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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 SP
) (Restart-Management Remand)
(Three Mile Island Nuclear)
Station, Unit No. 1))

LICENSEE'S SUPPLEMENTAL RESPONSE TO THREE
MILE ISLAND ALERT'S FIRST SET OF
INTERROGATORIES AND FIRST REQUEST FOR PRODUCTION

On July 31, 1984, Intervenor Three Mile Island Alert (TMIA) filed its First Set of Interrogatories to GPU Nuclear Corporation and its First Request for Production. On August 15, 1984, Licensee moved for a protective order limiting the scope of TMIA's discovery requests. On August 30, 1984, the Licensing Board held a conference call during which it discussed its tentative rulings on Licensee's motion. The Board ruled on Licensee's motion by Memorandum and Order, dated August 31, 1984, and served on September 4, 1984. On September 4, 1984, Licensee submitted its responses to TMIA's discovery requests, without benefit of the Licensing Board's Memorandum and Order. Licensee now provides the following supplemental responses in accordance with the Licensing Board's rulings.

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Supp. Response to Document Request No. 5

All interviews of Mr. Dieckamp concerning accident conditions and procedures from March 28 through March 30, 1979, are available for inspection and copying in the Discovery Room.

Supp. Response to Interrogatory No. 3

Responses received from members of the command team are available in the Discovery Room.

Supp. Response to Interrogatory No. 16

Mr. Dieckamp has provided the following supplemental statement. The notes and documents referred to in Mr. Dieckamp's supplemental statement are being collected to be made available in the Discovery Room.

"It is not possible for me to recall and recount every communication in which I was involved during the period between March 28, 1979 and May 30, 1979, concerning TMI-2 reactor conditions and accident events. The problem is compounded by the number of people with whom I communicated during this period. To aid in responding, however, I have reviewed my files for written communications and notes of oral communications during the period. Based on that review and my best recollection of that period over five years ago, I offer the following account of my communications and resultant appreciation for TMI-2 plant conditions.

"The first three days or so are more readily recalled. My initial contacts concerning TMI-2 were limited both in numbers of people and subjects discussed. Additionally, my notes aid in recalling those days. The contacts and the subject matter of those contacts were principally:

"March 28, 1979

- "1) At about 9:00 a.m. on March 28, 1979, W. Creitz gave me the first notification of problems at TMI-2. My notes indicate a feed pump trip at 4:00 a.m.; reactor trip; primary (pressure) relief; (drain tank) disk rupture; 30,000 gallons (of water relieved to the containment building basement); and 1# pressure (in the containment building). Creitz also mentioned failed fuel. I indicated that that would not seem possible if the emergency systems had worked as intended. I gained the impression that the emergency systems had functioned as intended.
- "2) Shortly after talking with Creitz, I talked with R. C. Arnold who was in Parsippany. I remember asking him about the emergency systems and failed fuel, but I did not get the sense that Arnold possessed added knowledge about the situation.
- "3) At about 9:15 a.m., I made a brief statement concerning the situation at TMI-2 to the Pennsylvania Public Utilities Commission (PaPUC).

- "4) I attended a press briefing by Lt. Gov. Scranton and staff at about 11:00 a.m. I left this briefing with a sense of reassurance that the plant's emergency systems had functioned properly.
- "5) I made further comment on TMI-2 to the PaPUC at about noon.
- "6) I spoke with some members of the Lt. Governor's staff at about 2:00 p.m. I learned nothing about the status of the plant but heard some comments about radiation measurements. I am unable to reconstruct the specifics of the comments but I was puzzled that the comments did not make a lot of sense to me. I had hoped to sit in on the briefing of the Lt. Governor by TMI personnel but I was asked to leave.
- "7) At about 2:30 p.m., I encountered Herbein, Miller and Kunder on the steps of the Pennsylvania State Capitol. They were on their way to brief the Lt. Governor. Our conversation was extremely brief. I expressed concern about the absence of senior people from the plant. I recall no detailed discussion of plant parameters or conditions but gained the impression that the plant was stable.
- "8) Sometime in the early evening, after returning to my home in New Jersey, I spoke with R. C. Arnold. He told me about the plant having been taken solid and the starting of a reactor coolant pump. I recall no

detailed discussion of plant parameters or a sequence of events throughout the day.

"March 29, 1979"

- "1) On Thursday morning, March 29, 1979, I met briefly with R. C. Arnold in order to review and sign out a memorandum establishing a task force to investigate and analyze what was then thought to have been a severe plant transient.
- "2) During the afternoon I attended a briefing for a group of congressmen at the TMI visitor's center. J. Herbein's comments (which were transcribed) served as my first overall briefing as well. I do not recall having synthesized the various portions of that briefing into a real understanding or insight into the extent of core damage. I was satisfied that the plant was shut down, being cooled, and stable.
- "3) At the visitor's center, I spoke briefly with R. Vollmer of the NRC. He informed me about core thermocouples that were still reading higher than the coolant temperature. We postulated fuel damage and local flow blockage, but were unable to arrive at any conclusion. I did not get a sense of anything ominous.
- "4) While at the visitor's center, I also spoke with some members of the task force that I had authorized

earlier in the morning. I have no recollection of any specific detail from those conversations.

"5) After returning to New Jersey in the early evening of March 29, 1979, I spoke with R. C. Arnold. I think it was then that he gave me an increased awareness of the open PORV and interruption of high pressure injection. We agreed that Arnold should go to the site to work with Herbein. I still did not sense the full extent of the situation.

"March 30, 1979

"On Friday morning, March 30, 1979, I went into my Parsippany, New Jersey office. I was discussing the status of TMI-2 with W. G. Kuhns when we learned of the radiation release that focused new attention on the site. My notes indicate that I spoke with R. C. Arnold at about 12:30 p.m. and he relayed general information about the radioactive releases and radiation levels. As a result of the ominous nature of the Friday morning information I began to seek assistance from numerous organizations around the country. My notes contain the first mention of hydrogen in a phone conversation with R. C. Arnold at 2:05 p.m. on Friday March 30. Notes of subsequent phone conversations with Keaten at 2:30 p.m. and 8:20 p.m. and with M. Levinson at 6:20 contain hydrogen related references.

"My notes from the afternoon and evening of Friday, March 30 indicate that much of the telephone discussion related to

the presence of, the removal of, and the operational problems of non-condensable hydrogen. My notes provide no explicit reference but I think I first learned of the pressure spike sometime on Friday, March 30, 1979. During that Friday/ Saturday night I stayed in the office and was in contact with the site and remember speaking on several occasions with Wm. Lowe concerning hydrogen with particular reference to the radiolytic decomposition of water.

"I moved to the TMI site on the afternoon of Saturday March 31. There followed a period of intense and virtually total immersion in TMI-2 activities. In April I spent most every day at the TMI site or concerned with TMI matters elsewhere. During the first few weeks of April I remained at the site. I availed myself of the early GPU operators' interviews, sat in on preliminary reviews of the sequence of events, participated in status reviews with the onsite NRC staff, coordinated the activities of the Industry Advisory Group and generally participated in the management of the accident. During the third week in April I drew upon this awareness and the developing learnings, including an investigation of the closed emergency feed valves and the G. Miller report based on a taped conversation and reconstruction of the day of the accident, to assemble testimony for presentation to the Nuclear Regulation Subcommittee of the Senate Committee on Environment and Public Works (Hart Subcommittee).

"By early May when the congressional tour took place on May 7, I had gained a considerable insight into not only the present plant conditions and plans for plant stabilization and cleanup but also the plant conditions on March 28th, including the action of individuals on that day.

"My understanding by early May of the accident is reflected generally in my testimony to the Hart Subcommittee on April 23, 1979. A similar but expanded testimony was given before the Subcommittee on Energy and Environment of the House Committee on Interior and Insular Affairs (Udall Subcommittee) on May 24, 1979.

"I do not recall specifically but do not expect that my understanding of the specific plant conditions on March 28th changed very much during May or indeed thereafter until the release of the various investigation reports and their associated materials beginning with NUREG-0600 in mid 1979, and including the President's Commission, Rogovin Special Inquiry Group, and the Senate (Hart Subcommittee) Reports through 1979, 1980 and 1981.

"As for the specific plant parameters which are identified, my recollections of the first knowledge or appreciation of those parameters is:

"(a) Q The pressure spike which occurred at approximately 1:50 p.m.

A See September 4, 1984 Licensee response.

"(b) Q The PORV had been open from approximately 4:00 a.m. to approximately 6:00 a.m.

A My earliest hearing of the failed PORV came from the J. Herbein briefing on Thursday afternoon, March 29, 1979. The information at that time was not definitive about the duration of the PORV opening or when the block valve was closed. My awareness of the duration of PORV opening and block valve closing had to come from early reviews of the accident sequence of events during the second or third week after the accident. I cannot recall the specific occasion of my first awareness of the full duration of the PORV opening.

"c) Q The HPI (high pressure injection) had been throttled during the time the PORV had been leaking during the early morning of March 28, 1979.

A My earliest hearing of the intermittent HPI operation or throttling came from the J. Herbein briefing on Thursday afternoon, March 29, 1979. My subsequent awareness of the extent and impact of the PORV opening and the HPI throttling had to come from early reviews of the accident sequence of events and from the more analytical efforts of the Industry Advisory Group which was working to estimate the amount of primary system inventory loss, the resulting core

water level, and the resulting core damage. This analysis possibly became available several weeks after the accident.

"(d) Q Hot leg temperatures in excess of 700 degrees F had existed during the morning of March 28, 1979.

A I do not recall when I first became aware of hot leg temperatures in excess of 700°F. I did not know about such conditions on March 28 or March 29, 1979. Beyond that I cannot pinpoint how or when I became aware of high reactor outlet temperatures.

"(e) Q Temperatures in excess of the saturation temperature indicated the core was or had been in a condition to be cooled by steam rather than water.

A I do not recall when I first became aware of temperatures in excess of saturation temperature. I did not know about such conditions on March 28 or March 29, 1979. Beyond that I cannot pinpoint how or when I became aware of reactor outlet temperatures in excess of saturation. For both (d) and (e) the probability of my learning of these details had to increase significantly on Friday March 30 and beyond.

"(f) Q On March 28, 1979, the TMI-2 reactor was in a condition not covered by emergency procedures.

A I do not recall when I became aware of "conditions not covered by emergency procedures." By the summer of 1979 there were numerous reviews of procedures and

operator response including an ACRS meeting, NUREG-0600, and efforts of the Keaten Task Force.

"(g) Q Certain GPU and/or B&W personnel on site on March 28, 1979, were uncertain prior to noon on March 28, 1979, as to whether the TMI-2 core was being adequately cooled.

A I do not recall when I became aware of GPU or B&W site personnel's uncertainty about adequate core cooling. The Herbein briefing on the afternoon of March 29, 1979 made mention of uncertain core cooling. I most likely became aware of the views of various site personnel via early GPU interviews which probably became available to me during the second week after the accident.

"(h) Q The in-core thermocouple temperature readings for any part of the day of March 28, 1979.

A I do not recall when I first became aware of in-core thermocouple readings on March 28, 1979. I think my first general awareness came from the G. Miller tape reconstruction of the day of the accident. The G. Miller reconstruction probably became available to me about two weeks after accident. It is my understanding that the thermocouple data was "lost" for some time and found in a desk drawer in the control room about one month after the accident. I then became aware of the actual measurements and their spatial distribution.

"(i) Q The neutron detectors mounted inside and outside the reactor pressure vessel indicated increased neutron levels on March 28, 1979.

A I do not recall when I first became aware of the increased neutron levels on the day of the accident. I think I learned of this effect and its implications concerning core water level sometime during the first two weeks after the accident from a member(s) of the Industry Advisory Group that was assisting in the reconstruction of the accident. An analysis was conducted which indicated that these neutron measurements could be used to infer reactor vessel water level.

"(j) Q The high radiation levels detected by the radiation monitor mounted at the top of the containment building during the morning of March 28, 1979.

A I think I first became aware of the high radiation levels in the containment building from the J. Herbein briefing on Thursday afternoon, March 29, 1979. The information was stated as uncertain and tended to be discounted because of an uncertain effect of the shielding surrounding the detector.

"k) Q The hydrogen explosion and/or combustion which occurred during the early afternoon on March 28, 1979.

A See September 4, 1984 Licensee response.

"(1) Q The actuation of the containment sprays associated with the pressure spike.

A It is reasonable to assume that I was told of spray initiation in the course of discussions of the pressure spike to support the conclusion that it was real. This would have been March 30, 1979 at the earliest. However, I do not now recall any specific discussion of spray initiation prior to J. Floyd's description during the congressional tour on May 7, 1979, although I am aware now that both the G. Miller reconstruction and individual GPU interviews to which I had access in April contain references to the spray initiation.

"(m) Q Any instructions by Mr. Miller or other GPU personnel not to activate any equipment in the reactor building because it might cause a spark and/or a hydrogen explosion.

A. After identification of hydrogen as the cause of the pressure spike and with recognition that the effort to remove the remaining hydrogen from the primary coolant system and continuing radiolytic decomposition of water were adding hydrogen to the containment building, there was concern about the possibility of further hydrogen combustion. I had no knowledge of limitations on equipment operation in containment on March 28 or 29 but do not recall when or if I might

have subsequently been informed of such possible limitations. My awareness of possible limitations on the operation of equipment on the day of the accident may have come from NUREG-0600 in August, 1979, or from the Rogovin SIG Report and the subsequent Rogovin/Frampton Memorandum of March 4, 1980 to the NRC.

Supp. Response to Interrogatory No. 17

Mr. Dieckamp did not know at or around 8:00 a.m. on March 28, 1979, that the PORV had been open from about 4:00 a.m. to about 6:20 a.m.

Supp. Response to Interrogatory No. 18

Mr. Dieckamp did not have knowledge or information around 8:00 a.m. on March 28, 1979, that the HPI had been throttled during the time the PORV had been leaking.

Supp. Response to Interrogatory No. 19

Mr. Dieckamp did not have knowledge or information around 8:00 a.m. on March 28, 1979, that hot leg temperatures in excess of 700 degrees had existed on that day.

Supp. Response to Interrogatory No. 20

Mr. Dieckamp did not have knowledge or information on March 28, 1979, that temperatures in excess of the saturation temperature indicated that the core had been cooled by steam rather than water.

Supp. Response to Interrogatory No. 21

Mr. Dieckamp did not have information on the morning of March 28, 1979 that the core was not being adequately cooled.

Supp. Response to Interrogatory No. 22

Mr. Dieckamp did not have knowledge or information around 8:00 a.m. on March 28, 1979, that the TMI-2 reactor was in a condition not covered by emergency procedures.

Supp. Response to Interrogatory No. 28

Mr. Dieckamp did not instruct emergency team personnel to cease the depressurization strategy and begin a repressurization strategy.

Supp. response to Interrogatory No. 34

See Licensee's September 4, 1984 Response. Mr. Dieckamp does not recall detailed discussion of plant parameters or conditions.

Supp. Response to Interrogatory No. 39

Licensee's supplemental response to this interrogatory will be provided within the next few days.

Supp. Response to Interrogatory No. 48

Licensee's September 4, 1984 response is complete and requires no supplementation.

Respectfully submitted,

SHAW, PITTMAN, POTTS & TROWBRIDGE

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF SECRETARY
DOCKETING & SERVICE
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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

CERTIFICATE OF SERVICE

I hereby certify that copies of "Licensee's Supplemental Response to Three Mile Island Alert's First Set of Interrogatories and First Request for Production" were served this 11th day of September, 1984, by hand delivery to the parties identified with an asterisk and by deposit in the U.S. mail, first class, postage prepaid, to the other parties on the attached Service List.

Ernest L. Blake, Jr.
Ernest L. Blake, Jr., P.C.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

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