December 18, 1986

Docket Nos. 50-338
and 50-339

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Mr. W. L. Stewart
Vice President - Nuclear Operations
Virginia Electric and Power Company
Post Office Box 26666
Richmond, Virginia 23261

Dear Mr. Stewart:

Subject: Notice of Environmental Assessment and Finding of No Significant Impact Related to Full Power Operation for Forty Years/North Anna Power Station, Units No. 1 & No. 2 (NA-1&2)

Enclosed is a copy of a the Environmental Assessment relating to your letter dated August 22, 1986, as supplemented December 5, and December 10, 1986, regarding your application for amendments to extend the duration of the NA-1&2 full power Operating Licenses to 40 years from the date of issuance of the Operating Licenses.

A copy of a Notice of Issuance of Environmental Assessment and Finding of No Significant Impact, which will be published in the Federal Register, is also enclosed.

Sincerely,

/s/

Leon B. Engle, Project Manager
PWR Project Directorate #2
Division of PWR Licensing-A
Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc w/enclosures:
See next page

*PREVIOUS CONCURRENCE SEE DATE

*LA:PAD#2	*PAEB	*PAPS	*PM:PAD#2	*PD:PAD#2
DMiller	RBallard	TQuay	LEngle:hc	LRubenstein
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	TNovak			
12/17/86	12/18/86			

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LA:PAD#2	PM:PAD#2	PD:PAD#2	OGC
DMiller	LEngle:hc	LRubenstein	
12/8/86	12/8/86	12/15/86	12/17/86
PAEB	PAPS TRQ		
R. Ballard	T. Quay		
12/8/86	12/11/86		

Note: Incorporate earlier changes noted in memo

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12/18/86

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Virginia Electric & Power Company

North Anna Power Station
Units 1 and 2

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ENVIRONMENTAL ASSESSMENT

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATING TO THE CHANGE IN EXPIRATION DATES OF

FACILITY OPERATING LICENSE NOS. NPF-4 AND NPF-7

VIRGINIA ELECTRIC AND POWER COMPANY

AND

OLD DOMINION ELECTRIC COOPERATIVE

NORTH ANNA POWER STATION, UNITS NO. 1 AND NO. 2

DOCKET NOS. 50-338 AND 50-339

DECEMBER 18, 1986

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TABLE OF CONTENTS

1.0 Introduction

2.0 The Need for the Proposed Action

3.0 Environmental Impacts of the Proposed Action

3.1 Radiological Impacts

3.1.1 Population Estimates
3.1.2 Postulated Accidents
3.1.3 Environmental Impacts - General Public
3.1.4 Environmental Impacts - Occupational Exposure
3.1.5 Environmental Impacts - Uranium Fuel Cycle
3.1.6 Conclusions - Environmental Impacts

3.2 Non-Radiological Impacts

3.2.1 Design Features
3.2.2 Design Change Review
3.2.3 Environmental Studies Since Issuance of the Operating Licenses
3.2.4 Conclusions - Non Radiological Impacts

4.0 Alternatives to the Proposed Action

5.0 Alternative Use of Resources

6.0 Agencies and Persons Contacted

7.0 Basis and Conclusions for Not Preparing an Environmental Impact Statement

1.0 Introduction

The currently licensed period for the North Anna Power Station, Units 1 and 2 (NA-1&2) is 40 years commencing with the issuance of the construction permits (February 19, 1971). Accounting for the time that was required for plant construction, this represents an effective operating license period of 33 and 30½ years for NA-1&2, respectively. The licensee's application dated August 22, 1986, as supplemented December 5, and December 10, 1986, requests a 40-year operating license period from the date of issuance of the NA-1&2 operating licenses. This request would extend the present NA-1&2 operating licenses by 7 and 9½ years, respectively, to provide for 40 years full power operations. In summary, the present and requested expiration dates are as follows:

UNIT	ISSUANCE OF FULL POWER OL	PRESENT OL EXPIRATION DATE	REQUESTED OL EXPIRATION DATE
#1	April 1, 1978	February 18, 2011	April 1, 2018
#2	August 21, 1980	February 19, 2011	August 21, 2020

2.0 The Need for the Proposed Action

Operation of NA-1&2 for 40 years of full power operation would benefit both the licensee and the licensee's residential, commercial and industrial customers. Nuclear generated electricity is the least expensive electric power generated and sold by the licensee. The additional 7 and 9½ years of full power operations allowed by the proposed change would defer the need to install replacement base load capacity and defer the need for substantial additional capital expenditures. Continued operation for an additional 7 and 9½ years would also be beneficial to the tax base and to the economy of the surrounding areas of the Commonwealth of Virginia.

3.0 Environmental Impacts of the Proposed Action

In April 1973, the Atomic Emergy Commission issued the Final Environmental Statement (FES) related to operation of the North Anna Power Station, Units No. 1, No. 2, No. 3 and No. 4 (NA-1,2,3&4). This document provides an evaluation of the environmental impacts associated with operation of NA-1,2,3&4. It is noted that since the issuance of the FES, the licensee has cancelled the construction of NA-3&4 and, therefore, any power operations for NA-3&4. The NRC staff has reviewed the NA FES to determine if any significant environmental impacts, other than those previously considered, would be associated with the proposed license extensions.

The NA-1&2 FES (for NA-1,2,3&4) and the NA-1&2 Final Safety Analysis Report (FSAR) were prepared in support of the original License Application which requested an operating license for NA-1&2 for a term of 40 years. Therefore, 40 years of operation was considered in the preparation of the FSAR and FES.

3.1 Radiological Impacts

The NRC staff has considered the radiological impacts of revised population estimates and the impacts of a hypothetical, design bases accident at NA-1&2 for the requested additional 7 and 9½ years of operation.

3.1.1 Population Estimates

The Exclusion Area consists of the Company-owned property in approximately a 5000 ft. radius of the NA-1&2 station. There is currently no expectation that the Exclusion Area boundary would be affected as a result of Company initiatives during the additional years of operation.

The Emergency Planning Zone (EPZ) consists of the area within a 10 mile radius of the station for which there is reasonable assurance that appropriate protective measures could be taken on behalf of the population in the event of a serious accident. Based on 1980 census data the permanent 1980 population in the EPZ was 14,610 (47 per square mile). While this population density is low and reflects primarily rural areas, it is noted that this actual population is approximately 57% higher than the NRC's projected 1980 10 mile population of 9,310 presented in Table 5-9 of the FES. However, based on general population trends discussed below, we would expect no significant change in the EPZ during the additional years of operation.

In the April 1973 Final Environmental Statement for NA-1,2,3&4, the NRC reported its conclusion that the areas around North Anna are essentially rural except for the metropolitan areas of Richmond, Charlottesville and, to a lesser extent, Fredericksburg. This should remain true throughout the additional years of operation requested (approximately 2011-2020). This statement is based on a review of 1980 census data and population projections provided by the Commonwealth of Virginia's Department of Planning and Budget (October 1986).

Certain evaluations in the NA FES were conducted on the basis of populations within a 50 mile radius of the station. Population trends within this area are discernable by reviewing the populations of major population centers and counties within the area. To be conservative, cities or counties which were only partially inside the 50 mile radius have been included within the envelope of the 50 mile radius. From 1970 to 1980, the populations of these cities and counties increased by 21% (annual rate of less than 2%). The Commonwealth of Virginia projects this population to increase 32.7% by the year 2000 (annual rate of less than 1.5%).

Specifically, the nearest major population centers within 50 miles of the station are still the cities of Richmond, Charlottesville and Fredericksburg. The populations of these cities in 1970 and 1980, and the projected population in the year 2000 are as follows:

	Historical		Projected
	1970	1980	2000
Richmond City	249,431	219,214	212,700
Fredericksburg	14,450	17,762	22,800
Charlottesville	38,880	39,916	43,400
Total	302,761	276,892	278,900

From this information, it is clear that the total population in these cities decreased from 1970 to 1980, and is expected to remain fairly stable through the year 2000. The counties are therefore responsible for the modest growth experienced within the 50 mile radius from 1970 through 1980, and the modest growth expected through the year 2000.

Based on these actual and projected increases, we have determined that the conclusions in the North Anna FES concerning the population based evaluations remain reasonable for the additional years of operation. Section 5 of the FES states: "Each of the approximately 1 million people who currently live within 50 miles will receive about 125 millirem/year from natural background radiation, which is equivalent to a population dose of 125,000 man-rem/year. Comparison of these numbers with the staff's estimated population dose of 21 man-rem per year of four-reactor operation shows that the increase in dose over background is very small." Thus, the estimated population dose from 4 operating units is a negligible fraction of the total dose. In addition, power operation for only 2 units (NA-1&2) for the requested extension of 7 and 9½ years for NA-1&2, represents an insignificant fraction of the total dose as specified in the NA FES.

The staff concludes that the increase in projected population, as noted above, and the requested extension in time, would not change the overall conclusions as stated in the NA FES regarding the Exclusion Area Boundary, Low Population Zone and nearest population center distances. In addition, the conclusions reached in the staff's Safety Evaluation for NA-1&2 (1976, as amended) that NA-1&2 meets the requirements of 10 CFR Part 100 remain unchanged.

3.1.2 Postulated Accidents

The magnitude of accident releases and doses to individuals would not change as a result of an increase in the years of plant operation. The total integrated dose to the public would change if the total population continued to grow during the period covered by the requested license extension.

However, Table 7.2 of the NA FES shows that the estimated total exposure of the population within 50 miles of the station from each postulated accident would be orders of magnitude smaller than that from naturally occurring radioactivity, which corresponds to about 125,000 man-rems/year based on a natural background of 125 mrem/year. As discussed previously, the population is increasing roughly 2% annually within the 50 mile radius of North Anna. This growth is a small fraction of the orders of magnitude change necessary to significantly affect the previously evaluated radiological consequences as stated in the NA FES.

In addition, the staff has assessed the public risks from reactor accidents per year of operation at other reactors of comparable design and power level. In all cases, the estimated reactor accident risks of early and latent cancer fatality per year of operation have been small compared to the background accident and cancer fatality risks to which the public is exposed and do not increase with longer periods of operation. If similar risks were estimated for NA-1&2, we would expect a similar comparison. Therefore, we conclude that the proposed additional years of operation for NA-1&2 would not increase the annual public risk from reactor accidents.

Finally, accident consequences were considered for a 40 year operating life for 4 units in the NA FES. Based on all of the above, the staff concludes that any projected population increases do not change the overall conclusions of the NA FES concerning radiological consequences following accidents.

3.1.3 Environmental Impacts - General Public

The FES for NA-1,2,3&4 provided NRC estimates for annual releases and yearly doses resulting from the operation of the station. The estimated annual releases for NA-1&2 remain unchanged regardless of the lifetime of the facility, and as shown below the actual releases have remained small fractions of the 10 CFR 50, Appendix I requirements.

The dose estimates provided in the FES were updated in the 1976 FES Addendum (NUREG-134) using current methodology. The dose estimates are for annual doses and annual doses are only slightly affected by a change in the operating life of the plant. This is true becuase the doses are almost entirely produced by short lived nuclides such as iodine-131 and by nuclides which are rapidly dispersed in the environment such as cesium-137 in water. The only pathways where buidlup of long lived nuclides is significant are external radiation from shoreline contamination and internal radiation from foodstuff grown on land irragated with plant effluent water. For these pathways the assumed buildup period is 15 years, corresponding to the nominal midlife of a plant. Cesium-137 is the only significant nuclide that does not reach secular equilibrium in 15 years. Therefore an increase in operating life and the buildup period would only increase the doses from cesium-137 by the shoreline and the irragated foodstuff pathways. Neither of these pathways is an important contributor to the doses from NA. Furthermore, cesium-137 is not the dominant nuclide in either pathway. Therefore increasing the operating life to 40 years increases the calculated doses no more than a few percent. (Actual doses are expected to continue to be too small to measure). This theoretical increase is considered minor because (1) all doses will continue to be well below the guidelines of 10 CFR 50 Appendix I and (2) the guidelines are a small fraction of the doses from natural background radiation.

For consideration of environmental radiation, the most significant change since licensing of NA is the promulgation of Appendix I to 10 CFR Part 50 and the subsequent revision of the technical specifications of NA. The licensee is now required by the technical specifications to keep releases under normal conditions below the guideline levels. This provides assurance the releases will continue to be as low as are reasonably achievable.

It is noted that there have been no significant land use changes within a 50 mile radius of NA that have affected offsite dose calculations.

We have also conducted a general comparison of the radiological impacts on man as assessed in the FES with those calculated from actual releases during plant operations. The following table gives a summary of liquid and gaseous effluent dose information during the period from January 1, 1985, through December 31, 1985. These annual doses compare favorably with 10 CFR Part 50, Appendix I limits.

North Anna	1985	10 CFR 50, App. I (2 unit)
A. Gaseous Releases		
1. Maximum Site Boundary Gamma Air Dose (mrad)	1.37	20
2. Maximum Site Boundary Beta Air Dose (mrad)	2.02	40
3. Total Maximum Offsite Dose to Any Organ (mrem)	1.25	30
B. Liquid Releases		
1. Total Maximum Offsite Whole Body Dose (mrem)	1.26	6
2. Total Maximum Offsite Organ Dose (mrem)	1.76	20

The liquid and gaseous effluent doses reported in 1985 are significantly less than the 10 CFR 50, Appendix I limits. Furthermore, the 1985 whole body doses are consistent with the liquid and gaseous effluent doses projected in Table 5.8 of the FES.

Based on the continued operation of NA using existing liquid and gaseous radwaste treatment systems coupled with the current radiological monitoring program, the staff anticipates liquid and gaseous effluent doses during the period covered by the requested amendments will remain a fraction of the 10 CFR Part 50, Appendix I limits and will not adversely impact upon the environment.

3.1.4 Environmental Impacts - Occupational Exposure

The staff has evaluated the licensee's dose assessment based on the requested extension for 7 and 9½ years and compared it with current NA-1&2 and overall industry occupational dose experience.

The average dose expended over the recent six year period for NA-1&2 which covers 1980-1985 has been 524 person-rem per year per unit. This compares favorably with the industry average of 579 person-rem per year per unit for this period of time. It is projected that NA-1&2 will expend approximately 800 person-rem (400 per unit) in 1986. Mid-year projections by the Institute for Nuclear Power Operations (INPO) puts the PWR industry average for 1986 at 1018 person-rem for a two unit facility.

Major exposure saving modifications scheduled for the 1987 refuelings at NA-1&2 include installation of permanent reactor head shields, removal of non-essential large bore snubbers, and a computer-enhanced photo documentation of the entire plant for As Low As Is Reasonably Achievable (ALARA) preplanning. Implementation of these modifications when coupled with tighter primary chemistry control and an improving ALARA program should lower the average person-rem per refueling even when factoring in the increased doses associated with an aging plant.

The licensee is committed to equaling or bettering the industry's performance in radiation exposure. The exposure goals for 1990 submitted to INPO were set at 269 person-rem per unit (538 person-rem for the site). Using these goals, the total occupational dose expected over the period of the operating license extension of 7 and 9½ years for NA-1&2, respectively, is 4439 person-rem, and is based on 12 additional refuelings during this period and no major unanticipated maintenance.

NA-1&2 currently make approximately 55 radioactive waste shipments per year within a range of 40 to 60 shipments in any given year. Section 5 of the NA FES estimates the number of yearly shipments at 200 for 4 operating units. Radioactive waste shipments are expected to decline over the next few years due to radwaste reduction efforts, such as the construction of a radwaste processing facility, supercompaction, and a sorting/segregation program. Based on the radwaste reduction efforts described above and the licensee's commitment to reduce waste, it is anticipated that radwaste shipments would continue to remain well below the FES estimates during the additional years of plant operation.

Spent fuel will be stored in the reracked spent fuel pool which has been previously reviewed and approved by the NRC. Hence, onsite storage of spent fuel is available through the year 1999. Additional onsite storage through the use of fuel rod consolidation or dry cask storage will be added as necessary and would require NRC review. The radiological and environmental effects of these changes would be evaluated by the NRC at that time.

The licensee's ALARA program, dose-saving plant modifications and management commitment should ensure that the occupational dose received during the additional years of operation is maintained as low as reasonably achievable and would be consistent with industry standards.

The staff concludes that the licensee's dose assessment is acceptable, and the licensee's radiation protection program is adequate to ensure that occupational radiation exposures for the additional years of plant operation will be in accordance with 10 CFR Part 20 and the guidance of Regulatory Guide 8.8, "Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations Will Be As Low As Is Reasonably Achievable" (Revision 3).

3.1.5 Environmental Impacts - Uranium Fuel Cycle

The impacts of the uranium fuel cycle as considered for the FES were originally based on 30 years of operation of a model light water reactor (LWR). The fuel requirements for the model LWR were assumed to be one initial core load and 29 annual refuelings (approximately 1/3 core per refueling). In considering the annual fuel requirement for the model LWR, fuel use is averaged out over a 40-year operating life (1 initial core and 39 refuelings of approximately 1/3 core) and results in a slight reduction compared to the annual fuel requirement averaged for a 30-year operating life. The net result is an approximately 0.9 percent and 1.6 percent for NA-1&2, respectively, reduction in the annual fuel requirements for the model LWR, due to averaging out of the initial core load over 40 years, instead of 30 years. This small reduction in fuel requirements would not lead to significant changes in the annual impacts of the uranium fuel cycle.

For NA-1&2, the staff projects 5 and 6 additional refuelings, respectively. This represents an extended period of operation of 7 and 9½ years for NA-1&2 considering the transition to extended cycles from the refueling cycle of 12 months originally considered in the NA-1&2 FES. This extended plant life entails a longer production run for the fuel cycle and, therefore, increased environmental costs related to mining, enrichment and other fuel cycle impacts. However, the net annual effects which form the basis of Table S-3 in 10 CFR 51.51, "Uranium Fuel Cycle Environmental Data," remain essentially unchanged from those discussed in the NA FES (NUREG-0134) Addendum.

The request to extend the operating license to 40 years does not involve any power level change not already evaluated in the NA-FES. Consequently, there is essentially no change in the amount of U-235 needed annually by NA-1&2 and no annual change in the scope (core mined, fuel enriched, etc.) of the associated fuel cycle. Therefore, the staff judges that there would not be any changes to the FES necessary for considering 40 years of power operations.

3.1.6 Conclusions - Environmental Impacts

Based on the above, the NRC staff has determined that any environmental related radiological impacts from the proposed extension in time for the Operating Licenses for NA-1&2 are insignificant and enveloped by the NRC staff findings as stated in the Final Environmental Report related to Operation of the North Anna Power Station, Units No. 1, No. 2, No. 3 and No. 4, dated April, 1973.

In summary, this statement is supported by the following NRC staff findings:

(1) Based on population estimates, the conclusions reached in the Staff's Safety Evaluation for NA-1&2 meet the requirements of 10 CFR Part 100 and remain unchanged.

(2) Any projected population increases over the requested extension in time would not change the overall conclusions in the NA FES regarding radiological consequences following accidents.

(3) The staff concludes that the proposed additional years of operation would not increase the annual public risk from reactor accidents.

(4) The staff concludes that liquid and gaseous effluents doses for the period covered by the requested amendment remain a small fraction of 10 CFR Part 50, Appendix I limits and, therefore, will not adversely impact upon the environment.

(5) The staff concludes that the NA-1&2 radiation protection is adequate to ensure that occupational radiation exposures will be in accordance with 10 CFR Part 20.

(6) The staff concludes that occupational exposures for the additional years of plant operation will conform to Regulatory Guide 8.8, "Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations Will Be As Low As Is Reasonably Achievable" (Revision 3).

(7) The staff concludes that radioactive waste shipments will decline due to radwaste reduction efforts and that radwaste shipments will continue to be well within the NA FES values during the additional years of operation.

(8) The staff judges that any impacts of the uranium fuel cycle for 40 years of operation would not require any changes to the NA FES.

3.2 Non-Radiological Impacts

The environmental impacts of the NA-1&2 station are discussed in Section 5 of FES. Non-radiological impacts, as discussed in Section 5, were based on plant design features, relative loss of renewable resources, or relative loss or degradation of available habitat.

3.2.1 Design Features

Design features presently in place to provide environmental protection for Lake Anna from thermal discharge effects on aquatic organisms include: (1) a submerged discharge structure that discharges the cooling water as a high velocity jet producing rapid mixing of the waste heat with lower lake waters and maximizing dilution, (2) construction of the Waste Heat Treatment Facility (WHTF) formed by diking off a series of three interconnected cooling

lagoons from which more than 50 percent of the station's rejected heat is dissipated before discharge to Lake Anna, and (3) an induced circulation pattern in the lower lake formed as cooling water discharged off the WHTF is drawn uplake by circulating water pumps. This circulation pattern results in deepening the epilimnetic layer, alleviating summer stagnation, increasing the volume of oxygenated water and the acreage of benthic substrate, and thus improving the Lake Anna fishery.

Other structures in the lake itself provide additional environmental protection for aquatic organisms. Fish structures comprised of cinderblocks to which small trees and brush are secured have been submerged in Lake Anna to provide cover and protection for young fish and serve as spawning and feeding areas for large fish. Seven such structures are currently in place and twelve more are planned.

These additional environmental devices and conditions will continue to be in place for the period of the proposed license extension. These advantageous effects on aquatic organisms will not be changed.

3.2.2 Design Change Review

A number of plant modifications have been made since the NA FES was issued. These modifications tend to improve plant reliability and it has been shown that the environmental impact has been minimal. The plant modifications are described in the Updated Final Safety Analysis Report (FSAR), which is revised on an annual basis. Components associated with the modifications that are expected to wear out during plant life are subjected to a surveillance and maintenance program so that component degradation will be identified and corrected. Extending the operating life as proposed will have no detectable environmental impact resulting from plant modifications.

As required under the NA-1&2 NRC licenses and station administrative procedures, all design changes with the potential for impacting the aquatic environment are reviewed by the licensee. Discharges to Lake Anna are regulated by the Virginia Water Control Board under authority of the National Pollutant Discharge Elimination System (NPDES) and governed by the NPDES permit issued to North Anna Power Station. The Board issued NPDES Permit No. VA0052451 which covers NA-1&2. Any design changes which may alter a discharge to Lake Anna is reviewed and evaluated by the Board at the request of the licensee, during the Board's periodic review of operating conditions at the time of reapplication and reissuance (every 5 years). Such review and the resulting NPDES permit limitations ensure any potential environmental impact is minimized.

Amendment Nos. 23 and 3 issued December 30, 1980 for NA-1&2, respectively, deleted the water quality monitoring requirements from the Technical Specifications since these requirements would be administered by the Virginia State Water Control Board. The existing permit expires on March 19, 1990. The requested extension of the operating licenses would require at least one additional reissuance of the NPDES permit.

3.2.3 Environmental Studies Since Issuance of the Operating License

A study for NA-1&2 was performed under Section 316(a) of the Clean Water Act and was completed as a Hybrid Type I-III Demonstration. Data were collected on all major biological categories or subcommunities (phytoplankton, periphyton, aquatic macrophytes, zooplankton, macroinvertebrates, fishes and waterfowl) for five years prior to operation (1973-77) and for the first eight years since operation began (1978-1985). The final report of the demonstration was submitted to the Virginia Water Control Board in June 1986. The study demonstrated that a balanced, indigenous community of shellfish, fish and wildlife exists in and on Lake Anna and the North Anna River. The balance among predators, plankton feeders and bottom feeders appears normal and similar to other reservoirs. Also, thermal discharges from the station are not adversely affecting aquatic life in Lake Anna or the lower North Anna River. The Commonwealth of Virginia reviewed this report and found it acceptable.

In 1985, the results of another study completed under Section 316(b) of the Clean Water Act were also submitted to the Virginia Water Control Board. This study evaluated the environmental influence of the intake structures on aquatic life in Lake Anna. The results demonstrated that the biological impact of impingement and entrainment of aquatic organisms has a minimal impact on the ecosystem of the lake. The Commonwealth of Virginia reviewed this report and found it acceptable.

3.2.4 Conclusions - Non-Radiological Impacts

Based on all of the above, the NRC staff has determined that non-radiological environmental impacts, as discussed in Section 5 of the NA FES and for the requested extension in time will not alter previous staff findings and conclusions stated in the FES. In addition, the NRC approved the NA FES for 4 unit operation regarding non-radiological impacts. Thus, the staff concludes that the NA FES and findings therein will significantly envelope any non-radiological environmental impacts associated with the requested extension of 7 and 9 1/2 years operating time for NA-1&2, respectively.

4.0 Alternatives to the Proposed Action

The principle alternative to issuance of the proposed license extensions would be to deny the application. In this case, NA-1&2 would shut down upon expiration of the present operating licenses.

In Chapter 11.0 of the FES, a cost benefit analysis is presented for North Anna. The analysis is based upon 30 years of operation and includes a comparison with various other options for producing an equivalent electrical power capacity. Even considering significant changes in the economics of alternatives, the continued operation of NA-1&2 for another 7 and 9 1/2 years, respectively, remains the most economical alternative.

Nuclear generated electricity is the least expensive power generated and sold by the licensee. The annualized cost of the facility will decrease with additional years of operation since the large initial capital outlay would be averaged over a larger period of time. Continued plant operation would require little capital expenditures compared to the construction of new units. The licensee currently projects the cost of a new 750 Megawatt (MW) fossil unit to cost about $1300 per kilowatt (KW). In comparison, the cost of NA-1 was about $827 per KW. In addition, the licensee would not consider a replacement nuclear unit at this time based on the uncertainty of present costs. Also, purchased replacement power costs are significantly higher than the cost associated with continued operation of the existing units for an additional 7 and 9 1/2 years. In summary, the cost/benefit advantage of North Anna, compared to alternative electrical power generating capacity, improves with the extended plant lifetime.

5.0 Alternative Use of Resources

This action does not involve the use of resources not previously considered in connection with the FES related to the operation of the North Anna Power Station, Units 1, 2, 3 and 4 dated April 1973 (Units 3 & 4 now cancelled).

6.0 Agencies and Persons Consulted

The NRC staff reviewed the licensee's request and consulted with the Virginia State Department of Health. The Virginia State Department of Health did not indicate a concern in granting the proposed extension. As indicated above, the water quality requirements will be extended in the NPDES to cover the period of the license extension.

7.0 Basis and Conclusion for not Preparing an Environmental Impact Statement

The staff has reviewed the proposed license amendments relative to the requirements set forth in 10 CFR Part 51. Based on this assessment, the staff concludes that there are no significant radiological or non-radiological impacts associated with the proposed action and that the issuance of the proposed license amendments will have no significant impact on the quality of the human environment. Therefore, pursuant to 10 CFR 51.31, an environmental impact statement need not be prepared for this action.

Dated: December 18, 1986

Principal Contributor: Leon B. Engle

UNITED STATES NUCLEAR REGULATION COMMISSION

VIRGINIA ELECTRIC AND POWER COMPANY AND

OLD DOMINION ELECTRIC COOPERATIVE

NORTH ANNA POWER STATION, UNITS NO. 1 AND 2

DOCKET NOS. 50-338 AND 50-339

NOTICE OF ISSUANCE OF ENVIRONMENTAL ASSESSMENT AND

FINDING OF NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to Facility Operating Licenses No. NPF-4 and No. NPF-7 issued to Virginia Electric and Power company and Old Dominion Electric Cooperative (the licensees), for the operation of North Anna Power Station, Units No. 1 and 2, located in Louisa County, Virginia.

Identification of Proposed Action:

The amendment would consist of changes to the operating license authorizing an extension in the expiration date for the Unit 1 Facility Operating License NPF-4 from February 18, 2011 to April 1, 2018 and for the Unit 2 Facility Operating License NPF-7 from February 19, 2011 to August 21, 2020.

The amendment to the licenses is responsive to the licensee's application dated August 22, 1986, as supplemented by letters dated December 5, and December 10, 1986. The NRC staff has prepared an Environmental Assessment of the Proposed Action, "Environmental Assessment by the Office of Nuclear Reactor Regulation Relating to the Change in Expiration Dates of Facility Operating

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License Nos. NPF-4 and NPF-7, Virginia Electric Power Company et al., North Anna Power Station, Units No. 1 and No. 2," dated December 18, 1986.

Summary of Environmental Assessment:

The NRC staff has reviewed the potential environmental impacts of the proposed change in the expiration dates of the Operating Licenses for North Anna Power Station, Unit Nos. 1 and 2. This evaluation considered the previous environmental studies, including the "Final Environmental Statement Related to Operation of North Anna Power Station, Units 1,2,3 and 4", dated April 1973, and more recent NRC policy.

Radiological Impacts:

Although the population in the vicinity of North Anna, Units 1 and 2 has increased slightly, the site requirements of 10 CFR Part 100 are still met with regard to Exclusion Area Boundary, Low Population Zone, and nearest population center distances. In addition, the proposed additional years of reactor operation do not increase the annual public risk from reactor operation.

With regard to normal plant operation, the licensee complies with NRC guidance and requirements for keeping radiation exposures "as low as is reasonably achievable" (ALARA) for occupational exposures and for radioactivity in effluents. The licensee would continue to comply with these requirements during any additional years of facility operation and also apply advanced technology where available and appropriate.

Non-Radiological Impacts:

The NRC review identified no additional degradation of the habitat surrounding North Anna with regard to indigenous plant and animal species for the additional years of facility operation. In addition, the National

Pollutant Discharge Elimination System permit provides additional environmental protection.

FINDING OF NO SIGNIFICANT IMPACT:

The staff has reviewed the proposed change to the expiration dates of the North Anna Power Station, Units 1 and 2 Facility Operating Licenses relative to the requirements set forth in 10 CFR Part 51. Based upon the environmental assessment, the staff concluded that there are no significant radiological or nonradiological impacts associated with the proposed action and that the proposed license amendments will not have a significant effect on the quality of the human environment. Therefore, the Commission has determined, pursuant to 10 CFR 51.31, not to prepare an environmental impact statement for the proposed amendments.

For further details with respect to this action, see (1) the request for amendments dated August 22, 1986 as supplemented by letters dated December 5, and December 10, 1986, (2) the Final Environmental Statement Related to the Operation of North Anna Power Station, Units 1,2,3 and 4, dated April 1973, and (3) the Environmental Assessment dated December 18, 1986. These documents are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D. C., and at the Board of Supervisors Office, Louisa County Courthouse, Louisa, Virginia 23093, and the Alderman Library, Manuscripts Department, University of Virginia, Charlottesville, Virginia 22901.

Dated at Bethesda, Maryland, this 18th day of December, 1986.

FOR THE NUCLEAR REGULATION COMMISSION

Daniel G. McDonald, Acting Director
PWR Project Directorate No. 2
Division of PWR Licensing-A
Office of Nuclear Reactor Regulation