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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
METROPOLITAN EDISON COMPANY	)	Docket No. 50-289
	)	(Restart)
(Three Mile Island Nuclear	)	
Station, Unit No. 1)	)	

LICENSEE'S RESPONSE TO INTERROGATORY NO. 17-005 OF STEVEN C. SHOLLY'S FOURTH SET OF INTERROGATORIES

INTERROGATORY NO. 17-005

Assuming that the condition of the Unit 2 reactor had been as described in scenario "C" in Contention No. 17 as accepted by the Board, to what extent would the total amount of radiation released to the containment as well as to the auxiliary building (from all pathways) have been increased beyond what was so released during the Unit 2 accident on March 28, 1979? Specify in your answer any increases in the following isotopes:

a. Iodine-131 c. Cesium-137

b. Strontium-90 d. Krypton-85

RESPONSE

The total amount of radiation released during the accident to the containment as well as to the auxiliary building, which eventually reached the environment, would have been very similar, whether the release occurred when it did or at the end of an equilibrium fuel cycle (refs. 1,2). The isotopes which contributed the most to the release (Ref. 3) were short-lived isotopes that reach an equilibrium concentration in the fuel over a relatively short fuel irradiation time ($\sim$50 EFPDS, Ref. 4).

The average TMI-2 fuel assembly had been exposed for over 90 EFPDs. Therefore, further fuel depletion would not have increased their inventory in the core.

Of the four isotopes in question iodine-131 was the only isotope of the four that contributed a measurable fraction to the low level environmental liquid and/or gaseous radioactivity detected (Ref. 3). Iodine-131 is a short-lived isotope which reaches a saturated concentration after a relatively short fuel irradiation time ($\sim$50 EFPDs)(Ref. 4). Therefore, if all the fuel had been fully depleted in an equilibrium cycle, the contribution of iodine-131 to the TMI-2 release would have been essentially identical (Ref. 2).

The other three isotopes referenced (strontium-90, cesium-137, krypton-85) did not and would not add more than 0.5% to the total fission product activity available for release as it occurred at TMI-2, regardless of the core burnup state hypothesized (Refs. 2, 3). Even though these three isotopes would have had an increased core concentration (Ref. 2) for a depleted equilibrium TMI-2 core, their contribution to the actual release would have been negligible (Ref. 2, 3).

REFERENCES

1. Technical Staff Analysis Report on Alternative Event Sequences to President's Commission on the Accident at Three Mile Island, Case 17; October 1979.

2. LA-8041-MS, "TMI-2 Decay Power: LASL Fission-Product and Actinide Decay Power Calculations for the President's Commission on the Accident at Three Mile Island"; October 1979.

3. GPU Service Technical Data Report (TDR-059), "Assessment of Offsite Radiation. Doses From the Three Mile Island Unit 2 Accident"; February 27, 1980.

4. Final Safety Analysis Report, Three Mile Island-Unit 2, Chapter 11.

Respectfully submitted,

SHAW, PITTMAN, POTTS & TROWBRIDGE

By: George F. Trowbridge

Dated: April 14, 1980

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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CERTIFICATE OF SERVICE

I hereby certify that copies of "Licensee's Response To Interrogatory No. 17-005 of Steven C. Sholly's Fourth Set of Interrogatories" were served upon those persons on the attached Service List by deposit in the United States mail, postage prepaid, this 14th day of April, 1980.

George F. Trowbridge

Dated: April 14, 1980

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SERVICE LIST

Ivan W. Smith, Esquire
Chairman
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. Walter H. Jordan
Atomic Safety and Licensing
Board Panel
881 West Outer Drive
Oak Ridge, Tennessee 37830

Dr. Linda W. Little
Atomic Safety and Licensing
Board Panel
5000 Hermitage Drive
Raleigh, North Carolina 27612

James R. Tourtellotte, Esquire (4)
Office of the Executive Legal Director
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Docketing and Service Section (21)
Office of the Secretary
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

John A. Levin, Esquire
Assistant Counsel
Pennsylvania Public Utility Comm'n
Post Office Box 3265
Harrisburg, Pennsylvania 17120

Karin W. Carter, Esquire
Assistant Attorney General
505 Executive House
Post Office Box 2357
Harrisburg, Pennsylvania 17120

John E. Minnich
Chairman, Dauphin County Board
of Commissioners
Dauphin County Courthouse
Front and Market Streets
Harrisburg, Pennsylvania 17101

Walter W. Cohen, Esquire
Consumer Advocate
Office of Consumer Advocate
14th Floor, Strawberry Square
Harrisburg, Pennsylvania 17127

Jordan D. Cunningham, Esquire
Attorney for Newberry Township
T.M.I. Steering Committee
2320 North Second Street
Harrisburg, Pennsylvania 17110

Theodore A. Adler, Esquire
Widoff Reager Selkowitz & Adler
Post Office Box 1547
Harrisburg, Pennsylvania 17105

Ellyn R. Weiss, Esquire
Attorney for the Union of Concerned Scientists
Sheldon, Harmon & Weiss
1725 Eye Street, N.W., Suite 506
Washington, D.C. 20006

Steven C. Sholly
304 South Market Street
Mechanicsburg, Pennsylvania 17055

Gail Bradford
Holly S. Keck
Legislation Chairman
Anti-Nuclear Group Representing York
245 West Philadelphia Street
York, Pennsylvania 17404

Karin P. Sheldon, Esquire
Attorney for People Against Nuclear Energy
Sheldon, Harmon & Weiss
1725 Eye Street, N.W., Suite 506
Washington, D.C. 20006

Robert Q. Pollard
609 Montpelier Street
Baltimore, Maryland 21218

Chauncey Kepford
Judith H. Johnsrud
Environmental Coalition on Nuclear Power
433 Orlando Avenue
State College, Pennsylvania 16801

Marvin I. Lewis
6504 Bradford Terrace
Philadelphia, Pennsylvania 19149

Marjorie M. Aamodt
R. D. 5
Coatesville, Pennsylvania 19320

SHAW, PITTMAN, POTTS & TROWBRIDGE
1800 M STREET, N. W.
WASHINGTON, D. C. 20036

RAMSAY D. POTTS
STEUART L. PITTMAN
GEORGE F. TROWBRIDGE
STEPHEN D. POTTS
GERALD CHARNOFF
PHILLIP D. BOSTWICK
R. TIMOTHY HANLON
GEORGE M. ROGERS, JR.
JOHN B. RHINELANDER
BRUCE W. CHURCHILL
LESLIE A. NICHOLSON, JR.
MARTIN D. KRALL
RICHARD J. KENDALL
JAY E. SILBERG
BARBARA M. ROSSOTTI
GEORGE V. ALLEN, JR.
WM. BRADFORD REYNOLDS
FRED A. LITTLE
FRED DRASNER
NATHANIEL P. BREED, JR.
MARK AUGENBLICK
ERNEST L. BLAKE, JR.
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THOMAS A. BAXTER
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J. PATRICK HICKEY
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STEVEN L. MELTZER
DEAN D. AULICK
JOHN ENGEL
STEPHEN B. HUTTLER
WINTHROP N. BROWN
JAMES B. HAMLIN
ROBERT E. ZAHLER
RICHARD S. GALEN
ROBERT B. ROBBINS
STEVEN M. LUCAS
MATIAS F. TRAVIESO-DIAZ
VICTORIA J. PERKINS
JOHN H. O'NEILL, JR.
JAY A. EPSTIEN
RAND L. ALLEN
TIMOTHY B. McBRIDE
ELISABETH M. PENDLETON
LUCY G. ELIASOF
PAUL A. KAPLAN
HARRY H. GLASSPIEGEL
THOMAS H. McCORMICK
SUSAN D. FALKSON
WILLIAM P. BARR
JOHN L. CARR, JR.
PHILIP J. HARVEY
ROBERT M. GORDON
JEANNE A. CALDERON
BARBARA J. MORGEN*
BONNIE S. GOTTLIEB
ALFRED M. POSTELL
SETH H. HOOGASIAN
SHEILA E. McCAFFERTY
DELISSA A. RIDGWAY
KENNETH J. HAUTMAN
DAVID LAWRENCE MILLER

*NOT ADMITTED IN D.C.

(202) 331-4100

TELECOPIER
(202) 296-0694 & 296-1760

TELEX
89-2693 (SHAWLAW WSH)
CABLE "SHAWLAW"

EDWARD B. CROSLAND
COUNSEL

April 14, 1980

Mr. Steven C. Sholly
304 South Market Street
Mechanicsburg, Pennsylvania 17055

Re: Three Mile Island Unit 1
Docket No. 50-289 (Restart)

Dear Mr. Sholly:

I enclose Licensee's response to Interrogatory No. 17-005 of your fourth set of interrogatories. A signed affidavit for this response is not enclosed, but will be forwarded soon.

Sincerely yours,

George F. Trowbridge

Enclosure

cc: Service List