

DOCKETED
USNRCUNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSIONBEFORE THE ATOMIC SAFETY AND LICENSING BOARD

MAR 28 10:40

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

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

Docket Nos. 50-440
50-441

APPLICANTS' DIRECT TESTIMONY OF
DANIEL D. HULBERT
ON ISSUE NO. 1 - CONTENTION CC

1. I am presently Emergency Planning Coordinator, Perry Plant Technical Department, The Cleveland Electric Illuminating Company. My business address is 10 Center Road, Perry, Ohio 44081. In my position, I am responsible for developing, maintaining, and evaluating the Perry Nuclear Power Plant (PNPP) Emergency Plan, including coordinating emergency preparedness among various PNPP departments and developing emergency planning documents and specification of response requirements. These responsibilities include responding to resolution items identified by the NRC Staff on its review of the PNPP Emergency Plan.

2. Contention CC states:

The resolution items set forth by the [NRC] staff in its Safety Evaluation Report, NUREG-0887, Supp. 4 (February 1984) pages 13-1 to 13-22, are uncorrected deficiencies in the emergency plans.

The referenced pages in Supplement 4 set forth the NRC Staff's evaluation of the PNPP Emergency Plan (through Revision 2) and identified 35 items which required resolution.

3. By letter dated April 28, 1984 (PY-CEI/NRR-0105 L), CEI transmitted to the NRC Staff Revision 3 to the PNPP Emergency Plan, as well as a cross-reference between the resolution items in Supplement 4 and where in Revision 3 those items had been resolved. By letters dated August 20, 1984 (PY-CEI/NRR-0135 L) and October 29, 1984 (PY-CEI/NRR-0149 L), CEI provided to the NRC Staff additional clarification of changes to the PNPP Emergency Plan which relate to resolution items in Supplement 4 and which were being incorporated in Revision 4 to the PNPP Emergency Plan, scheduled for submission on February 28, 1985. By letter dated February 20, 1985 (PY-CEI/NRR-0192 L), CEI transmitted to the NRC Staff Revision 4 to the PNPP Emergency Plan. This revision incorporated the information from the August 20 and October 29, 1984 correspondence identified above. The information contained in Revisions 3 and 4 and the identified correspondence demonstrates that all the resolution items in Supplement 4 to the SER have been addressed and that these resolution items are not uncorrected deficiencies in the PNPP emergency plan.

4. The following paragraphs summarize each resolution item and CEI's response.

a. Item 13.3.2.2(1) requested that augmented shift staffing be made consistent with Table 2 to NUREG-0737, Supp. 1. This consistency was achieved in the October 29, 1984 CEI letter and was included in §§ 5.2.2.2, 5.2.2.4, 5.2.3 and Table 5-1 of the PNPP Emergency Plan (Rev. 4).

b. Item 13.3.2.2(2) requested additional detail on the process of transferring responsibilities to the Emergency Coordinator. This information was provided in §§ 5.2.2.4 and 6.1.3 of the Plan (Rev. 3).

c. Item 13.3.2.2(3) requested confirmation that the Emergency Coordinator could not delegate the duties of notifying and making protective action recommendations to offsite authorities. This was done in §§ 5.2.2.1, 5.2.2.3 and 5.2.2.4 of the Plan (Rev. 3).

d. Item 13.3.2.2(4) requested clarification that the Emergency Coordinator maintains unilateral control of the overall emergency response. This was accomplished in Rev. 3 of the Plan, §§ 5.2.1, 5.2.2.1, 5.2.2.3, 5.2.2.4 and 6.1.2.

e. Item 13.3.2.3(1) requested that the expected arrival times of federal assistance be indicated. This information was incorporated in § 5.4.4 of the Plan (Rev. 3).

f. Item 13.3.2.3(2) requested clarification of the radiation detection capabilities of the Post Accident Monitoring System (PASS) and the capabilities of Technical Support Center (TSC) and Emergency Operator Facility (EOF) laboratory equipment. This information was provided in § 7.3.9 of the Plan by Rev. 3, the October 29, 1984 letter, and Rev. 4, with further information provided by the August 20, 1984 letter.

g. Item 13.3.2.3(3) requested that provisions for backup laboratory facilities be made consistent with NUREG-0737. This was added in Rev. 3 of the Plan, § 7.3.9, with further information provided by the August 20, 1984 letter.

h. Item 13.3.2.4(1) asked that the Plan incorporate into the emergency classification scheme comments contained in NRC Staff's January 11, 1984 letter. This was done in Table 4-1 by Rev. 3, the August 20, 1984 letter and Rev. 4, except for the NRC's comment on low water level, which CEI showed to be inapplicable to Perry in its April 28, 1984 letter.

i. Item 13.3.2.4(2) called for the Plan to indicate that Emergency Action Levels are agreed upon by state/local authorities and are reviewed annually. This was included in § 8.2 of the Plan by Rev. 3, the August 20, 1984 letter and Rev. 4.

j. Item 13.3.2.4(3)(a), which called for the Plan to discuss nonradiological means of core status determination, was withdrawn by the NRC Staff by letter dated February 29, 1984.

Item 13.3.2.4(3)(b) requested a discussion of the relationship between gap activity and failed fuel percentage as it relates to protective action recommendations. This was provided in Rev. 3, §§ 4.1.4 and 6.4.3, with minor changes to the Tables in these sections added by the October 29, 1984 letter and incorporated in Rev. 4.

Item 13.3.2.4(3)(c) requested that the Plan discuss how the core status graph (Fig. 4-1) will be used in the emergency action level scheme. This was provided in Rev. 3, §§ 4.1.4 and 6.4.3, with minor changes to the Tables in these sections added by the October 29, 1984 letter, and incorporated in Rev. 4.

k. Item 13.3.2.5(1) requested that the Plan describe the methods for prompt notification of the public in a rapidly escalating emergency. This was addressed in § 6.4.2 of the Plan (Rev. 3), and further clarified in the August 20, 1984 letter.

l. Item 13.3.2.5(2) called for the Plan to address periodic testing of the sirens. This was done in Rev. 3, § 7.2.5.

m. Item 13.3.2.6(1) requested Applicants to provide for backup communications capabilities between the site and all state/local authorities with primary response responsibilities. Backup communications capabilities are provided, as described in § 7.2.2 and Fig. 7-6 of the Plan by Rev. 3, the August 20 and October 29, 1984 letters and Rev. 4.

n. Item 13.3.2.6(2) requested a coordinated communications link for fixed and mobile medical support facilities. Information on this link was provided in § 7.2.2.8, by Rev. 3, the August 20, 1984 letter, and Rev. 4.

o. Item 13.3.2.7(1) called for Applicants to provide finalized emergency information brochures and other emergency information materials to the public before fuel load. This commitment was added in Rev. 3, § 8.4.1.1.

p. Item 13.3.2.7(2) called for the Plan to specify the location of the Joint Public Information Center. Rev. 3 of the Plan added this in § 7.1.4.

q. Item 13.3.2.8(1) requested that the Plan specify the time required to bring the TSC and EOF to functional readiness. This information was added in Rev. 3 of the Plan, § 5.2.3.

r. Item 13.3.2.8(2) requested that the Plan indicate that emergency equipment and supplies will be available in the control room. The Plan should also specify the calibration frequency for emergency instruments and that instruments removed from service will be replaced by comparable instruments. NRC withdrew the request to specify calibration frequency by letter dated February 29, 1984. The remaining information was provided in § 8.3 and Appendix C by Rev. 3, the August 20, 1984 letter, and Rev. 4.

s. Item 13.3.2.8(3) called for the Plan to describe the capability to obtain 24 hour/day regional weather information, consistent with NUREG-0737, Supp. 1. This information was provided in Rev. 4, § 7.3.7 and Appendix B (letter of agreement with National Weather Service, dated August 27, 1984).

t. Item 13.3.2.8(4) requested a commitment that permanent emergency response facilities and equipment be operational before fuel loading or that adequate interim facilities and capabilities be in place. As noted in the April 28, 1984 letter, this commitment had previously been made by letter from M.R. Edelman to B.J. Youngblood dated April 15, 1983 (PY-CEI/NRR-0032).

u. Item 13.3.2.9(1) called for additional information in the Plan on radiation monitoring teams, including staffing levels consistent with NUREG-0737, Supp. 1, and transportation availability. This information was provided in the August 29, 1984 letters and codified in §§ 5.2.2.2, 5.2.2.4, 5.2.3, and Table 5-1 of Rev. 4 of the Plan.

v. Item 13.3.2.10(1) requested more details in the Plan on evacuating visitor and/or contractor personnel. This information was incorporated in § 6.4.1 and Figure 6-7 by Rev. 3, the October 29, 1984 letter, and Rev. 4.

w. Item 13.3.2.10(2) called for the Plan to describe personnel monitoring methods and decontamination supplies, and to indicate that personnel accountability will be accomplished within 30 minutes. This was done in Rev. 3 in § 6.4.1, 6.5.3 and Appendix C.

x. Item 13.3.2.10(3) called for the evacuation time estimate study to address the effects of adverse weather (i.e. thunderstorm) on a summer Sunday evacuation and to indicate that the evacuation time estimates have been reviewed by appropriate state/local individuals. The effects of adverse weather (i.e., thunderstorm) on a summer Sunday evacuation were considered in the draft evacuation time estimate study included as Appendix D to the Plan (Rev. 3) and in the revised evacuation time estimate study included in Appendix D of the Plan (Rev. 4). Comments by state and local officials on the draft evacuation time estimate study were transmitted to the NRC by the February 20, 1985 letter which submitted Rev. 4 of the Plan.

y. Item 13.3.2.11(1) stated that the Plan should indicate that each emergency worker will receive a self-reading and a permanent record dosimeter and that the emergency personnel dosimetry program has the capability of 24 hour/day dose determination. This was done in Rev. 3, § 6.5.1.

z. Item 13.3.2.11(2) requested the Plan to specify contamination action levels and to indicate that decontamination supplies include materials capable of radioiodine skin decontamination. This was added in Rev. 3, §§ 6.4.4.1, 6.5.3 and Appendix C.

aa. Item 13.3.2.12(1) called for the Plan to include a letter of agreement with Northwestern Memorial Hospital. As stated in the April 28, 1984, letter, and in Rev. 3, § 5.3.3.2, the arrangements with Northwestern Memorial Hospital were made through CEI's medical consultant, Radiation Management Corporation (RMC). CEI has a letter of agreement with RMC which is included in the Plan, App. B.

bb. Item 13.3.2.12(2) requested a more detailed discussion in the Plan on first aid personnel, including training at least equivalent to Red Cross Multi-Medic training and 24 hour/day availability. This information was provided in Rev. 3, §§ 6.5.3, 8.1.3.

cc. Item 13.3.2.14(1) called for the Plan to reflect the regulatory requirements on the frequency of emergency exercises and drills. This was done in §§ 8.5.4.1 and 8.5.4.2 as codified in Rev. 3, the August 20 and October 29, 1984 letters, and Rev. 4.

dd. Item 13.3.2.14(2) requested that the Plan indicate that the exercise scenario will be varied over a 5-year period to ensure testing of all major portions of the Plan, that the exercise will include public notification system testing, and that the exercise will be conducted under various weather conditions. This commitment was provided in Rev. 3, § 8.5.4.1.

ee. Item 13.3.2.14(3) called for the Plan to indicate that part of each communication drill will involve evaluating message understandability. This information was provided in § 8.5.4.3 by Rev. 3, the August 20, 1984 letter and Rev. 4.

ff. Item 13.3.2.15(1) requested the Plan to indicate that initial and annual retraining of emergency personnel will be provided. This information was provided in Rev. 3, § 8.1.3.

gg. Item 13.3.2.16(1) called for the Plan to specify that the Nuclear Safety Review Committee has no direct responsibility for emergency preparedness planning, to describe in more detail the Committee's scope of review, and to indicate that there are administrative means for correction of deficiencies. This was done in § 8.2 by Rev. 3, the October 29, 1984 letter and Rev. 4.

hh. Item 13.3.2.16(2) requested more description of the administrative procedures for revising the Plan and implementing procedures, including an indication that revised pages are dated and marked to show the changes. This information was provided in Rev. 3, § 8.2.

ii. Item 13.3.2.16(3) requests that Appendix F of the Plan be updated. Revision 3 of the Plan updated Appendix F.

5. In summary, CEI has responded to and has resolved all the resolution items set forth by the NRC Staff in Supplement 4 to the Safety Evaluation Report, pages 13-1 to 13-22. These items are not uncorrected deficiencies in the PNPP Emergency Plan.

JOHN W. BAER

EDUCATION

1970 Post-Graduate Study - Political Science
American University
Washington, D.C.

1966 Bachelor of Arts - Political Science
Western Maryland College
Westminster, Maryland

EXPERIENCE

1981 - Energy Consultants
Present Harrisburg, Pennsylvania

Project Manager, Emergency Management Services.
Responsible for providing supervision and technical assistance to project staff. Assigned responsibility for emergency management planning, procedure preparation, personnel training, drill/exercise preparation, licensing support, and scheduling and coordinating project work with the client. Recent project assignments have included:

- managing the offsite radiological emergency preparedness programs for the Counties of Ashtabula, Geauga and Lake (Ohio) to support response to incidents at the Perry Nuclear Power Plant including establishing operational readiness of county emergency operations centers, offsite drill and exercise preparation;
- managing the offsite radiological emergency preparedness re-training program to support response to incidents at the Waterford 3 Steam Electric Station;
- coordinating the offsite radiological emergency preparedness program to support response to incidents at the Callaway Plant including direct responsibility for revision of the Missouri State Nuclear Accident Plan and associated local radiological emergency response plans, development of local RERP implementing procedures, establishing operational readiness of local emergency operations centers, development of emergency response training programs for local EOC staff officers and emergency workers, and development/conduct of the offsite drill and exercise program;

- evaluating and preparing revisions to the station and offsite radiological emergency preparedness plans in support of the Palo Verde Nuclear Generating Station;
- development of the Louisiana Office of Emergency Preparedness implementing procedures and lesson plans for training of state, parish and local emergency response personnel in support of the Waterford 3 Steam Electric Station; and
- preparation of lesson plans and conduct of training programs for state, county and local emergency response personnel in support of the R.E. Ginna Nuclear Station.

1973 - Southcentral Regional Planning Council
1980 Harrisburg, Pennsylvania

Director. Responsible for administration of an eight-county planning and evaluation program for the Commonwealth of Pennsylvania. Assisted local governments in planning and development of criminal justice/emergency response communications and automated information systems. Developed and revised training courses in data analysis for use by planning and operational personnel at the state and local government level. Assisted with delivery of training sessions for criminal justice personnel within a ten-state region. Developed and conducted practical group exercises for course participants.

Planner (1973 - 1978). Assisted local governments in planning and development of a range of criminal justice programs, criminal justice system communications and automated information systems.

1971 - Lord Fairfax Planning District Commission
1973 Front Royal, Virginia

Planner. Performed general planning tasks, including criminal justice and emergency response planning for a five-county region of Northern Virginia.

1966 - U.S. Department of Defense
1968 Fort Meade, Maryland

Security Specialist. Evaluated security measures for a federal security agency. Provided recommendations for security requirements. Top secret/crypto security clearance.

ROGER E. LINNEMANN, M.D.

EDUCATION

University of Minnesota, Minneapolis, MN; B.A. (Cum Laude) 1952
University of Minnesota, Minneapolis, MN; B.S., M.D. 1956
Walter Reed Army Hospital, Washington, D.C.; Internship 1956-57
Walter Reed Army Hospital, Washington, D.C.; Residency 1962-65

Certified by American Board of Radiology 1964
Certified by American Board of Nuclear Medicine 1972
Licensed to practice medicine in (1) Commonwealth of Pennsylvania,
(2) Illinois; and (3) Minnesota

Sandia Base, New Mexico; Nuclear Weapons Orientation Course 1961
Walter Reed Army Institute of Research, Washington, D.C.; Medical
Aspects of Nuclear Warfare 1962

PROFESSIONAL EXPERIENCE

1981-present	Vice Chairman and Chief Medical Officer, Radiation Management Corporation
1969-1981	President/Chief Executive Officer, Radiation Management Corporation
1974-present	Clinical Associate Professor of Radiology, University of Pennsylvania School of Medicine
1977-present	Visiting Associate Professor, Clinical Radiology, Northwestern University Medical School
1969-1974	Assistant Professor, Clinical Radiology, University of Pennsylvania School of Medicine
1968-1969	Nuclear Medical Consultant, Philadelphia Electric Company
January-August 1968	Assistant Professor, Radiology, University of Minnesota School of Medicine (investigated use of isotopes in kidney function evaluation)
1957-1968	Employed by United States Army:

1965-1968 Commanding Officer, Nuclear Medicine Research Detachment, Europe; Radiological Health Consultant, US Army-Europe. (responsible for plans, procedures and training of military hospitals and personnel in the evaluation, evacuation and treatment of radiation casualties. In January 1966 sent to Palomaris, Spain for evaluation of medical and environmental aspects of the mid-air collision involving nuclear weapons)

1961-1962 Research Associate, Department of Radiobiology, Walter Reed Army Institute of Research, Washington, D.C. (investigated use of anti-radiation drugs in treatment of cancer)

1957-1961 General Medical Officer, Europe

PROFESSIONAL APPOINTMENTS

1982-present American Medical Association Counsel on Scientific Affairs Subcommittee on the Management of Radiation Accident Victims

1979-present Health Physics Society Standards Committee

1978-present General Dynamics Electric Boat Division Radiological Health Consultant

1973-present University of Pennsylvania Radiation Safety Committee

1970-present The American Nuclear Society Subcommittee for Writing Emergency Procedures Standards

1969 & 1975 Atomic Energy Commission ad hoc Committee on Medical Aspects of Radiation Accidents

1966-present American College of Radiology:

1969-present Commission on Radiologic Units, Standards of Protection

1969-present Committee on Radiation Exposure of Women

1969-present Committee on Radiological Aspects of Disaster Planning

1967-1978 International Affairs Committee

1965-1968 U.S. Delegate to NATO Radiation Protection Committee and Medical Aspects of Nuclear Warfare Committee

1971 present Department of Defense and Environmental Protection Agency Medical Liaison Officer's Network (MLON)-State of Pennsylvania Representative

PROFESSIONAL MEMBERSHIPS

American College of Radiology
American Public Health Association
American Medical Association
Society of Nuclear Medicine
Philadelphia Roentgen Ray Society
Pennsylvania Medical Society
College of Physicians of Philadelphia
Radiological Society of North America, Inc.
American Institute of Physicists/American
Association of Physicists in Medicine
American College of Nuclear Physicians

AWARDS AND HONORS

- 1978 Association of Medicine & Security, Madrid, Spain
 (Honorary Member)
- 1968 University of Minnesota Radiological Research Scholar
 (National Research Council)
- 1968 United States Army Legion of Merit

PUBLICATIONS

- Linnemann, Roger E. "The Acute Radiation Syndrome and its Impact on the Chain of Evacuation". Medical Bulletin, U.S. Army Europe:22, No. 12 December 1965)
- Linnemann, Roger E. and Robert T. Wangemann. "Medical Support of Nuclear Weapons Accidents". Medical Bulletin, U.S. Army Europe (November 1967)
- Linnemann, Roger E. and O. Messerschmidt. "Erholungsvorgaenge bei Grosstieren nach Ganzkoerperbestrahlung", :dem 6, Jahrbuch von der vereinigung Duetscher Strahlenschutzaezte (1968)
- Linnemann, Roger E. "Command Radiation Guidance" Military Medicine:33, pp. 771-716 (September 1968)
- Loken, Merle K., Linnemann, Roger E. and George S. Kush. "Evaluation of Renal Function Using a Scintillation Camera and Computer" Radiology:93, No. 1, pp. 85-94 (July 1969)
- Linnemann, Roger E., Loken, Merle K. and Colin Markland. "Computerized Compartmental Renograms to Study Kidney Function" Journal of Urology:103, pp. 533-537 (May 1970)
- Linnemann, Roger E. and J.W. Thiessen. "Regional Approach to the Management of Radiation Accidents" Journal of the American Public Health Association:61 No. 6, pp. 1229-1235 (June 1971)

Linnemann, Roger E. and Robert H. Holmes. "Nuclear Accidents and Their Management" Emergency Medical Care, pp. 281-292, Spitzer, Stanley and Wilbur W. Oaks (eds.) New York: Brune and Stratton, Inc. (1971)

Linnemann, Roger E. "Medical Aspects of Power Generation" Impulse Massachusetts: Electrical Council of New England (June 1975)

Linnemann, Roger E. "Bugs in the Nuclear Fuel Cycle" Spectrum, p. 59, Gadi Kaplan (ed.) Piscataway, NJ: The Institute of Electrical and Electronic Engineers, Inc. (September 1975)

Linnemann, Roger E. and Fred A. Mettler, Jr. "Emergency Medical Assistance Programs for Nuclear Power Reactors" International Atomic Energy Agency Symposium on the Handling of Radiation Accidents, IAEA-SM-215/22, Vienna Austria (1977)

Linnemann, Roger E. "Why ALARA?" Transactions of 1979 American Nuclear Society Conference, Atlanta, GA (June 3-7, 1979), Vol. 32, TANS AO 32 1 83 ISSN 0003-018x (1979)

Linnemann, Roger E., Hackbarth, C.J. and Ray Crandall. "The Contaminated and Injured Patient" Proceedings of Twenty-Fourth Annual Meeting of the Health Physics Society, July 9-13, 1979 (Philadelphia, PA)

Linnemann, Roger E. "The Three Mile Island Incident in 1979: The Utility Resposne" The Medical Basis for Radiation Accident Preparedness, K.F. Hubn and S.A. Fry (eds), Elsevier/North-Holland, pp. 501-509 (1980)

Linnemann, Roger E. "Initial Management of Radiation Injuries" Journal of Radiation Protection, 5, No. 1, pp. 11-25 (December 1980)

Linnemann, Roger E. "Facilities for Handling the Contaminated Patient" Radiation Accident Preparedness: Medical and Managerial Aspects, Science-Thru-Media Company: New York (1980)

Linnemann, Roger E., Eugene Saenger, Gould A. Andrews and Niel Wald. "A Systems Approach to the Initial Management of Radiation Injuries" Systems Approach to Emergency Medical Care, Appleton-Century-Crofts: New York (1980)

Linnemann, Roger E., Stephen M. Kim and Frazier L. Bronson. "Three Mile Island: Medical and Public Health Aspects of a Radiation Accident" Journal of Radiation Protection, 6, No. 1, pp. 45-54 (October 1981)

KENNETH B. COLE

EDUCATION

Graduate of Franklin University, Columbus,
of Science in Engineering Technology.

Completed two courses, Radiologic Physics, Ohio State
University (6 quarter hours).

Completed two-week course on Fundamentals of Radiation Health,
U.S. Public Health Service, Taft Center, Cincinnati, Ohio.

Radiological Emergency Response Course, Reynoldsburg Electric,
Las Vegas, Nevada.

Enlisted U.S. Air Force and completed following military
training:

- Electronic Communication and Cryptographic Systems
(encrypted teletype/data facsimile), San Antonio,
Texas.

WORK EXPERIENCE

June 1983 - Nuclear Operations Officer
Present Ohio Disaster Services Agency
2825 West Granville Road
Worthington, Ohio 43085

Responsibilities: Supervise 14 people that make
up the staffs for the three nuclear sections
which deal with radiological matters for the
State. These sections include:

1. Radiological Emergency Response: prepares
emergency plans for nuclear power
facilities in the State, responds on a
24-hour basis to accidents (industrial,
transportation, etc.) involving
radiological materials; trains emergency
response workers in areas around nuclear
power stations to conduct radiological
monitoring, field monitoring and
environmental sampling; reviews and
critiques both county and utility response
plans for emergency zones around nuclear
power stations.
2. Radiological Instrumentation /Maintenance &
Calibration: maintains over 20,000
radiation detection devices used by
emergency response organizations in Ohio.

3. Radiological Officer/Planning: prepares plans and conducts training in areas other than nuclear power and in parts of the State outside the emergency planning zones of nuclear power stations.

1979-1983 Radiological Emergency Response Supervisor
Ohio Disaster Services Agency

Responsibilities: Supervise six people whose duties include emergency planning for nuclear power stations and training of emergency response workers in counties where power stations are located. In addition, supervise development of procedures to determine off-site environmental activities of incidents at nuclear power stations and monitor activities of 24-hour emergency response team for accidents involving nuclear materials.

1975-1979 Maintenance and Calibration Facility Supervisor
Ohio Disaster Services Agency

Responsibilities: Supervise four technicians in the repair and calibration of the State's radiation detection equipment. This included training emergency response workers in the operation and care of equipment and coordinating the exchange of the equipment with response officials.

1971-1975 Radiological Health Technology Instructor
Ohio Disaster Services Agency

Responsibilities: Arrange for and instruct 16-hour Radiological Monitoring Courses. The course was taught on a statewide basis to emergency service workers with primary roles of responding to an accident involving radiological materials.

1969-1971 Maintenance and Calibration Technician
Ohio Disaster Services Agency

Responsibilities: Calibrate and maintain portable low and high range radiation detection/monitoring equipment.

1967-1969 Electronic Technician
Ohio Disaster Services Agency

Responsibilities: Repair portable radiation detection instruments.

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

Name: Daniel D. Hulbert, Emergency Planning Coordinator, Perry Plant
Technical Department

Formal Education and Training:

Electrician's Mate School, U. S. Navy, 1973-1974
Nuclear Power Training, U. S. Navy, 1974-1975
Engineering Laboratory Technician School, U. S. Navy, 1975
One-Week Basic BWR Systems (PDP), 1980
Fifteen-Week Davis-Besse Nuclear Power Station (Emergency Planning), 1980
Eight-Week Davis-Besse Nuclear Power Station (Evacuation Time Estimates),
1981
One-Week Electrical Fundamentals II, 1981
One-Week Planning for Nuclear Emergencies Course, Harvard School of Public
Health, 1982

Experience:

1979 - Present: The Cleveland Electric Illuminating Company

Joined CEI as an Engineering Technician and assigned to development of the PNPP Emergency Plan. Assisted in the preparation of the Davis-Besse Nuclear Power Station Emergency Plan, implementing procedures, and the Davis-Besse education time estimates. Participated in several Emergency Plan exercises at other Nuclear Power Plants as an official Exercise Observer. In 1982 promoted to present position of Emergency Planning Coordinator. Reports directly to the Technical Superintendent, Perry Plant Technical Department.

1973 - 1979: U. S. Navy

Electrician's Mate - Qualified as Engineering Laboratory Technician, Electrical Operator and Shutdown Reactor Operator on a S5W Class Submarine. Duties included operation and maintenance of electrical systems, chemistry controls for both primary and secondary plant, and routine and emergency health physics coverage. Assignments included one tour on an S5W Submarine and one tour assigned to the Radiological Controls Division of a Submarine Tender.

SCOTT T. McCANDLESS
Vice President
HMM Associates, Inc.

Education

B.S.	Civil Engineering, Worcester Polytechnic Institute
M.U.A.	Urban Affairs, Boston University
	Environmental Planning, W.P.I., 1975
	Adjunct Assistant Professor

Summary of Experience

Mr. McCandless has extensive experience in environmental planning and management. He has served as project manager or principal investigator for a wide variety of nuclear safety studies, environmental studies and training programs. He has been directly involved in studies for nuclear facilities, urban mixed use developments, transportation projects, and energy development projects. He has appeared as an expert witness on emergency planning before an NRC Atomic Safety and Licensing Board. He has assisted with presentations on the same subject before the Advisory Committee on Reactor Safeguards. He has made technical presentations of the use of the NETVAC model for use in evacuation time estimates before the Transportation Research Board.

Professional Experience

1978 - Present	HMM Associates; co-founder, principal and project manager. He has served as principal-in-charge for comprehensive off-site emergency planning assignments in New Hampshire and Indiana. In each location, the work he supervised included compilation of State and local radiological emergency plans. In New Hampshire the assignment included coordination of drafting procedures for 12 state agencies and for the Governor and his staff. During this effort he coordinated training sessions for the Civil Defense Agency, the Department of Public Health, the State Police, the National Guard and all other emergency response agencies. In addition, he coordinated table-top exercises, prepared the State scenario materials, and served as the observer/controller at the State EOC.
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Other recent emergency planning projects have included supervision of the development of evacuation time estimate reports compiled for submission to NRC. In total, he has been principal-in-charge of studies for eight sites; he has participated in evacuation time estimates at several more sites.

Clients have included TVA, Arkansas Power & Light, Florida Power & Light, Boston Edison and others. He has also been involved in the development of HMM's state-of-the-art computer models for simulating evacuations after nuclear accidents.

Other projects have included management of state EIRs and federal EISs for several urban developments in Boston, including the first to be performed under comprehensive new regulations, Massachusetts Environmental Policy Act and the two largest urban commercial developments ever proposed for New England. Mr. McCandless has also directed projects with emphasis on noise, air quality and transportation considerations.

- 1972-1978 Environmental Research & Technology, Inc. (ERT). In his most recent position he served as manager of the Environmental Planning Division. In this position, he served as both a senior project manager and as administrative head of a multidisciplinary division of environmental professionals including specialists in acoustics, air quality, archaeology, economics, geology, landscape architecture, planning, socioeconomics and transportation planning. During his tenure at ERT, Mr. McCandless was project manager for more than twenty different environmental studies. Among them were the EIS for the SHERCO coal-fired power plant in Minnesota, the EIA for POD 3 of the New Town at Battery Park City in Manhattan, an Environmental Assessment for the Columbia Green Springs SNG plant feedstock allocation, Air Quality Studies for several Washington METRO System EIS efforts, and an Environmental Reconnaissance for an ethylene plant site for the Mobil Chemical Company.
- 1971-1972 Needles, Tammen & Bergendoff, Staff Planner. Prepared the Route 2 EIS and the Land Use Plan for the Manchester, NH Airport Master Plan.
- 1969-1971 Robinson & Fox, Staff Planner. Prepared tenant selection and Management Plans for proposed MHFA funded housing development in Worcester, MA.

Professional Affiliations

Member, American Society of Planning Officials

RELATED CORRESPONDENCE

March 25, 1985

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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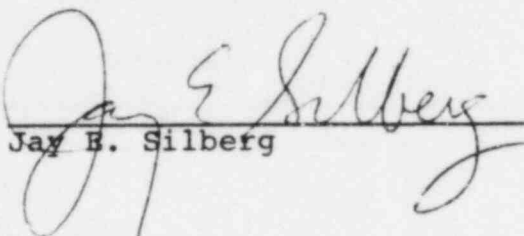
In the Matter of)
)
THE CLEVELAND ELECTRIC)
ILLUMINATING COMPANY)
)
(Perry Nuclear Power Plant,)
Units 1 and 2))

Docket Nos. 50-440
50-441

CERTIFICATE OF SERVICE

This is to certify that copies of the foregoing
"Applicants' Direct Testimony of Scott T. McCandless on Issue
No. 1 - Contention A," "Applicants' Direct Testimony of Daniel
D. Hulbert on Issue No. 1 - Contention J," "Applicants' Direct
Testimony of Richard R. Bowers on Issue No. 1 - Contention M,"
"Applicants' Direct Testimony of Kenneth B. Cole on Issue No. 1
- Contention M," "Applicants' Direct Testimony of Roger E.
Linnemann on Issue No. 1 - Contention P," "Applicants' Direct
Testimony of John Baer on Issue No. 1 - Contention Q,"
"Applicants' Direct Testimony of John Baer on Issue No. 1 -
Contention U," "Applicants' Direct Testimony of John Baer on
Issue No. 1 - Contention Z," "Applicants' Direct Testimony of
John Baer on Issue No. 1 - Contention BB," and "Applicants'
Direct Testimony of Daniel D. Hulbert on Issue No. 1 -
Contention CC" were served by deposit in the United States

Mail, first class, postage prepaid, this 25th day of March,
1985, to all those on the attached Service List except for
those parties identified by a single asterisk who were served
by hand delivery and those identified by a double asterisk who
were served by express mail.


Jay E. Silberg

DATED: March 25, 1985

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	
THE CLEVELAND ELECTRIC)	Docket Nos. 50-440
ILLUMINATING COMPANY, <u>ET AL.</u>)	50-441
)	
(Perry Nuclear Power Plant,)	
Units 1 and 2))	

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