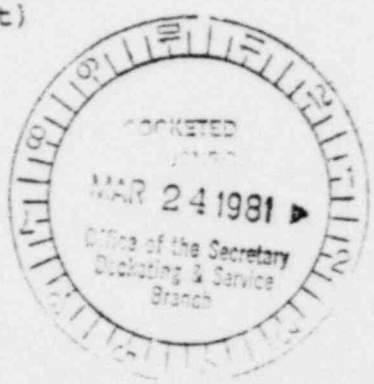
LIC 3/19/81

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

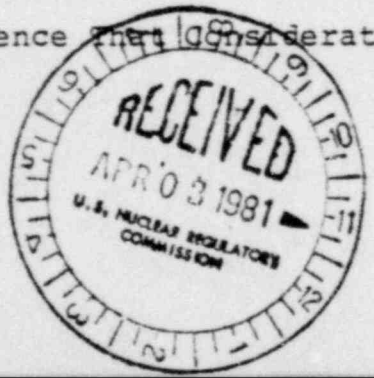
In the Matter of	)	
	)	
METROPOLITAN EDISON COMPANY	)	Docket No. 50-289
	)	(Restart)
(Three Mile Island Nuclear Station, Unit No. 1)	)	
	)	



LICENSEE'S RESPONSE TO INTERVENOR AAMODT'S FILING OF MARCH 10 RELATED TO OPERATOR FATIGUE

Following objections by Licensee and the NRC Staff to the admissibility of one section, entitled "Another Stressor, Fatigue," of Intervenor Marjorie Aamodt's prepared testimony on Aamodt Contention 2, the Board ruled that the challenged section of the testimony would be accepted and examined upon, subject to a subsequent demonstration by Ms. Aamodt that fatigue was a contributor to the accident and that therefore the testimony was within the scope of the proceeding. (Tr. 12,926;12,930.) After the testimony was heard, the Board established a schedule of two weeks (subsequently extended) for Ms. Aamodt to provide the demonstration. (Tr. 13,189;13,194.)

On March 10, 1981, Ms. Aamodt filed "Intervenor Response to Board Request for Evidence That Consideration of Control Room



Operator Fatigue is Appropriate." The pleading addresses a wide variety of topics, one of which is the area of interest--whether record evidence or reliable evidence which could be made evidence of record exists which establishes that fatigue was a contributor to the accident, or the handling of the accident. (Intervenor Response, pp. 4-7; see Tr. 13,189-90.) Because Ms. Aamodt cites no record evidence or reliable evidence which could be made evidence of record that fatigue played a role in the TMI-2 accident, Licensee maintains that this subject is outside the scope of this proceeding.

The challenged section was one of some eight sections in the Aamodt testimony. This section dealt with the subject of potential operator fatigue as a function of length of shift and shift rotation. It never mentions nor alludes to operator training or testing (clearly the subject of Aamodt Contention 2 and clearly a subject within the scope of the proceeding), nor to human factors engineering considerations (arguably the subject of Aamodt Contention 2 and clearly a subject within the scope of the proceeding). It attempts to challenge the use of an eight-hour shift and suggests a six-hour shift as preferable. Elsewhere in the testimony, Ms. Aamodt treats training, testing and human factors engineering, including fatigue, as a function of control room design. (See particularly pages 2-3 of Ms. Aamodt's prepared testimony.) Licensee did not object to the admissibility of Ms. Aamodt's human factors engineering views, including her opinions on fatigue considerations

in control room design. The subject of control room design is clearly within the scope of the proceeding and has been covered in several pieces of prepared testimony not only by Ms. Aamodt but as well by Licensee and the NRC Staff. Licensee's objection goes to Ms. Aamodt's attempt to challenge under her Contention 2, and within the scope of this proceeding generally, the propriety of shift length or shift rotation schedules.

Ms. Aamodt cites only one instance in the tens of thousands of pages of studies of the accident where operator fatigue as a contributor to the accident is discussed. It is the same source that Licensee relied on for its objection--page 23 of NUREG/CR-1270, Vol. 1, Human Factors Evaluation of Control Room Design and Operator Performance at Three Mile Island-2, prepared for the NRC by the Essex Corporation. The Essex Corporation there states "there is no evidence that, at the time of the accident, the actions or inactions of the operators were significantly influenced by fatigue, disorientation, or distractions." This statement appears in a sixteen-page section from the Essex Report entitled "Analysis of Human Error In The Accident," which discusses in detail the results of a human factors review of the accident (see pages 10-26), including specifically looking for incidence of fatigue (see page 11 for factors considered). The Essex Report from any reasonable reading does not support the view that fatigue played a role in the accident, no matter what the cause of fatigue. It is pure imagination to cite it as support for the proposition that length of shift or shift rotation led to fatigue which was a cause or

contributor to the accident. Despite her on-the-record reluctance to challenge the Essex Corporation's credentials (Tr. 12,921), Ms. Aamodt now claims that the Essex Report is wrong. (Intervenor Response, at 4-5).

Ms. Aamodt then goes on to infer from several NRC documents that fatigue associated with shift length or rotation contributed to the accident. (Intervenor Response, 5-6). Not one of these documents cites fatigue as a factor in the accident or supports the Aamodt position. Some do indeed discuss fatigue generally, but Licensee has not, nor does it now, contest that fatigue can exist and that long hours of work can be tiring. Anyone associated with this hearing alone would subscribe to this view. But the facts surrounding the accident and studies done of the accident do not support the Aamodt view of fatigue as an accident cause due to extended hours of work. Rather, the operators were only some five hours into their eight-hour shift at the time the accident occurred, and there is absolutely no support for the bald assumption (Intervenor Response, p.7) that the operators had been previously working long overtime hours, simply because records show that selected maintenance people at TMI on occasions during earlier years had worked a lot of overtime.

The TMI-2 accident has been a launching platform for a large number of assorted regulatory revisions and new requirements for the nuclear industry. Some are directly linked to the causes of the accident; some are merely the result of a period of reflection and thought on many prior industry and regulatory practices.

Ms. Aamodt cites no direct link between fatigue and accident causes and Licensee is aware of none. Licensee makes this statement after reviewing each of the NRC documents cited by Ms. Aamodt (including Aamodt Reference 6--unidentified--which is NUREG-0616, Report of Special Review Group, Office of Inspection and Enforcement on Lessons Learned From Three Mile Island) as well as pertinent references in those documents. It appears that the genesis of those NRC documents--which address shift working hours and which bear titles that refer generally to TMI such as NUREG-0694, TMI-Related Requirements for New Operating Licenses--is NUREG -585, TMI-2 Lessons Learned Task Force Final Report. The subject of "Working Hours" is discussed on page A-9 of NUREG-0585. There is no reference to the accident in this discussion (although elsewhere in its discussions of other recommendations NUREG-0585 is peppered with direct links to accident-related factors). To the contrary, NUREG-0585 states with respect to its recommendations on working hours that "Indications aside from Three Mile Island lead the Task Force to conclude that this step [a general policy to avoid consecutive days of 12-hour shifts] must be taken to reasonably assure that individuals are in proper physical condition to perform work at nuclear power plants." (emphasis added) Thus, it is baseless for Ms. Aamodt to argue by inference that, because post-accident NRC guidance to all licensees has included recommendations on working hours, fatigue due to shift hours and shift rotation contributed to the accident. Rather, this particular guidance would appear to be prompted by other concurrent considerations not directly linked to

causes or contributors to the accident. None of the various NRC documents on working hours, including IE Circular 80-2, NUREG-0694, and NUREG-0373--all cited by Ms. Aamodt--even logically appear related to the accident. All the NRC post-accident guidance on shift lengths provides generally 12-hour-day or 72-hour-week guidance. The operators at TMI-2 at the time of the accident were working eight-hour shifts. It is just not logical to say NRC guidance on working hours, which is less restrictive than the hours being worked at the time of the accident at TMI, stems from factors found to have caused or contributed to the accident.*/

Accordingly, Licensee maintains that the subject matter of the section styled, "Another Stressor, Fatigue," of the prepared testimony of Ms. Aamodt is inadmissible in the instant proceeding. In view of the state of the record, Licensee believes it would not be sensible to attempt to locate, identify and strike related evidence. In these circumstances, Licensee requests that the

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*/ Although Licensee understands Ms. Aamodt's position to rely on the possible effects of fatigue on the operators during the course of the "accident," i.e., at the time of initiation and during the several hours that immediately followed, the Licensing Board's language of "handling of the accident" could presumably include the days and weeks following the March 28th accident. To the extent that was intended, Licensee observes that while long hours were spent by many people involved in the post-accident weeks at TMI, on information and belief the operators generally remained on nominal eight-hour shift schedules and in any event, Licensee is unaware that operator actions during the recovery period have been faulted.

Board direct the parties that findings on this subject will not be considered by the Board in reaching its decision on the restart of TMI-1.

Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the attached "LICENSEE'S RESPONSE TO INTERVENOR AAMODT'S FILING OF MARCH 10 RELATED TO OPERATOR FATIGUE" was mailed by United States mail, postage prepaid, to those persons listed on the attached Service List this 19th day of March, 1981.

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