

March 8, 1982

To Bill Dircks/Norm Haller  
From Henry Myers

The following relates to what NRC staff has said with regard to whether information was intentionally or willfully withheld during the TMI accident. The point is that the history of the Commission's consideration of the matter shows NRC staff making statements that are logically inconsistent. On the one hand they say that information was not intentionally withheld. On the other hand, they have used or agreed with language that in normal English usage means that significant information was withheld intentionally.

In particular, NRC staff have used the word "dissemble" to describe what one or more Met-Ed employees did on March 28, 1979. They have stated they were in substantive agreement with the conclusions of the House Interior Committee Staff Report, conclusions which the TMI-1 Restart Licensing Board interprets as stating that information was intentionally withheld. They have said that Med-Ed employees were "not fully forthcoming." Ron Haynes, who participated in the TMI investigations, is purported to have told Mr. Dircks that he believed Met-Ed did "not level" with State officials.

The Commission majority has not reconciled the contradiction between use of terms indicating that information was intentionally withheld with statements that information was not intentionally withheld.

In his January 28, 1982 memorandum to Commissioner Gilinsky explaining his statements at the December 21, 1981 Commission meeting, Mr. Stello quotes Conclusions 5 and 6 of NUREG 0760 which say that information was not intentionally withheld; he, however, omits discussion of or reference to Conclusion 4 which states:

Met Ed was not fully forthcoming on March 28, 1979 in that they did not appraise the Commonwealth of Pennsylvania of either the uncertainty concerning the adequacy of core cooling or the potential for degradation of plant conditions.

At a Commission meeting on December 21, 1981, Mr. Stello expanded on not fully forthcoming in the following exchange with Commissioner Gilinsky:

Commissioner Gilinsky: I take it if you accept the House Committee report that you're concluding the company did not level with the State?

Mr. Stello: I don't know why I need to use the House Committee report when your own report of your own staff reached the same conclusion, that they were not fully forthcoming, that at times during the day they should have picked up the phone and let certainly the State of Pennsylvania know that there was considerable uncertainty concerning the adequacy of core cooling and the seriousness of the accident . . . .

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The not fully forthcoming phraseology of NUREG-0760  
Conclusion 4 implies willful withholding of information. In fact, Chairman Ahearne seems to have inferred from Conclusion 4 an implication of "intent" when he engaged in the following dialogue with Mr. Moseley at the January 22, 1981 Commission meeting:

Chairman Ahearne: But there is a problem with (the) way it is phrased. Not fully forthcoming can carry with it an intent; that is, it can be interpreted as having some intent underlying.

....

The problem with the words "fully forthcoming", .... is it is not really clear. It doesn't come down side (sic) of there was information which they didn't pass on. It does more than that. It has an implication, or at least you can infer a little bit more than they had information and didn't pass it on. It is that they had information but kind of withheld it.

Then when you hit (Conclusions) No. 5 and 6 it is that they didn't intentionally withhold it. So that "fully forthcoming" seems to have a shade to it that goes beyond just that they had information which they didn't pass on. Is that a shade that I am inferring or did you mean to imply it?

Mr. Moseley: I think you covered it when you said there was information that should have been passed on that wasn't. Clearly that is the case.

(Tr.p. 14 -15.)

Mr. Stello also said that Conclusion No.4 (i.e. Met-Ed officials had not been fully forthcoming) was based on a "synthesis" leading to the conclusion that certain information should have been "passed on." He said that they were "...not able to incorporate with this conclusion intent;" i.e. Mr. Stello seems to be saying they were not able to conclude that there had been intent to withhold the information that should have been passed on. (Ibid. p. 17 - 18.)

The discussion of whether "not fully forthcoming" implied "intent" ended without an explanation of the reason for using such words other than to indicate to the Commission and readers of NUREG-0760 that in the opinion of NRC staff information had been intentionally withheld.

Mr. Stello also appears to have introduced into the Commission's discussion the word "dissemble" to describe the reporting failures. This occurred in dialogue with Commissioner Gilinsky who said:

....but what other reason would there be other than to avoid trouble on the outside while they are trying to somehow manage the plant, then I think that it is a matter of intent.

Mr. Stello responded:

I guess as we discussed this, and I tried to understand it over and over again, the word that seemed to fit a lot of this was "dissemble." I don't apply (sic, imply ?) intent. .... There isn't anything that suggests that any of that information was intentionally withheld facts (sic).

(Id. p. 16 - 17.)

The discussion continued as to whether "dissemble" could be used without implying "intent." Chairman Ahearne said:

I disagree with his [i.e. probably Stello's, possibly Gilinsky's] definition of the word "dissemble."

Mr. Stello said:

Okay, I can invent a new word.

(Ibid., p. 18 -19.)

Following more discussion of "intent" and "dissemble", Mr. Fouchard read the definition of "dissemble":

To hide under a false appearance, to conceal facts intentions or feelings under some pretense. See disguise.

Commissioner Hendrie then said (apparently to Mr. Stello):

That doesn't sound to me like what you had in mind.

Mr. Stello responded:

Well, you get the bigger dictionary out and you find it has various shades of meaning.....

Chairman Ahearne said:

Nevertheless, Vic the general implication of "dissemble" has with it an intent, intent to deceive.

Mr. Stello said:

Well, then, I will invent a new word. I think the consensus of the people that looked at this was that they were not able to come to the conclusion that the intent was there.

(Ibid. p. 20.)

Although the record of the January 22, 1981 meeting notes that a "very large dictionary" was given to Mr. Stello, the Commission appears not to have asked him to explain why he had introduced the word "dissemble", what definition he had in mind when he did introduce it, and what was said by the Commissioners to lead him to change his mind, deciding that "dissemble" was after all not an appropriate word to use in explaining the reporting failures.

On October 16, 1981, Mr. Stello stated in a memorandum to the Commission that, "Personally, I am in substantive agreement with the conclusions of the House Committee Report." The TMI-1 Restart hearing board stated:

As we stated in our April 30, 1981 to Congressman Udall, we infer from the final language (of the Interior Committee staff report) that notwithstanding the deletion (of the word "intentionally"), his (Chairman Udall's) staff's report still concludes that information was withheld intentionally and further that information was presented inaccurately by TMI management on the day of the accident.

TMI-1 Restart PID, p.276.

The TMI-1 Restart Hearing Board is correct in its interpretation of our conclusions. In addition, my memorandum to you dated January 11, 1982, explains our conclusions; I will not repeat that explanation except to note that our conclusions stated our interpretation of what happened on March 28, 1979. It was the Commission's task to determine whether persons, who did as stated in the conclusion of the House Interior Committee Staff Report, would have willfully violated the Commission's regulations. Neither Mr. Stello nor the Commission majority has made this determination. In the absence of a determination that persons, who did as stated in our conclusions, did not willfully violate the Commission's regulations, there is a significant inconsistency between Mr. Stello's statement that he is in substantive agreement with the Interior Committee staff conclusions and his statements to the effect that information was not intentionally withheld.

In sum, the composite record shows NRC staff making statements that are logically inconsistent with one another. These statements were not made spontaneously; they were made after extensive discussion among those who made them as to whether they were appropriate.

November 9, 1981

To Bill Dircks  
From Henry Myers

Re: Comments on Gamble memorandum and related matters

Something to keep in mind as you read this is that the plant managers possessed significant information that they understood to be related to the severity of the accident and which they did not report to State and Federal officials. Unreported information related to: (A) circumstances leading to the conditions that prevailed when various reports were made, (B) temperatures indicating the core was or had been uncovered, (C) the fact that the plant was in a condition not covered by emergency procedures, and (D) an uncertain prognosis for bringing the plant to a stable condition. The information that was provided to State and Federal officials led these officials to conclude that the accident was much less severe than was in fact the case. Compare, for example, NRC PNO 79-67 and PNO 79-67A and the Lt. Governor's March 28 press releases with the recollections of those who were in the plant on March 28. I&E has no explanation for the reporting failures other than that the plant managers were ignorant. This explanation is inconsistent with the evidence compiled by the various investigations, a fact which will be clear to you from reading the Interior Committee report. While this may sound self-serving, neither NRC nor GPU has taken issue with our conclusions nor our specific findings with regard to who knew what when.

I think you should be wary of assertions that we have misread Gamble's memorandum. Gamble states clearly that he was instructed to interview State officials in a way such that it was unlikely that information would be obtained indicating precisely what these officials had been told or whether they thought they had been fully and accurately informed on March 28, 1979.

Note statement on top of NUREG-0760, p. 40:

"The three principal members of the BRP were interviewed to evaluate the operating information that was provided to BRP in contrast to information that was supplied to the NRC."

The foregoing is consistent with Gamble's recollection as stated in his memorandum that the purpose of interviewing state officials was to determine whether the state had been given information that was not provided to the NRC.

Note that Gamble was listed as an investigator in the December 1980 draft NUREG-0760, a designation that was dropped for reasons that are not clear. See, for example, page 2, of the December 1980 draft. Why did Richard Hoefling

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not sign the final report? Also for whatever it is worth, I understand that Ronald Haynes, who was originally part of the I&E investigative team, and who previously worked on the Rogovin inquiry, believes that Met Ed managers played down the severity of the accident.

I believe also that the I&E investigators should have been but were not adequately informed as to the level of proof necessary to reach a conclusion as to whether there was sufficient evidence of wrongdoing to warrant imposition of civil penalties.

Note statement on top of p.41, NUREG-0760, that:

"It shall be the responsibility of all the above (i.e. all TMI managers) to provide maximum assistance and information possible to the various offsite groups; i.e., AEC, State of Pennsylvania, Bureau of Radiological Health.." (Underline added.)

In light of the foregoing, Moseley et al. should be asked the following:

Why was Lt. Governor Scranton not interviewed? What did they do to obtain notes that might have been taken during the briefing of State officials by Met-Ed in Scranton's office on the afternoon of March 28?

Was Dornsife told at approximately 9:00 A.M. on March 28, 1979 that the EMOV had been open on the order of 2 hours and 20 minutes; i.e. that a LOCA had been in progress until 6:20 A.M. or thereabouts?

Was Dornsife told at approximately 9:00 A.M. on March 28, 1979 that the HPI was throttled during the time the EMOV was open/leaking?

Was Dornsife told at approximately 9:00 A.M. on March 28, 1979 that in-core temperatures in excess of 2000 degrees had been measured?

Was Dornsife told at approximately 9:00 A.M. on March 28, 1979 that hot-leg temperatures in excess of 700 degrees were being measured?

Was Dornsife told at approximately 9:00 A.M. on March 28, 1979 that the plant was in a condition not covered, encompassed or envisioned by emergency procedures or technical specifications?

Was Dornsife told at approximately 9:00 A.M. on March 28, 1979 that the plant status did not fit any of the categories specified in Item 4 on page 40 of NUREG 0760?

The following relates to the items of information (see list on page 41 of NUREG-0760) supplied by Met-Ed to the Bureau of Radiological Protection:

Item 3 states that Dornsife recalled knowledge that the EMOV had been opened for a period of time that was longer than normal. The crucial question is whether Dornsife was told that "longer than normal" meant something like 2 hours and 20 minutes or that it meant a few minutes. If the former it indicated big trouble, but if the latter it might have been relatively insignificant. Dornsife's notes and his apparent reporting to the Lt. Governor that everything was under control indicates that Dornsife understood "longer than normal" to be a time much less than 2 hours and 20 minutes. Therefore the question arises as to why Miller did not tell Dornsife that until approximately 6:20 A.M. the valve had apparently been passing fluid. This gets into the question of whether Miller knew the valve had been open for this period of time. If he did not know, the question then arises as to why he did not know. Among those who did know were Mike Ross (currently manager of plant operations at Unit 1); Ross' recollection is that the valve had been open for a long period of time and that this fact was discussed with Miller. (See House Interior Committee Staff Report, p.11.) Others among the supervisory personnel who knew at the time of the Miller-Dornsife conversation that the valve had been open until 6:20 A.M. were Zewe, Mehler, and possibly Kunder. (House Interior Committee Staff Report, p.6 - 11.) The fact of the valve having been open until 6:20 A.M. was not subsequently reported to the State officials assembled in the Lt. Governor's office at approximately 2:30 P.M. on March 28. Nor is there evidence of this fact having been reported to the NRC on March 28. In sum, Item 3 on page 41 of NUREG-0760 misleads by focussing on the fact that the State was informed that the valve was open for a longer time than was normal rather than focussing on the crucial fact that longer than normal meant 2 hours and 20 minutes.

Item 6 on page 41 of NUREG-0760 stresses Dornsife's ambiguous and retrospective recollection that he had been told the core was being cooled through a feed and bleed process. This recollection occurred during the October 1, 1980 I&E interview. Dornsife's notes, compiled in April 1979, show Dornsife saying that the plant was currently stabilized and cooling on the "A" steam generator. (Something that may or may not be of interest is that I&E cites Dornsife's October 1980 recollection as to cooling mode and ignores his recollection indicated in Dornsife's notes made less than a month after the accident.) Note also Dornsife's statement regarding plant stability made to I&E and reproduced on p. 106 of House Interior Committee Staff Report.

Item 7 of NUREG-0760 is misleading in stating that pertinent data from the "Status Board" was passed on to Dornsife at about 9:00 A.M. In particular, Dornsife was not told the plant was not in any of the conditions specified in Item 4 of the "Status Board" format. And since Item 4 had to do with whether or not the plant was in a stable cooling mode, the fact that Miller was unnecessarily ambiguous on this point is an indication that Miller through intent or inexplicable negligence conveyed the impression that the situation was more under control than was the case.

Item 8 of NUREG-0760 is unnecessarily ambiguous. The preponderance of evidence indicates that temperature data believed by the plant managers to be indicative of the severity of the situation (e.g. House Interior Committee Staff Report, p.23, 30 and pages in between) was not provided to State officials. Why does NUREG-0760 fail to state this fact? If the staff continues to believe that the TMI supervisors did not understand that 700 degree temperatures were indicative of the core being uncovered (a lack of understanding which I believe implausible) then the staff have no business allowing these same supervisors to operate TMI-1.

An interesting omission from NUREG 0760 is omission of discussion of the statement in the Miller-Troffer tape (Troffer was Met Ed person in Reading, Pa.) wherein Miller seems to be indicating to Troffer that he had not been forthcoming in talking to someone (presumably the State) and that "I had to choice but to talk to him," where "him" presumably means Dornsife. (This is an example of omitting statements that indicate Miller had not informed the State of disquieting aspects of the situation.)

In general, the discussion on pages 42 through 45 conveys whatever you want to read into it. I&E says in effect that the State was given a misleading picture of what was going on in the plant. Gerusky of the Pennsylvania BRP is reasonably clear in telling I&E that he felt on March 28 that the Met Ed officials were "...trying to play down the accident situation." (See House Interior Committee Staff Report, p.116. Also p. 110 - 115.) On the other hand, the convoluted explanations in NUREG-0760, p. 42 - 44 serve primarily to confuse the reader. If you want to get an idea whether the State was intentionally misled or not, you should read the House Interior Committee Staff Report.

November 16, 1981

To Bill Dircks/Norman Haller  
From Henry Myers

Re: Basis for I&E conclusion that Gary Miller was unaware of the pressure pulse recorded at approximately 1:50 P.M. on March 28, 1979.

The various TMI inquiries received the following testimony with regard to this matter.

Shift Supervisor Bill Zewe:

"I found it hard to believe that anyone who was in the control room observing anything would have missed that [the spike] or turning off the pumps or any of the discussions at all." (Zewe, SIG, 9/11/79, p. 257.)

Reactor Operator Ed Frederick:

"I think Mr. Marshall tried to figure it [the spike] out, and Gary Miller was particularly interested in it."

(E&E, TMI, Part I, p. 145.)

TMI-1 Operations Supervisor Mike Ross:

"...and we looked back at the charts at that time. We saw a fairly large spike on the chart and the exact pressure at this time I don't know,...it was around 30 pounds. My thought at the time and Miller was out there with us and he questioned he said, 'jeese, you know I thought I heard something, too.' " (Ross, I&E, May 19, 1979, p. 3-4.)

Mehler recalled discussion of the spike with Miller in the context of an instruction to not start oil pumps, presumably out of concern that this might cause a spark, thus triggering another hydrogen detonation. The answers are Mehler's, whose recollection if correct implies that Miller knew of the 1:50 P.M. pressure pulse and its significance:

Q. Your best recollection now is that an instruction was given.

A. That's correct.

Q. By whom was it given?

A. Mr. Miller.

(Mehler, I&E, 9/3/80, p. 30 - 31.)

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Shift Supervisor Joe Chwastyk:

"It was shortly after the actual explosion and the pressure pulse in the building that I surmised that it was, in fact, an explosion and probably a hydrogen explosion, and I related that to Gary. That was prior to Gary leaving for the Governor's office, as far as I can remember.

(Chwastyk, I&E, 9/4/80, p. 62.)

NRC Inspector Higgins in a dialogue with I&E investigators, where the answers are Higgins':

Q. Was Gary Miller aware on Wednesday of the thud?

A. Yes.

Q. Was he aware that containment spray pumps came on?

A. I believe so.

Q. Was he also aware of the pressure spike as indicated by the recorder?

A. I believe so, but again the only reason I say that is from reviewing what I said when I made depositions, and right now I cannot say for certain.

Gary Miller stated in letter to Chairman Udall:

"I was first aware of the recorded pressure pulse and associated actuation of the safeguards system on Friday morning, March 30, 1979."

(E&E, TMI, Part 2, p. 298.)

The point here is not that the statements are unanimous and unambiguous to the effect that Gary Miller was aware of the pressure pulse contemporaneously with its occurrence. There is ambiguity in the sense that there was a tendency, especially in the later interviews, for witnesses to express less certainty as to Miller's having been informed than they expressed in their initial interviews. Backing and filling aside, no one has ever explained how it could have been that Miller was in the control room and have been unaware of the pressure pulse and actuation of safeguards systems, leaving aside for the moment whether he understood the significance of these events. (House Interior Committee Staff Report, p.54 - 59, 88 - 92; 96 - 97.) Also, it is worth considering Chwastyk's statement in his last interview on the subject on September 4, 1980 when he was asked by I&E to give his best recollection as to whether there had been discussion on March 28 of the potential for further hydrogen detonations in the reactor building, such discussion implying knowledge of the 1:50 P.M. pressure spike and its significance. After

having consulted with his attorney, Chwastyk engaged in the following discussion with the investigators:

- Q. The question was, do you recall at the time that the order [not to start equipment] was given whether or not there was a statement as to why the equipment was not to be operated?
- A. Again, I don't remember specifically that the reason was given or that I just assumed it that this was to prevent sparking in the building. I do remember the circumstances and who was present. Essentially Gary Miller had mentioned, and Brian Mehler was there. Mehler said something to the effect that it was too late, and that he had just started some piece of equipment in the building. I remember some comment of mine to the effect, and this was sometime later, "Don't worry about it because we have burned up what is in there anyway."
- Q. That was your comment?
- A. That was my comment.
- Q. To Mr. Mehler?
- A. Yes.
- Q. And Mr. Miller?
- A. To whoever was there.
- Q. Mr. Miller, to your recollection was there?
- A. Yes, to my recollection he was there.

(Chwastyk, I&E, 9/4/80, p. 18 - 19, also see p. 15 - 17 where Chwastyk discusses his recollections of the pressure pulse and discussion with Gary Miller regarding same.)

On page 66 of his March 4, 1980 memorandum, Frampton states:

"Station Manager Gary Miller has said he was not aware of the spike at the time, but others have testified that he was, and it appears more likely than not that he was made aware of it."

I&E states on page 25 of NUREG-0760:

"The investigators conclude that Miller was not aware of the 28 psig pressure spike on March 28, 1979..."

In sum, notwithstanding that the preponderance of evidence indicates that Miller was aware of the pressure pulse, I&E, without providing a rationale, concludes the opposite.

November 30, 1981

To Bill Dircks/Norm Haller  
From Henry Myers

Re: Basis for I&E Conclusion that pressure pulse was dismissed as an instrument anomaly.

My November 16 memorandum questioned the basis for the I&E conclusion that on March 28, 1981 Gary Miller was unaware of the pressure pulse that occurred at 1:50 P.M. A related question concerns the I&E basis for stating:

...., with the exception of two shift supervisors it appears that the recorded pressure transient and spray pump actuation was generally attributed to electrical faults or instrument malfunctions.

(NUREG-0760, p. 23.)

In order to reach this conclusion, it would have been necessary to compile and compare statements and the chronological evolution of such statements for each of the interviewees who had something to say on the subject. The House Interior Committee Staff Report contains much of the raw material for such a comparison. Such a compilation indicates that the pressure pulse was not dismissed as the consequence of instrument malfunctions. From this compilation comes the inference that the contention, that on March 28 the pressure pulse was considered an artifact of the instruments, was put forth by Met Ed personnel retrospectively in order to explain why the event had not been reported on the day it occurred.

Craig Faust, a Unit 2 operator on duty at 1:50 PM on March 28 told GPU investigators at 4:00 A.M. on March 30 (prior to the Commissioners being aware of the pressure pulse):

Of course we got flashing and went right out the drain tank probably into the building and we saw a 27 psi spike building pressure and it came immediately back down. O.K. we picked up everything, everything else seemed to steady back out where it was again it seemed everything went where it was and we figured at this time we got our, we overrode the system again, in other words, bypassed it, bypassed ES, and stabilized out where we were again. Building spray pumps of course picked up and we took them off. My reasoning behind that is we didn't have a high building pressure anymore and why start washing everything down in there with sodium hydroxide, so that's about it. Up to that point that's about where I finally got relieved. (Page 11, 3/30/79 Faust interview with R. Long and D. Reppert, underline added.)

Faust does not say the pressure spike was caused by an electrical malfunction, and before we conclude that he did think it due to a malfunction, there should be an explanation (what he meant when he said they did not have high building pressure anymore.

On April 6, 1979 Faust engaged in the following dialogue with GPU interviewers:

Q. What about the reactor building spike?

A. We had probably had some sort of explosion because that's what it looked like; shock waves.

Q. Did you hear anything?

A. No. I didn't.

Q. Did it affect the pumps?

A. There didn't seem to be any change in anything. When the pressure dropped right off, we stopped the building spray pumps, we didn't think we needed them.

(Page 5-6, 4/6/79 Faust interview with GPU investigation team.)

On May 11, 1979 Operators Faust and Frederick stated the following in discussion with Interior Committee staff in answer to the question of whether anything but excess reactor building pressure could have simultaneously led to (A) the reactor building pressure indicator indicating 28 psi, and to (B) actuation of the containment sprays:

Frederick. No; it had to be the high level pressure.

Faust. There had to be a pressure surge in the building for it to happen.

(Page 147, E&E, TMI-I.)

On September 11, 1979 (the above noted statements were made in March, April and May, 1979) in an interview with the NRC Special Inquiry Group, Faust and Frederick stated that they did not believe that the pressure spike could have been real because nothing in their training had prepared them for such an event. (Note. The record should be checked to determine whether there are statements made prior to September 11, 1979 wherein Faust and/or Frederick said they did not believe the pressure pulse to have been real.)

At approximately 3:00 A.M. on March 29, 1979 (Some 30 hours before the Commissioners were aware that there had been a pressure pulse, Hugh McGovern, a TMI operator, made the following statement, according to the notes of Met-Ed's Bubba Marshall:

"... an RX building pressure spike that went off scale on narrow range meter [at 2:00 P.M. on March 28] - definite spike straight up, straight back down - had meter - definite spike straight up, straight back down - had full RX building (Spray pumps & BS - VPS, DH-V8's) isolation and cooling. Someone secured spray pumps, shut BS - Vi's and DH - V's (Hugh did) and unisolated equipment for building."

Met Ed instrument engineer Ivan Porter was asked whether the spike on the reactor building pressure chart could be explained by any form of instrument malfunction. Porter said:

I would think not. It did look like a real spike to me. That was when I specifically asked if it could be real.

(Porter, I&E Tape 237, May 21, 1979, p.35.)

NUREG-0760 agrees that TMI supervisors Chwastyk (NUREG-0760, p.28) and Mehler (NUREG-0760, p. 28 -29) believed on March 28, 1979 that the pressure spike indicated a real increase in reactor building pressure. In addition TMI operators Illjes and Mell recall the pressure pulse having been discussed on March 28 in the context of its having been perceived as indicative of a real increase in pressure. (See NUREG-0760 references 90 and 91.)

NUREG-0760 does not refer to B&W TMI site supervisor Leland Rogers' statement that following the pressure pulse, a check was made of containment integrity to determine whether the reactor building pressure might have caused a crack in the reactor building. The implication of Rogers' statement was that the pressure pulse had been considered real. Rogers, after making this statement in a report written in June, 1979, told I&E in September, 1980 that while it was possible to interpret his report as having said that containment integrity had been checked following the pressure pulse, this is not what he had meant to imply. Chwastyk also recalled there having been a check of containment integrity following the pressure pulse; NUREG-0760 concludes, without stating a reason, that Chwastyk did not direct that a check of containment integrity be made on March 28, 1979.

NUREG-0760 appears to base its conclusion that the pressure pulse was dismissed as an electrical anomaly on the denial by Miller that he was aware on March 28 that a pressure pulse had been recorded; on a statement by Supervisor Mike Ross which appears to be based on reference 74 in NUREG-0760 (which is worth reading in the original in order to get the full flavor of what Ross is saying and which in fact contradicts Miller's recollection of not being aware of the pressure pulse on March 28); and TMI Supervisor Zewe's statements to I&E on April 23, 1979 and September 4, 1980 wherein Zewe states he did not believe a pressure pulse of the observed magnitude could have occurred.

The following table is a partial summary in chronological order of statements by persons who were present in the control room on March 28 and who expressed views concerning their contemporaneous beliefs as to the reality or non-reality of the pressure pulse.

<u>Statement indicating belief that pulse was:</u>	<u>real</u>	<u>artifact of instruments</u>
Faust	9/30/79 4/06/79 5/11/79	9/11/79
Frederick	5/11/79	9/11/79
Zewe		4/23/79
Ross		5/19/79
Chwastyk	5/21/79 10/11/79 10/30/79 9/4/80	
Mehler	7/06/79 10/11/79 10/30/79 9/3/80	
Rogers	6/12/79	9/02/80(?)
Illjes	5/23/79	
McGovern	3/29/79	
Mell	8/22/79	
Miller		6/14/79 9/5/80

In sum, the preponderance of evidence (particularly when consideration is given to the many manifestations of an explosion that were apparent from the various instruments in the control room) indicates that the TMI managers did in fact consider the pressure pulse to have been real. The argument for the contrary conclusion is based primarily on the statements of Miller (whose denial of awareness of even the existence of the pulse has been disputed by Ross who himself admits awareness but says he believed it due to an electrical malfunction), Ross, Zewe, and Frederick, providing the latter's SIG statement (made some 16 months after his initial statement indicating he believed the pressure pulse to have been real) is the most accurate reflection of his state of mind on March 28, 1979.

December 1, 1981

To Bill Dircks/Norm Haller  
From Henry Myers

Re: NUREG-0760 statement (p. 19): "The investigators conclude that the significance of superheated steam was not understood on March 28, 1979 by the people at the site."

It is unclear what idea the foregoing statement intends to convey. I assume that the presence of superheated steam means that the core was or had been uncovered, and that there was question as to the adequacy of core cooling; the significance of superheated steam is therefore that the core was or had been uncovered. The quotes cited on page 19 of NUREG-0760 and more extensively in House Interior Committee Staff Report, p.19 - 33, in fact imply that personnel in the control room on March 28 did understand the significance of superheated steam; these statements indicate that control room personnel believed that the core was or had been uncovered, and that furthermore there was question as to whether the core was being adequately cooled.

The following are from statements made to the various TMI inquiries by Station Manager Gary Miller.

Statement submitted by Miller to House Interior Committee, May, 1979:

When I turned to focus on plant conditions (upon arriving at the site at approximately 7:00 A.M.), an initial concern was that the hot-leg indication was off-scale. I asked that an extended scale readout device be connected to the hot leg RTD (resistance temperature measuring device).

.....

....the extended hot leg temperature readout device indicated 720 degrees F.

(Miller, E&E, TMI-2, Part2, p. 297.)

Statement made by Miller to I&E investigators on May 7, 1979 with regard to his perception on March 28, 1979 of the utility of the in-core thermocouples:

I was never trained that those thermocouples were too much of a device you were to use but I used them because they were the only indicator (of) what was going on in the core I had that was direct. So, I did utilize them; but only to tell me that what I had was that severe, more than to prescribe a procedure or action or something.

(Miller, I&E Tape #160, May 7, 1979, p. 12.)

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Statement made by Miller to I&E investigators on May 7, 1979:

...the instrument tech came back and Ivan told me that some read 200, some read 400 and some read 2500 and some didn't read. Then he explained to me that if they were really hot they would melt and form other junctions and that the calibration wouldn't be good anymore. So you know the bottom line here was that they (the in-cores) were hot, they were hot enough that they scared you, as far as what you're looking for. It told me that the reason the computer was off scale at 700 degrees F... The in-cores were reading anywhere from 2500 or so, and I picked 2500. It could have been higher than that. But that, you know, I was looking for a gross indicator and I had it....I know that we were superheated and all that sort of thing. I don't think we tumbled to that kind of lodge (sic, logic ?) but we just know we didn't have a control, we were out of control. We knew the situation was one we hadn't anticipated too many times here.

(Miller, I&E Tape #159, May 7, 1979, p. 51-52.)

The following is from the transcript of the September 5, 1980 I&E interview with Miller. It reiterates among other things that Miller believed the hot leg temperature data to be significant, that Miller had instructed that a special readout device be connected to the hot leg temperature sensor and that a record be made of the data from that sensor:

Q. Early on you asked for a instrument to be set up to expand the scale of the TH indicators on the console. Was a record kept of the data from these instruments?

A. I had a requested that a record be kept. I can't tell you where that is at or whether that was fully implemented, but I had requested that, yes.

(September 5, 1980 Tr., p. 23.)

Q. What did you consider to be indicators of whether you were being successful [i.e. successful at cooling the core] or not?

A. I think we have gone through that. We looked at temperatures in the RCS, we looked at the steam generator pressure and we put an indicator on a test instrument on the RPS on the hot legs if I remember right. We put that on there because the on-scale meter was off.

.....

Q. You wanted to look at that temperature. What were you expected it to do?

A. At the intial stages of looking at it, Vic, there was no high temperature on scale available, so the initial idea was to get some reading in addition to the other information

While Miller stated in the May 7, 1979 discussion with I&E cited above that he knew "...we were superheated and all that sort of thing," he did not answer directly questions asked by I&E some 16 months later with regard to whether he had been aware on March 28 that temperatures were indicative of superheated conditions. For example:

Q. Now, my question is, weren't you aware on the morning of March 28th that the hot-leg temperatures were in excess of saturation temperature for the corresponding reactor system pressure?

A. I don't think I can add any more to the quotes that you have given me from what I have said previously. The essence of that was it is hard to remember at which time the steam conditions were exactly discussed, and from an action standpoint the concern was to keep putting water in.

Q. Does that mean that in the morning of March 28th you were aware that the temperature was in excess of saturation; in other words, there was superheat conditions existing?

A. I don't understand the question relative to everything you have read back to me. I don't know what I can answer to amplify it any better.

(I&E, Sept. 5, 1980, p.25 - 26.)

Following the foregoing reponse I&E investigators read from previous statements made by Miller to Senate investigators:

We were pumping at that time or close to that time as high a pressure as we had decided to go and the water level not changing or not charging the system solid, and in fact we were losing water to the reactor building floor; in other words, very hot superheated conditions.

....  
Somewhere in the morning maybe based on Lee Rogers thrust there must have been a discussion of a superheated condition, but as of today I can't remember that.

(Ibid, p. 27.)

An inference drawn from the totality of Miller's statements to the various investigators is that on March 28 he was aware that core cooling might not be adequate, that he was aware that there were steam spaces in the system, that the core might not be covered, and that the temperature data constituted a basis for his awareness of these things.

NUREG-0760 (p. 20) states that, "...prior to receiving the incore thermocouple data, Miller already believe the core was hot." This belief, according to NUREG-0760 was based on the hot leg temperatures. [HM comment: By "hot" I assume he meant the core was not being cooled adequately, a fact he did not report to State or Federal officials.]

In sum, the thrust of Miller's statements (and those of others quoted at length in the House Interior Committee Staff Report) indicate that the temperature data was used by plant personnel to assess reactor conditions; e.g. see Flint and Porter comments on pages 19 and 23 of the House Interior Committee Staff Report, and note that incore data was called from computer at least 9 times prior to 10:00 P.M. Also note comments of technicians who made direct measurements of incore thermocouple voltages (ibid., p. 24 - 30).

The record indicates that temperature data were not provided to the State in the course of Miller's 9:00 A.M. conversation with Dornsife and they were not provided to the NRC prior to the arrival of inspectors at the site. While there is nothing in the record to indicate that State officials were provided temperature data on March 28, the peculiar phraseology of NUREG-0760 (Item (8), p. 41) leaves the impression that such data may in fact have been provided to the State:

It could not be established that Gerusky, Dornsife, or Riley [all officials of the Pennsylvania Bureau of Radiological Protection] received specific knowledge on March 28, 1979 of hot leg or core exit thermocouple temperatures.

In view of the significance of the temperature data as an indicator of the severity of the accident, and in view of the evidence that such information was withheld, what line of reasoning did I&E follow in arriving at the above conclusion rather than a conclusion such as:

Gerusky et al. apparently did not receive hot leg or incore temperature data on March 28?

Why does I&E believe that temperature data was not reported to State and Federal officials?

If I&E concludes that temperature data was not willfully withheld, what in the record (and on what basis) does it accept and reject in its reasoning as to why the data and/or interpretations thereof was not reported?

NUREG-0760 (p. 20) states that Miller was aware that the hot-leg temperatures were greater than 700 degrees, that he believed the core was hot (i.e. that cooling was inadequate), that temperatures in the core might have been sufficient to melt the thermocouples and form new junctions, and that there was "some" steam environment near the top of the fuel rods. Given Miller's awareness of such things, how does I&E explain the failure of Miller to inform Dornsife of the 700 degree temperatures in the hot leg? Of the possibility of temperatures inside the pressure vessel sufficient to melt the thermocouples and to form new junctions? Of the fact the reactor was in a condition not covered by emergency procedures? Of there being uncertainty as to whether the core was being adequately cooled?

December 16, 1981

To: Bill Dircks/Norman Haller  
From: Henry Myers

The following questions concern findings of the NRC Inquiry into reporting of information during the accident at Three Mile Island. Background for these questions is contained in my memos dated 11/9/81, 11/16/81, 11/30/81 and 12/1/81.

I. Did \_\_\_\_\_ know at approximately 8:00 A.M. on March 28, 1979 that the PORV had been open from approximately 4:00 A.M. to approximately 6:20 A.M.?

Foregoing should be asked with respect to:

Ken Bryan  
Mike Ross  
Bill Zewe  
Brian Mehler  
George Kunder  
Gary Miller

(See House Interior Committee Staff Report, p. 6 - 11.)

II. Did \_\_\_\_\_ know at approximately 8:00 A.M. on March 28, 1979 that the HPI had been throttled during the time the PORV had been leaking?

Foregoing should be asked with respect to:

Ken Bryan  
Mike Ross  
Bill Zewe  
Brian Mehler  
George Kunder  
Gary Miller

(See House Interior Committee Staff Report, p. 11 -14.)

III. Did \_\_\_\_\_ know at approximately 8:00 A.M. on March 28, 1979 that hot leg temperatures in excess of 700 degrees F. did exist or had existed that day?

Foregoing should be asked with respect to:

Mike Ross  
Bill Zewe  
Brian Mehler  
George Kunder  
Gary Miller  
John Flint  
James Seelinger

Foregoing question applies with respect to same persons as to their awareness of temperatures at 9:00 A.M., noon, and 2:00 P.M.

(See House Interior Committee Staff Report, p. 14 -33.)

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IV. Did \_\_\_\_\_ know on March 28, 1979 that temperatures in excess of the saturation temperature indicated the the core was or had been in a condition where it was being cooled by steam rather than water?

Foregoing should be asked with respect to:

Ken Bryan  
Mike Ross  
Bill Zewe  
Brian Mehler  
George Kunder  
Gary Miller  
John Flint  
James Seelinger

Did the foregoing know on March 28, 1979 that temperatures in excess of 700 degrees F. were temperatures in excess of the saturation temperature?

V. Did \_\_\_\_\_ know on March 28, 1979 that the TMI-2 reactor was in a condition not covered by emergency procedures?

Foregoing should be asked with respect to:

Ken Bryan  
Mike Ross  
Bill Zewe  
Brian Mehler  
George Kunder  
Gary Miller  
John Flint  
James Seelinger

(See House Interior Committee Staff Report, p.45 -53.)

VI. Was \_\_\_\_\_ uncertain prior to noon on March 28, 1979 as to whether the TMI-2 core was being adequately cooled?

Foregoing should be asked with respect to:

Ken Bryan  
Mike Ross  
Bill Zewe  
Brian Mehler  
George Kunder  
Gary Miller  
John Flint  
James Seelinger

(See House Interior Committee Staff Report, p. 35 -45.)

VII. Did \_\_\_\_\_ report to Gary Miller prior to 9:00 A.M. on March 28, 1979 his awareness of the PORV being open from approximately 4:00 A.M. to approximately 6:20 A.M.? If such information was not reported, what was the reason for the reporting failure?

Foregoing should be asked with respect to:

Ken Bryan  
Mike Ross  
Bill Zewe  
Brian Mehler  
George Kunder

Note: Both interviewers and interviewees used word "open" in discussing the status of the PORV between 4:00 A.M. and 6:00 A.M. See House Interior Committee Staff Report, p. 6 - 11. Also Ibid, p. 4 -5 re emergency command team.

VIII. What is basis for dismissing Miller's statements re hot leg (see House Interior Committee Staff Report, p. 19) and incores (see House Interior Committee Staff Report, p. 23 and 30)?

IX. What is basis for believing Miller's picture of the situation on March 28, 1979 was different than that subsequently recounted; e.g. see House Interior Committee Staff Report, p. 42 - 44 and p. 52 - 54? (This is significant because the picture Miller conveyed in his retrospective statements was much more pessimistic than that which he conveyed in his statement to Dornisfe at approximately 9:00 A.M. and that apparently conveyed to Lt. Gov. Scranton at approximately 2:30 - 3:30 P.M.)

X. What is the basis for accepting Miller's testimony to the effect that on March 28 he had been unaware of the pressure pulse and actuation of the safeguards system vis-a-vis statements to the effect that Miller was aware of pressure pulse (see House Interior Committee Staff Report, p. 63) and that it was hard to believe that anyone in the control room at the time of the pressure pulse would have missed this event (see House Interior Committee Staff Report, p. 65.)? [See also my memorandum of November 16, particular Rogovin conclusion on bottom of page 3.]

XI. What is the basis for rejecting the statements of Chwastyk and Mehler (which were their best recollections) with regard to whether an instruction was issued on March 28 to the effect that out of concern for igniting another detonation, equipment should not be started in the reactor building? (See House Interior Committee Staff Report, p. 80 - 81, 84.)

XII. Who issued the instruction to close the pressurizer block valve at approximately 3:08 P.M. on March 28? (This is significant because if the order was issued by Miller (prior to his leaving for the Lt. Governor's office or by telephone from that office) then this fact substantiates Chwastyk's recollection of events. If Miller did not issue such an order, Chwastyk made a major change in strategy without authority from the Emergency Director and counter to

XIII. Was the NRC informed on March 28 of the following and, if so, at what hour:

- That there was reason to believe the PORV had been opened (leaking) from approximately 4:00 A.M. to approximately 6:20 A.M?

-That HPI had been throttled during the time the PORV had been opened (leaking)?

-That temperatures in excess of 700 degrees F. had been measured in the hot legs?

-That temperatures in excess of 700 degrees F. had been measured on the incore thermocouples?

-That temperatures in excess of 2000 degrees F. had been measured on the incore thermocouples?

-That the plant was in a condition not provided for in the emergency procedures?

-That there was uncertainty as to whether the core was in a condition where it was adequately cooled?

-That radioactivity measurements on a reactor coolant sample indicated failure of a substantial portion of the fuel rods?

-That a pressure pulse had been recorded on reactor building pressure measuring instrumentation?

XIV. Was the State of Pennsylvania informed on March 28 of the foregoing and, if so, at what hour?

XV. Is there any reason to doubt recollections of Thomas Gerusky, Director of the Pennsylvania Bureau of Radiological Protection, as made to I&E on October 1, 1980 with respect to the meeting held in Lt. Governor Scranton's office on the afternoon of March 28, 1979 to the effect that the Met-Ed employees had conveyed the impression that the situation was under control, that there was no need to give the Pennsylvania officials "every little detail" as to what was happening at the plant, that the Met Ed employees' attitude was one indicating that they did not want the State officials to "bug" them, that the accident was over, that the Met Ed officials did not understand the States' interest in what was going on, that there was minor (not severe) core damage in the sense of "some" cladding failures, that the pressure spike was not discussed, that it was "a typical utility trying to play down a nuclear power plant problem," "...that everybody was trying to make a big deal out of nothing..", that it was none of your (the State's) business, that the Met Ed employees had "talked down" to the State officials, that the State officials had the feeling that the Met Ed employees had more information than was passed on to the State, and that Met Ed supervisors's concerns over the potential for deterioration of the situation had not been passed on to State officials?