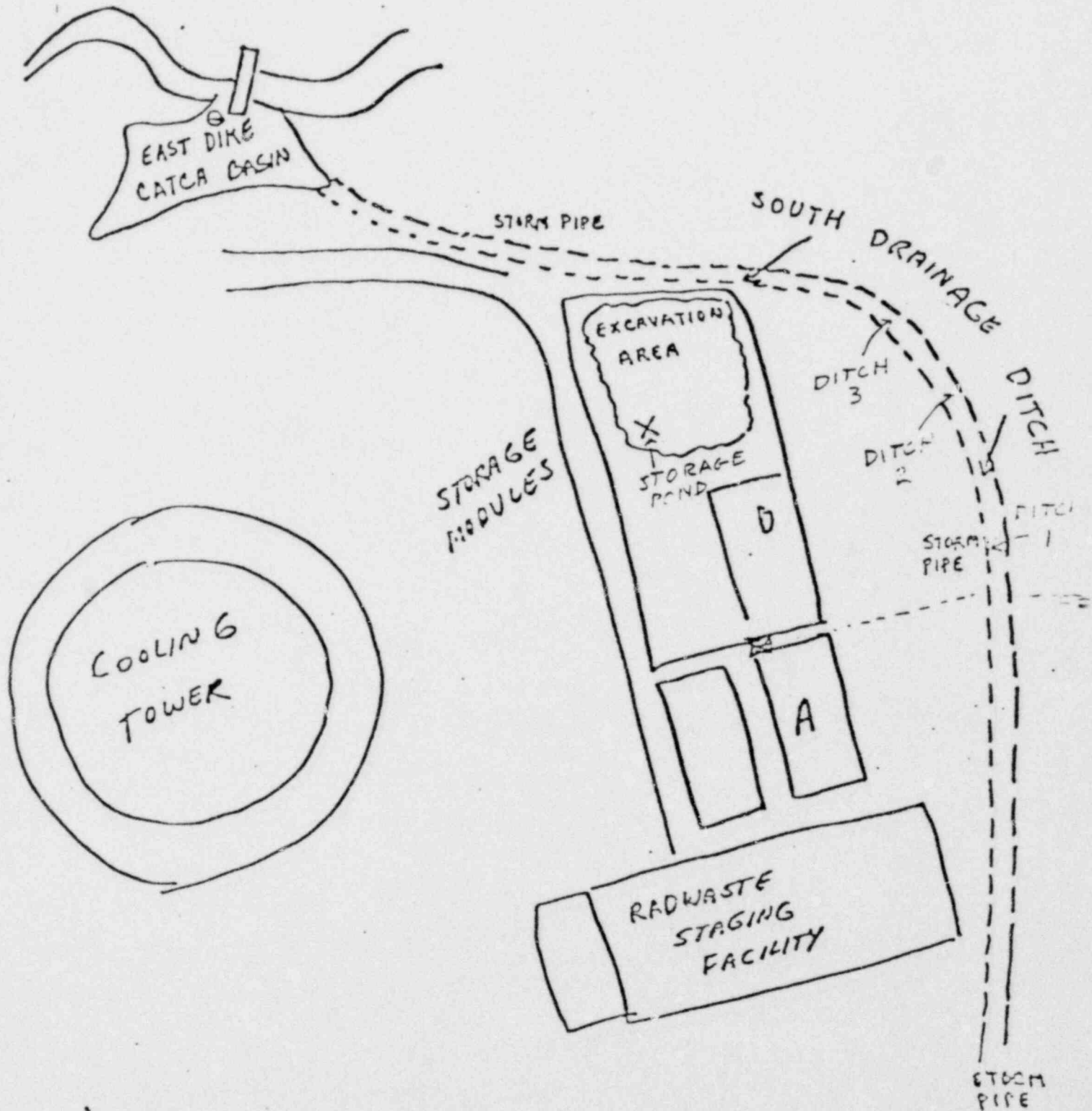
1 - RADIO CHEMISTRY LAB.

4 - Co(Li) GAMMA SPEC LAB.

5 - TRITIUM GAS/L.S. LAB.

POOR ORIGINAL

Approximate Locations
Where Samples Were Taken



POOR ORIGINAL

METROPOLITAN EDISON COMPANY Subsidiary of General Public Utilities Corporation

Subject Long-Term Storage Modules (A & B)
Sump - Sampling Program

Location TMI-II-R-47000
TMI/U-2 Site Ops

Date January 20, 1981

To B. D. Elam
K. L. Harner

Due to recent GPU and NRC concerns with respect to the Long-Term Storage Modules (A & B) sump contamination and Epicor liner integrity, please initiate a sampling program. As a minimum, the sampling program should be in accordance with the following:

1. Liquid - Storage Module (A & B) Sump; One gallon
 - Frequency - Once per week
 - Location - On site
 - Analysis - Tritium, Gamma Scan, Gross Beta Gamma. Then boil down sample and perform another Gamma Scan and Gross Beta Gamma count on the residue.
2. Liquid - Storage Module (A & B) Sump; One gallon
 - Frequency - Once per month
 - Location - Off site (SAI)
 - Analysis - Same as in (1.) above.
3. Liquid - Storage Module (A & B) Sump; One gallon
 - Frequency - Once per month
 - Location - Off site (SAI)
 - Analysis - Chemical (per Attachment 1)

Please provide copies of the results for the above samples, as well as any other samples you deem necessary, to J. Daniel and myself in a timely manner. If you have any questions concerning this program please feel free to contact the undersigned at X-8329.

T. A. Shelton
T. A. Shelton

TAS/jw
attach.

CC: J. J. Barton, J. A. Daniel, C. P. Deltete, J. Hess
G. K. Hovey, File

INTER-OFFICE MEMORANDUM

Date January 6, 1981
WLR-791

GPU Service

Subject THREE MILE ISLAND NUCLEAR STATION
LINER STORAGE MODULE ENVIRONMENTAL MONITORING


To W. E. Riethle

Location Hbg. Int'l Airport

In response to recent concern expressed by the NRC relative to potential environmental contamination of ground and surface water originating from the above referenced facilities, the following steps have been initiated:

1. As of December 8, 1980, sampling of surface water and sediments in the south drainage ditch was incorporated into the weekly groundwater monitoring program. Sampling locations are presented in Figure 1 (attached).
2. Monitoring of the East Dike Catch Basin (EDCB) has been enforced on a weekly basis since early November and will be continued as part of this monitoring regime. The EDCB serves as the monitoring point prior to intercept with the river.
3. On a monthly basis, the "excavation pond" adjacent to the storage module will also be sampled as water is available.
4. The installation of monitoring wells around the storage module is being examined by Groundwater Technology. Their recommendations are due to us by January 10, 1981. At this time the necessary steps will be taken to implement Tec's recommendations.
5. Water and sediment samples obtained from this program will be sent to Teledyne Isotopes for gamma scan analysis and tritium.

This program will provide the necessary information relative to any environmental contamination of the water pathways from the storage modules.


G. G. Baker, Ph.D.

GGB/klt

Attachment

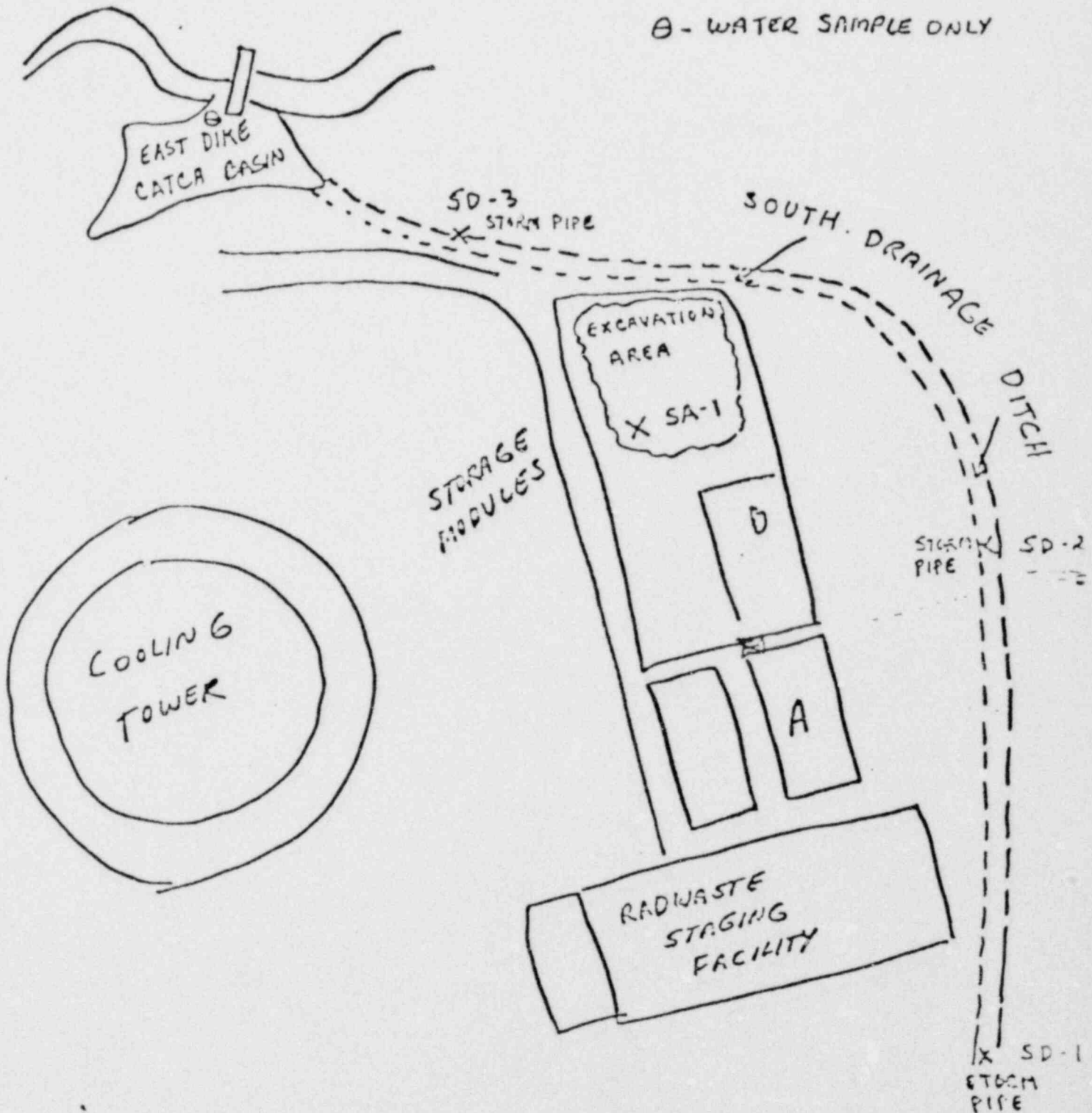
cc: P. Deltete
R. I. Newman
M. B. Roche
T. J. Walsh

File: 2249.2.3

POOR ORIGINAL

X - WATER AND SEDIMENT SAMPLE

⊖ - WATER SAMPLE ONLY



POOR ORIGINAL

TELETYPE ISOTOPES
REPORT OF ANALYSIS

RUN DATE 12/11/80

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE
3-3973	F77121	12/08/80	01/07/81	

MR W E RIETHLE III
METROPOLITAN EDISON COMPANY
THREE MILE ISLAND NUCLEAR STA
ENV IMPACT ASSESSMENT GROUP
P O BOX 480 - TRAILER 18617057
MIDDLETOWN PA

W A T E R

TELETYPE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE		NUCLIDE	ACTIVITY (pCi/liter)	NUCL-UNIT-X U/M *	MID-COUNT TIME		VOLUME - UNITS ASH-WGHT-1 *	LAB.
			START DATE TIME	STOP DATE TIME				DATE	TIME		
02261	TH-GV-AED MODULE SUMP		12/05	1530	PE-7	L.T. 7. E 01				12/09	
					K-40	L.T. 2. E 02				12/09	
					PH-54	L.T. 7. E 00				12/09	
					CO-5E	L.T. 7. E 00				12/09	
					PE-59	L.T. 1. E 01				12/09	
					CO-6C	L.T. 7. E 00				12/09	
					TH-6E	L.T. 2. E 01				12/09	
					ZH-9E	L.T. 7. E 00				12/09	
					HG-103	L.T. 8. E 00				12/09	
					BU-106	L.T. 6. E 01				12/09	
					J-131	L.T. 1. E 01				12/09	
					CS-134	L.T. 7. E 00				12/09	
					CS-137	L.T. 7. E 00				12/09	
					PA-140	L.T. 9. E 00				12/09	
					CF-141	L.T. 2. E 01				12/09	
					CE-144	L.T. 8. E 01				12/09	
					BA-226	L.T. 2. E 02				12/09	
					TH-228	L.T. 2. E 01				12/09	
					H-3	2.59+-0.26E 04				12/09	

Attachment 4
5

POOR ORIGINAL

LAST PAGE OF REPORT

APPROVED BY *J.D. Martin* J.D. MARTIN 12/11/80

SEND 2 COPIES TO #27905 MR W E RIETHLE III
2 - GAS LAB. 3 - RATIO CHEMISTRY LAB.

4 - Ge(Li) GAMMA SPEC LAB.

5 - TRITIUM GAS/L.S. LAB.