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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

DOCKETED  
USNRC

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before the

ATOMIC SAFETY AND LICENSING BOARD

OFFICE OF THE CLERK  
DOCKETING & SERVICE  
BRANCH

Before Administrative Judges:  
Sheldon J. Wolfe, Chairman  
Emmeth A. Luebke  
Jerry Harbour

In the Matter of )

Public Service Company of )  
Hew Hampshire, et al. )

(Seabrook Station, Units 1 and 2) )

) Docket Nos. 50-443-OL-1  
) 50-444-OL-1  
) On-Site Emergency Planning  
) & Technical Issues

INTERVENORS' PETITION TO  
WAIVE REGULATIONS 50.33(f) AND 50.57(4)  
TO THE EXTENT NECESSARY TO REQUIRE APPLICANTS TO  
DEMONSTRATE FINANCIAL QUALIFICATION  
TO OPERATE AND TO DECOMMISSION SEABROOK STATION

Now come the Town of Hampton, New England Coalition on Nuclear Pollution, and Seacoast Anti-Pollution League (hereinafter "Intervenors"), pursuant to 10 CFR §2.758, and, based upon the Affidavit of Dale G. Bridenbaugh, petition the Commission to waive regulations 50.33(f) and 50.57(4) to the extent necessary to require Applicants to demonstrate, prior to low power operation, that Applicants are financially qualified to pay the costs to operate, for the period of the license, and to decommission, the Seabrook Nuclear Power Plant. In support of this petition,

Intervenors state:

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1. Under date of July 22, 1987, Applicants' lead owner, Public Service Company of New Hampshire (PSNH), filed with the Securities and Exchange Commission a FORM 8-K, which in relevant part provided:

The Company has instituted strict cash conservation measures that should allow it to meet its estimated cash requirements, including the refunds described above, through the end of 1987. The Company is working jointly with the investment firms of Merrill Lynch Capital Markets and Drexel Burrham Lambert, Inc. to develop alternate financial plans. Given the uncertainty surrounding the Company, its limited financial flexibility, the amount of debt service which the Company can reasonably expect to carry, the political, economic and competitive limits on rate increases in New Hampshire, and the regulatory approvals that will be required, it will be extremely difficult to develop and implement such a plan to improve significantly the Company's circumstances within the limited time available. Should an adequate plan not be developed and placed into effect before the end of 1987, it will be difficult, if not impossible, for the Company to avoid proceedings under the Bankruptcy Code. See Exhibit A attached. (Emphasis supplied).

By its own admission, Applicants' lead owner is on the brink of bankruptcy.

2. 10 CFR §50.33(f) and 50.57(4) require certain applicants, prior to receipt of an operating license, to demonstrate that these applicants possess, or have reasonable assurance of obtaining, the funds necessary to cover estimated operation costs, for the period of the license, plus the costs to permanently shut down the facility and maintain it in a safe condition. 50.33(f)(2), (3) and (4).

3. By rulemaking on September 12, 1984, the Commission exempted publicly regulated utilities, including Seabrook Station owners, from demonstrating these financial qualifications prior to receipt of an operating license. As sole grounds for this exemption, the Commission stated:

The Commission believes that the record of this rulemaking demonstrates generically that the rate process assures that funds needed for safe operation will be made available to regulated electric utilities. Since obtaining such assurance was the sole objective of the financial qualification rule, the Commission concludes that, other than in exceptional cases, no case-by-case litigation of the financial qualification of such applicants is warranted. 49 Fed.Reg. 35750 (9/12/84). (Emphasis supplied.)

4. The purpose of the financial qualification rule, therefore, was to ensure safe operation. For publicly regulated utilities, however, the Commission created an exemption based on the generic determination that state PUCs, through ratemaking, would provide adequate revenues for these facilities to be operated, maintained, and decommissioned safely.<sup>1</sup> Accordingly, the Commission concluded, generically, that it was not "warranted" to subject publicly regulated utilities to financial qualification review when that function was effectually being performed already by state PUCs.

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<sup>1</sup> "No sound basis has been shown for . . . the allegation that publicly-owned utilities are not assured of funding through the rate-making process. The NRC's analysis of the NARUC survey, discussed infra, has shown that all State public utility commissions have sufficient ratemaking authority to ensure sufficient utility revenues to meet the cost of NRC safety requirements. Similarly, it has been shown that publicly-owned utilities have independent rate-setting authority which is used to cover the costs of operation, including those of meeting NRC safety requirements." 49 Fed.Reg. 35750 (9/12/84)

5. In their present financial distress, Applicants for Seabrook Station present special circumstances that contravene this generic determination, and undermine the Commission's purpose that all facilities have adequate revenues to ensure safety.<sup>2</sup>

These special circumstances include:

a. Under New Hampshire law, Applicants are barred from recovering the costs to decommission Seabrook Station unless, and until, that facility commences full power operation.<sup>3</sup> Accordingly, if Applicants are permitted to proceed to low power operation, without proof of financial qualification, Applicants will irradiate the facility, generate high level nuclear waste, yet may lack the tens of millions of dollars necessary "to permanently shut down

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The Commission specifically declined to base the financial qualification exemption for publicly regulated utilities upon allegations that there is not a sufficient relation between financial health and safe operation, noting it "is not relying on this premise for the current rule." 49 Fed.Reg. 35751 (9/12/84).

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Pursuant to NH RSA 162-F:19, decommissioning costs will be paid from a fund established in the office of the State Treasurer. Revenues for the decommissioning fund are obtained through charges against customers, but those charges may only be assessed, and payments to the fund shall commence, "in the billing month which reflects the first full month of service from the facility." NH RSA 162-F:19(II). Since Seabrook Station has not, and may never, commence full power operation, no such fund has been established to pay decommissioning costs.

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the facility and maintain it in a safe condition" if a full power license is later denied. See §50.33(f)(2).<sup>4</sup> Similarly, the costs incurred in operating the plant at low power would not be recoverable if Seabrook never proceeds to full power operation.<sup>5</sup>

4

The cost of decontaminating, decommissioning, and disposal of fuel and portions of the reactor system following a low power testing period is estimated to be tens of millions of dollars. The cost of spent fuel disposal alone is \$20 to \$30 million. Reactor component removal, handling, and disposal would require additional expenditures. See Affidavit of Dale G. Bridenbaugh, ¶14, Exhibit B, attached hereto. From the recent FORM 8-K filing by Applicants' lead owner, supra, it is reasonable to assume Applicants do not have adequate funds to pay decommissioning costs following low power operation.

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NH RSA 378:30-a. "Public Utility Rate Base; Exclusions. Public utility rates or charges shall not in any manner be based on the cost of construction work in progress. At no time shall any rates or charges be based upon any costs associated with construction work if said construction work is not completed. All costs of construction work in progress, including, but not limited to, any costs associated with constructing, owning, maintaining or financing construction work in progress shall not be included in a utility's rate base nor be allowed as an expense for rate making purposes until, and not before, said construction project is actually providing service to consumers." (Emphasis supplied). Low power operation does not generate any net electric power. Bridenbaugh Affidavit ¶4, 15. RSA 378:30-a therefore bars Applicants from recovering costs to operate or decommission Seabrook Station if the facility never operates beyond low power.

b. The likely bankruptcy of Applicants' lead owner is without precedent. Clearly the pending bankruptcy of such a publicly regulated utility presents an extreme circumstance not addressed by the Commission at the time it approved the financial qualification exemption.<sup>6</sup> On the present record, it would be grossly irresponsible for Applicants to proceed to operate Seabrook, even at low power, without clear evidence of their financial means to operate, and to decommission, safely.

c. In addition to the financial uncertainties presented, the direction of Applicants' management may be radically altered if PSNH is superseded by a bankruptcy trustee. Whether the trustee may decline to pursue a full power license in the face of insuperable regulatory obstacles remains uncertain. The Commission, however, should not permit Applicants to proceed to any level of power operation, absent proof of financial qualification, when their lead owner may soon forfeit its management rights over Seabrook Station.

d. If appointed to manage Seabrook Station, a trustee or examiner may refuse to expend additional monies on a wasting asset which continues to drain all available capital from PSNH. A Bankruptcy Court, rather than Applicants, may ultimately determine if additional monies will be spent on Seabrook Station. The

<sup>6</sup>

See 49 Fed.Reg. 35750 (9/12/84), quoted at page 2, supra.

Commission therefore should move to address this contingency, and require evidence of financial qualification, before bankruptcy occurs.

5. Even as the Commission exempted publicly regulated utilities from financial qualification requirements, the Commission was careful to preserve its right to require proof, in special circumstances, that a particular utility applicant is financially qualified.

By this rule, the Commission does not intend to waive or relinquish its residual authority under Section 182a of the Atomic Energy Act of 1954 as amended, to require such additional information in individual cases as may be necessary for the Commission to determine whether an application should be granted or denied or whether a license should be modified or revoked. An exception to a waiver from the rule precluding consideration of financial qualification in an operating license proceeding will be made if, pursuant to 10 CFR 2.758, special circumstances are shown. For example, such an exception to permit financial qualification review for an operating license applicant might be appropriate where a threshold showing is made that, in a particular case, the local public utility commission will not allow the total cost of operating the facility to be recovered through rates. 49 Fed.Reg. 35751 (9/12/84). (Emphasis supplied).

6. The special circumstances contemplated by the Commission are now squarely presented. If Seabrook Station never operates at full power, Applicants cannot recoup the tens of millions of dollars necessary to promptly and safely decommission the facility,

and dispose of the high level nuclear waste, following low power operation. Prior to operation at any level of power, therefore, Applicants should demonstrate independent financial means to meet these decommissioning costs. See note #3, supra.

7. Apparently in recognition of the potential hazards, and associated costs, of decommissioning, the Commission itself has proposed financial qualification requirements for the decommissioning of all licensed facilities. 50 Fed.Reg. 5600, et seq (2/11/85).

The objective of the proposed rule on financing the decommissioning of nuclear facilities is to require licensee to provide reasonable assurance that adequate funds are available to ensure that decommissioning can be accomplished in a safe manner and that lack of funds does not result in delays that may cause potential health and safety problems. The licensee is responsible for completing decommissioning in a manner that protects health and safety. Id. at 5602.

This rule has not yet been finally adopted. By the proposed rule, however, the Commission has expressed clear concern that all facilities be promptly and safely decommissioned. The Commission itself thereby provides significant evidence that Applicants should be required to demonstrate financial qualification before proceeding to operate Seabrook Station.

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Applicants additionally should be required to demonstrate that Applicants possess, or have reasonable assurance of obtaining, the funds necessary to cover estimated operating costs for the period of the license. See §50.33(f)(2). Even in the unlikely event a full power license is granted, it remains doubtful that PSNH will receive sufficiently prompt rate increases to avoid bankruptcy. The Commission, therefore, should require proof of financial qualification to meet operating costs to reduce the anticipated financial and management disruptions of a bankruptcy proceeding.



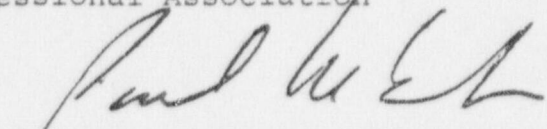
CONCLUSION

Intervenors therefore respectfully request that Applicants' exception from financial qualification be waived for purposes of this proceeding, and that Applicants, prior to low power operation, be required to demonstrate financial qualification in accordance with Commission regulations 50.33(f)(2), (3) and (4) and 50.57(4).

Respectfully submitted,


TOWN OF HAMPTON  
By Its Attorneys  
SHAINES & McEACHERN  
Professional Association

By

  
Paul McEachern

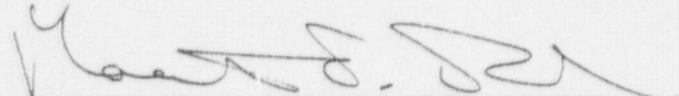
Dated: July 31, 1987

By

  
Matthew T. Brock

TOWN OF HAMPTON, NEW ENGLAND  
COALITION ON NUCLEAR POLLUTION, and  
SEACOAST ANTI-POLLUTION LEAGUE

By

  
Authorized Representative

FORM 8-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D. C. 20549

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the  
Securities Exchange Act of 1934

Date of Report: July 22, 1987

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE  
(Exact name of registrant as specified in its charter)

NEW HAMPSHIRE  
(State, or other jurisdiction  
of incorporation)

1-6392  
(Commission  
File Number)

02-0181050  
(IRS Employer  
Identification No.)

1000 ELM STREET, MANCHESTER, NEW HAMPSHIRE  
(Address of principal executive offices)

03105  
(Zip Code)

Registrant's Telephone Number, Including Area Code

603-669-4000

EXHIBIT A

Item 5. Other Materially Important Events

On June 29, 1987, the New Hampshire Public Utilities Commission (NHPUC) found, in a 2-1 decision on the Company's outstanding rate request, that the Company was entitled to recover approximately \$20.5 million of the \$58.9 million (14%) rate increase originally requested in May, 1986. The Company had acknowledged during the course of the proceedings that the effect of the Tax Reform Act of 1986 and other minor adjustments would reduce its claimed increase to approximately \$38.6 million.

The NHPUC ordered the Company to refund the difference between rates collected under bond since January 1987 and the level of rates approved by the order, plus interest on such sums at the rate of 10% through June and 6.5% thereafter. Refunds are to be paid on a customer specific basis commencing in November. The NHPUC found that the increased rates shall be applied on a uniform percentage to the base rates of each customer class. The NHPUC determined that the Company's cost of common equity was 15% (the Company had requested 19%) and fixed an overall rate of return at 14.94%. In addition, the NHPUC rejected a second step increase of approximately \$35 million (7%), which the Company had requested become effective January 1, 1988.

On July 20, 1987, the Company petitioned the NHPUC for a rehearing of the order on the grounds that the decision was unlawful and unreasonable in several respects, the most significant being that the decision failed to allow a just and reasonable capital structure and failed to determine a lawful, just and reasonable cost of common equity capital for the Company.

Further delays have occurred in the process of attempting to obtain all governmental approvals required to commence operation of the Seabrook Nuclear Power Plant (in which the Company has an ownership interest of about 35%). In a position filed with the Nuclear Regulatory Commission (NRC) in June of 1987, the Federal Emergency Management Agency (FEMA) has indicated that it was unable to conclude that certain aspects of the radiological emergency response plans for the seventeen towns in New Hampshire which are within a 10 mile radius of the Plant, are adequate to ensure the timely evacuation of the New Hampshire beaches in the event of an emergency at the Plant. This conclusion was contrary to that of the NRC staff and an independent consultant's report. The NRC has decided that a radiological emergency response plan for the six Massachusetts towns within a 10 mile radius of the Plant must be filed by the Joint Owners prior to low-power testing of the Plant, a requirement that had not been imposed with respect to any prior nuclear plant. It is obvious from these developments, and from the politicizing of the process regarding licensing of the Seabrook Plant, that the date of operation will be further delayed.



AFFIDAVIT OF DALE G. BRIDENBAUGH

1. My name is Dale G. Bridenbaugh. I am President of MHB Technical Associates ("MHB"), a technical consulting firm specializing in nuclear power plant safety, licensing, and regulatory matters, located at 1723 Hamilton Avenue, Suite K, San Jose, California 95125. I received a Bachelor of Science degree in mechanical engineering from South Dakota School of Mines and Technology in 1953 and am a licensed professional nuclear engineer. I have more than 30 years experience in the engineering field, primarily in power plant analysis, construction, maintenance, and operations. Since 1976, I have been employed by MHB and have acted as a consultant to domestic and foreign government agencies and other groups on nuclear power plant safety and licensing matters. Between 1966 and 1976, I was employed by the Nuclear Energy Division of General Electric Company ("GE") in various managerial capacities relating to the sale, service, and product improvement of nuclear power reactors manufactured by that company. Between 1955 and 1966, I was employed in various engineering capacities working with gas and steam turbines for GE. Included in my duties at GE was supervision of startup testing of equipment

in fifteen to twenty fossil and nuclear power plants. I also was responsible for various nuclear fuel projects ranging from the remote disassembly of irradiated fuel to the supply of reload fuel for operating nuclear plants. I have authored technical papers and articles on the subject of nuclear power equipment and nuclear power plant safety and have given testimony on those subjects. Other details of my experience and qualifications are contained in Attachment #1.

2. My experience with the Seabrook plant began in September 1983 when my firm was retained by the Massachusetts Attorney General to evaluate the prudence of expenditures by Fitchburg Gas and Electric Company on Seabrook Unit 2. Since that initial assignment I have evaluated various phases of the Seabrook project in five different engagements. In my work as consultant on the Seabrook plant, I have performed diverse assignments, focusing primarily on technical reviews and analysis of safety and cost issues. I have visited the plant on several occasions and have participated in a number of interviews and/or depositions of key Seabrook management personnel.

3. The purpose of this Affidavit is to explain the technical reasons why low power testing to 5 percent power at Seabrook is of no value if subsequent power operation at or near full power is not authorized. It will further explain that there are, in fact, several irreversible changes which would result from testing at the 5% level while no significant electrical power would be produced. These changes would limit the options available for the plant and plant site in the event that full power operation is not subsequently authorized.

#### SEQUENCE OF TESTING AND POWER OPERATION

4. Every nuclear plant needs to have fuel loaded and systems tested before it is permitted to operate at power levels sufficient to turn the turbine and generate electric power. The typical test sequence is to perform non-nuclear zero-power tests first, then proceed to "zero-power" nuclear tests and subsequently to low-power nuclear operation with no electrical production. Electrical production is usually deferred until the test program achieves a power level of 10-15%. Permission to proceed to a higher power level is in general predicated on fulfillment of the test objectives at

the lower levels. When the testing is completed satisfactorily at the lower levels and other requirements are satisfied, the plant is then permitted to operate at higher power levels and ultimately at a level at which sufficient steam is generated to allow production of electricity. Power levels are gradually increased and tests are conducted until full power operation has been achieved and the unit is considered to be in commercial operation. The minimum length of time in which this process can be completed is about three months. At Seabrook, the test program as specified in the Final Safety Analysis Report is scheduled for four months. All other factors being equal, the initial operating phase at a new nuclear unit can be most efficiently performed if a smooth transition is made from fuel loading to low power operation and on to the power testing above 5%. If a significant delay between the testing steps occurs, it is most burdensome for that delay to take place after power operation has begun. The reason for this is because the power test program is designed so as to be able to proceed from the completed tests at a lower authorized power level to tests at the next power step. If lengthy delays are introduced, it then becomes necessary to repeat certain activities such as instrument calibrations



and heat balance calculations to assure safe and smooth transition to the next authorized level. A delay prior to initial nuclear operation does not bring about the need for duplication of these operations.

5. In the case of Seabrook Unit 1, the loading of fuel into the reactor has now been completed and the Company has completed the tests intended to be performed prior to nuclear operation of the unit. This work was authorized by the granting of a "zero" power license by the Nuclear Regulatory Commission ("NRC") on October 17, 1986, and fuel loading was begun on October 22, 1986. William B. Derrickson's 1/ September 26, 1986 presentation to the NRC's Advisory Committee of Reactor Safeguards ("ACRS") indicated that the scheduled time for completion of the non-nuclear tests following fuel loading was 4 to 6 weeks:

Our request is to be able to load fuel and do the hot testing with the coolant system at operating temperature and pressure.

We have several tests to run, from tests from the original hot function tests. This whole effort from the day we receive the license to completion of the hot functional tests will

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1/ Mr. Derrickson is a Senior Vice-President of Public Service of New Hampshire and has primary responsibility for the Seabrook project.

take about a month or six weeks. (ACRS Transcript, pp. 14-15)

6. In the case of Seabrook, the operating license has been requested in not one, but three separate phases. The first phase which consists of fuel loading and hot functional tests (but no criticality and no irradiation of the fuel) has now been completed. The second phase, now under review, would permit low power testing and subsequent heatups involving operation at up to 5% of full power. The third phase, if authorized, will permit operation between 5% and 100% power.

7. The NRC action to permit low power operation at Seabrook at this time is a deviation from common past practice. The traditional licensing practice was in the past to grant an operating license as a result of a single licensing action. In those cases, fuel loading and low power test activities were then performed and integrated with ascension to full power. Shortly after the Three Mile Island accident, the NRC began to issue licenses in a two-step (low power-full power) process. This two-step process was implemented to help ease the licensing review backlog which resulted from the licensing hiatus following the 1979 accident. Initially, this two-step process worked

reasonably well. Plants that were granted a low power license generally completed the fuel loading and low power testing by the time the full power license was issued, with the low power testing and the full power licensing relatively close together in time. 2/ Since 1984, however, there have been several cases of lengthy delay between the low power license and the approval for operation above 5%. Examples of these delayed cases include:

- 1) Diablo Canyon 1, where a three year delay was experienced between the initial low power license (September 1981) and full power approval (November 1984).
- 2) Shoreham, where a low power license was awarded in July 1985 and full power authorization is yet to be issued.
- 3) Perry, which received low power authorization in March 1986, did not receive full power approval until December 1986.

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2/ Of the 15 plants licensed for low power operation between March 1979 and June 1984 which also received a full power license during that period, the average time between the low power and full power licenses was less than 5 months. The average time from initial criticality to award of the full power license was only 1/2 month (excluding Grand Gulf which was delayed for approximately two years because of improperly drafted Technical Specifications). See Attachment #2, portions of letter from NRC Chairman Palladino to Congressman Edward Markey, June 15, 1984.

These delays illustrate clearly that NRC approval of low power operation gives no assurance that timely authorization of power operation is forthcoming. This would appear to be particularly relevant for Seabrook which is heavily engaged in the resolution of complex emergency planning issues.

IRREVERSIBLE CHANGES IN STATUS QUO  
RESULTING FROM LOW POWER OPERATION

8. Before a reactor "goes critical" as it does for the first time during low power testing, neither the nuclear fuel nor the reactor or its components, are irradiated or contaminated by radiation. (The uranium contained in the fuel is of course naturally radioactive, but this material is at a very low level and is fully contained within the fuel rods.) Low power testing, however, necessarily causes irreversible changes to a nuclear reactor and its supporting systems.

9. There is necessarily significant irradiation of the nuclear fuel as a result of low power testing. This irradiation results in the build-up of quantities of fission products within the fuel which requires that the fuel subsequently be handled, transported, and treated as

irradiated fuel. Once these fission products have been produced, they cannot be removed from the fuel by any usual means. Thus, the irradiation from low power testing is irreversible. During low power testing some components of the Seabrook plant would also be irreversibly irradiated while other components will become contaminated with activated corrosion products and/or fission products. These include the reactor pressure vessel and internals, the steam generators, the control rods, incore nuclear instrumentation, and other reactor components, equipment, and piping. Once contaminated by substantial quantities of radioactive fission products, special care would be required in handling these items.

10. The irreversible changes to the plant resulting from power operation as described above makes a significant change in the way in which the Seabrook plant must be considered. Prior to power operation, the plant equipment and components are radiation free (with the exception of nuclear fuel and some sensors), and there is no limitation as to what future option for the plant and the plant site may be selected. It is possible in this condition that the plant could be abandoned, converted to non-nuclear use, or operated as a nuclear unit as planned. Once radioactive,

the options are reduced. Both the plant and plant site become nearly irreversibly committed to a nuclear facility. This is because much of the plant equipment will be made radioactive and because the site itself becomes (de-facto) a long-term radioactive waste storage facility since there is no approved storage facility available to receive the irradiated nuclear fuel.

11. Because of the unavoidable irradiation and contamination described above, the conduct of low power testing of necessity requires some worker exposure to potentially harmful radiation during the course of the testing as well as after the testing is completed. The amount of exposure may not be large and unless errors are made, probably would not exceed allowable limits. However, it is an additional unavoidable impact which results from low power testing. The necessity of performing the associated health physics protection requirements further complicates maintenance and operation steps and makes plant security a more critical and time consuming function.

12. In its non-irradiated condition, the fuel loaded into the Seabrook core probably has a recovery (or salvage) value that is likely equal to or a major fraction of the

original purchase value of that fuel. This fuel, if not irradiated, likely could be sold to other nuclear plants to use as is, or, if necessary, to be reconfigured for a different reactor. (For example, some bundles might require manual disassembly and rod rearrangement or reconfiguration of the pellets for the necessary pattern of enrichment.) Once the fuel is substantially irradiated and there is a significant build-up of fission products as would occur during the proposed 5% power operation, it makes fuel reconfiguration, and therefore most opportunities for reuse of the fuel, more complicated and costly and therefore far less likely to be implemented. Based on present day nuclear fuel costs, the value of the Seabrook fuel is approximately \$50-80 million. Salvage value approximately equal to this amount could be realized from the fuel in its present condition. While it is technically possible that irradiated fuel could be transferred to a different reactor of the same design and subsequently used, there would be significant penalties associated with such an action. It would be necessary to ship the fuel in shielded casks which may or may not be readily available. The fuel itself would not be of optimum design for equilibrium operation. Such a transfer has, to my knowledge, never been done in U.S. power

reactors and would probably require lengthy review by the NRC and/or other regulatory bodies. Consequently, I conclude that the fuel has little or no value if used for testing up to 5% power.

13. The proposed 5% power operation would also result in the loss of potential salvage value for other plant components that would be substantially irradiated or contaminated (i.e., steam generators, reactor components such as control rods and other internals, coolant pumps and seals, valves, piping and instrumentation sensors). I estimate the salvage value of these components to be at least \$20-30 million. These components are virtually identical in all Westinghouse Pressurized Water Reactors, many are periodically replaced, and others are useful for replacement in the event of component failures. Thus, a resale market for them should exist unless they are irradiated. In an interview conducted in conjunction with a Vermont proceeding (Vermont Public Service Board, Docket 5132), William B. Derrickson, Vice-President of PSNH stated his estimate of the salvage value of the cancelled Seabrook Unit 2 to be approximately \$25 million. (See Attachment #3, November 12, 1986 Interview, William B. Derrickson, p. 74.) It is likely, however, that if these same components were



irradiated and/or contaminated by power operation, they would have little or no or perhaps negative salvage value.

14. Additional costs resulting from a decision to perform low power testing are the costs of decontaminating, decommissioning, and disposal of the fuel and portions of the reactor system following a low power testing period in the event that a full power license is not obtained. The cost of necessary removal/disposal/decontamination efforts could be tens of millions of dollars, depending on the specific disposal requirements. Such efforts also carry with them the potential for additional worker radiation exposure. In addition, the irradiated fuel will need to be treated as high level radioactive material and would likely ultimately be disposed of as spent fuel. Because of the lengthy time periods during which spent fuel must be isolated from the environment, Federal law has assigned the responsibility for its ultimate disposition to the U.S. Department of Energy (DOE). <sup>3/</sup> DOE will perform the

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<sup>3/</sup> Guidelines for the recommendation of nuclear waste sites were enacted in 10 CFR Chapter III, Part 960 on November 30, 1984. These guidelines do not specify precisely the length of time that high level waste must be safeguarded from the environment. The guidelines do, however, give an indication of the time periods required by including numerous statements of "Qualifying" and "Favorable" Conditions such as:

ultimate disposal of high level waste, but is also required to recover the full cost of disposal from the utility. DOE has published expected costs for the receipt and ultimate disposal of irradiated fuel. These expected costs are currently being collected at a rate of \$.001/kwhr of generation for fuel exposed now to be disposed of by DOE in the future. Fuel typically operates at a design exposure of 20,000 MWD (t)/ton. For such fuel, this collection rate is equivalent to approximately \$150,000 per ton. DOE has not established a rate for fuel exposed to the lower level

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(b) Favorable Conditions. (1) Site conditions such that the pre-waste-emplacment ground-water travel time along any path of likely radionuclide travel from the disturbed zone to the accessible environment would be more than 10,000 years.

(2) The nature and rates of hydrologic processes operating within the geologic setting during the Quaternary Period would, if continued into the future, not affect or would favorably affect the ability of the geologic repository to isolate the waste during the next 100,000 years.

(Part 960 - General Guidelines For the Recommendation of Sites for Nuclear Waste Repositories, 10 CFR, Chapter III)

Citation of the above guideline is not intended to imply that the Seabrook Site will be required to store the irradiated fuel for the next 10,000 to 100,000 years. It does however, give an indication of the irreversible effects involved in the decision being considered.

associated with the 5% power test operation, but there is no reason to expect that the cost per ton could be negotiated to much below DOE's published rates as DOE is required by law to obtain full cost recovery. Accordingly, the potential cost for disposal by DOE of the 90 tons at Seabrook could be as much as \$13,000,000, not counting transportation or possible cost increases. In addition, no disposal facility is planned or expected until after the year 2000, at least 15 years in the future. It would therefore be necessary to store and safeguard the spent fuel on site until that time. Assuming an operations and security staff of at least 10-15 people for this chore, an annual cost of \$500,000 to \$1,000,000 is not unreasonable and is probably low. The cost of spent fuel disposal alone thus becomes a \$20 to 30 million obligation. Reactor components removal, handling and disposal would be additionally required.

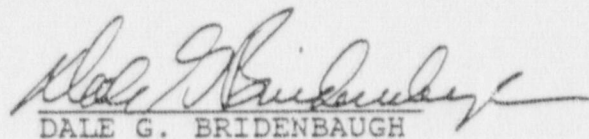
THERE IS NO PURPOSE SERVED, AND THE BENEFITS  
PRODUCED BY LOW POWER TESTING ARE OUTWEIGHED BY THE  
ADVERSE AND IRREVERSIBLE CHANGES IN THE STATUS QUO

15. The essential purpose of a low power license is to test reactor systems which cannot be effectively tested in noncritical conditions. It is necessary to conduct such

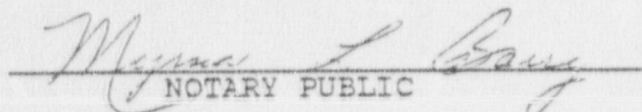
testing prior to operating the plant at higher power levels (i.e., greater than 5% power). At 5% power, the reactor would barely produce enough steam to spin the turbine and synchronize the generator. Taking into account the station auxiliary power needs, it is likely that there would be no net electric power supplied to the grid as a result of the testing, and there would be no displaced oil or fuel cost savings. Instead, power from the grid would be required to run the plant during the tests. Thus, none of the benefits assumed in the NRC's Environmental Impact Statement for Seabrook would be achieved by low power testing; however, as noted, low power operation would result in environmental impacts, such as plant contamination with radioactive material, the likely loss of the resale value of the fuel and other components once they become irradiated, the cost of decontamination, decommissioning and disposal, worker exposure, and last but not least, the potential commitment of the site to lengthy radioactive waste storage use.

16. Because low power testing standing alone produces no net benefits but does have serious adverse effects, it is my opinion that there is no reason to conduct low power testing just for its sake alone. Rather, low power testing can be rationally justified only in circumstances where

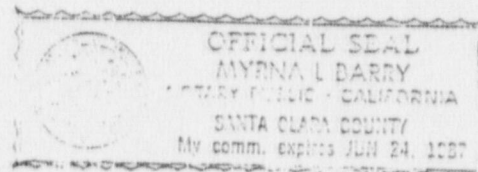
there is no substantial doubt that the plant subsequently will operate at higher power levels so that its benefits (i.e., generation of electricity) will be available to offset the adverse effects (fuel irradiation, radioactive contamination, potential worker exposure) which cannot be avoided. In my technical opinion, the optimum time for performing low-power testing of any nuclear reactor is shortly before full-power operational approval is reliably anticipated to be obtained.

  
DALE G. BRIDENBAUGH

Subscribed and sworn to before me  
on this 31<sup>st</sup> day of March 1987.

  
NOTARY PUBLIC

My Commission expires: 6/24/87



PROFESSIONAL QUALIFICATIONS OF DALE G. BRIDENBAUGH

DALE G. BRIDENBAUGH  
MHB Technical Associates  
1723 Hamilton Avenue  
Suite K  
San Jose, California 95125  
(408) 266-2716

EXPERIENCE:

1976 - PRESENT

President - MHB Technical Associates, San Jose, California

Co-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 agencies in California, New York, Illinois, New Jersey, Pennsylvania, Oklahoma and Minnesota and to the Norwegian Nuclear Power Committee, Swedish Nuclear Inspectorate, and various other organizations and environmental groups. Performed extensive safety analysis for Swedish Energy Commission and contributed to the Union of Concerned Scientists's Review of WASH-1400. Consultant to the U.S. NRC - LWR Safety Improvement Program, performed Cost Analysis of Spent Fuel Disposal for the Natural Resources Defense Council, and contributed to the Department of Energy LWR Safety Improvement Program for Sandia Laboratories. Served as expert witness in NRC and state utility commission hearings.

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. Also 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. Worked 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 1/4 of class.

Professional Nuclear Engineer - California. Certificate No. 0973.

Member - American Nuclear Society

Various Company Training Courses during career including Professional Business Management, Kepner Trego 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, Milier, South Dakota  
Married, three children  
6'2", 190 lbs., health - excellent  
Honorable discharge from United States Army  
Hobbies: Skiing, hiking, work with 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 NEDO-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 NEDO-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. 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, D.C. (Published by the Union of Concerned Scientists, Cambridge, Massachusetts.)
8. Testimony of D. G. Bridenbaugh, R. B. Hubbard, and G. C. Minor t the California State Assembly Committee on Resources, Land Use, and Energy, March 8, 1976.
9. 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.
10. 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.
11. Testimony by D. G. Bridenbaugh before the California Energy Commission, subject: Interim Spent Fuel Storage Considerations, March 10, 1977.

12. Testimony of D. G. Bridenbaugh before the 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.
13. Testimony by D. G. Bridenbaugh before the California State Energy Commission, subject: Decommissioning of Pressurized Water Reactors, Sundesert Nuclear Plant Hearings, June 9, 1977.
14. 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.
15. 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.
16. 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.
17. 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.
18. Testimony by D. G. Bridenbaugh before the Norwegian Commission on Nuclear Power, subject: Reactor Safety/Risk, October 26, 1977.
19. Swedish Reactor Safety Study: Barseback Risk Assessment, MHB Technical Associates, January, 1978. (Published by the Swedish Department of Industry as Document DsI 1978:1)
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 of 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.
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.
25. Testimony by D. G. Bridenbaugh for the Commonwealth of Massachusetts, Department of Public Utilities, Impact of Unresolved Safety Issues, General Deficiencies, and Three Mile Island-Initiated Modifications on Power Generation Cost at the Proposed Pilgrim-2 Nuclear Plant, June 8, 1979.
26. Improving the Safety of LWR Power Plants, MHB Technical Associates, prepared for U.S. Dept. of Energy, Sandia Laboratories, September 28, 1979.
27. BWR Pipe and Nozzle Cracks, MHB Technical Associates, for the Swedish Nuclear Power Inspectorate (SKI), October, 1979.
28. Uncertainty in Nuclear Risk Assessment Methodology. MHB Technical Associates, for the Swedish Nuclear Power Inspectorate (SKI), January 1980.
29. Testimony of D. G. Bridenbaugh and G. C. Minor before the Atomic Safety and Licensing Board, in the matter of Sacramento Municipal Utility District, Rancho Seco Nuclear Generating Station following TMI-2 accident, subject: Operator Training and Human Factors Engineering, for the California Energy Commission, February 11, 1980.
30. Italian Reactor Safety Study: Caorso Risk Assessment, MHB Technical Associates, for Friends of the Earth, Italy, March, 1980.
31. Decontamination of Krypton-85 from Three Mile Island Nuclear Plant, H. Kendall, R. Pollard, and D. G. Bridenbaugh, et al, The Union of Concerned Scientists, delivered to the Governor of Pennsylvania, May 15, 1980.
32. Testimony by D. G. Bridenbaugh before the New Jersey Board of Public Utilities, on behalf of New Jersey Public Advocate's Office, Division of Rate Counsel, Analysis of 1979 Salem-1 Refueling Outage, August 1980.
33. Minnesota Nuclear Plants Gaseous Emissions Study, MHB Technical Associates, for Minnesota Pollution Control Agency, September, 1980.
34. Position Statement, Proposed Rulemaking on the Storage and Disposal of Nuclear Waste, Joint Cross-Statement of Position of the New England Coalition on Nuclear Pollution and the Natural Resources Defense Council, September, 1980.
35. Testimony by D. G. Bridenbaugh and G. C. Minor, before the New York State Public Service Commission, in the matter of Long Island Light Company Temporary Rate Case, prepared for the Shoreham Opponents Coalition, September 22, 1980, Shoreham Nuclear Plant Construction Schedule.

36. Supplemental Testimony by D. G. Bridenbaugh before the New Jersey Board of Public Utilities, on behalf of New Jersey Department of the Public Advocate, Division of Rate Counsel, Analysis of 1979 Salem-1 Refueling Outage, December, 1980.
37. Testimony by D. G. Bridenbaugh and G. C. Minor, before the New Jersey Board of Public Utilities, on behalf of New Jersey Department of the Public Advocate, Division of Rate Counsel, Oyster Creek 1980 Refueling Outage Investigation, February 1981.
38. Economic Assessment: Ownership Interest in Palo Verde Nuclear Station, MHB Technical Associates, for the City of Riverside, September 11, 1981.
39. Testimony of D. G. Bridenbaugh before the Public Utilities Commission of Ohio, in the Matter of the Regulation of the Electric Fuel Component Contained Within the Rate Schedules of the Toledo Edison Company and Related Matters, subject: Davis-Besse Nuclear Power Station 1980-81 Outage Review, November, 1981.
40. Supplemental Testimony of D. G. Bridenbaugh before the Public Utilities Commission of Ohio, in the matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of the Toledo Edison Company and Related Matters, subject: Davis-Besse Nuclear Power Station 1980-81 Outage Review, November 1981.
41. Systems Interaction and Single Failure Criterion, Phase 2 Report, MHB Technical Associates for the Swedish Nuclear Power Inspectorate (SKI), January, 1982.
42. Testimony of D. G. Bridenbaugh and G. C. Minor on behalf of Governor Edmund G. Brown Jr., before the Atomic Safety and Licensing Board, regarding Contention 10, Pressurizer Heaters, January 11, 1982.
43. Testimony of D. G. Bridenbaugh and G. C. Minor on behalf of Governor Edmund G. Brown Jr., before the Atomic Safety and Licensing Board, regarding Contention 12, Block and Pilot Operated Relief Valves, January 11, 1982.
44. Testimony of D. G. Bridenbaugh before the Commonwealth of Massachusetts, Department of Public Utilities, on behalf of the Massachusetts Attorney General, Pilgrim Nuclear Power Station, 1981-82 Outage Investigation, March 11, 1982.
45. Testimony of D. G. Bridenbaugh before the Pennsylvania Public Utility Commission, on behalf of the Pennsylvania Office of Consumer Advocate, Beaver Valley Outage, March, 1982.
46. Interim testimony of D. G. Bridenbaugh and G. C. Minor before the Atomic Safety and Licensing Board, on behalf of Suffolk County, in the matter of Long Island Lighting Company, Shoreham Nuclear Power Station, Unit 1, regarding Suffolk County Contention 11, Passive Mechanical Valve Failures, April 13, 1982.

47. Testimony of D. G. Bridenbaugh and G. C. Minor before the Atomic Safety and Licensing Board, on behalf of Suffolk County, in the matter of Long Island Lighting Company, Shoreham Nuclear Power Station, Unit 1, regarding Suffolk County Contention 11, Passive Mechanical Valve Failures, April 13, 1982.
48. Testimony of D. G. Bridenbaugh and R. B. Hubbard, in the Matter of Jersey Central Power and Light Company For an Increase in Rates for Electrical Service, on behalf of New Jersey Department of the Public Advocate, Division of Rate Counsel, Three Mile Island Units 1 & 2, Cleanup and Modification Programs, May, 1982.
49. Testimony of D. G. Bridenbaugh and G. C. Minor on behalf of Suffolk County, before the Atomic Safety and Licensing Board, in the matter of Long Island Lighting Company, Shoreham Nuclear Power Station, Unit 1, regarding Suffolk County Contention 22, SRV Test Program, May 25, 1982.
50. Testimony of D. G. Bridenbaugh and G. C. Minor on behalf of Suffolk County, before the Atomic Safety and Licensing Board, in the matter of Long Island Lighting Company, Shoreham Nuclear Power Station, Unit 1, regarding Suffolk County Contention 28(a)(vi) and SOC Contention 7A(6), Reduction of SRV Challenges, June 14, 1982.
51. Testimony of D. G. Bridenbaugh before the Illinois Commerce Commission, on behalf of the Illinois Attorney General's Office, Expected Lifetimes and Performance of Nuclear Power Plants, June 18, 1982.
52. Testimony of D. G. Bridenbaugh and R. B. Hubbard on behalf of the Ohio Consumers Counsel, before the Public Utilities Commission of Ohio, regarding Construction of Perry Nuclear Generating Unit No. 1, October 7, 1982.
53. Issues Affecting the Viability and Acceptability of Nuclear Power Usage in the United States, prepared by MHB Technical Associates for Congress of the United States, Office of Technology Assessment for use in conjunction with Workshop on Technological and Regulatory Changes in Nuclear Power, December 8 & 9, 1982.
54. Testimony of D. G. Bridenbaugh on behalf of Rockford League of Women Voters, before the Atomic Safety and Licensing Board, in the matter of Commonwealth Edison Company, Byron Station, Units 1 and 2, regarding Contention 22, Steam Generators, March 1, 1983.
55. Testimony of G. C. Minor and D. G. Bridenbaugh before the Pennsylvania Public Utility Commission, on behalf of the Office of Consumer Advocate, Regarding the Cost of Constructing the Susquehanna Steam Electric Station, Unit 1, Re: Pennsylvania Power and Light, April 20, 1983.
56. Surrebuttal Testimony of D. G. Bridenbaugh before the Pennsylvania Public Utility Commission, on behalf of the Office of Consumer Advocate, Regarding the Cost of Constructing the Susquehanna Steam Electric Station, Unit 1, Re: Pennsylvania Power and Light, April 20, 1983.

57. Testimony of D. G. Bridenbaugh In the Matter of Public Service Gas & Electric, Base Rate Case, Nuclear Construction Expenditures, on behalf of New Jersey Department of the Public Advocate, Division of Rate Counsel, October 13, 1983.
58. Affidavit of D. G. Bridenbaugh, in the Matter of Jersey Central Power and Light, on behalf of New Jersey Department of the Public Advocate, Division of Rate Counsel, TMI Fault Investigation, November 23, 1983.
59. Testimony of D. G. Bridenbaugh, in the Matter of Public Service Electric & Gas, on behalf of New Jersey Department of the Public Advocate, Division of Rate Counsel, LEAC Investigation, Salem-1 Outages, December 1, 1983.
60. Rebuttal Testimony of D. G. Bridenbaugh, in the Matter of Public Service Electric & Gas, on behalf of New Jersey Department of the Public Advocate, Division of Rate Counsel, LEAC Investigation, Salem-1 Outages, January 18, 1984.
61. Testimony of D. G. Bridenbaugh, L. M. Danielson, R. B. Hubbard and G. C. Minor before the State of New York Public Service Commission, PSC Case No. 27563, in the matter of Long Island Lighting Company Proceeding to Investigate the Cost of the Shoreham Nuclear Generating Facility -- Phase II, on behalf of County of Suffolk, February 10, 1984.
62. Testimony of D. G. Bridenbaugh, in the Matter of Jersey Central Power & Light Company, on behalf of New Jersey Department of the Public Advocate, Division of Rate Counsel, Base Rate Case, Oyster Creek 1983-84 Outage and O&M and Capital Expenditures, May 23, 1984.
63. Direct Testimony of Dale G. Bridenbaugh and Richard B. Hubbard, Before the Illinois Commerce Commission, Illinois Power Company, Clinton Nuclear Station, Docket No. 84-0055, available from Illinois Governor's Office of Consumer Services, July 30, 1984.
64. Joint Direct Testimony of Dr. Robert N. Anderson, Professor Stanley G. Christensen, G. Dennis Eley, Dale G. Bridenbaugh and Richard B. Hubbard Regarding Suffolk County's Emergency Diesel Generator Contentions, Before the Atomic Safety and Licensing Board, Long Island Lighting Company, Shoreham Nuclear Plant, NRC Docket No. 50-322-OL, July 31, 1984.
65. Direct Testimony of Dale G. Bridenbaugh, Regarding Peach Bottom Units 2 and 3 - Investigation of Outages Due to Intergranular Stress Corrosion Cracking, Before the Pennsylvania Public Utility Commission, Philadelphia Electric Co., Docket No. M-FACE8408, on behalf of Pennsylvania Office of Consumer Advocate, September 1984.
66. Surrebuttal Testimony of Dale G. Bridenbaugh, Lynn M. Danielson, Richard B. Hubbard, and Gregory C. Minor, Before the New York State Public Service Commission, PSC Case No. 27563, Shoreham Nuclear Station, Long Island Lighting Company, on behalf of Suffolk County and New York State Consumer Protection Board, October 4, 1984.

67. Direct Testimony of Dale G. Bridenbaugh, Lynn M. Danielson and Gregory C. Minor on Behalf of Massachusetts Attorney General, DPU 84-145, Before the Massachusetts Department of Public Utilities, regarding the prudence of expenditures by Fitchburg Gas and Electric Light Company on Seabrook Unit 2, November 23, 1984, 84 pgs.
68. Direct Testimony of Dale G. Bridenbaugh, Richard B. Hubbard and Lynn K. Price on Behalf of Massachusetts Attorney General, DPU 84-152, Before the Massachusetts Department of Public Utilities, regarding the investigation by the Department of the Cost and Schedule of Seabrook Unit 1, December 12, 1984.
69. Direct Testimony of Dale G. Bridenbaugh, Lynn M. Danielson and Gregory C. Minor on Behalf of Maine Public Utilities Commission Staff regarding Seabrook Unit 2, Docket No. 84-113, December 21, 1984.
70. Direct Testimony of Dale G. Bridenbaugh and Gregory C. Minor Regarding Suffolk County's Emergency Diesel Generator Load Contention, Docket No. 50-322-OL, January 25, 1985.
71. Direct Testimony of Dale G. Bridenbaugh, in the Matter of the Motion of Public Service Electric & Gas, on behalf of New Jersey Department of the Public Advocate, Division of Rate Counsel, Motion To Increase The Level of the Levelized Energy Adjustment Clause, Docket No. ER 8501166 and Docket No. 837-620, April 24, 1985.
72. Direct Testimony of Dale G. Bridenbaugh on behalf of the Attorney General of the Commonwealth of Massachusetts, in the Matter of Boston Edison Company DPU 85-1B, A Hearing to Determine Whether Fuel and Purchased Power Costs Associated with the Outage at Pilgrim Nuclear Power Station Which Began on December 10, 1983 and Ended on December 30, 1984 Were Reasonably and Prudently Incurred. May 13, 1985.
73. Direct Testimony of Dale G. Bridenbaugh on behalf of the Residential Ratepayer Consortium, in the Matter of the Application of Consumers Power Company for a Power Supply Cost Reconciliation proceeding for the 12-month period ended December 13, 1984, regarding Palisades Outage Review, Case No. U-7785-R, August 28, 1985.
74. Direct Testimony of Dale G. Bridenbaugh, Lynn M. Danielson, and Gregory C. Minor on behalf of the Department of Public Service, State of Vermont Public Service Board Docket No. 5030, Central Vermont Public Service Corporation, November 11, 1985.
75. Direct Testimony of Dale G. Bridenbaugh on behalf of New Jersey Department of the Public Advocate, in the matter of JCP&L for an increase in rates, Base Rate Case, Oyster Creek O&M and Capital Expenditures, November 25, 1985.
76. Direct Testimony of Dale G. Bridenbaugh on behalf of New Jersey Department of the Public Advocate, in the matter of JCP&L, TMI-Restart - LEAC, Re: TMI-Restart Commercial Operation Standards & Reliability of Service, January 31, 1986.

77. Direct Testimony of Dale G. Bridenbaugh, Gregory C. Minor, Lynn K. Price, and Steven C. Snolly on behalf of State of Connecticut Department of the Public Utility Control Prosecutorial Division and Division of Consumer Counsel regarding the prudence of expenditures on Millstone Unit 3, February 18, 1986.
78. Direct Testimony of Dale G. Bridenbaugh and Gregory C. Minor on behalf of Massachusetts Attorney General regarding the prudence of expenditures by New England Power Co. on Seabrook Unit 2, February 21, 1986.
79. Direct Testimony of Dale G. Bridenbaugh and Gregory C. Minor on behalf of Massachusetts Attorney General regarding WMECo Construction Prudence for Millstone Unit 3, March 19, 1986.
80. Direct Testimony of Dale G. Bridenbaugh and Gregory C. Minor on behalf of Massachusetts Attorney General regarding WMECo's Commercial Operating Dates and Deferred Capital Additions on Millstone Unit 3, March 19, 1986.
81. Rebuttal Testimony of Dale G. Bridenbaugh and Gregory C. Minor on behalf of Massachusetts Attorney General regarding New England Power Company's Seabrook 2 Rebuttal, April 2, 1986.
82. Direct Testimony of Dale G. Bridenbaugh and Gregory C. Minor on behalf of State of Maine Staff of Public Utilities Commission regarding Construction Prudence of Millstone Unit 3, April 21, 1986.
83. Direct Testimony of Dale G. Bridenbaugh and Peter M. Strauss on behalf of New Jersey Department of the Public Advocate, Division of Rate Counsel, regarding Base Rate Case: In-Service Criteria for Hope Creek, Hope Creek O&M and Decommissioning Costs, and Operating Plant O&M Costs, May 19, 1986, 107 pp.
84. Direct Testimony of Dale G. Bridenbaugh on behalf of New Jersey Department of the Public Advocate, Division of Rate Counsel, regarding Base Rate Case: Hope Creek Commercial Operating Date and Criteria, Hope Creek O&M Costs, Operating Life, Capital Additions, and Decommissioning Costs, May 27, 1986, 85 pp.
85. Direct Testimony of Dale G. Bridenbaugh, Richard B. Hubbard, and Lynn K. Price on behalf of State of Illinois Office of the Attorney General and Office of Public Counsel, regarding Evaluation of Clinton Costs, Docket No. 84-0055, July 9, 1986.
86. Direct Testimony of Dale G. Bridenbaugh and Gregory C. Minor on behalf of the Vermont Department of Public Service, regarding Tariff Filing of Central Vermont Public Service Corporation Requesting a 12% Increase in Rates, Docket No. 5132, August 25, 1986.
87. Direct Testimony of Dale G. Bridenbaugh and Richard B. Hubbard on behalf of the Pennsylvania Office of Consumer Advocate, regarding Pennsylvania Public Utility Commission vs. Duquesne Light Company and Pennsylvania Power Company, Docket Nos. R-860378 and R-850267, September 22, 1986.





CHAIRMAN

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

June 15, 1984

The Honorable Edward J. Markey, Chairman  
Subcommittee on Oversight and Investigations  
Committee on Interior and Insular Affairs  
United States House of Representatives  
Washington, D.C. 20515

Dear Congressman Markey:

Your letter of March 30, 1984 requested an explanation of the risks associated with low power operation at commercial nuclear power reactors. In addition, you raised five specific questions which we have responded to in Attachment 1 to this letter.

With regard to the risks associated with low power operation, Attachment 2 is a Commission paper developed by the staff addressing this issue. As indicated by this paper, the overall conclusion that the staff must reach for fuel loading and low power testing up to 5 percent power, is that there is no undue risk to the health and safety of the public for the limited operations authorized. In practice, the staff has developed analyses that indicate that the risks of 5 percent power operation can be expected to be appreciably less than the risks of 100 percent power operation.

Commissioner Gilinsky did not participate in the preparation of this reply.

We trust that this information is responsive to your concerns.

Sincerely,

A handwritten signature in cursive script, reading "Hunzio J. Palladino".

Hunzio J. Palladino

Attachments:  
As stated

cc: Rep. Ron Marlenee

QUESTION 5:

For all reactors licensed since the accident at Three Mile Island, please provide the following (A) the date of issuance of the low power license; (B) the date of initial criticality; (C) the date of 5 percent power operation; (D) the date of issuance of the full power license; (E) the date that power levels of 25 percent or higher were first attained; (F) the date that power levels of 90 percent or higher were first attained; (G) exemptions granted by the NRC to the low power licensee and, (H) exemptions granted by the NRC to the full power licensee.

ANSWER.

The data requested is provided in the attached Table 5.1. We interpreted the date of 5 percent power operation to be the date that this power level was exceeded. Where the plant has not achieved the event listed the symbol N/A has been used.



STATE OF VERMONT  
PUBLIC SERVICE BOARD

----- X  
: IN RE: Tariff Filing Of :  
: Central Vermont Public Service :  
: Corporation Requesting A : Docket No. 5132  
: 12 Percent Increase In Rates :  
: To Take Effect June 2, 1986. :  
: :  
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INTERVIEW WITH: WILLIAM B. DERRICKSON

-----  
Seabrook Station  
New Hampshire Yankee  
General Office Building  
Seabrook, New Hampshire  
Wednesday, November 12, 1986  
10:07 a.m.

TAMMIE J. TISCHLER  
CERTIFIED SHORTHAND REPORTER  
REGISTERED PROFESSIONAL REPORTER

P.O. Box 571  
Exeter, N.H. 03833

(603) 778-7470 cr  
1-800-527-3311

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PRESENT:

M.H.B. Technical Associates

Gregory C. Minor, Vice President and  
Judith R. Lieberman, Associate Consultant  
1723 Hamilton Avenue, Suite K  
San Jose, California 95125

Cahill, Gordon & Reindel

(by Thomas R. Jones, Esquire)  
80 Pine Street  
New York, New York 10005;  
for Public Service Company of New Hampshire.

Downs, Rachlin & Martin

(by Elizabeth B. Mullikin, Esquire)  
100 Dorset Street, Suite 1  
P.O. Box 190  
Burlington, Vermont 05402-0190;  
for Central Vermont Public Service Corporation.

Department of Public Service

(by Christopher Micciche, Special Counsel)  
120 State Street  
Montpelier, Vermont 05602

Swidler & Berlin (by Andrew Weissman, Esquire)

1000 Thomas Jefferson Street, NW  
Washington, D.C. 20007;  
for C.V.P.S.C.

I N D E X  
- - - - -

Interview with:

Direct

William B. Derrickson  
(by Mr. Minor)

3

PROCEEDINGS

3

EXAMINATION

BY MR. MINOR:

Q This is not a deposition. I guess I should start by saying that. Just for the usual pattern of these type of things, I will introduce myself. I am Greg Minor of M.H.B. To my right is Judy Lieberman, also of M.H.B.; Chris Micciche of the Department of Public Services in Vermont.

And we are here, Mr. Derrickson, to ask you some questions about the project; and I understand you have schedule restraints; and I appreciate your being here today.

I would like to just go back and start, if you would, by telling me your first association with this project and whether that was as a consultant to Florida Power and Light or direct involvement with the position at New Hampshire Yankee.

A Okay. We did have an involvement at Florida Power and Light Company with respect to Public Service to send some people up here to provide some assistance to Public Service in 1983, I believe, and we did

1 uniquely cut and bent for this plant. Structural  
2 steel is the same way, uniquely cut, specific  
3 connections out here. You would have to design a  
4 building around that structural steel. I don't  
5 think we are going to find too many people excited  
6 to do that. I think moisture separators,  
7 reheaters, simply because not that many plants are  
8 being built. They have copper nickel tubes, and I  
9 don't think there is much of a market for those.

10 Other components we are going to have to look  
11 at on a case-by-case basis. Original large motors  
12 for replacement, and we will go to and make an  
13 attempt to see what we can do in those areas.

14 Other than that, I don't know. We haven't looked  
15 at that. We have to get a team together to really  
16 go out and catalog model, make and see if we can  
17 find a match up around the country someplace.

18 Q Is it viable to sell the Model F steam generators  
19 as a replacement part unit?

20 A There are two uses for them. One would be a  
21 complete steam generator change out in another  
22 facility that could use them. Another would be a  
23 lot of utilities are putting training facilities in

1 where they are taking the tube section, the tube  
2 sheet section and using it to practice any current  
3 testing and tube plugging. We may be able to do  
4 something like that. I don't know. We will work  
5 on it. If that is the marching orders, that is  
6 what we will do.

7 Q Have you made any estimate of salvage values?

8 A I think the guys did. I think they are looking at  
9 \$26 million. I say 25 plus or minus. That is for  
10 scrap and for what they thought they could sell  
11 intact, which is a lot.

12 Again, we are competing with Marble Hill's  
13 exact nuclear steam system, so we are competing  
14 with someone else's parts. I have been around the  
15 country, and I found Marble Hill all over the  
16 country. So it's quite interesting.

17 MR. MINOR: Thank you very much  
18 for coming in, Mr. Derrickson.

19  
20 (Whereupon, at 11:50 a.m., the  
21 interview was adjourned.)  
22  
23



C E R T I F I C A T E

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STATE OF NEW HAMPSHIRE

I, Marianne Kusa-Ryll, Registered Professional Reporter, do hereby certify the foregoing to be a true copy of the interview of WILLIAM B. DERRICKSON, held at the New Hampshire Yankee General Office Building, Seabrook, New Hampshire, on Wednesday, November 12, 1986.

*Marianne Kusa-Ryll*

Marianne Kusa-Ryll, CSR, RPR

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CERTIFICATE OF SERVICE

I, Matthew T. Brock, one of the attorneys for the Town of Hampton herein, hereby certify that on July 31, 1987 I made service of the following document INTERVENORS" PETITION TO WAIVE REGULATIONS 50.33(f) AND 50.47(4) TO THE EXTENT NECESSARY TO REQUIRE APPLICANTS TO DEMONSTRATE FINANCIAL QUALIFICATION TO OPERATE AND TO DECOMMISSION SEABROOK STATION by depositing copies thereof in the United States Mail first class postage prepaid for delivery (or, where indicated, by Express Mail, prepaid) addressed to:

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\*UPS NEXT DAY AIR