

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

METROPOLITAN EDISON COMPANY, ET AL.

(Three Mile Island Nuclear Station,  
Unit 1)

}  
} Docket No. 50-289  
} (Restart)

NRG STAFF TESTIMONY OF STEPHEN CHESNUT ON  
UNRESOLVED ONSITE EMERGENCY RESPONSE MATTERS  
FROM THE FEBRUARY 9, 1981 NRC STAFF TESTIMONY  
OF DALE E. DONALDSON ON CONTENTIONS EP-4D and EP-18

June, 16, 1981

8106180/24

## OUTLINE

### NRC STAFF TESTIMONY OF STEPHEN CHESNUT ON UNRESOLVED ONSITE EMERGENCY RESPONSE MATTERS FROM THE FEBRUARY 9, 1981 NRC STAFF TESTIMONY OF DALE E. DONALDSON ON CONTENTIONS EP-4D and EP-18

This testimony addresses certain unresolved onsite emergency response matters from the February 9, 1981 written testimony of Dale E. Donaldson regarding Contentions EP-4D and EP-18.

As to EP-4D, the testimony identifies those personnel from the Licensee's onsite emergency response organizations who have dose assessment and projection functions during an emergency, describes training provided for those personnel and sets forth the NRC Staff's observation on the Licensee's dose assessment and projection performance during the June 2, 1981 exercise at TMI-1.

As to EP-18, the testimony describes, based on an onsite inspection conducted May 4-7, 1981, the Licensee's approved and implemented procedure for setting aside portable radiation monitoring equipment for emergency use only and for routine inventory, operational checks and calibration of such equipment. The testimony also addresses the matter of training of Licensee personnel assigned to use such equipment in an emergency.

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OF DALE E. DONALDSON ON CONTENTIONS EP-4D and EP-18

Q.1. State your name and position with the NRC.

A. My name is Stephen Chesnut. I am a Nuclear Engineer assigned to the Emergency Preparedness Licensing Branch, Division of Emergency Preparedness, Office of Inspection and Enforcement of the U.S. Nuclear Regulatory Commission.

Q.2. Have you prepared a statement of professional qualifications?

A. Yes. A copy of my professional qualifications was attached to my written testimony of February 9, 1981 and was admitted into evidence following Tr. 15007 when I testified in this proceeding on March 11, 1981.

Q.3. What is the purpose of this testimony?

A. The purpose of this testimony is to address certain unresolved onsite emergency response matters from the February 9, 1981 NRC Staff written testimony of Dale E. Donaldson on Contentions EP-4D and EP-18. Specifically, my testimony here addresses, with regard to Contention EP-4D, the training and qualifications of those persons in the Licensee's emergency organization who perform dose assessment and projection functions. This testimony also addresses, with regard to Contention EP-11, several matters, identified by Mr. Donaldson as unresolved, with regard to the Licensee's procedures for portable monitoring equipment for emergency use and training of emergency personnel in the use of such monitoring equipment.

Contention EP-4D and Training and Qualifications of Personnel with Dose Assessment and Projection Functions

Q.4. Contention EP-4D states, in part:

The Licensee's Onsite Emergency Organization (Sec. 4.5.1.3) contains insufficient personnel and expertise in the area of Health Physics to discharge adequately the responsibilities of dose assessment and projection in the event of a rapidly developing accident sequence.

During Mr. Donaldson's testimony on this contention, the Licensing Board noted that, although the testimony addressed the sufficiency of the number of personnel available for dose assessment and projection, the testimony did not address the matter of the expertise or qualifications of personnel. What personnel in the Licensee's Onsite Emergency Organization are responsible for dose assessment and projection?

A. In the event of an accident at TMI-1 with potential for a radioactive release, the Licensee's on-shift personnel are responsible for performing initial emergency actions. This includes the responsibility to perform initial dose assessment and dose projection. In addition to the Shift Supervisor who would assume the duties of the Emergency Director and who is trained in accident management and dose assessment techniques, the Licensee maintains on-shift four personnel with health physics training who have dose assessment and projection-related responsibilities. These are: one Radiological Controls Foreman and three radiological controls technicians. (This on-shift assignment of four health physics technicians exceeds the manning criteria of Table B-1 to NUREG-0654 which calls for only one health physics technician on-shift to perform dose assessment and projection functions).

The Shift Supervisor (Emergency Director) generally will not actually perform dose assessment and projection but will supervise the performance of this function and must know how it is done.

The Radiological Controls Foreman will assume the duties of the Radiological Assessment Coordinator in the Control Room during the initial stages of an accident. In this capacity he will be the person primarily responsible for dose assessment and projection, performing the calculations himself with the assistance of one of the radiological controls technicians.

The senior radiological controls technician will assume the duties of the Radiological Controls Coordinator in the Operations Support Center during the initial stages of an accident. He will not perform dose assessment and projection but will be responsible for dispatching and coordinating the

radiological controls technicians to provide health physics support onsite and for assigning and dispatching the radiation monitoring teams during the initial stages of an accident.

The two remaining radiological controls technicians will assist the Radiological Controls Foreman (Radiological Assessment Coordinator) in performing dose assessment and projection calculations and, as available, will provide health physics support onsite and be assigned to radiation monitoring teams. (Auxiliary operators will also be assigned to radiation monitoring teams).

Within 30 to 60 minutes of declaration of an emergency, the on-shift personnel discussed above will be relieved by those duty section personnel who are assigned dose assessment and projection-related duties. These duty section personnel are: a replacement Radiological Assessment Coordinator, and two radiological analysis support engineers, a replacement Radiological Controls Coordinator and three radiological controls technicians, and one onsite/offsite radiological monitoring team consisting of one radiological controls technician or one auxiliary operator. This level of health physics staffing will be maintained for the remaining duration of the accident.

With the arrival of these duty section personnel, the replacement Radiological Assessment Coordinator is primarily responsible for continuing dose assessment and projection, assisted in this function by the two radiological analysis support engineers.

The replacement Radiological Controls Coordinator will not perform dose assessment and projection but will be responsible for dispatching and coordinating health physics support for onsite operations and dispatching the



radiation monitoring teams. The three radiological controls technicians and one onsite/offsite radiological monitoring team from the duty section will not perform dose assessment and projection but will provide health physics support for onsite operations and onsite/offsite radiation monitoring under the direction of the replacement Radiological Controls Coordinator.

In summary, those personnel in the Licensee's Onsite Emergency Organization who have direct responsibility for dose assessment and projection are: the Shift Supervisor, the Radiological Controls Foreman and the radiological controls technicians onshift at the time of an accident, and the Radiological Assessment Coordinator and the radiological analysis support engineers from the duty section.

Q.5. Describe the training in dose assessment and projection that those personnel responsible for dose assessment and projection will receive.

A. During an inspection at TMI on May 4-7, 1981, I reviewed the emergency preparedness training plans for the Licensee's emergency organization. Under the training plan, individuals who would perform the function of the Emergency Director (i.e., the Shift Supervisor and Shift Foreman) will receive a comprehensive Emergency Director Course which includes training in the Emergency Plan and Implementing Document and specialized training in dose assessment and projection techniques and procedures. Individuals who would perform the function of Radiological Assessment Coordinator (i.e., the onshift Radiological Controls Foreman and the duty section Radiological Assessment Coordinators) and the radiological analysis support engineers will receive

specialized training in radiological and environmental assessment and dose projection techniques and procedures, onsite/offsite monitoring, and emergency radiological controls and emergency repairs. The radiological controls technicians (as well as the Radiological Controls Coordinator) will receive specialized training in radiological and environmental assessment and dose projection techniques and procedures, onsite/offsite monitoring, emergency radiological controls, emergency repairs, and emergency chemistry. In addition, each radiological controls technician participates in a cyclic training program involving one week of dedicated training every six weeks. Significant portions of the cyclic training conducted so far in 1981 have dealt with problems and techniques applicable to health physics during an emergency.

The emergency plan training program is in the final stages of being revised and upgraded relative to the training already conducted in accordance with earlier emergency plan revisions. The training under earlier emergency plan revisions included training in dose assessment and projection as well as on site and offsite monitoring. The revised specialized training in dose assessment and projection is scheduled for completion prior to restart, if restart is authorized, and will enhance the training already provided.

Q.6. What are your views as to the adequacy of qualifications of those personnel in the Licensee's Onsite Emergency Organization to perform dose assessment and projection functions?

A. In my view, the Licensee's Emergency Plan and implementing procedures describe an adequate assignment of personnel trained in dose assessment



and health physics to perform the dose assessment and projection required in an emergency. Furthermore, the training program which is provided by the Licensee's Emergency Plan and which is currently being implemented should maintain the capability of the personnel in the Licensee's Onsite Emergency Organization to perform these dose assessment and projection functions.

We had the opportunity to evaluate the dose assessment and projection capability of the Licensee's Onsite Emergency Organization during the exercise on June 2, 1981. We found that the Licensee demonstrated an adequate capability to assess and project radiation doses onsite and offsite based on in-plant parameters, meteorology and field measurements.

Contention EP-18 and Licensee's Portable Radiation Monitoring Equipment

Q.7. Contention EP-18 states, in part:

... It is also contended that the Licensee does not possess adequate portable radiation monitors to provide additional information in the event of an offsite radiation release, and that the Licensee does not exercise adequate administrative control over the maintenance of these units nor the training of personnel in their use ....

In addressing this contention in his written testimony of February 9, 1981 (following Tr. 17354, April 3, 1981), Mr. Donaldson identified three areas with regard to portable monitoring equipment for emergency use that were unresolved. Specifically, the Licensee's procedure for setting aside portable monitoring equipment for emergency use was in draft rather than final form and the equipment had not been placed in accordance with the new plan (Donaldson 2/9/81 testimony, pp. 12, 14), the procedure for regularly

scheduled inventories, operational checks and calibrations of such equipment was in draft form and had not been implemented (Donaldson 2/9/81 testimony, pp. 13-14), and the training program for emergency personnel in the use of the equipment had not been finalized (Donaldson 2/9/81 testimony, p. 14). As to the first of these matters, does the Licensee now have a final procedure pursuant to which the portable monitoring equipment for use during emergencies has been set aside?

A. Yes. TMI-1 Emergency Plan Administrative Procedure 1053 (AP 1053), "Emergency Equipment Readiness," delineates the site's requirements to maintain the availability and maintainability of emergency equipment. The procedure provides for placing and maintaining emergency portable radiation monitoring kits at various locations onsite and at the Emergency Operations Facility and the Crawford Station. During an inspection onsite from May 4-7, 1981, I spot-checked several portable instrument emergency kits and reviewed the current inventory records for the portable monitoring equipment. From that spot-check and inventory record review, I determined that the portable monitoring equipment for emergency use is in place as called for by AP 1053.

Q.8. Does the Licensee have a final, approved procedure for performing inventories, operational checks and calibration of portable monitoring equipment set aside for emergency use only?

A. Yes. AP 1053 includes provisions stipulating that inventory, operational checks and calibration of this portable monitoring equipment are to be performed quarterly. The emergency portable monitoring equipment kits are sealed after inventory and monthly checks are made to ensure that

the seals are intact. AP 1053 also requires the replacement of instruments removed for repair or calibration with equivalent instruments. The actual calibration of portable instruments is to be performed in accordance with existing procedures for calibration of each type of instrument. During an inspection onsite on May 4-7, 1981, I spot-checked several emergency instrument kits and reviewed current inventory records. My spot-check and inventory record review confirmed that the instruments examined had been inventoried and calibrated in accordance with the schedule set out in procedure AP 1053.

Q.9. What training is provided for personnel responsible for operation of the portable monitoring equipment in an emergency?

A. Those personnel responsible for using the emergency portable radiation monitoring equipment are the radiological controls technicians and the auxiliary operators, all of whom may be members of the onsite/offsite radiological monitoring teams. The Licensee's emergency plan training program provides specialized training for the radiological controls technicians and the auxiliary operators in onsite/offsite monitoring techniques and procedures and in the operation and use of the portable monitoring equipment set aside for emergencies. Since the implementation of the emergency plan training program began in April 1981, not all of the specialized training for monitoring team members has been completed. The Licensee has committed to completing one full iteration of this training prior to restart.

The radiological controls technician cyclic training has included substantial training in the use of the portable monitoring equipment and in health physics techniques to be used in an emergency.

The Staff monitored the performance of onsite and offsite survey teams during the June 2, 1981 exercise. The survey teams that were observed showed an adequate working knowledge of portable monitoring instrument operation and accident survey techniques, and were able to provide the Radiological Assessment Coordinator with accurate field radiation data. Based on the observed performance of the monitoring teams during the exercise and the Licensee's provisions for training, I conclude that adequate training in the use of the emergency portable radiation monitoring equipment has been and will continue to be provided to those personnel responsible for use of such equipment.