

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION.

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

*April 27 1980*

In the Matter of )  
)  
FLORIDA POWER & LIGHT COMPANY )  
)  
(Turkey Point Nuclear Gen- )  
erating Units Nos. 3 and 4 )  
)  
)  
)

Docket Nos. 50-250-SP  
50-251-SP

(Proposed Amendments to  
Facility Operating  
Licenses to Permit Steam  
Generator Repair)

LICENSEE'S RESPONSE TO REQUEST  
FOR PRODUCTION OF DOCUMENTS

For its response to "Intervenor, Mark P. Oncavage's  
Request For the Production of Documents from Licensee, Florida  
Power And Light Company" served March 18, 1980, FPL says:

1. The current FPL Health Physics Manual will be  
produced, as previously indicated in responses served by FPL  
12-17-79 to Request 2-32.

2. Objection. Irrelevant and immaterial; burdensome  
and oppressive; not designed to lead to discovery of admissible  
evidence.

Response. Most of the Turkey Point Plant  
Procedures are not applicable to the steam generator repairs.  
FPL has previously indicated it will produce identified proce-  
dures which have been requested that are applicable. See, e.g.  
responses served by FPL 12-17-79 to Requests 13-3, 13-4, 13-6

(as revised 1-31-80), 13-9, 13-10, 13-13, 13-14, 13-15, 13-16, 13-19, 14-16, 14-17, 14-19, and responses served by FPL 1-31-80 to Requests 1-19, 1-20, 2-31, 9-1, 13-5, 14-24.

3. Objection. A request for production of a witness list is an improper discovery request under 10 CFR 2.741.

Response. As previously indicated in responses served by FPL 1-31-80 to Introductory Request E, FPL has not at this time identified the persons whom FPL intends to have testify as expert witnesses. When it does so, FPL will provide the Intervenor with the requested information.

4. As previously indicated in Responses Served by FPL 1-31-80 to Introductory Request G, FPL has not yet identified the documents that it intends to employ in presenting a direct case on the subject matter of the proceeding. When it does so, it will provide Intervenor with a list of the documents and, to the extent they have not been previously made available, will make them available for inspection.

5. Objection. To the extent this Request states that primary/secondary coolant chemistry specifications are "relevant to Intervenor's Contentions 1 and 14", the statement is incorrect, in that Contention 1 is now moot, and Contention 14 addresses fire protection.

Response. As previously indicated in responses served by FPL 1-31-80 to Request 1-10, FPL will maintain coolant chemistry within the new steam generatory assemblies in

accordance with the Turkey Point Plant approved chemistry specifications in effect at the time the new assemblies are placed into operation. FPL's chemistry specifications are continuously being reviewed by plant and technical support personnel to assure state of the art. FPL does not know at this time what precise specifications will be in effect following the steam generator repair.

6. As previously indicated in responses served by FPL 1-31-80 to Request 1-14, the Board has ordered FPL to provide information either in a revision to the SGRR or in testimony concerning the tests that are planned to assure containment building and reactor coolant system integrity following the repair. FPL will provide this information to the Board and the parties when it is available.

7. Objection. To the extent this Request states that information concerning local decontamination procedures are relevant to Contention 1, the statement is incorrect, in that Contention 1 is now moot.

Response. Current local decontamination procedures will be produced; same may be revised prior to the repair. Additional procedures are planned but not yet finalized for the repair.

8. Objection. To the extent this request states that information concerning emergency procedures are relevant to Contention 1, that statement is incorrect, in that Contention 1 is now moot.

Response. As previously indicated in responses served by FPL 1-31-80 to Request 1-19 current Turkey Point Plant Emergency Procedure 20106, National Emergencies, and the Site Emergency Plan will be produced. Existing procedures are currently being revised as part of an on-going emergency planning update.

9. Objection. FPL objects to the Request for Production to the extent it seeks "All documents which refer or relate to your determination of the estimated capital costs for . . . operating the Turkey Point Plant before, during, and after the repairs" on the grounds that it is vague and ambiguous, unlimited in scope as to time, irrelevant and immaterial to the issues and subject matter of the proceeding and not designed to lead to the discovery of admissible evidence. Moreover, Intervenor previously withdrew, upon objection, similar discovery requests. See, e.g. Request 1-33, withdrawn by Intervenor in his "Responses" served 12-17-79, p. 16.

Response. FPL will produce those documents which summarize the current estimate of capital costs for the steam generator repair.

10. Objection. Vague, ambiguous, burdensome, oppressive, not designed to lead to the discovery of admissible evidence. Contention 7 relates only to the cost of, effluent releases from, and environmental degradation caused by a full flow condensate demineralizer system. FPL has provided such

information on 1-31-80 in response to Requests 1-30, 7-2, 7-3, 7-4, 7-11, 7-12, 7-16, 7-18, 7-23, 7-24 thru 7-27, and on 12-17-79 in response to Requests 7-1, 7-7, 7-14, 7-19, 7-20, 7-21, 7-22, 7-24, 7-25, 7-26, 7-28, and in the letter of March 18, 1980 from Dr. Robert E. Uhrig of FPL to the office of Nuclear Reactor Regulation in reply to the NRC staff letter of November 19, 1979, a copy of which was sent to the Board and the parties.

11. A copy of the letter of March 18, 1980, in response to the NRC staff letter to Dr. Uhrig dated November 19, 1979, was provided to the Board and the parties March 21, 1980.

12. No specific document was prepared which contains the comparison. The documents which contain the information which was compared will be produced.

13. As indicated previously in its Response 1-31-80 to Request 9-1, these procedures will be produced.

14. Objection. Vague, ambiguous, irrelevant and immaterial, burdensome and oppressive, not designed to lead to the discovery of admissible evidence.

Response. FPL will produce copies of the annual reports it files with the Nuclear Regulatory Commission, and copies of the State of Florida, DHRS, reports to FPL, for the past 3 years.

15. The documents requested will be produced.

16. FPL will produce documents which contain a brief description of the Critical Path Network Method as employed by

FPL in connection with the steam generator repair program, and summary schedules concerning outage time for the repairs.

17. The various monitoring systems are referenced in the FSAR, in documents which contain descriptions of the systems, and in various other documents related to calibration, operation, maintenance, technical manuals, and drawings. The FSAR is equally available to Intervenor. FPL will produce the documents which contain descriptions of the systems. FPL objects to the production of any other documents on the grounds that the request is vague, ambiguous, burdensome and oppressive, lacks specificity, would require FPL to examine, review and compile a substantial amount of documents, and is not designed to lead to the discovery of admissible evidence.

18. FPL will produce documents related to design and specifications of the CVCS holdup tanks. The safety analysis is provided in the FSAR. FPL has no studies relating to durability.

19. As previously indicated in its response 1-31-80 to request 14-24, procedure 20107 will be produced. Other procedures to be employed in the event of a fire will be produced.

20. Objection. A request for information relating to FPL's "load forecast used to plan future generating units, including but not limited to FPL's Ten Year Power Plant Site Plan 1979-1988" is irrelevant and immaterial to the issues and subject matter of the pending proceeding and not designed to lead to the discovery of admissible evidence.

21. Objection. A request for information relating to the ". . . details, progress, results, and future projections of any energy conservation measures undertaken or planned . . ." by FPL is vague and ambiguous, unlimited in scope as to time, irrelevant and immaterial to the issues and subject matter of the pending proceeding, and not designed to lead to the discovery of admissible evidence.

22. A copy of the report requested has been provided to the Board and the parties March 21, 1980.

23. See response to Request 22.

24. FPL does not now have this document in its possession.

25. Objection. Irrelevant and immaterial. See similar objection to similar previous Request 1-3 seeking the same document. On January 24, 1980 the Board entered an order which sustained that objection, specifically holding that the warranty "is not relevant to the health and safety and environmental concerns in this proceeding".

Respectfully submitted,

STEEL, HECTOR & DAVIS  
Co-Counsel for Licensee  
14th Floor  
Southeast First National Bank  
Building  
Miami, Florida 33131

By:   
Norman A. Coll

Dated: April 22, 1980

cc: See attached Certificate of Service.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	Docket Nos. 50-250-SP
	)	50-251-SP
FLORIDA POWER & LIGHT COMPANY	)	
	)	(Proposed Amendments to Facility
(Turkey Point Nuclear Generating	)	Operating License to Permit
Units Nos. 3 and 4)	)	Steam Generator Repair)

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that copies of the attached Licensee's Response to Request for Production of Documents captioned in the above matter were served on the following by deposit in the United States mail, first class, properly stamped and addressed, on the date shown below.

Elizabeth S. Bowers, Esquire  
Chairman  
Atomic Safety and Licensing Board Panel  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

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Atomic Safety and Licensing Board Panel  
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Mr. Mark P. Oncavage  
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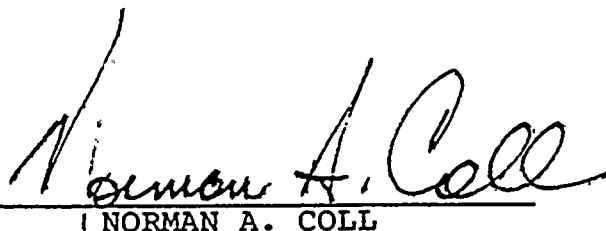
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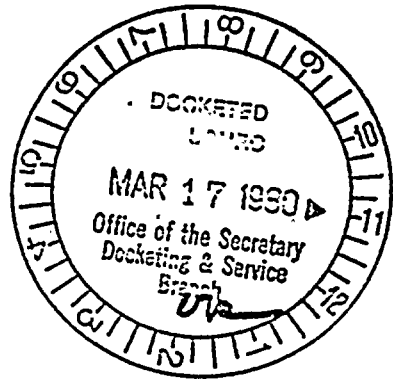
  
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Dated: April 22, 1980.

3/11/80



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BEFORE THE ATOMIC SAFETY & LICENSING BOARD

In the Matter of	)	Docket Nos. 50-250-SP
	)	50-251-SP
FLORIDA POWER & LIGHT COMPANY	)	(Proposed Amendments to
	)	Facility Operating License
(Turkey Point Nuclear Generating	)	to Permit Steam Generator
Units Nos. 3 and 4)	)	Repairs).

MOTION TO AMEND CONTENTIONS

Intervenor, Mark Oncavage, moves the Board to permit an amendment of Contention 1 to include Contention 1B: The application of Florida Power and Light for an amendment to its facility operating license involves a material alteration of a licensed facility which requires a construction permit to issue prior to the issuance of the amendment, which in turn requires the preparation of an environmental impact statement.

In support of his motion Intervenor shows:

1. Contentions of an intervenor may be amended. 10 C.F.R. §2.714(a)(3) as explained in 43 Fed. Reg. 17798 (1978).

2. It is the purpose of 10 C.F.R. §2.714(a)(3) that contentions can be

expanded or amended because of new information which comes to light after petitioners have been admitted, such as information in the Commission staff's safety evaluation or environmental impact statement. [43 Fed. Reg. 17798, 17799 (1978)]

3. A contention can be amended only with the approval of the presiding officer based on a balancing of the factors listed in 10 C.F.R. §2.714(a)(1);

GOOD CAUSE FOR FAILURE  
TO FILE ON TIME

As will be shown in a discussion of the proposed amendment below, the contention has been primarily motivated by the licensee's responses to the Intervenor's interrogatories.

AVAILABILITY OF OTHER MEANS  
WHEREBY THE PETITIONER'S  
INTEREST WILL BE PROTECTED

The Nuclear Regulatory Commission is presently considering the licensee's application to amend its operating license. The Atomic Safety Licensing Board has the authority to issue that amendment. The Board also has the authority to require an environmental impact statement before it issues or denies the amendment. There exists no means, other than the Board, to have the Atomic Safety Licensing Board order and consider an environmental impact statement before it rules on the amendment to the operating license.

EXTENT TO WHICH THE PETITIONER'S  
PARTICIPATION MAY REASONABLY BE  
EXPECTED TO ASSIST IN DEVELOPING  
A SOUND RECORD

The petitioner will offer the testimony of Dale G. Bridenbaugh, Gregory C. Minor and Robert Anderson to show that the proposals of the licensee involve a material alteration

of the licensed facility as that term is defined at 38 Fed. Reg. 22796 (1973) and 39 Fed. Reg. 10554 (1974). The curriculum vitae of these three experts are attached hereto as Exhibit I.

EXTENT TO WHICH THE  
PETITIONER'S INTEREST  
WILL BE REPRESENTED BY  
EXISTING PARTIES

Neither the staff of the Nuclear Regulatory Commission nor the licensee hold the position that the repairs at Turkey Point Units 3 and 4 involve a material alteration of the licensed facility as that term is defined in 38 Fed. Reg. 22796 (1973) and 39 Fed. Reg. 10554 (1974).

EXTENT TO WHICH THE  
PETITIONER'S PARTICIPATION  
WILL BROADEN THE ISSUES OR  
DELAY THE PROCEEDING

In the existing Contention 1 the Intervenor has contended that an Environmental Impact Statement should issue, but based its contention on grounds different from those contained in Contention 1B. The scope of the inquiry on what would be Contention 1A will be much broader than the inquiry required under Contention 1B. In order to avoid any delay, Contentions 1A and 1B can be heard together as part of the same proceeding. Thus the broadening will be very small and the delay very little if the new contention is allowed.

4. Under 10 C.F.R. §2.714(a)(3) a motion to amend contentions must satisfy the specificity requirements of 10 C.F.R. §2.712(a)(2).

THE INTEREST OF THE  
PETITIONER IN THE  
PROCEEDING

By order of this Board dated August 3, 1979, Mark P. Oncavage is a party-intervenor in this cause.

HOW THE PETITIONER'S  
INTEREST MAY BE AFFECTED  
BY THE RESULTS OF THE  
PROCEEDING

At the present stage of this proceeding, the Intervenor is the representative of the present generation "as trustee of the environment for succeeding generations." See 42 U.S.C. §4331(b)(2). In this quasi-fiduciary position he has the responsibility to:

(1) assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;

(2) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;

(3) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice;

(4) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and

(5) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Additionally, Mr. Oncavage, his wife and his son live

approximately 15 miles from the Turkey Point power facility. He owns a sailboat and cruises the waters of Biscayne Bay near Turkey Point and engages in fishing, crabbing, swimming, skin diving and underwater photography.

In order to protect these interests Mr. Oncavage desires that the steam generator repairs at the Turkey Point facilities be performed in a fashion that will have as little adverse impact as possible on the natural environment. An obvious method for determining whether the repair activities will have a degrading impact on the environment is to have an Environmental Impact Statement made. If a statement is not made Mr. Oncavage loses a valuable tool for determining the degree to which the steam generator repairs will degrade the environment. To the extent that the environment damage will be prevented by its disclosure in an Environmental Impact Statement, Mr. Oncavage will be greatly affected by the preparation of an Environmental Impact Statement.

SUBJECT MATTER OF THE  
PROPOSED AMENDMENT TO  
THE CONTENTIONS

If an application for an amendment to a license involves a material alteration to a licensed facility, a construction permit will be issued prior to the issuance of the amendment to the licensee. 10 C.F.R. §50.91. Alteration, as used in that regulation, means a change in a technical specification or a change which involves an unreviewed safety question.

38 Fed. Reg. 22796 (1973) and 39 Fed. Reg. 10554 (1974).. An environmental impact will be prepared and circulated prior to the issuing of a construction permit issued pursuant to 10 C.F.R. Part 50. See 10 C.F.R. §51.5(a)(1).

The integrity of tubes in a Westinghouse steam generator is considered by the Nuclear Regulatory Commission to be an unresolved safety issue. NUREG-0410, N.R.C. Program for the Resolution of Generic Issues Related to Nuclear Power Plants, Category A Technical Activity No. A-3, U.S. N.R.C. Jan. 1978.

It is stated in the Environment Impact Appraisal at §2.2 that

As of May 1979, tube plugging for various reasons has resulted in removing about 17.5% of the steam generator tubes in Unit 3 and about 20.5% of the tubes in Unit 4.

Florida Power and Light has claimed at Section 2.2 of its Steam Generator Repair Report that

Research, development and testing have been utilized to select design parameters, material and component configurations which will prevent degradation of the repaired steam generators. (Emphasis added)

In Intervenor's interrogatories 1 - 7 and 1 - 8 he asked licensee to provide all of its test data and calculations in support of its allegation that with its newly installed steam generators it could prevent tube degradation. As can be seen from the answers to these questions, provided by the licensee, it has no test data or calculations or any

empirical facts to support its claim that it can now prevent tube degradation.

After receiving these answers Intervenor contacted his expert witnesses for an evaluation of the Florida Power and Light claims that it could prevent tube degradation. Dale G. Bridenbaugh and Gregory C. Minor will testify that the failure of multiple tubes in the steam generator prior to or during a loss of coolant accident or a main steam line break accident could impact the ability of the emergency core cooling system to perform its intended function due to excess leakage between the primary and secondary coolants.

At the time of initial licensing, the FSAR indicated confidence in the design and reliability of the steam generators. What in fact happened was a large failure rate experienced in the tubes of the steam generators. There still remains no test data or calculations to support the claim that the new steam generators will encounter no tube denting and that degradation will be prevented. This is a safety question which has not been reviewed before.

The licensee claims in Steam Generator Repair Report §2.2.1.1 that the increased circulation ratio will prevent and inhibit corrosion. Dr. Robert Anderson will testify that corrosion problems tend to increase with increases in fluid velocity. At higher velocities turbulence is more pronounced which results in concentration gradients forming



by the eddy currents and erosion can increase. Dr. Anderson will testify that demineralized water is more aggressive to metal than non-demineralized water. In conjunction with the testimony of Messrs. Bridenbaugh and Minor that the tube denting problem has not been solved, Dr. Anderson will testify that the blocking of those tubes would redistribute the already existing sludge in a new manner causing further tube failures.

ON-SITE STORAGE OF  
STEAM GENERATORS

In response to Interrogatory 6-11 the licensee lists the guidelines that will be followed in designing the steam generator storage facility. Of all of the guidelines listed, none of them are Nuclear Regulatory Commission guidelines. For the Nuclear Regulatory Commission this is an unreviewed question.

In response to Interrogatory 6-21, the licensee states that it has no provisions for the collection of condensation inside the steam generator storage facility. As a consequence, condensation may form on the steam generators providing a liquid pathway for removable nucleids or nucleids in solution.

In response to Interrogatory 6-11, the licensee has stated that the facility will be designed to withstand winds of 120 m.p.h. The Intervenor will offer testimony of

hurricanes that have passed through Dade County, Florida, along Biscayne Bay, with winds in excess of 120 m.p.h. In response to Interrogatory 6-35, Florida Power and Light admits that it has no final calculations evaluating the effects of a design basis hurricane upon the foundations of the steam generator storage facility. The totality of these answers would indicate that the storage facility will be the source of a potential radionucleid release to the environment and that during a hurricane the integrity of the storage facility itself is in question. These are safety questions that are both material and have not been reviewed in the past.

Respectfully submitted,

By

  
HENRY H. HARNAGE

  
NEIL CHONIN

Attorneys for MARK A. ONCAVAGE,  
Intervenor

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NUCLEAR REGULATORY COMMISSION

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FLORIDA POWER & LIGHT COMPANY	)	(Proposed Amendments to
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CERTIFICATE OF SERVICE

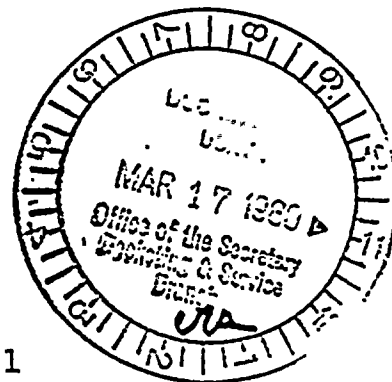
I HEREBY CERTIFY that a true copy of the foregoing Motion  
to Amend Contentions was mailed this ~~11th~~ day of March, 1980,  
to the following individuals:

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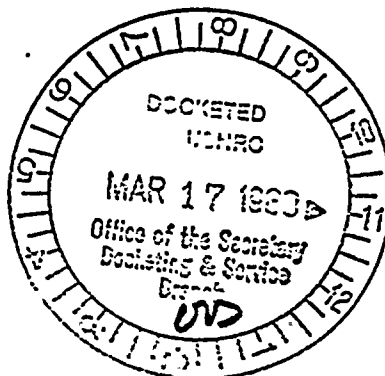
HENRY H. HARNAGE

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HENRY H. HARNAGE

## RESUME

GREGORY C. MINOR  
MHB Technical Associates  
1723 Hamilton Avenue  
Suite K  
San Jose, California 95125  
(408) 266-2716



## EXPERIENCE

1976 - Present:

Partner - MHB Technical Associates, San Jose, California. Engineering and Energy consultant to state, federal and private organizations and individuals. Major activities include studies of safety and risk involved in energy generation, providing technical consulting to legislative, regulatory, public and private groups and expert witness in behalf of state organizations and citizens' groups. Was co-editor of a critique of the Reactor Safety Study (WASH-1400) for the Union of Concerned Scientists and co-author of a risk analysis of Swedish reactors for the Swedish Energy Commission. Served on the Peer Review Group of the NRC/TMI Special Inquiry Group (Rogovin Committee). Actively involved in the Nuclear Power Plant Standards Committee work for the Instrument Society of America (ISA).

1972 - 1976:

Manager - Advanced Control and Instrumentation Engineering, General Electric Company, Nuclear Energy Division, San Jose, California.

Managed a design and development group of thirty-four engineers and support personnel designing systems for use in the measurement, control and operation of nuclear reactors. Involved coordination with other reactor design organizations, the Nuclear Regulatory Commission, and customers, both overseas and domestic.

Responsibilities included coordinating and managing the design and development of control systems, safety systems, and new control concepts for use on the next generation of reactors. The position included responsibility for standards applicable to control and instrumentation, as well as the design of short-term solutions to field problems. The disciplines involved included electrical and mechanical engineering, seismic design and process computer control/programming.

1970 - 1972:

Manager - Reactor Control Systems Design - General Electric Company, Nuclear Energy Division, San Jose, California.

Managed a group of seven engineers and two support personnel in the design and preparation of the detailed system drawings and control documents relating to safety and emergency systems for nuclear reactors. Responsibility required coordination with other design organizations and interaction with the customer's engineering personnel, as well as regulatory personnel.

1963 - 1970:

Design Engineer - General Electric Company, Nuclear Energy Division, San Jose, California.

Responsible for the design of specific control and instrumentation systems for nuclear reactors. Lead design responsibility for various subsystems of instrumentation used to measure neutron flux in the reactor during startup and intermediate power operation. Performed lead system design function in the design of a major system for measuring the power generated in nuclear reactors. Other responsibilities included on-site checkout and testing of a complete reactor control system at an experimental reactor in the Southwest. Received patent for Nuclear Power Monitoring System.

1960 - 1963:

Advanced Engineering Program - General Electric Company, Assignments in Washington, California, and Arizona.

Rotating assignments in a variety of disciplines:

- Engineer - Reactor maintenance and instrument design, KE and D reactors, Hanford, Washington, Circuit design and equipment maintenance coordination.
- Design Engineer - Microwave Department, Palo Alto, California. Work on design of cavity couplers for TWT's.
- Design Engineer - Computer Department, Phoenix, Arizona. Design of core driving circuitry.
- Design Engineer - Atomic Power Equipment Department, San Jose, California. Circuit design and analysis.
- Design Engineer - Space Systems Department, Santa Barbara, California. Prepare control portion of satellite proposal.

- Technical Staff - Technical Military Planning Operation. (TEMPO), Santa Barbara, California. Prepare analysis of missile exchanges.

During this period, completed three-year General Electric program of extensive education in advanced engineering principles of higher mathematics, probability and analysis. Also completed courses in Kepner-Tregoe, Effective Presentation, Management Training Program, and various technical seminars.

#### EDUCATION

University of California at Berkeley, BSSE, 1960.

Advanced Course in Engineering - 3-year Curriculum, General Electric Company, 1963.

Stanford University, MSEE, 1966.

#### HONORS AND ASSOCIATIONS

- Tau Beta Pi Engineering Honorary Society
- Co-holder of U.S. Patent No. 3,565,760, "Nuclear Reactor Power Monitoring System," February 1971.
- Member: American Association for Advance of Science.
- Member: Nuclear Power Plant Standards Committee, Instrument Society of America.

#### PERSONAL DATA

Born: June 7, 1937

Married, three children

Residence: San Jose, California

## PUBLICATIONS AND TESTIMONY

1. G.C. Minor, S.E. Moore, "Control Rod Signal Multiplexing," IEEE Transactions on Nuclear Science, Vol. NS-19, February 1972.
2. G.C. Minor, W.G. Milam, "An Integrated Control Room System for a Nuclear Power Plant," NEDO-10658, presented at International Nuclear Industries Fair and Technical Meetings, October 1972, Basle, Switzerland.
3. The above article was also published in the German Technical Magazine, NT, March 1973.
4. Testimony of G.C. Minor, D.G. Bridenbaugh, and R.B. Hubbard before the Joint Committee on Atomic Energy, Hearings held February 18, 1976, and published by the Union of Concerned Scientists, Cambridge, Massachusetts.
5. Testimony of G.C. Minor, D.G. Bridenbaugh, and R.B. Hubbard before the California State Assembly Committee on Resources, Land Use, and Energy, March 8, 1976.
6. Testimony of G.C. Minor and R.B. Hubbard before the California State Senate Committee on Public Utilities, Transit, and Energy, March 23, 1976.
7. Testimony of G. C. Minor regarding the Grafenrheinfeld Nuclear Plant, March 16-17, 1977, Wurzburg, Germany.
8. Testimony of G.C. Minor before the Cluff Lake Board of Inquiry Regina, Saskatchewan, Canada, September 21, 1977.
9. The Risks of Nuclear Power Reactors: A Review of the NRC Reactor Safety Study WASH-1400 (NUREG-75/014), H. Kendall, et al, edited by G.C. Minor and R.B. Hubbard for the Union of Concerned Scientists, August 1977.
10. Swedish Reactor Safety Study: Barsebäck Risk Assessment, MHB Technical Associates, January 1978. (Published by Swedish Department of Industry as Document SdI 1978:1)
11. Testimony by G.C. Minor before the Wisconsin Public Service Commission, February 13, 1978, Loss of Coolant Accidents: Their Probability and Consequence.
12. Testimony by G.C. Minor before the California Legislature Assembly Committee on Resources, Land Use and Energy, AB 3108, April 26, 1978, Sacramento, California.
13. Presentation by G.C. Minor before the Federal Ministry for Research and Technology (BMFT), Meeting on Reactor Safety Research, Man/Machine Interface in Nuclear Reactors, August 31 and September 1, 1978, Bonn, Germany.



PUBLICATIONS AND TESTIMONY

14. Testimony by G.C. Minor, D.G. Bridenbaugh, and R.B. Hubbard before the Atomic Safety and Licensing Board, September 25, 1978, In the Matter of the Black Fox Nuclear Power Station Construction Permit Hearings, Tulsa, Oklahoma.
15. G.C. Minor, D.G. Bridenbaugh, and R.B. Hubbard, Improving the Safety of LWR Power Plants, prepared for Sandia Laboratories by MHB Technical Associates, September 27, 1979.

## BIOGRAPHICAL DATA

NAME: Robert Neil Anderson

ADDRESS: Work: Department of Materials Engineering  
San Jose State University  
San Jose, California 95192  
(408/277-3751 or 277-2446) 2437

Home: 3034 Stelling Drive  
Palo Alto, California 94303  
(415/494-7824)

### PERSONAL INFORMATION:

Date of Birth: November 8, 1933  
Place of Birth: San Jose  
Marital Status: Married; two children

### EDUCATION

B.S., Chemistry, University of San Francisco, 1956  
B.S., Chemical Engineering, University of California - Berkeley 1958  
M.S., Chemical Engineering, University of California - Berkeley 1959  
Ph.D., Metallurgy, Stanford University, 1969  
Post Doctoral Study in Metallurgy - Stanford University, 1970-1973

### PROFESSIONAL EXPERIENCE:

#### Academic:

San Jose State University, Professor 1978 - Current  
San Jose State University, Associate Professor, 1974-78  
Stanford University, Associate Professor, 1973-74  
Stanford University, Research Metallurgist, 1972-73  
Stanford University, Post Doctoral Research Associate, 1970-72  
University of California, Berkeley, Research Assistant, 1958-59  
University of San Francisco, Chemist, 1955-56

#### Industrial:

U.S. Naval Radiological Defense Laboratory, Operations Research  
Analyst, 1966-69  
U.S. Naval Radiological Defense Laboratory, Research Engineer, 1959-66  
Arabian American Oil Company, Chemist, 1954-55

RECEIVED JAN 17 1980

## PROFESSIONAL EXPERIENCE (continued)

### Consulting:

California Public Utilities Commission, 1979  
Standard Oil Company of Indiana, 1978 - present  
Lawrence Livermore Laboratory, 1978 - present  
Radiological Science Inc., 1977 - present  
California State Energy, Resources and Development Commission, 1977-79  
Executive Office of the President of the United States Council on  
Environmental Quality and Office of Science and Technology Policy,  
1978  
United States Congress, Office of Technology Assessment, 1979  
Scientific Service Incorporated, 1977-78  
MHB Associates, 1977 - present  
Parlee-Anderson Corp., 1979 - present  
Accident Analysis, 1974 - present  
McDermitt Mine, 1976 - present  
International Business Machines, 1977-78  
Memorex, 1979  
Electrical Power Research Institute, 1974  
SRI, 1975-77  
Brookhaven National Laboratories, 1977-78  
Attornies (list on request)

### PROFESSIONAL ACTIVITIES:

American Nuclear Society, American Institute of Chemical Engineers,  
American Chemical Society, American Institute of Metallurgical  
Engineers (Past Chairman of Northern California Section),  
American Society of Metals, National Society for Professional  
Engineers, American Society for Engineering Education, California  
Academy of Science, Alpha Chi Sigma, Tau Beta Pi and Sigma Xi.

### CREDENTIALS AND LICENSES:

California Standard Teaching Credential.  
Registered Metallurgical Engineer, California.  
Registered Nuclear Engineer, California.  
Fallout Shelter Analyst.  
Private Pilots License.

### PUBLICATIONS:

#### Articles:

1. "The Activity of Titanium in Liquid Alloys," Accepted for publication and presentation in the Fourth International Conference on Titanium 19-22 May, 1980, International Conference Hall, Kyoto, Japan.
2. "Internationally Safeguarded Atomic Fuel Exchange Center for the Asia-Pacific Basin," Proceedings in 2nd Miami International Conference

PUBLICATIONS (continued)

- on Alternative Energy Sources, 10-13 December 1979, Miami Beach, Florida.
3. "Site Selection for Spent Fuel Storage Facilities in the Pacific Basin," Nuclear Engineering International, October, 1979.
  4. "Survey of Nuclear Fuel Reprocessing Technologies," Conservation and Recycling, October, 1979.
  5. The Gold Dagger of Tutankhamun, Grafico Publishing Co., Santa Clara, Ca., 1979 (available through the San Francisco De Young Museum).
  6. "Analysis of the Infrastructure of the Front End of the Uranium Fuel Cycle," San Jose State University, Materials Engineering Department, technical report prepared for the California Public Utilities Commission (August 30, 1979).
  7. "The Kinetics of  $UO_2$  Reduction by Carbon in Liquid Tin," Lawrence Livermore Lab Technical Report, July, 1979.
  8. "Analysis of the Front End of the Uranium Fuel Cycle Including Uranium Resource Availability through the Year 2010," San Jose State University, Materials Engineering Department, report prepared for the California Public Utilities Commission (July 1, 1979).
  9. "The Mineral Industries and the Challenges of the 80's," paper presented to the Pacific Southwest Minerals Conference, San Francisco March 25, 1979.
  10. "The Effect of Equipment Design, Operational Parameters and Surface Conditions on Coatings Produced by Flame Spraying," Journal of Thin. Solid Films, accepted for publication 1979.
  11. "The Effect of Pressure on Interface Interactions Between Solids," Proceedings of the Conference on High-Level Radioactive Solid Waste Forms 19-21 December 1978, Denver, Colorado.
  12. "Let's Use MHD to Smelt Metals: Industrial Research/Development September 1978 (p.p. 131-34).
  13. "The Application of Magneto Hydro-Dynamics to Steelmaking," Industrial Research and Development, September, 1978.
  14. "Cleaning and Surface Preparation Technology and Other Factors on Coatings Produced by Flame Spraying," presented at the 4th International Symposium on Contamination Control, 10-13 September 1978, Washington, D.C.
  15. "Separation Technologies Reviewed," Nuclear Engineering International, August, 1978.

PUBLICATIONS (continued)

16. "Spent Fuel Disposal Costs," report to the Natural Resources Defense Council, July, 1978.
17. "Examinations of Radioactivity and Environmental Aspects of Antarctic Soils at Point Hueneme," report to the California Solid Waste Board, July, 1978.
18. Invited contributor to the Executive Office of the President of the United States document on Nuclear Power and Nuclear Waste Disposal for the President of the United States, June, 1978.
19. "Technical Review of the Deutch Draft Report on Nuclear Waste Management," for the Council on Environmental Quality, Executive Office of the President of the United States, May, 1978.
20. "A Technical Assessment of Nuclear Fuel Reprocessing and Radioactive Waste Disposal," report to State of California Energy Resources Conservation and Development Commission, March, 1978.
21. "A Program Assessment of Nuclear Fuel Reprocessing and Radioactive Waste Disposal," report to State of California Energy Resources Conservation and Development Commission, January, 1978.
22. "Methodology for Comparative Evaluation of Nuclear Fuel Reprocessing Techniques for Advanced Low Proliferation Risks," Proceedings of the First International Conference on Alternative Energy Sources, December, 1977, Coral Gables, Florida.
23. "Hydrometallurgical Separation of the Zinc-Base Fraction of Shredded Automobiles," Conservation and Recycling, V. 1, 1977.
24. "Survey of Reprocessing Technologies," Brookhaven National Laboratories Report 23082, June, 1977.
25. "The Physical & Chemical Characteristics of Titanium-Copper Alloys," Technical Report to Regalware, July, 1977.
26. "A Methodology for Evaluation of Alternative Technologies Applied to Nuclear Fuel Reprocessing," Brookhaven National Laboratory Report 50700, July, 1977.
27. "Comparative Evaluation of Nuclear Fuel Reprocessing Techniques for Advanced Fuel Cycle Concepts," report prepared for Brookhaven National Laboratory, September, 1976.
28. "Meet the ANF Reactor," Industrial Research May, 1976.
29. "A Technical and Economic Analysis of Processes for the Recovery of Metals in the Non-Ferrous Portion of Automobile Shredder Refuse," Proceedings of the Fifth Mineral Waste Utilization Symposium, April 13-14, 1976.

PUBLICATIONS (continued)

30. "Evaluation of Mineral Waste Utilization Processes and Strategies by Net Energy Analysis," Proceedings of the Fifth Mineral Waste Utilization Symposium, April 13-14, 1976.
31. "Available Supply of Gallium and Arsenic," prepared for NASA Langley Research Center, Va., April 1976.
32. "Carbothermic Reduction of Refractory Metals," J. of Vacuum Science & Technology, V. 13, No. 1, Jan/Feb 1976; "Nuclear Plant Can Make Gold," San Jose News, March 20, 1975; "What to Do With Atomic Waste," San Jose News, 1975.
33. "Thermodynamics of Nitride Formation in Liquid U-Gd-Sn Alloys," Journal of High Temperature Science, V. 7, 1975.
34. "Study of Interdiffusion in Electroplated Si-Ni on Au," Solid State Technology, November 1974.
35. "Nitrogen Nitride Equilibria in Molten Y-Sn Alloys," Journal of High Temperature Science, V. 6, 1974.
36. "The Kinetics of Uranium Nitride Formation in U-Sn Alloys," Journal of High Temperature Science, V. 6, 1974.
37. "Thermodynamics of Nitride Formation in Liquid U-Gd-Sn Alloys," Journal of High Temperature Science, Abstract in Journal of Metal, January, 1974.
38. "Nitrogen-Nitride Equilibria in Molten Y-Sn Alloys," Submitted to the Journal of High Temperature Science, (with A-FUWA and N.A.D. Parlee).
39. "The Kinetics of Uranium Nitride Formation on liquid U-Sn Alloys," submitted to Metallurgical Transactions (with T. Schnicks and N.A.D. Parlee) (Abstract in Journal of Metals, January, 1974).
40. Application of Solution Thermodynamics in High Temperature Metallurgical Processes, Proc. of 67th Meeting of the American Institute of Chemical Engineers, Dec. 1-15, 1974.
41. "Nitrogen-Nitride Equilibria in Molten Pr-Sn Alloys," Journal of High Temperature Science, V. 5, 1973.
42. "Nitrogen-Nitride Equilibria in Molten Gd-Sn Alloys," Journal of High Temperature Science, V. 5, 1973.
43. "Nitrogen-Nitride Equilibria in Molten Gd-Sn Alloys," Journal of High Temperature Science, V. 5, 1973.
44. "Continuous Removal of Fission Products in a Nitride Fueled Reactor," Nuclear Technology, V. 13, March 1972 (297-300).

## PUBLICATIONS (continued)

45. "Application of Nitride-Forming Reactions to Reprocessing of Spent Nuclear Fuels," Nuclear Technology, V. 13, January, 1972.
46. "Reassessment of the Copper-Boron Phase Diagram," Journal of the Less Common Metals, V. 25, December 1971 (427-430).
47. "Nitrogen-Nitride Reactions in Molten U-Sn Alloys," TMS-AIME Metallurgical Transactions, V. 2, June, 1971
48. "Standard Free Energy of Nitride Formation From the Elements, A Estimation Technique," Journal of High Temperature Science, V. 2, 1970.
49. "Ultrasonic Decontamination of Military Weapons," NRA Riflemen, November, 1963.
50. "The Contamination-Decontamination of Fission Products in Sea Water," Nuclear Detonations and Marine Radioactivity Symposium, Kjeller, Norway, 1963.
51. "Two Phase Heat Transfer," Industrial and Engineering Chemistry, V. 51, 1959.

## PATENTS ISSUED IN THE FIELD OF MATERIALS SCIENCE:

U.S. Patents	3,794,482	Feb. 26, 1974
	3,843,765	Oct. 22, 1974
	3,843,766	Oct. 22, 1974
Canadian Patents	931,672	Aug. 7, 1973
	931,673	Aug. 7, 1973
	950,683	July 9, 1974
Great Britain	1,342,991	Jan. 18, 1971
	1,344,950	Jan. 18, 1971
	1,323,474	Nov. 13, 1970
	1,323,475	Nov. 13, 1970
Mexico	119,105	Jan. 30, 1971
New Zealand	163,527	Jan. 15, 1971
South Africa	71/0273	Jan. 18, 1971
Sweden	1166/71	Feb. 1, 1971
W. Germany	2,103,255	Jan. 25, 1971
U.S. Patent Applications	905,745 filed May 15, 1978	
	038,382 filed May 14, 1979	

## RESUME

Dale G. Bridenbaugh  
1723 Hamilton Avenue, Suite K  
San Jose, CA 95125  
(408)266-2716

### EXPERIENCE:

1976 - Present

Partner, MHB Technical Associates, San Jose, California. Founder and partner of technical consulting firm. Specialists in energy consulting to governmental and other groups interested in evaluation of nuclear plant safety and licensing. Consultant in this capacity to State of California, Suffolk County, New York, New York Attorney General, Norwegian Nuclear Power Committee, Public Advocates Office, New Jersey, and various other organizations and environmental groups. Performed extensive safety analysis for Swedish Energy Commission and contribute to Union of Concerned Scientists' Review of WASH-1400; consultant to U.S. NRC - LWR Safety Improvement Program, and performed Cost Analysis of Spent Fuel Disposal for NRDC.

1976 - (February - August)

Consultant, Project Survival, Palo Alto, California. Volunteer work on Nuclear Safeguards Initiative campaigns in California, Oregon, Washington, Arizona, and Colorado. Numerous presentations on nuclear power and alternative energy options to civic, government, and college groups. Also resource person for public service presentations on radio and television.

1973 - 1976

Manager, Performance Evaluation and Improvement, General Electric Company - Nuclear Energy Division, San Jose, California. Managed seventeen technical and seven clerical personnel with responsibility for establishment and management of systems to monitor and measure Boiling Water Reactor equipment and system operational performance. Integrated General Electric resources in customer plant modifications, coordinated correction of causes of forced outages and of efforts to improve reliability and performance of BWR systems.

Responsible for development of Division Master Performance Improvement Plan as well as for numerous Staff special assignments on long-range studies. Was on special assignment for the management of two different ad hoc projects formed to resolve unique technical problems.

1972 - 1973

Manager, Product Service, General Electric Company - Nuclear Energy Division, San Jose, California. Managed group of twenty-one technical and four clerical personnel. Prime responsibility was to direct interface and liaison personnel involved in corrective actions required under contract warranties. Also in charge of refueling and service planning, performance analysis, and service communication functions supporting all completed commercial nuclear power reactors supplied by General Electric both domestic and overseas (Spain, Germany, Italy, Japan, India, and Switzerland).



1968 - 1972

Manager, Product Service, General Electric Company - Nuclear Energy Division, San Jose, California.

Managed sixteen technical and six clerical personnel with the responsibility for all customer contact, planning and execution of work required after the customer acceptance of Department - supplied plants and/or equipment. This included quotation, sale and delivery of spare and renewal parts. Sales volume of parts increased from \$1,000,000 in 1968 to over \$3,000,000 in 1972.

1966 - 1968

Manager, Complaint and Warranty Service, General Electric Company - Nuclear Energy Division, San Jose, California.

Managed group of six persons with the responsibility for customer contacts; planning and execution of work required after customer acceptance of Department - supplied plants and/or equipment -- both domestic and overseas.

1963 - 1966

Field Engineering Supervisor, General Electric Company, Installation and Service Engineering Department, Los Angeles, California.

Supervised approximately eight field representatives with responsibility for General Electric steam and gas turbine installation and maintenance work in Southern California, Arizona, and Southern Nevada. During this period was responsible for the installation of eight different central station steam turbine generator units, plus much maintenance activity. Work included customer contact, preparation of quotations, and contract negotiations.

1956 - 1963

Field Engineer, General Electric Company, Installation and Service Engineering Department, Chicago, Illinois.

Supervised installation and maintenance of steam turbines of all sizes. Supervised crews of from ten to more than one hundred men, depending on the job. Work primarily with large utilities but had significant work with steel, petroleum and other process industries. Had four years of experience at construction, startup, trouble-shooting and refueling of the first large-scale commercial nuclear power unit.

1955 - 1956

Engineering Training Program, General Electric Company, Erie, Pennsylvania, and Schenectady, New York.

Training assignments in plant facilities design and in steam turbine testing at two General Electric Factory locations.

1953 - 1955

United States Army - Ordnance School, Aberdeen, Maryland

Instructor - Heavy Artillery Repair. Taught classroom and shop disassembly of artillery pieces.

1953

Engineering Training Program, General Electric Company, Evendale, Ohio; training assignment with Aircraft Gas Turbine Department.

#### EDUCATION & AFFILIATIONS

: BSME - 1953 South Dakota School of Mines and Technology, Rapid City, South Dakota, Upper  $\frac{1}{2}$  of class.

Professional Nuclear Engineer - California. Certificate No. 0973.

Member - American Nuclear Society.

: Various Company Training Courses during career including Professional Business Management, Kepner Tregoe Decision Making, Effective Presentation, and numerous technical seminars.

#### HONORS & AWARDS

Sigma Tau - Honorary Engineering Fraternity.

General Managers Award, General Electric Company.

#### PERSONAL DATA

Born November 20, 1931, Miller, South Dakota

Married, three children.

6'2", 190 lbs., health - excellent.

Honorable discharge from United States Army.

Hobbies: skiing, hiking, work with Cub and Boy Scout groups.

## PUBLICATIONS & TESTIMONY

1. Operating and Maintenance Experience, presented at Twelfth Annual Seminar for Electric Utility Executives, Pebble Beach, California, October 1972, published in General Electric NEDC-10697, December 1972.
2. Maintenance and In-Service Inspection, presented at IAEA Symposium on Experience From Operating and Fueling of Nuclear Power Plants, Bridenbaugh, Lloyd, & Turner, Vienna, Austria, October 1973.
3. Operating and Maintenance Experience, presented at Thirteenth Annual Seminar for Electric Utility Executives, Pebble Beach, California, November 1973, published in General Electric NED0-20222, January 1974.
4. Improving Plant Availability, presented at Thirteenth Annual Seminar for Electric Utility Executives, Pebble Beach, California, November 1973, published in General Electric NED0-20222, January 1974.
5. Application of Plant Outage Experience to Improve Plant Performance, Bridenbaugh and Burdsall, American Power Conference, Chicago, Illinois, April 14, 1974.
6. Nuclear Valve Testing Cuts Cost, Time, Electrical World, October 15, 1974.
7. The Risks of Nuclear Power Reactors: A Review of the NRC Reactor Safety Study WASH-1400, Kendall, Hubbard, Minor, & Bridenbaugh, et al, for the Union of Concerned Scientists, August 1977.
8. Swedish Reactor Safety Study: Barsebäck Risk Assessment, MHB Technical Associates, January 1978. (Published by Swedish Department of Industry as Document DsI 1978;1)
9. Testimony of D. G. Bridenbaugh, R. B. Hubbard, G. C. Minor to the California State Assembly Committee on Resources, Land Use, and Energy, March 8, 1976.
10. Testimony of D. G. Bridenbaugh, R. B. Hubbard, and G. C. Minor before the United States Congress, Joint Committee on Atomic Energy, February 18, 1976, Washington, DC. (Published by the Union of Concerned Scientists, Cambridge, Massachusetts.)
11. Testimony by D. G. Bridenbaugh before the California Energy Commission, entitled, Initiation of Catastrophic Accidents at Diablo Canyon, Hearings on Emergency Planning, Avila Beach, California, November 4, 1976.

12. Testimony by D. G. Bridenbaugh before the U.S. Nuclear Regulatory Commission, subject, Diablo Canyon Nuclear Plant Performance, Atomic Safety and Licensing Board Hearings, December 1976.
13. Testimony by D. G. Bridenbaugh before the California Energy Commission, subject, Interim Spent Fuel Storage Considerations, March 10, 1977.
14. Testimony by D. G. Bridenbaugh before New York State Public Service Commission Siting Board Hearings concerning the Jamesport Nuclear Power Station, subject: Effect of Technical and Safety Deficiencies on Nuclear Plant Cost and Reliability, April 1977.
15. Testimony by D. G. Bridenbaugh before the California State Energy Commission, subject, Decommissioning of Pressurized Water Reactors, Sundesert Nuclear Plant Hearings, June 9, 1977.
16. Testimony by D. G. Bridenbaugh before the California State Energy Commission, subject, Economic Relationships of Decommissioning, Sundesert Nuclear Plant, for the Natural Resources Defense Council, July 15, 1977.
17. Testimony by D. G. Bridenbaugh before the Vermont State Board of Health, subject, Operation of Vermont Yankee Nuclear Plant and Its Impact on Public Health and Safety, October 6, 1977.
18. Testimony by D. G. Bridenbaugh before the U.S. Nuclear Regulatory Commission, Atomic Safety and Licensing Board, subject, Deficiencies in Safety Evaluation of Non-Seismic Issues. Lack of a Definitive Finding of Safety, Diablo Canyon Nuclear Units, October 18, 1977, Avila Beach, California.
19. Testimony by D. G. Bridenbaugh before the Norwegian Commission on Nuclear Power, subject, Reactor Safety/Risk, October 26, 1977.
20. Testimony by D. G. Bridenbaugh before the Louisiana State Legislature Committee on Natural Resources, subject, Nuclear Power Plant Deficiencies Impacting on Safety & Reliability, Baton Rouge, Louisiana, February 13, 1978.
21. Spent Fuel Disposal Costs, report prepared by D.G. Bridenbaugh for the Natural Resources Defense Council (NRDC), August 31, 1978.
22. Testimony by D.G. Bridenbaugh, G.C. Minor, and R.B. Hubbard before the Atomic Safety and Licensing Board, in the matter of the Black Fox Nuclear Power Station Construction Permit Hearings September 25, 1978, Tulsa, Oklahoma.

## PUBLICATIONS AND TESTIMONY

23. Testimony of D.G. Bridenbaugh and R.B. Hubbard before the Louisiana Public Service Commission, Nuclear Plant and Power Generation Costs, November 19, 1978, Baton Rouge, Louisiana.
24. Testimony by D.G. Bridenbaugh before the City Council and Electric Utility Commission of Austin, Texas, Design, Construction, and Operating Experience of Nuclear Generating Facilities, December 5, 1978, Austin, Texas



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

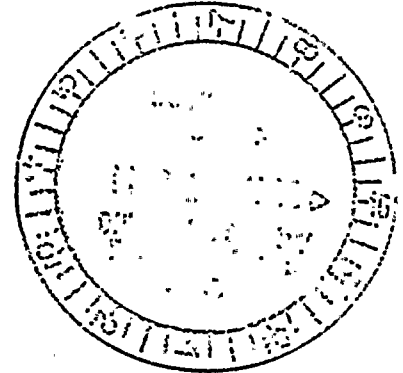
March 6, 1980

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

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

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

In the Matter of  
Florida Power and Light Company  
(Turkey Point Nuclear Generating Unit Nos. 3 and 4)  
Docket Nos. 50-250 & 50-251 (Proposed Amendments to  
Facility Operating Licenses to Permit  
Steam Generator Repair)



Dear Members of the Board:

On March 4, 1980, the Commission issued a Memorandum and Order directing the issuance of an environmental impact statement in connection with the Surry steam generator repair operation. A copy of that Memorandum and Order is enclosed. This action eliminates a principal matter in controversy in this proceeding (embodied in contention 1) concerning whether such a statement should be prepared. The Staff will advise the Board and parties when a schedule for issuance of the impact statement has been established.

Sincerely,

Steven C. Goldberg  
Counsel for NRC Staff

Enclosure: As stated

cc w/enclosure:

Mr. Mark P. Oncavage  
Harold F. Reis, Esq.  
Norman A. Coll, Esq.  
Neil Chonin, Esq.  
Henry H. Harnage, Esq.

Atomic Safety and Licensing  
Board Panel  
Atomic Safety and Licensing  
Appeal Board Panel  
Docketing and Service Section

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

## COMMISSIONERS:

John F. Ahearne, Chairman  
Victor Gilinsky  
Richard T. Kennedy  
Joseph M. Hendrie  
Peter A. Bradford

In the Matter of

VIRGINIA ELECTRIC POWER CO.

(Surry Nuclear Power Station,  
Units 1 and 2)

For Relief Under 10 CFR 2.206

Docket Nos. 50-280  
50-281

MEMORANDUM AND ORDER

The Commission has before it for sua sponte review three decisions by the Director of the Office of Nuclear Reactor Regulation on petitions<sup>1/</sup> filed under 10 CFR § 2.206 involving the steam generator repair at the Surry Nuclear Power Station. On January 29, 1980, the Commission, pursuant to 10 CFR § 2.206(c)(1), took review of the three decisions on the issue of the need for an environmental impact statement regarding the proposed repair.

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<sup>1/</sup> The three petitions are from the North Anna Environmental Coalition (filed December 29, 1978; denied February 1, 1979); the Environmental Policy Institute (filed February 20, 1979, denied April 4, 1979); and the Potomac Alliance, Citizens Energy Forum, Inc., Truth in Power, Inc., and the Virginia Sunshine Alliance (filed April 18, 1979, denied October 24, 1979).

The primary issue presented by the repair,<sup>2/</sup> and the sole issue considered on the merits in this Commission review, is whether the NRC's action in approving the repair is one "significantly affecting the quality of the human environment" for purposes of the National Environmental Policy Act (NEPA),<sup>3/</sup> and therefore one that requires an environmental impact statement. This admittedly vague test, and the lack of definitive criteria that can be used in applying it, leaves the Commission and its Staff with a difficult decision in many cases. The circumstances of this case presented the Director with just such a difficult decision.

Our review has focused on the occupational radiation exposure that the repair program will entail because we believe that this adverse environmental impact is the only one associated with the repair program that might be considered significant. We have carefully examined the Director's Decisions and the bases therefor, and are unable to determine from the data and arguments presented by the Director whether the occupational radiation exposure involved here is significant. The Director's Decisions rest essentially on a comparison of the impact of the radiation exposure resulting from the repair with the net savings in total occupational exposure resulting from operation using repaired steam generators

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<sup>2/</sup> When this issue first arose, both units at Surry were the subject of the petitions. At this point however, repairs at Unit 2 are essentially completed and the repairs at Unit 1 are scheduled to begin in June of 1980. Hence, the need for an environmental impact statement for the Unit 2 repairs is moot. However, the issue of the need for a statement for the Unit 1 repair is very much alive and is the focus of this Commission review.

<sup>3/</sup> The National Environmental Policy Act of 1969, Pub. L. No. 91-190, 83 Stat. 852 as amended by Pub. L. 94-83, 89 Stat. 424, 42 U.S.C. §§ 4321 et seq.



instead of defective ones, and a comparison with the incidence of cancer for the worker population due to causes other than the repair at Surry. The first comparison is relevant to the question whether the expected benefits of the action outweigh the environmental costs, which is distinct from the question whether the expected environmental impact of a federal action is sufficiently great to require an impact statement. Even if on balance the result of the Federal action is beneficial, the proper criterion on which to base the decision whether to prepare an EIS is the significance of the action.<sup>4/</sup> Hence, the fact that the occupational exposure at Surry (2070 man rems for the repair at each unit) is expected to be less than the occupational exposure resulting from continued operation with defective steam generators over a period of four years is a valid consideration in assessing the merits of the repair once the requirements of NEPA have been satisfied, but has no bearing in determining the threshold question of the "significance" of the exposure and the attendant decision whether to prepare an environmental impact statement.

The Director's second basis, comparing the occupational exposures to the number of worker deaths due to cancer from risks unrelated to the repair, necessarily entails a judgment regarding the significance of these other risks. More specifically, it implies the proposition that these other risks are either not significant or that a small percentage of them is not significant. However, nothing in the Director's Decisions establishes this proposition. Thus the comparison, without more, does not enable us to determine whether the exposures here are significant.

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<sup>4/</sup> See Regulations For Implementing The Procedural Provisions of NEPA, 40 CFR 1508.27(b)(1).


Given this, and given the controversy in the scientific community as to the effects of such exposures, we are unable to determine whether the environmental impacts here are significant. Therefore, we believe that the preferable course of action in the circumstances of this case is to prepare an environmental impact statement on the repair.

Accordingly, we hereby direct the Staff to expeditiously prepare and issue an environmental impact statement on the proposed repair at Unit 1.

Chairman Ahearne and Commissioner Hendrie dissent from this decision.<sup>5/</sup>

It is so ORDERED.

For the Commission

  
SAMUEL J. CHILK  
Secretary of the Commission

Dated at Washington, D.C.,

this 4<sup>th</sup> day of March, 1980.

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<sup>5/</sup> Section 201 of the Energy Reorganization Act, 42 U.S.C. § 5841 provides that action of the Commission shall be determined by a "majority vote of the members present." Had Commissioner Gilinsky been present at the meeting he would have voted with the majority. To enable the Commission to proceed with this case without delay, Chairman Ahearne, who was a member of the minority on the question up for decision, did not participate in the formal vote. Accordingly, the formal vote of the Commission was two to one in favor of the decision.

JOHN R. NEWELL  
241 NORTHEAST SPANISH TRAIL  
BOCA RATON, FLORIDA 33432

February 15, 1980.

The Secretary  
Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Sir:

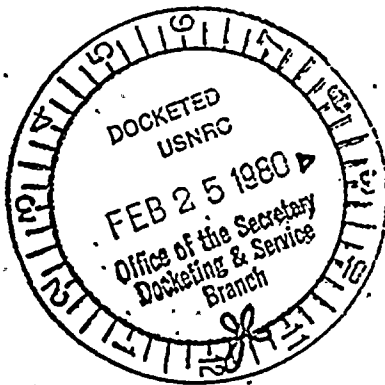
I am very concerned about the proposed repairs to the steam generators at the Turkey Point Nuclear Power plant of the Florida Power and Light Co. which I understand are to be accomplished in the near future. I also am told that a public hearing on the proposed alterations and the methods to be used to handle and dispose of the damaged generators is to be held in Miami before this work is commenced.

I wish to be present and possibly to speak at this hearing and would therefore appreciate information and timing concerning this hearing at your early convenience.

I am a former member of the Atomic Industrial Forum and a retired shipbuilder of naval vessels with a considerable background in nuclear safety problems and may have some helpful information to present at the hearing.

Very truly yours,

*John R. Newell*



Administrated by card 26572

LAW OFFICES  
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1025 CONNECTICUT AVENUE, N. W.

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KATHLEEN H. SHEA  
J. A. BOUKNIGHT, JR.

E. GREGORY BARNES  
MICHAEL A. BAUSER  
DEBORAH L. BERNSTEIN  
ALBERT V. CARR, JR.  
ROBERT H. CULP  
PETER G. FLYNN  
WILLIAM J. FRANKLIN  
FREDERIC S. GRAY  
DOUGLAS G. GREEN

April 1, 1980

Elizabeth S. Bowers, Esq.  
Chairman  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dr. Oscar H. Paris  
Atomic Safety and Licensing  
Board  
U.S. Nuclear Regulatory  
Commission  
Washington, D.C. 20555

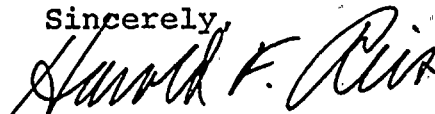
Dr. Emmeth A. Luebke  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Re: In the Matter of Florida Power & Light  
Company (Turkey Point Nuclear Generating  
Units Nos. 3 and 4 - Docket Nos. 50-250-SP  
and 50-251-SP; Proposed Amendments to  
Facility Operating Licenses to Permit  
Steam Generator Repairs)

Dear Members of the Board:

Enclosed are copies of (1) the Steam Generator Repair  
Report, Revision 7, March 1980, for Turkey Point Units 3 and 4  
and (2) letter of March 28, 1980, from Robert E. Uhrig, Vice Presi-  
dent, Advanced Systems & Technology, FPL, to Darrell G. Eisenhut,  
Acting Director, Division of Operating Reactors, U.S. Nuclear Reg-  
ulatory Commission, transmitting and summarizing item 1.

Sincerely,

  
Harold F. Reis

cc: (w/encs.): See attached Certificate of Service

HFR/ae

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	Docket Nos. 50-250-SP
	)	50-251-SP
FLORIDA POWER & LIGHT COMPANY	)	
	)	(Proposed Amendments to
(Turkey Point Nuclear Generating	)	Facility Operating Licenses
Unit Nos. 3 and 4)	)	to Permit Steam Generating
		Repairs)

CERTIFICATE OF SERVICE

I hereby certify that copies of the attached letter of April 1, 1980 to Members of the Board, together with the two enclosures thereto, captioned in the above matter, were served on the following by deposit in the United States mail, first class, properly stamped and addressed, on the date shown below:

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

Dr. Oscar H. Paris  
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Dr. Emmeth A. Leubke  
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Atomic Safety and Licensing  
Board Panel  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Atomic Safety and Licensing Appeal  
Board Panel  
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


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Dated: April 1, 1980