

UNITED STATES AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

DOCKETED
USNRC

*85 FEB -5 A9:49

In the Matter of)
)
THE CLEVELAND ELECTRIC)
ILLUMINATING COMPANY)
)
(Perry Nuclear Power Plant,)
Units 1 and 2)

Docket Nos. 50-440
50-441

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

AFFIDAVIT OF
RICHARD R. BOWERS
ON CONTENTION M

County of Lake)
) ss:
State of Ohio)

Richard R. Bowers, having duly sworn, deposes and says:

1. I am presently Corporate Health Physicist, The Cleveland Electric Illuminating Company (CEI). My business address is 10 Center Road, Perry, Ohio 44081. In my position, I have technical overview responsibilities for both the operational health physics program and the engineering health physics program. In this position I provide consulting assistance to these two groups as well as perform reviews of their programs. A current statement of my professional and technical qualifications is attached hereto. I have personal knowledge of the matters stated herein and believe them to be true and correct. I make this affidavit in support of Applicants' Motion for Summary Disposition of Contention M.

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2. There is no regulatory requirement or guidance requiring fixed, independent off-site monitoring systems around a nuclear power plant. To assure that every possible accidental release would be monitored, a very large and complex system would be required. For Perry, approximately 103 fixed monitoring locations would be needed to be sure that the plume would be tracked. The cost for installation and operation of such a system would be substantial. Guidance from the Federal Emergency Management Agency indicates that fixed monitoring systems are not recommended. As stated in in FEMA-REP-2, Guidance on Off-Site Emergency Radiation Measurement Systems (September 1980), page 4-15:

"The Task Force considered the concept of making field measurements of the distribution of radionuclide concentrations in the plume with a system of fixed monitoring locations as a method of estimating the dispersal of the plume and for projecting exposure patterns. This concept was rejected because of the large number of sophisticated detectors and the telemetry necessary for such a system. At least 150 detector locations would be required out to a distance of approximately 8 miles from the site for good spatial distribution. Both radioiodine and direct gamma measurements would have to be made and telemetered to the EOC in order to get the necessary information for making a dose projection. The maintenance, repair and calibration of such systems would be very costly and hard to justify in view of the accident probability."

3. A more effective method for evaluating accidental releases is to use mobile survey teams. These teams can move to the area where meteorological conditions (both wind speed and

direction) indicate the plume is located, and make measurements to define the precise plume location and the radiation levels associated with it. The mobile survey teams can use instruments to measure the whole body dose directly, and can take special air samples to evaluate radioiodine concentrations. As the plume moves, the survey teams can follow it. Data from these actual field measurements are fed back into the dose projection models to make the projections more accurate.

4. In addition to the mobile survey teams used by CEI, the State of Ohio also fields mobile survey teams to monitor the actual conditions downwind. See Affidavit of Ronald W. Smith on Contention M. These State monitoring teams, and any monitoring personnel supplied by the Counties, provide an independent monitoring assessment. The reference in NUREG-0654, p. 58 which discusses assessment of radiological hazards, includes:

"This shall include activation, notification means, field team composition, transportation, communication, monitoring equipment and estimated deployment times,"

thus indicating the use of mobile monitoring teams to perform the assessment. FEMA-REP-2, page 4-17 also states:

"Portable instrumentation is expected to be the most cost-effective category of instrumentation for measuring exposure rate patterns from an airborne release from a nuclear incident. The plume from such a release may cover a large area and its shape may be continuously changing with the prevailing meteorology. Therefore, a

flexible system using a limited number of measuring devices is much more cost effective than the large number of fixed detectors with their associated telemetry required to obtain the same information."

5. The use of mobile monitoring teams provides the most effective, as well as efficient, method to track and measure offsite doses during an accidental release. A fixed radiation monitoring system is not logical from a technical viewpoint, and is not called for by any regulation or regulatory guidance.

6. In any event, there currently are two fixed independent radiation monitoring systems in place around Perry. In addition to the 25 thermoluminescent dosimeters (TLD) monitors placed and maintained by CEI throughout the plume exposure pathway Emergency Planning Zone (EPZ), the State of Ohio and the NRC have 27 and 25 TLD monitors respectively, arranged in rings within the plume exposure pathway EPZ, to measure the doses from accidents as well as any doses from normal plant operation, if any measurable doses are produced. Although these devices cannot give instantaneous indications, they would be valuable to measure the doses during an accident. They could be (and typically are) changed during an accident to evaluate doses during various stages of an accident.

7. In summary, there is no regulatory requirement or guidance for fixed, off-site independent radiation monitoring systems. Fixed systems would be much less desirable than the flexible, mobile systems available at Ferry.

Richard R. Bowers
Richard R. Bowers

Subscribed and sworn before
me this 31 day of January, 1985.

Bethany M. Reese
Notary Public

My Commission Expires:

BETHANY J. REESE
Notary Public - STATE OF OHIO
My Commission expires 3/11/88
(Recorded in Lake County)

*Now known as
Bethany M. Reese*

Name: Richard R. Bowers, Corporate Health Physicist

Formal Education:

Bachelor of Science in chemistry, The Pennsylvania State University, 1955

Experience:

1984-Present: Cleveland Electric Illuminating Company

As Corporate Health Physicist, responsible for overview of operational, engineering, and environmental radiological control programs. Responsible to provide policy, criteria, standards, measurement methodologies, and evaluations for radiological and radiological environmental protection programs and practices.

1970-1984: NUS Corporation

As Manager of the Health Physics Services Department, responsible for management and technical direction/review of radiation protection consulting projects for utility clients. Projects included development of operational radiation protection programs, health physics procedures, radiological emergency plans, health physics training, and decommissioning programs as well as plant/system ALARA reviews, radiation protection equipment evaluations, and reviews of health physics programs.

1963-1970: Niagara Mohawk Power Corporation

As Health Physics and Chemistry Supervisor, responsible for setup and management of the radiation protection program at Nine Mile Point 1. Trained and supervised technicians, administered environmental monitoring program, developed radiological emergency plan, wrote health physics and chemistry procedures, and purchased and set up health physics/chemistry equipment.

As Radiological Engineer, assisted in the design of Nine Mile Point 1. Assisted with general plant layout and designed plant shielding. Designed health physics and chemistry facilities. Designed installation details of process and effluent monitors.

1955-1963: E. I. duPont de Nemours and Co.

As Health Physics Engineer at the Savannah River Plant, supervised technicians in separations plants, fuel fabrication facilities, and production reactors.

Professional Memberships:

Health Physics Society

Certification:

Comprehensive Health Physics-American Board of Health Physics-1963
Power Reactor Health Physics-American Board of Health Physics-1980

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THE CLEVELAND ELECTRIC
ILLUMINATING COMPANY

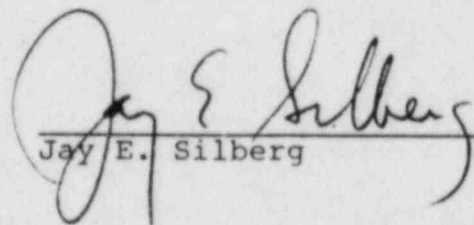
(Perry Nuclear Power Plant,
Units 1 and 2)

Docket Nos. 50-440
50-441

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CERTIFICATE OF SERVICE

I hereby certify that copies of "Applicants' Motion For Summary Disposition of Contention M," "Applicants' Statement of Material Facts As To Which There Is No Genuine Issue To Be Heard on Contention M," "Affidavit of Richard R. Bowers on Contention M," and "Affidavit of Ronald W. Smith on Contention M," were served this first day of February, 1985, by deposit in the U.S. mail, first class, postage prepaid, upon the parties listed on the attached Service List, except for those parties identified by asterisk who were served by express mail.


Jay E. Silberg

Dated: February 1, 1985

UNITED STATES OF AMERICA
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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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THE CLEVELAND ELECTRIC
ILLUMINATING COMPANY, ET AL.

(Perry Nuclear Power Plant,
Units 1 and 2)

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Docket Nos. 50-440
50-441

SERVICE LIST

James P. Gleason, Chairman
513 Gilmore Drive
Silver Spring, Maryland 20901

Atomic Safety and Licensing
Appeal Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. Jerry R. Kline
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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

Mr. Glenn O. Bright
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Colleen P. Woodhead, Esquire
Office of the Executive Legal
Director
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Alan S. Rosenthal, Chairman
Atomic Safety and Licensing
Appeal Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

* Terry Lodge, Esquire
Suite 105
618 N. Michigan Street
Toledo, Ohio 43624

Dr. W. Reed Johnson
Atomic Safety and Licensing
Appeal Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Donald T. Ezzzone, Esquire
Assistant Prosecuting Attorney
Lake County Administration
Center
105 Center Street
Painesville, Ohio 44077

Gary J. Edles, Esquire
Atomic Safety and Licensing
Appeal Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

John G. Cardinal, Esquire
Prosecuting Attorney
Ashtabula County Courthouse
Jefferson, Ohio 44047

* Ms. Sue Hiatt
8275 Munson Avenue
Mentor, Ohio 44060