

May 11, 1979

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD



In the Matter of)	
)	
VIRGINIA ELECTRIC AND POWER COMPANY)	Doc. Nos. 50-338SP
)	50-339SP
)	
)	Proposed Amendment to
)	Operating License NPF-4
(North Anna Power Station,)	
Units 1 and 2))	

VEPCO'S MOTION FOR SUMMARY DISPOSITION

Pursuant to the Commission's regulation 10 CFR § 2.749, the applicant, Virginia Electric and Power Company (Vepco), hereby moves for a decision by the presiding officer in Vepco's favor as to all of the matters involved in this proceeding.

By its Notice of Hearing of May 4, 1979, this licensing board scheduled an evidentiary hearing for June 26, 1979. Vepco is filing this motion on May 11, 1979, in order to comply with the 45-day rule in 10 CFR § 2.749. Vepco asks to be permitted to supplement this motion in the future, in accordance with § 2.749(b), if pretrial discovery or other developments make that course necessary.

Section 2.749 reads as follows:

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Sec. 2.749. Authority of presiding officer to dispose of certain issues on the pleadings. -- (a) Any party to a proceeding may, at least forty-five (45) days before the time fixed for the hearing, move, with or without supporting affidavits, for a decision by the presiding officer in that party's favor as to all or any part of the matters involved in the proceeding. There shall be annexed to the motion a separate, short and concise statement of the material facts as to which the moving party contends that there is no genuine issue to be heard. Any other party may serve an answer opposing the motion, with or without affidavits, within twenty (20) days after service of the motion. There shall be annexed to such answer a separate, short and concise statement of the material facts as to which it is contended that there exists a genuine issue to be heard. All material facts set forth in the statement required to be served by the moving party will be deemed to be admitted unless controverted by the statement required to be served by the opposing party.

(b) Affidavits shall set forth such facts as would be admissible in evidence and shall show affirmatively that the affiant is competent to testify to the matters stated therein. The presiding officer may permit affidavits to be supplemented or opposed by depositions, answers to interrogatories or further affidavits. When a motion for summary decision is made and supported as provided in this section, a party opposing the motion may not rest upon the mere allegations or denials of his answer; his answer by affidavits or as otherwise provided in this section must set forth specific facts showing that there is a genuine issue of fact. If no such answer is filed, the decision sought, if appropriate, shall be rendered.

(c) Should it appear from the affidavits of a party opposing the motion that he cannot, for reasons stated, present by affidavit facts essential to justify his opposition, the presiding officer may refuse the application for summary decision or may order a continuance to permit affidavits to be obtained or make such other order as is appropriate and a determination to that effect shall be made a matter of record.

(d) The presiding officer shall render the decision sought if the filings in the proceeding, depositions, answers to interrogatories, and admissions on file, together with the statements of the parties and the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a decision as a matter of law. However, in any proceeding involving a construction permit for a production or utilization facility, the procedure described in this section may be used only for the determination of specific subordinate issues and may not be used to determine the ultimate issue as to whether the permit shall be issued.

The use of summary disposition to resolve tenuous issues raised in petitions to intervene has been encouraged by the Commission and the Appeal Board. See, e.g., Northern States Power Co. (Prairie Island Nuclear Generating Plant, Units 1 & 2), CLI-73-12, 6 AEC 241, 242 (1973); Mississippi Power & Light Co. (Grand Gulf Nuclear Station, Units 1 & 2), ALAB-130, 6 AEC 423, 424-425 (1973); Duquesne Light Co. (Beaver Valley Power Station, Unit 1), ALAB-109, 6 AEC 243, 246 (1973). In particular, summary disposition may be used in license amendment proceedings, Boston Edison Co. (Pilgrim Nuclear Station, Unit 1), ALAB-191, 7 AEC 417 (1974). Two recent cases in which summary disposition motions were granted are Public Service Co. of Oklahoma (Black Fox Station, Units 1 & 2), LBP-78-30, 8 NRC 327 (Sept. 8, 1978), and Tennessee Valley Authority (Hartsville Nuclear Plant, Units 1A, 2A, 1B & 2B), LBP-78-35, 8 NRC 513 (Oct. 31, 1978).

In resolving the issues in this proceeding, the Board should be guided by 10 CFR § 50.91:

Sec. 50.91. Issuance of amendment. -- In determining whether an amendment to a license or construction permit will be issued to the applicant the Commission will be guided by the considerations which govern the issuance of initial licenses or construction permits to the extent applicable and appropriate. . . .

The standards for the issuance of operating licenses are governed by the Atomic Energy Act of 1954, as amended, and by the Commission's regulations in 10 CFR Part 50, in particular 10 CFR § 50.57.

The issues in this proceeding are set forth in the Board's "Order Granting Intervention, Providing for a Hearing and Designating Contentions of Intervenor," dated April 21, 1979. It is Vepco's position that each of those contentions can be resolved in Vepco's favor by summary disposition, because there are no genuine issues to be heard as to any of them. Attached to this motion are "Vepco's Statement of Material Facts as to which There Is No Genuine Issue to be Heard" and the affidavits of H. Stephen McKay, Robert W. Calder, and Dr. Morris L. Brehmer. Mr. McKay's affidavit includes Vepco's "Summary of Proposed Modifications to the Spent Fuel Storage Pool Associated with Increasing Storage Capacity" (hereinafter "Summary"). Vepco believes that the facts set out in the attached Statement and affidavits are

sufficient basis for summary disposition.

That summary disposition may be used to dispose of all the issues in a proceeding, removing the need for a public hearing, is clear from the Appeal Board's words in this very case:

This does not perforce mean that there will be a need for an evidentiary hearing on all or any of CEF's contentions. Even those contentions found to be acceptable for admission to the proceeding will be susceptible to a motion for summary disposition under 10 CFR 2.749.

ALAB-522, slip op. 4-5 (Jan. 26, 1979) (emphasis added).

We will now address each of the contentions in turn.

THERMAL EFFECTS (CEF)

CEF's "Thermal Effects" contention is the following:

Intervenor contends that the possible consequences caused by the additional heat to be discharged as a result of the proposed modifications have not been adequately addressed by the NRC staff and the Applicant. This contention embraces the rate of temperature rise in the spent fuel storage facility as a result of an accidental leak in the spent fuel pool. It further includes the affirmation that the spent fuel pool cooling system will be inadequate to prevent "hot spots" and possible boiling.

Effect on the environment. The NRC Staff, in its Environmental Impact Appraisal of April 2, 1979 (EIA) concluded this about the additional heat to be discharged because of the proposed modification:

[T]he only nonradiological effluent attributable to the amendment would be the additional heat load of 5.6×10^6 Btu/hr dissipated from the service water system. This is about 5.5 percent more than the 103.1×10^6 Btu/hr heat load on the service water reservoir under normal operation and about 4.6 percent of the 122.5×10^6 Btu/hr heat load under abnormal conditions (unloading a full core), without the SFP modification. The incremental effects of evaporating 12 gpm to dissipate this additional heat (Sect. 4.2) would be minimal. The service water reservoir is located onsite near the main structures of the station (FES Fig. 3.1) and any additional atmospheric effects of its operation such as fogging and icing are unlikely to occur offsite.

There is provision for discharge of the service water system to the WHTF [waste heat treatment facility] if the need should arise. The addition of 5.6×10^6 Btu/hr to the total discharge from Units 1 and 2 (13.5×10^9 Btu/hr) would be an increase of only 0.04%. This would not have noticeable incremental effects on aquatic biota or the environment.

(EIA at 6, § 4.3 (footnote omitted).) Vepco's Dr. Brehmer has given his opinion that the additional heat discharged would have an insignificant effect (attached Affidavit of Dr. Morris Brehmer). We believe there is no evidence that the effect of this heat on the environment will be significant.

Thus, in light of the extremely small increment of heat to be added by the proposed modification, Vepco and the NRC Staff have adequately assessed the consequences to the environment, and those consequences are insignificant. There is no genuine issue to be heard.

Leakage. The spent fuel pool is a structure of reinforced concrete, lined with 1/4-inch stainless steel and founded on bedrock. In the unlikely event of a leak through the liner and concrete, the low-level alarm would sound when the water level reached 6 inches below normal. Several station systems are capable of providing make-up water until the leak could be repaired. Because the water level in the pool would be maintained despite the leak, there would be no temperature increase in the pool. Indeed, there would probably be a decrease due to the addition of cooler makeup water (see McKay Affidavit). Accordingly, there is reasonable assurance that the proposed modification would not endanger the health and safety of the public and that the issuance of the license amendment will not be inimical to the health and safety of the public (10 CFR § 50.57). There is no genuine issue to be heard.

Boiling and hot spots. A thermal-hydraulic analysis of the high-density spent fuel racks has been performed using accepted engineering techniques. The analysis shows that sufficient flow is induced by natural convection to preclude local boiling in the storage cells. The spent fuel pool cooling system will maintain the pool's water temperature below 140°F for normal conditions and 170°F for emergency conditions.

There is no evidence that the cooling system will be inadequate to prevent boiling and "hot spots".

Thus, there is reasonable assurance that the proposed modification will not endanger the health and safety of the public and that the issuance of the license amendment will not be inimical to the health and safety of the public. There is no genuine issue to be heard.

RADIOACTIVE EMISSION (CEF)

The two "Radioactive Emission" contentions, which have been consolidated, are the following:

a. Intervenor contends that VEPCO has neglected to address the additional liquid and gaseous radioactive emissions which will result from the increased fuel storage and the effects thereof. In CEF's opinion, applicant's analysis of radiation released, and of possible releases, in the event of both those accidents considered in Section 9.1 through 9.4 of the application, are superficial and insubstantial in the Summary of the Proposed Modifications.

b. Intervenor contends that the applicant has failed to analyze adequately the liquid and gaseous radioactive emissions that will result from the proposed increase in fuel storage capacity, and has failed to demonstrate that significant adverse environmental effects will not result from such emissions.

Normal operation. The NRC Staff has evaluated the potential offsite radiological environmental impacts associated with the expansion of the spent fuel storage capacity and

determined them to be "environmentally insignificant" (EIA 6; see also id. §§ 4.4.1-4.4.4). Likewise, Vepco has described its fuel building ventilation system and spent fuel pool purification system and concluded that they are satisfactory to control the radioactive materials. Experience with systems of similar design at the Surry Station has been satisfactory. There is no evidence that the proposed modification will cause the radioactive releases from the station to violate the limits in 10 CFR Part 20, Appendix I to 10 CFR Part 50, the limits in 10 CFR Part 100, or any other NRC regulations or guidelines.

Accidents. Vepco has analyzed a number of potential accidents, namely, the loss of the spent fuel pool cooling system (Summary § 9.1), leakage (§ 9.2), earthquakes and tornadoes (§ 9.3), and fuel drop accidents (§ 9.4). Vepco's analyses conclude that none of these accidents would have unacceptable consequences. (See also EIA § 5.0; NRC Staff Safety Evaluation § 2.4.)

Accordingly, there is reasonable assurance that the proposed modification will not endanger the health and safety of the public and that the issuance of the license amendment will not be inimical to the health and safety of the public. There is no genuine issue to be heard.

MISSILE ACCIDENTS (Potomac Alliance)

The Potomac Alliance's "Missile Accidents" contention is the following:

Intervenor contends that the proposed modification of the spent fuel pool will increase the consequences of an accident involving missiles, and that the Applicant has not demonstrated that the pool, as modified, will withstand such accidents within the limits set forth in NRC Regulations.

The NRC Staff has said the following about missiles:

The design criterion for the tornado missile protection for the facility was such that tornado-generated missiles would not cause damage to more than one spent fuel assembly within the spent fuel pool. This matter was evaluated in Sections 3.5 and 9.1.2 of the Safety Evaluation Report and our basis for accepting the design of the fuel building and spent fuel pool, with regard to missile protection, was that there is a low probability that a tornado-generated missile would damage sufficient fuel assemblies to cause offsite doses in excess of 10 CFR Part 100. The design provisions for protection from . . . tornado missiles are unaffected by the proposed modification and are, therefore, acceptable.

On the basis of the above, we conclude that the increase in the number of assemblies in the fuel storage pool of the North Anna Power Station, Units 1 and 2, will not increase the offsite radiological consequences beyond the design basis fuel handling accident.

(Safety Evaluation at 1-5.) Vepco has analyzed the risk of a tornado missile impacting the spent fuel pool and has concluded that it would not result in radiation doses exceeding the limits of 10 CFR Part 100. Vepco has also analyzed the risk of

turbine missiles and found it to be extremely small.

Accordingly, "there is reasonable assurance that the proposed modification will not endanger the health and safety of the public, and the issuance of the operating license amendment will not be inimical to the health and safety of the public. There is no genuine issue to be heard.

MATERIALS INTEGRITY (Potomac Alliance)

The Alliance's "Materials Integrity" contention is the following:

Intervenor contends that increasing the inventory of radioactive materials in the spent fuel pool will increase the corrosion of, the stress upon, and resultant problems concerning the components and contents of the pool. The Applicant has not adequately addressed such potential problems with respect to:

- (a) the fuel cladding, as a result of exposure to decay heat and increased radiation levels during extended periods of pool storage; and
- (b) the racks and pool liner, as a result of exposure to higher levels of radiation during the pool storage.

The Staff says the following about fuel failure:

Experience indicates that there is little radionuclide leakage from Zircaloy-clad spent fuel stored in pools for over a decade. Operators at several reactors have discharged, stored, and/or shipped relatively large numbers of Zircaloy-clad fuel elements which developed defects during reactor exposures, e.g., Ginna, Oyster Creek, Nine Mile Point, and Dresden Units Nos. 1 and 2. Based on the operational reports submitted by licensees and discussions with the operators, there has not been

any significant leakage of fission products from spent reactor fuel stored in the MO [GE Midwest Fuel Recovery Plant] pool or the NFS [Nuclear Fuel Services, Inc.] pool. Several hundred Zircaloy-clad assemblies which developed one or more defects in-reactor are stored in the Morris pool without need for isolation in special cans. Detailed analysis of the radioactivity in the pool water indicates that the defects are not continuing to release significant quantities of radioactivity.

(EIA 7-8.)

Licensing Boards and Appeal Boards have in a number of cases found that Zircaloy-clad fuel can be safely stored under water. For example:

[T]he staff's evidence established without contradiction that studies have demonstrated that Zircaloy-clad fuel is relatively impervious to corrosion, even at the considerably higher temperatures to which the fuel is subjected during reactor operation. In this connection, following its removal after eleven years of storage in the spent fuel pool of the Windscale facility in the United Kingdom, a Zircaloy-clad fuel bundle was found upon metallographic examination to be free of any corrosion attributable to that storage.

Portland General Electric Co. (Trojan Nuclear Plant), A1AB-531, 9 NRC ____ (March 21, 1979)(slip op. at 22-23; footnote omitted).

See also Portland General Electric Co. (Trojan Nuclear Plant), LBP-78-32, 8 NRC 413, 418-421 (Oct. 5, 1978). Similarly:

We find, based on the testimony presented, that there is no significant likelihood of loss of rod integrity and resulting increased radioactivity in the spent fuel pool due to long-term storage of spent fuel in the Beaver Valley spent fuel pool.

Duquesne Light Co. (Beaver Valley Power Station, Unit No. 1), LBP-78-16, 7 NRC 811, 819 (May 4, 1978), affirmed, ALAB-484, 7 NRC 984 (June 7, 1978). Likewise the following:

The fuel assemblies utilized at Vermont Yankee contain zircaloy and stainless steel and Inconel 718. While the possibility of stress corrosion cracking of sensitized stainless steel or zircaloy cannot be eliminated entirely, its probability is believed to be extremely low. Past experience has shown no corrosion problems after residence of similar fuel assemblies in fuel pools for over ten years. And calculations indicate that zircaloy clad's corrosion rate is sufficiently low to provide an adequate containment for at least 100 years.

Even assuming that there is leakage of the fuel rods, this is not expected to be a problem for a number of reasons. . . .

Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station), LBP-77-54, 6 NRC 436, 440-41 (Aug. 30, 1977), affirmed, ALAB-455, 7 NRC 41 (Jan. 27, 1978).

The racks and pool liner at North Anna 1 and 2 are 304 stainless steel and are not expected to suffer unacceptable stress or corrosion over the life of the power station.

Although the amount of decay heat generated may be greater because of the proposed modification, the spent fuel pool cooling system is capable of keeping the pool water at or below 140°F for normal conditions and 170°F for abnormal conditions. Accordingly, there should be no significant increase in the corrosion or stress on the fuel cladding, fuel

racks, or pool liner due to decay heat. Also, the cladding temperature of spent fuel declines rapidly after the reactor is shut down, and the cladding continues to cool in the pool, so that its temperature after several weeks is relatively low, less than 180°F (EIA 7). Even if the fuel were to fail, a recent Battelle Northwest Laboratory report finds that the vast majority of failed fuel does not require special handling and is stored in the same manner as intact fuel (EIA 8). Again, there is no genuine issue to be heard.

CORROSION (CEF)

CEF's "Corrosion" contention is the following:

Intervenor contends that there has been inadequate examination of the problems that may arise due to a potential incremental increase in the amount of corrosion upon the spent fuel assemblies and racks over the duration of storage of fuel in the pool, including their eventual removal from the pool. Such problems include, but are not limited to, the ability of the spent fuel pool purification system to remove any potential incremental impurities.

As noted above, there is no reason to believe (and certainly no evidence) to suggest that the proposed modification will significantly increase corrosion. The Staff's Safety Evaluation says this about corrosion:

The materials to be used for construction of the spent fuel storage racks have been identified by specification and found to be in conformance with the requirements of Section III of the American Society of

Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. The mechanical properties of the selected material satisfy Appendix I of Section III of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code and Parts A, B and C of Section II of the Code.

The revised spent fuel storage rack material is Type 304 austenitic stainless steel as was the previous material. Type 304 is compatible with the expected environment, as proven by testing and satisfactory past service performance. Therefore, general corrosion of the material will be negligible. Galvanic corrosion is avoided since stainless steel Type 304 material is also used in the construction of the base structure angle plates, embedment plates and the spent pool liner.

The controls to be imposed upon the fabrication of the austenitic stainless steel material used in the construction of the spent fuel storage racks satisfy the requirements of Regulatory Guide 1.31, "Control of Ferrite Content of Stainless Steel Weld Metal" and American National Standard Institute (ANSI) Standard N45.2.1, "Cleaning of Fluid Systems and Associated Components During the Construction Phase of Nuclear Power Plants." The welding procedures and the welders are qualified in accordance with the requirements of Section IX of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code.

Since materials selection, fabrication practices and cleaning procedures will be performed in accordance with the requirements of the ASME Code, the ANSI standard and the regulatory guide referenced above, we conclude that there is reasonable assurance that the spent fuel storage racks will perform satisfactorily in service.

(Safety Evaluation 1-3 to 1-4.)

The Staff says this about the fuel pool purification system:

The maximum load on the fuel pool purification portion of the system occurs during refueling operations when fuel is being moved or when larger than normal amounts of defective fuel are stored in the racks. The purification portion of the system has the design capability of accommodating any anticipated increase in the amount of stored defective fuel resulting from the increase in the storage capacity.

On the basis of our review, we conclude that the present cooling and purification capacity of the spent fuel pool will be sufficient to handle the incremental heat load and potential water quality degradation in the pool that would be added by the modification and that the spent fuel cooling and purification system is acceptable for the proposed modification.

(Safety Evaluation 1-6 to 1-7.)

Likewise, Vepco concludes that the spent fuel pool purification system will be adequate. Based on the experience at Surry, Vepco expects no significant effect on the North Anna system from prolonged storage of spent fuel assemblies. Because the maximum load on the purification system occurs during refueling, and because the number and frequency of refueling operations will not be changed by the proposed modification, there will be no significant increase in the purification system load.

Therefore, there is reasonable assurance that the proposed modification will not endanger the health and safety of the public, and the issuance of the license amendment will not be inimical to the health and safety of the public. There is no genuine issue to be heard.

OCCUPATIONAL EXPOSURE (Potomac Alliance)

The Alliance's "Occupational Exposure" contention is the following:

Intervenor contends that the Applicant has not demonstrated that it will prevent the increased occupational radiation levels which will result from the spent fuel pool modification from leading to occupational doses in excess of those permitted under NRC Regulations.

The NRC Staff has found the occupational exposures expected to result from the proposed modification to be acceptable and within NRC limits:

Although it is expected that the additional spent fuel in the pool will increase the amount of corrosion and fission products introduced into the cooling water to some extent . . . the existing purification system will provide adequate removal of those nuclides to assure that the radiation fields will not exceed 1.5 to 3.0 millirem per hour at waist level at the edge of the pool. We consider these radiation fields and resultant exposures during fuel handling operations to be acceptable. Additionally, the licensee provided actual radiation field data and radiation exposure data from their Surry Power Station, Units 1 and 2 . . . which has a spent fuel storage capacity and design similar to that proposed for the North Anna Power Station, Units 1 and 2. The radiation shield water in the storage pool will provide adequate shielding for the additional fuel elements. Based on operating experience at the Surry Power Station, Units 1 and 2, the exposure of personnel to airborne radioactivity will be within the limits of 10 CFR Part 20.

Accordingly, we conclude that storing additional fuel in the spent fuel pool will not result in any significant increase in doses received by occupational workers and that the radiation protection design is acceptable without change for the proposed modification.

(Safety Evaluation 1-7 to 1-8.) Similarly, in the EIA the Staff said this:

We have estimated the increment in onsite occupational dose resulting from the proposed increase in stored fuel assemblies on the basis of information supplied by the licensee and by utilizing relevant assumptions for occupancy times and dose rates in the spent fuel pool area from radionuclide concentrations in the SFP water. The spent fuel assemblies themselves contribute a negligible amount to dose rates in the pool area because of the depth of water shielding the fuel. The occupational radiation exposure resulting from the proposed action represents a negligible burden. Based on present and projected operations in the spent fuel pool area, we estimate that the proposed modification should add less than one percent to the total annual occupational radiation exposure burden at this facility. This small increase in radiation exposure will not affect the licensee's ability to maintain individual occupational doses as low as is reasonably achievable and within the limits of 10 CFR 20. Thus, we conclude that storing additional fuel in the SFP will not result in any significant increase in doses received by occupational workers.

(EIA 11.)

Vepco also concludes that occupational exposures will not exceed NRC limits. Alternatively, Vepco contends that the intervenors lack any discernible interest in the resolution of this issue and that it is therefore not an admissible issue in this proceeding.

Therefore, there is reasonable assurance that the proposed modification will comply with the Atomic Energy Act and the rules and regulations of the Commission.

ALTERNATIVES (Potomac Alliance)

The Alliance's "Alternatives" contention is the following:

Intervenor contends that neither the Applicant nor the Staff has adequately considered alternatives to the proposed action. The alternatives which should be considered are:

- (a) the construction of a new spent fuel pool onsite;
- (b) the physical expansion of the existing spent fuel pool;
- (c) the use of the spent fuel pool at North Anna Units 3 and 4 (including the completion of construction of such pool, if necessary) for storage of spent fuel from Units 1 and 2.

The Staff has analyzed the alternative of constructing a new "independent spent fuel storage installation" (ISFSI) in considerable detail (EIA § 6.2). The Staff concludes as follows:

[N]either an independent spent fuel storage installation or a Government interim storage facility appears to be a feasible alternative to meet the licensee's needs. The staff does not regard the alternative of storing spent fuel at Morris, West Valley or Barnwell as offering a significant environmental advantage over construction and use of an expanded storage facility at North Anna. The availability of this alternative is speculative and it also would be considerably more expensive. Furthermore, constructing a new ISFSI or a Governmental interim storage facility would clearly have a greater environmental impact than the proposed action. It would require additional land and considerable equipment and structures, whereas installing new racks at North Anna requires only the small amount of

material necessary to construct the racks and minor personnel exposure during installation, if the present racks are contaminated prior to their removal.

(EIA 16-17.) Vepco also finds this alternative to the high-density racks unacceptable at this time, because of the extreme cost, the need for double handling of the fuel, and the time required to design, license, and construct such a facility.

The expansion of the existing spent fuel pool is also an undesirable alternative. There are now structures necessary to the operation of Units 1 and 2 on all four sides of the spent fuel pool. Expansion of the fuel pool would require moving these structures. Because the expansion could not be done before the first refueling, and because the pool walls and liner cannot be reworked while spent fuel is stored in the pool, the stored fuel would have to be shipped elsewhere while the work was done. This would require finding a licensed temporary storage place and shipping the spent fuel there. The design, licensing, and construction of the expansion would be costly and time-consuming.

The use of the spent fuel pool at North Anna 3 and 4 would also be an unacceptable alternative. Units 3 and 4 are not expected to be complete until the late 1980's, too late to prevent a loss of full-core discharge capability in 1981 and a loss of refueling discharge capability in 1983.

In such a case as this, where the record shows that the environmental impact of the proposed modification will be very small, the Commission obligation to explore alternatives is slight. As the Appeal Board has said:

[The intervenor] is confronted with the fact that the evidence establishes without contradiction that the process of installing the new racks in that pool and the operation of the pool with its expanded capacity will neither (1) entail more than negligible environmental impacts; nor (2) involve the commitment of available resources respecting which there are unresolved conflicts As we read it, the NEPA mandate that alternatives to the proposed licensing action be explored and evaluated does not come into play in such circumstances - in short, there is no obligation to search out possible alternatives to a course which itself will not either harm the environment or bring into serious question the manner in which this country's resources are being expended.

Portland General Electric Co. (Trojan Nuclear Plant), ALAB - 531, 9 NRC ____ (March 21, 1979) (slip opinion at 4-5; footnote omitted); see also Duquesne Light Co. (Beaver Valley Power Station, Unit No. 1), LBP - 78-16, 7 NRC 811, 817 (May 4, 1978), aff'd, ALAB-484, 7 NRC 984 (June 7, 1978). And the Appeal Board is certainly correct in this: an agency need only consider alternatives that are reasonable. NEPA requires the NRC to consider whether there are environmentally preferable alternatives. Consumers Power Co. (Midland Plant, Units 1 & 2), ALAB-458, 7 NRC 155, 162-63 (Feb. 14, 1978). Where the suggested alternatives are not materially better for the

environment and are excessively costly to boot, there is no NEPA requirement that they be evaluated. Such are the alternatives proposed by the Potomac Alliance.

Again, there is no genuine issue to be heard.

SERVICE WATER COOLING SYSTEM (Potomac Alliance)

On May 10, 1979, Vepco's counsel received a proposed additional contention from the Potomac Alliance:

The intervenor contends that the service water cooling system for the facility would be inadequate to support the component cooling system for the spent fuel pool if the proposed modification of the pool is permitted.

Vepco will respond to the Alliance's motion to add this new contention in due course. For now, Vepco moves for summary disposition of this contention in Vepco's favor along with all the others, based on the fact that Vepco's analyses show that the spent fuel pool cooling system is capable of keeping the pool water at or below 140° (for the normal condition) and 170° (for the abnormal condition).

For the above reasons, Vepco moves for summary disposition in its favor of all the issues in this proceeding.

Respectfully submitted,

VIRGINIA ELECTRIC AND POWER
COMPANY

By /s/ James N. Christman
James N. Christman

Of Counsel

Michael W. Maupin
James N. Christman
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Hunton & Williams
P. O. Box 1535
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DATED: May 11, 1979

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

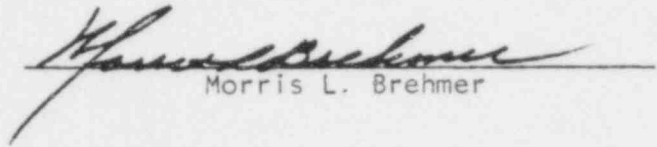
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AFFIDAVIT OF DR. MORRIS BREHMER

Mr. Name is Morris L. Brehmer. An accurate copy of my professional qualifications is attached to this Affidavit.


I am told that the proposed modification to the spent fuel pool for North Anna 1 and 2 will result in an additional heat load of 5.6×10^6 Btu/hr to be dissipated from the service water system and that this is about 3.5% more than the 103.1×10^6 Btu/hr heat load on the service water reservoir under normal operation and about 4.6% of the 122.5×10^6 Btu/hr heat load under abnormal conditions and an increase of only 0.04% over the total discharge from Units 1 and 2 of 13.7×10^9 Btu/hr (for an assumed power level of 2900 MWt). I am also told that about 12 gpm of evaporation will be required to dissipate this additional heat.

In my opinion, the effects of this additional heat on terrestrial and aquatic life will be insignificant.


Morris L. Brehmer

DATED: May 11, 1979

Signed and sworn to before me by Morris L. Brehmer this ____ day
of May, 1979.



Notary Public

My commission expires:

PROFESSIONAL QUALIFICATIONS

Morris L. Brehmer, Ph.D.
Executive Manager, Environmental Services
Virginia Electric and Power Company

My name is Morris L. Brehmer. I reside at 2103 Fenway Drive, Mechanicsville, Virginia 23111. I am Executive Manager, Environmental Services, Virginia Electric and Power Company. I am responsible for the direction of Company sponsored research and monitoring programs in air, water, noise, and terrestrial areas. I also coordinate the procedures for the acquisition of permits and licenses from certain state and federal regulatory agencies.

I received my undergraduate degree in 1950 from Eastern Illinois University with majors in Biology and Chemistry. After one year of graduate work at Michigan State University I returned to Illinois and worked for the State until 1955. During this period I held assignments with the Illinois Natural History Survey, Sanitary Water Board Stream Control Section, and the Fisheries Management Section of the Department of Conservation. I returned to Michigan State University and completed my graduate studies, receiving the MS degree in 1956 and Ph.D. in 1958.

I joined the Virginia Institute of Marine Science in 1959 as Associate Marine Scientist. In 1960, I was appointed Marine Senior Scientist in charge of the Ecology-Pollution Department. On September 1, 1967, I was made Marine Institute Division Director and was in charge of the Division of Applied Marine Science and Ocean Engineering. I held this position until November 1, 1971 when I joined the Virginia Electric and Power Company as Director, Environmental Control.

While with the Virginia Institute of Marine Science, I supervised and conducted research programs on estuarine and tidal freshwater systems. I also provided technical services to Virginia regulatory and management agencies.

I formerly held appointments as Professor, School of Marine Science, The College of William and Mary, and Associate Professor, Department of Marine Science, University of Virginia.

I authored or coauthored the following publications and reports:

"A quantitative method for the collection and measurement of stream periphyton," Limnology and Oceanography, 1960.

"Nearshore tidal and nontidal currents, Virginia Beach, Virginia."
U. S. Army Coastal Engineering Research Center, Tech. Memo. No. 5,
1965.

"Overenrichment, a Potomac River problem," Proc. Interstate Comm. on the Potomac River, 1965.

"Turbidity and siltation as forms of pollution," Journal of Soil and Water Conservation, 1965.

"The effects of thermal effluents on marine organisms," International Journal of Air and Water Pollution, 1966.

"Nutrient accrual, uptake, and regeneration in streams and estuaries," Program Abstracts, 152nd National Meeting, American Chemical Society, 1966.

"Biological and chemical study of the tidal James River," Va. Institute of Marine Science Special Report in Applied Marine Science and Ocean Engineering, Report No. 6, 1966.

"Seasonal occurrence of epifauna on test panels in Hampton Roads, Virginia," International Journal of Oceanology and Limnology, 1967.

"Nutrient assimilation in a Virginia tidal system," Proc. National Symposium on Estuarine Pollution, Stanford University, 1967.

"A biological and chemical study of the Nansemond River, Virginia," Final Contract Report to the Federal Water Pollution Control Administration, Contract No. WA 66-12, 1967.

"Man and the Bay," Proc. The Governor's Conference on Chesapeake Bay, 1968.

"Biological and chemical study of Virginia's estuaries," Bulletin 45, Water Resources Research Center, VPI and SU, 1972.

"Temperature as a growth accelerator in the Spot (Teleost: Sciaenidae)," in Thermal Ecology II, G. W. Esch and R. W. McFarlane (Eds), ERDA Symposium Series, CONF 750425. 1976

"Eighteen-month evaluation of the Ristroph traveling fish screens," in Third National Workshop on Entrainment and Impingement, L. D. Jensen, Ed., Ecological Analyst, Inc. 1977.

I am a member of the Society of Sigma Xi, American Society of Limnology and Oceanography, Atlantic Estuarine Research Society, and the Water Pollution Control Federation.

I have been appointed as the principal Electric Light and Power Group representative on the American National Standards Committee N19, Nonradiological Environmental Effects (of nuclear facilities). I also served a four year term on the Divisional Committee and was Chairman of the Environmental Assessment Department of the Electric Power Research Institute. I am also Company representative on several Edison Electric Institute committees.

CERTIFICATE OF SERVICE

I certify that I have served a copy of Vepco's Motion for Summary Disposition upon each of the persons named below by first-class mail, postage prepaid.

Secretary
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Washington, D.C. 20555

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By /s/ James N. Christman
James N. Christman, Counsel for
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DATED: May 11, 1979