

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

DOCKETED
USNRC

'85 FEB -8 10:14

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

AFFIDAVIT OF FLORO D. MIRALDI, M.D.
ON CONTENTION G

County of Lee)
) ss.
State of Florida)

FLORO D. MIRALDI, M.D., being duly sworn, deposes and
says:

1. I am a physician specializing in nuclear radiology
with University Hospitals of Cleveland. In addition, I have a
Ph.D. degree in Nuclear Engineering. A current statement of my
professional qualifications and experience is attached hereto.
My business address is University Circle, Cleveland, Ohio
44106. I have personal knowledge of the matters stated herein
and believe them to be true and correct. I make this affidavit
in response to Contention G, which asserts that emergency plans
should provide for the availability of potassium iodide for
emergency workers and the public in the event of an emergency
at the Perry Nuclear Power Plant.

2. In September 1980, the Director of the Ohio Department of Health made a public health policy decision not to provide potassium iodide for use by Ohio emergency workers and the public in the event of a radiation emergency at a licensed nuclear facility.

3. The Ohio policy on potassium iodide is currently under review. Mr. Robert Quillan, Director of the Radiological Health Program of the Ohio Department of Health, is empaneling an "Ad Hoc Committee on Potassium Iodide" to review the present policy and make recommendations (as indicated) to the Ohio Department of Health.

4. I have agreed to serve on the Ad Hoc Committee. In addition to Mr. Quillan and myself, the other members of the Committee will include Carl Gandola, M.D., Jack George, M.D., and Nancy Osborne, R.N. In addition, Mr. Quillan is seeking a sixth member to serve on the Committee. Mr. Quillan has indicated that the Committee's recommendations are expected within a year from the time the last member is appointed.

Floro D. Miraldi, M.D.

Sworn to and subscribed before me this 31st day of January, 1985.

Virginia A. Messenger
Notary Public

My Commission expires:

NOTARY PUBLIC STATE OF FLORIDA
MY COMMISSION EXP. OCT 16, 1987
BONDED THRU GENERAL INS. UND.

Floro D. Miraldi, M.D., Sc.D.

BGRN: March 21, 1931

EDUCATION:Graduate:

M.D.	- Western Reserve University Cleveland, Ohio	1970
Sc.D.	- Massachusetts Institute of Technology Cambridge, Mass.	1959
M.S.	- Massachusetts Institute of Technology Cambridge, Mass.	1955
B.S.	- Massachusetts Institute of Technology Cambridge, Mass.	1953
B.A.	- College of Wooster Wooster, Ohio	1953

Postgraduate Training:

Intern, Radiology	- University Hospitals of Cleveland, Ohio	1970-1971
Fellow, Nuclear Med.	- University Hospitals of Cleveland, Ohio	1971-1972

PROFESSIONAL EXPERIENCE:

Co-Director of Nuclear Radiology, University Hospitals of Cleveland Cleveland, Ohio	1978-present
Chief, Nuclear Medicine, Metropolitan General Hospital, Cleveland, Ohio	1973-1978
Assistant Radiologist, University Hospitals, Cleveland, Ohio	1971-1973
Consultant in Nuclear Medicine, Mount Sinai Hospital, Cleveland, Ohio	1968-1970

ACADEMIC APPOINTMENTS:

Associate Professor of Radiology, Case Western Reserve University, Cleveland, Ohio	1976-
Assistant Professor of Radiology, Case Western Reserve University, Cleveland, Ohio	1973-1976
Professor of Engineering, Case Western Reserve University, Cleveland, Ohio	1971-
Associate Professor of Engineering, Case Institute of Technology, Cleveland, Ohio	1964-1971
Assistant Professor of Engineering, Case Institute of Technology, Cleveland, Ohio	1959-1964
Assistant Professor of Electrical Engineering, Purdue University W. Lafayette, Indiana	1958-1959

LICENSURE:

<u>State:</u> Ohio	1970
<u>Specialty:</u> Diplomate - American Board of Nuclear Medicine	1975

MAJOR RESEARCH INTEREST:

Nuclear Medicine, Tomography

RESEARCH EXPERIENCE:

1. Multiple research projects in nuclear reactor physics, radioisotope techniques, and nuclear instrumentation development. Projects supported by National Science Foundation (approx. \$30,000), National Aeronautics and Space Administration (approx. \$100,000), Atomic Energy Commission (approx. \$200,000), National Institutes of Health (approx. \$250,000), and General Electric Corporation (approx. \$500,000).
2. Graduate thesis research at both M.S. and Ph.D. levels with 16 M.S. graduates and 9 Ph.D. graduates.
3. Publications and patents: lists appended.

NON-ACADEMIC RESEARCH AND DEVELOPMENT EXPERIENCE:

Consultant to Industry, Major Firms:

American Radiation Research Corporation
General Electric Corporation
Thompson Ramo Wooldridge, Inc.
Ferro Corporation
Standard Oil Corporation

Governmental Consultant to:

U.S. Atomic Energy Commission
National Aeronautics & Space Administration
National Institute of Neurological Diseases and Stroke, N.I.H.
Departments of Health: State of Ohio; Cities of Cleveland, Shaker Heights, Toledo, Sandusky; Counties of Cuyahoga, Summit, Lorain, and Erie

MAJOR COMMITTEE PARTICIPATION:

NASA Advisor Committee on Biotechnology and Human Research	1963-1965
Chairman, Faculty Student Conference Committee, Argonne National Laboratory for the Associated Midwest Universities	1963
Chairman, Engineering Practice School Committee for the Associated Midwest Universities	1964
Chairman, Program Committee for Tenth Annual Conference on Nuclear Engineering in Biology and Medicine, Argonne National Laboratory	1969
Radiation Safety Committee, Cleveland Metropolitan General Hospital	1975-1978
Committee on Investigation in Humans, Cleveland Metropolitan General Hospital	1975-1978
Pharmacy and Therapeutics Committee, University Hospitals of Cleveland	1982-present
Research Committee, Department of Radiology, University Hospitals of Cleveland	1982-present

Promotions Committee, Case Western Reserve University	1983-present
Faculty Council, Case Western Reserve University	1983-present
Chairman, Physics Search Committee, Department of Radiology, University Hospitals of Cleveland	1983-present
Board of Directors, Department of Radiology, University Hospitals of Cleveland	1983-present

PROFESSIONAL SOCIETY MEMBERSHIPS:

Society of Nuclear Medicine	1971-
American Nuclear Society	1955-
Cleveland Section, American Nuclear Society (Chairman, 1963-1964)	1962-
Sigma X	1955-
Cleveland Radiological Society	1970-
American Association for the Advancement of Science	1963-1973
American Society for Engineering Education	1959-1964
American Association of University Professors	1960-1965

REFEREED PUBLICATIONS:

Miraldi, F., Perri, P., and Farquhar, J.
Criticality Studies of Interacting Cylindrical Systems.
AECD-4281, 1954

Billerbeck, C., Farquhar, J., Delicote, S., and Miraldi, F.
A New System for Catalytic Recombination of Hydrogen and Oxygen.
AECD-7249, 1954

Rossin, A., and Miraldi, F.
Carrier Design of Irradiated APPR Fuel Elements.
AEC Document DT-178, 1954

Billerbeck, D. et al.
Design of a Boiling Thorium Blanket.
AEC Document KT-188, 1954

DelDuca, M., Miraldi, F., Babinsky, A.
Integrated Thermodynamic Systems for Manned Space Stations
Proceedings IAS-NASA Symposium on Manned Space Stations, Los Angeles,
California, 1960

DelDuca, M., Babinsky, A., Miraldi, F.
Oxygen Regeneration Systems for Manned Space Applications.
Proceedings of Closed Circuit Respiratory Symposium, Wright Air Development
Division, Dayton, Ohio, 1960

DelDuca, M., Miraldi, F., Babinsky, A.
Selected Methods for Atmosphere Control in Manned Space Flights.
Proceedings of S.A.E. National Aerospace Meeting, N.Y.C., 1961

Miraldi, F., Clark, M., Jr.
Interaction of Separated Fissionable Systems: Part I.
Nuclear Science and Eng., 11, 3, 1961

Miraldi, F., Clark, M., Jr.,
Interaction of Separated Fissionable Systems: Part II.
Nuclear Science and Eng., 11, 3, 1961

Burdick, K., Miraldi, F.
Radiodermatitis Due to Exposure in Industry.
Journal of American Medical Association, 188 (6); 607, 1964

Sanathanan, C.K., Carter, J., Miraldi, F.
Dynamic Analysis of Coolant Circulation in Boiling Water Nuclear Reactors.
Trans. Am. Nuc. Soc. 7 (1); 150, 1964

Miraldi, F., Nelson, G.W., and McBride, D.
Experimental Neutron Flux Distributions in a Water System with an
Internal Cavity.
NASA CR-54110, 1964

- Sanathan, C.K., Carter, J., Miraldi, F.
Dynamic Analysis of Coolant Circulation in Boiling Water Nuclear Reactors - I.
Nuclear Science and Eng., 23, 2, 1965
- Sanathan, C.K., Carter, J., Miraldi, F.
Dynamic Analysis of Coolant Circulation in Boiling Water Nuclear Reactors - II.
Nuclear Science and Eng., 23, 2, 1965
- Miraldi, F., Nelson, C., Holmberg, G., and Skoff, G.
Neutro Flux Distributions: Experiment vs. Theory for a Water Reflected Spherical Cavity System.
NASA CR-72231, 1966
- Kolar, M.J., and Miraldi, F.
The Temperature Dependent Kinetics of a Two-Dimensional Circulatory Fuel Reactor.
Trans. Am. Nuc. Soc., June 1968
- Miraldi, F., DiChiro, G., and Skoff, G.
Evaluation of Current Methods of Radioisotope Tomography and Design of a New Device: The Tomoscanner.
Proceedings of 16th Annual Meeting of Society of Nuclear Medicine, New Orleans, La., June 1969
- Miraldi, F. and DiChiro, G.
Tomographic Techniques in Radioisotope Imaging with a Proposal of a New Device: The Tomoscanner.
Radiology, 94, 513-520, 1970
- Holmberg, G. Kuper, A., and Miraldi, F.
Water Contamination in Thermal Oxide on Silicon.
J. Electrochemical Soc., May 1970
- Miraldi, F., Yon, E.T., and DiChiro, G.
Tomoscanner: Theory & Prototype.
Symposium on Radioisotope Tomography, Society of Nuclear Medicine, New York, Sept. 5, 1972
- Miraldi, F., DiChiro, G., Johnston, G.S., and Yon, E.T.
The Tomoscanner: Clinical Experience
Symposium on Radioisotope Tomography, Society of Nuclear Medicine, New York, Sept. 5, 1972
- Miraldi, F., Yon, E.T., and Rejali, A.
A Line Detector Radioisotope Scanner with Tomographic Capabilities.
Symposium on Medical Radioisotope Scintigraphy, Monte Carlo, Monaco, Oct. 23, 1972
- Levy, R., Laus, V., and Miraldi, F.
The Frequency and Detection of Serious Post-operative Thromboembolic Disease.
Surgery, Gynecology and Obstetrics, May 1975

Miraldi, F.

Therapeutic and Diagnostic Radiology.

(In) Electronic Engineers' Handbook, ed by Donald G. Fink.

1st. ed., McGraw-Hill 1972, ch 26, pp 13-17.

Bellon, E., Miraldi, F., Wiesen, E.

Performance Evaluation of Computed Tomography Scanners Using a Phantom Model.

American Journal of Roentgenology, Vol. 132, pgs. 345-352, March, 1979.

Rashad, F., Bellon, E., Miraldi, F.

Gallium 67 Uptake in Tuberous Sclerosis

Clinical Nuclear Medicine, Vol. 4, pgs. 242-243, June 1979.

Haaga, J., Miraldi, F., MacIntyre, W., LiPuma, J., Bryan, P., Wiesen, E.
Effect of M.A.S. Variation Upon CT Image Quality as Evaluated by In Vivo
and In Vitro Studies.

Radiology, 138:449-454, February, 1981

Miraldi, F.

"Therapeutic and Diagnostic Radiology" in Electronic Engineers Handbook

Edited by Donald G. Fink, Second Edition, McGraw-Hill, 1981,

Chapter 26, pages 13-18 (in print).

"The Physics of Computed Tomography", Chapter in the book

Computed Tomography, Haaga, J. et al, to be published by C.V. Mosby Co.

Pillay, R., Graham-Pole, J., Miraldi, F., Yulish, B., Newman, A., Liebman, J.
Diagnostic X-irradiation as a Possible Etiologic Agent in Thyroid Neoplasms
of Childhood

The Journal of Pediatrics, Pgs., 566-568, October 1982.

Ament, A.E., Bick, R.J., Miraldi, F.D., Haaga, J.R., Wiedenmann, S.D.

Cholescintigraphy in Sclerosing Cholangitis with Tc-99m DISIDA

Radiology, 151:197-201, April, 1984.

ABSTRACTED PRESENTATIONS:

Del Duca, M., Miraldi, F., and Babinsky, A.
Integrated Thermodynamic Systems for Manned Space Stations
Presented at the IAS-NASA Symposium on Manned Space Stations,
Los Angeles, California 1960

DelDuca, M., Babinsky, A., Miraldi, F.
Oxygen Regeneration Systems for Manned Space Applications
Proceedings of Closed Circuit Respiratory Symposium, Wright Air Development
Division, Dayton, Ohio, 1960.

DelDuca, M., Miraldi, F., Babinsky, A.
Selected Methods for Atmosphere Control in Manned Space Flights.
Proceedings of S.A.E. National Aerospace Meeting, N.Y.C., 1961

Miraldi, F., DiChiro, G., and Skoff, G.
Evaluation of Current Methods of Radioisotope Tomography and Design
of A New Device: The Tomoscanner
Presented at the 16th Annual Meeting of The Society of Nuclear Medicine
New Orleans, La., June 1969

Miraldi, F. and DiChiro, G.
Tomographic Techniques in Radioisotope Imaging with a Proposal of a New
Device: The Tomoscanner
Radiology, 94, 513-520, 1970

Miraldi, F., Yon, E.T., and DiChiro, G.
Tomoscanner: Theory & Prototype
Presented at the Society of Nuclear Medicine's Symposium on Radioisotope
Tomography, New York, September 5, 1972

Miraldi, F., DiChiro, G., Johnston, G.S., and Yon, E.T.
The Tomoscanner: Clinical Experience
Presented at the Society of Nuclear Medicine's Symposium on Radioisotope
Tomography, New York, September 5, 1972

Miraldi, F., Yon, E.T., and Rejali, A.
A Line Detector Radioisotope Scanner with Tomographic Capabilities
Presented at Symposium on Medical Radioisotope Scintigraphy, Monte Carlo,
Monaco, October 23, 1972

Bellon, E., Miraldi, F., and Wiesen, E.
Comparative Analysis of CT Scanner Performance
Presented at Fourth South African National and International Radiological
Congress, Johannesburg, South Africa, September, 1978

Wiesen, E., Bellon, E., and Miraldi, F.
Objective Assessment of Computerized Tomography Scanner Performance
Presented at the Association of University Radiologists
Rochester, New York, May, 1979

Schreiber, H., Miraldi, F., Ponsky, J.L., and Miron, S.D.
The Functional Pattern of Bowel Lymph Flow Determined by Endoscopic
Lymphoscintigraphy
Presented at the American Federation for Clinical Research
January, 1980

Haaga, J., Miraldi, F., MacIntyre, W., LiPuma, J., Bryan, P., Wiesen, E.
Effect of M.A.S. Variation Upon CT Image Quality as Evaluated by In Vivo
and In Vitro Studies
Presented at the International Symposium of Computed Tomography,
Las Vegas, Nevada, April, 1980

Haaga, J., Miraldi, F., MacIntyre, W., LiPuma, J., Bryan, P., Wiesen, E.
Effect of M.A.S. Variation Upon CT Image Quality as Evaluated by In Vivo
and In Vitro Studies
Presented at The University of Texas, Dallas, Texas, May 8-10, 1980

Ricanati, E.S., Wiesen, E., Henoch, M.S., Tavill, A.S., Miraldi, F.,
Schreiber, H. and Rashad, F.
Long Term Improvement in Renal Blood Flow and Fractional Excretion of
Filtered Sodium in Patients with Cirrhosis and Refractory Ascites Treated
By Peritoneovenous Shunting
Presented to the American Association for the Study of Liver Diseases
Salt Lake City, Utah, May 1980

Miraldi, F., VanDyke, A.
Evaluation of Single Photon Emission Computed Tomography and Myocardial
Perfusion Studies
General Electric Symposium at The Society of Nuclear Medicine, Annual Meeting,
Miami Beach, Florida, 1982

Kaufman, B., Miraldi, F.
Movement of Para-Magnetic Stainless Steel Aneurysm Clips in a Magnetic Field
XII Symposium Neuroradiologicum, Washington, D.C., October 11, 1982

Miraldi, F., VanDyke, A., Rejali, A., Baran, G.
Evaluation of Single Photon Emission Computed Tomography in Myocardial
Perfusion Studies
The Radiological Society of North America, Annual Meeting, Chicago, Illinois
December 1982

Miraldi, F.D., Butler, H.E., Pickering, S.L.
Prediction of Renal Transplant Rejection Using Technetium 99m Sulfur Colloid
The Radiological Society of North America, Annual Meeting, Chicago, Illinois
November 13 - 18, 1983

Lieberman, J.M., Alfidi, R.J., Nelson, A.D., Botti, R.E., Moir, T.W., Haaga, J.R.,
Kopiwoda, S., Miraldi, F.D., Butler, H.E., Nara, A.
Cardiovascular NMR Imaging
The Radiological Society of North America, Annual Meeting, Chicago, Illinois
November 13 - 18, 1983

LiPuma, J.P., Bryan, P.J., Cohen, A.M., Butler, H.E., El Yousef, S.J.,
Haaga, J.R., Alfidi, R.J., Hau, T., Miraldi, F.D.
Renal Transplant NMR
The Radiological Society of North America, Annual Meeting, Chicago, Illinois
November 13 - 18, 1983

Steiger, D., Miraldi, F.D., Haaga, J.R., Clampitt, M., Nelson, A.D.
Soft-tissue Calcifications in NMR Scans
The Radiological Society of North America, Annual Meeting, Chicago, Illinois
November 13 - 18, 1983

Nelson, A.D., Alfidi, R.J., Lent, A., Clampitt, M., Kritzer, M., Miraldi, F.,
Schultz, C., Kopiwoda, S.
Motion Artifact in 2DFT MR Imaging
The American Roentgen Ray Society, Las Vegas, Nevada, April, 1984.

NON-ABSTRACTED PRESENTATIONS:

Miraldi, F.
Advances in Nuclear Medicine
Presented at the First Annual Symposium on Recent Advances in Nuclear
Medicine
Cleveland, Ohio , May, 1977

Miraldi, F.
Nuclear Medicine in the Diagnosis of Cancer
Presented at Recent Advances in the Diagnosis and Treatment of Cancer
1978 Annual Cancer Symposium
Columbus, Ohio, October 8, 1978

Miraldi, F., Wiesen, E., and Bellon, E.
Measurement of Hepatic Blood Flow Under Changing Conditions Using Six
Radioactive Microspheres.
Presented at Works in Progress Radiological Society of North America
November 1978.

Miraldi, F.
Clinical Experience with Emission Computed Tomography
General Electric Symposium, Milwaukee, Wisconsin, April 13, 1982

Miraldi, F.
Contrast Resolution on NMR
Clinical N.M.R. Symposium, Cleveland, Ohio, September 8-10, 1982

Miraldi, F.
NMR Physics for Physicians
Clinical N.M.R. Symposium, Cleveland, Ohio, August 3 - September 2, 1983

Miraldi, F.
Contrast and Spatial Resolution of NMR
Clinical N.M.R. Symposium, Cleveland, Ohio, August 3 - September 2, 1983

Miraldi, F.
PET Scanning
Cleveland Area Medical Physicists, Cleveland, Ohio, September 12, 1983

Miraldi, F.
Techniques of Bone Scanning
University Hospitals Orthopedic Surgeons, Cleveland, Ohio, September 19, 1983

Miraldi, F.
Physics of CT Scanning and NMR
Society of Computed Body Tomography, 7th Annual C.T. Meeting, Florida,
February 19-24, 1984

EXHIBITS:

Fletcher, B., Miraldi, F., Blackham, W., Pitschmann, L., Alfidi, R.
Pediatric Applications of Digital Radiographic Techniques
American Roentgen Ray Society, Exhibit, New Orleans, May 9-14, 1982

U.S. PATENTS:

Miraldi, F., and Morgan, E.J.
Radiation Treatment of Seepage
U.S. Patent No. 3,603,788, September 9, 1971

Miraldi, F.
Tomographic Radiation Sensitive Device
U.S. Patent No. 3,688,133, August 29, 1972

Miraldi, F.
Scintillation Crystal Structure Comprising a Series of Rectangular
Wafers Forming a Bar
U.S. Patent No. 3,720,831, March 1973

Miraldi, F.
Collimator
U.S. Patent No. 3,777,148, December 4, 1974

Miraldi, F.
Tomographic Scanning Device
U.S. Patent No. 3,784,820, August 8, 1974

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

I hereby certify that copies of "Applicants' Motion For Summary Disposition of Contention G," "Applicants' Statement of Material Facts As To Which There Is No Genuine Issue To Be Heard on Contention G," "Affidavit of John J. Mauro," and "Affidavit of Floro D. Miraldi, M.D. on Contention G," were served this 5th 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 hand delivery.

Michael A. Swiger
Michael A. Swiger

Dated: February 5, 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))	

SERVICE LIST

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Silver Spring, Maryland 20901

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U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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Washington, D.C. 20555

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Atomic Safety and Licensing Board
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