May 15, 1991

Docket No. 50-261

Mr. Lynn W. Eury
Executive Vice President
Power Supply
Carolina Power & Light Company
Post Office Box 1551
Raleigh, North Carolina 27602

Dear Mr. Eury:

SUBJECT: ENVIRONMENTAL ASSESSMENT RELATED TO THE LICENSE EXTENSION FOR H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2 (TAC NO. 66079)

Enclosed for your information are copies of the Environmental Assessment and the Notice of Environmental Assessment and Finding of No Significant Impact. These documents relate to your request dated August 17, 1989, as supplemented July 9, 1990, to extend the expiration date of Operating License DPR-23 to July 31, 2010.

The Notice has been forwarded to the Office of the Federal Register for publication.

Sincerely,

Orignal signed by:

Ronnie H. Lo, Senior Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
As stated

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

ENVIRONMENTAL ASSESSMENT

BY THE OFFICE NUCLEAR REACTOR REGULATION

RELATING TO THE CHANGE IN EXPIRATION DATE OF

FACIITY OPERATING LICENSE NO. DRP-23

CAROLINA POWER & LIGHT COMPANY

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

DOCKET NO. 50-261

INTRODUCTION

The H. B. Robinson Steam Electric Plant, Unit No. 2 (HBR-2) is currently licensed for operation for 40 years commencing with the issuance of the construction permit. The license expires on April 13, 2007. By letter dated August 17, 1989, as supplemented on July 9, 1990, Carolina Power & Light Company (CP&L or the licensee) requested that the license expiration date for the plant be extended to July 31, 2010, or 40 years after the date of issuance of the low-power operating license. The currently effective Facility Operating License (DPR-23) was issued on July 31, 1970, and authorized operation at full power, not to exceed 2300 megawatts thermal.

NEED FOR THE PROPOSED ACTION

The granting of this request would allow the licensee to operate the plant for approximately 3 years and 3 months beyond the current license expiration date, thus recapturing the construction period. This extension would also permit the plant to operate for the full 40-year design basis lifetime, consistent with previously stated Commission policy (Memorandum dated August 16, 1982, from William J. Dircks, Executive Director for Operations, to the Commissioners) and as evidenced by the issuance of over 30 similar extensions to other licensees.

ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

The anticipated impact of the plant on the environment was evaluated in the Staff's Final Environmental Statement (FES) dated April 1975. Since that time, its impact on the environment has been observed and recorded. In order to arrive at a finding on the acceptability of the plant's impact on the environment, the following considerations will be evaluated in this assessment:

1. Radiological Impacts of the Hypothetical Design Basis Accident
2. Radiological Impacts of Annual Releases
3. Environmental Impact of Uranium Fuel Cycle
4. Non-Radiological Impacts
5. Plant Modifications

Each of these considerations is sequentially discussed below.

1. Radiological Impacts of the Hypothetical Design Basis Accident (DBA)

The offsite exposure from releases due to postulated accidents has been analyzed by the licensee in the HBR-2 Final Safety Analysis Report (FSAR). The results of these analyses were within the bounds of 10 CFR Part 100 and are acceptable. This type of analysis is a function of four parameters (1) the types of accidents postulated, (2) the radioactivity release calculated for each accident, (3) the assumed meteorological conditions, and (4) population distribution versus distance from the plant. The staff has concluded that neither the types of accidents nor the calculated radioactivity releases will change through the term of the proposed amendment. Furthermore, the site meteorology as defined in the FSAR is essentially a constant and consideration herein is, therefore, unnecessary. Thus, the one parameter that is dependent on the proposed license amendment is the population size and distribution, as it could vary with time. The population size and distribution within 50-mile radius of the plant has been compared by the licensee utilizing the initial FSAR and updated FSAR (UFSAR) in their letter dated July 9, 1990. The FSAR projections are based on the 1960 census, while the UFSAR projections are based on the 1980 census figures. There are no significant land use changes expected during the amendment term that could affect offsite dose calculations. The results of the FSAR and UFSAR population projections are presented in Table 1, Comparison of Population Estimate for Environs of Robinson Unit 2, derived from the licensee's July 9, 1990 letter.

None of the projected changes in population between the years 2007 and 2010, the added term of the proposed license amendment, will significantly impact any previously calculated accident analysis. Futhermore, the current exclusion area boundary, low population zone, and nearest population center distance are not likely to be significantly changed through the amendment term from those originally and currently used by CP&L either by population growth or other factors. Accordingly, we conclude that the proposed license amendment will not significantly change the previous conclusions on the potential environmental effects of offsite releases from postulated accidents.

The staff stated in their proposed no significant hazards consideration determination in the Federal Register (55 FR 40460) on October 3, 1990, that the change in expiration date to July 31, 2010, is consistent with current NRC policy and the originally engineered design life of the plant, i.e., 40-years of operation. Age related degradation was the only mechanism we identified in the above-mentioned determination that could impact the probability or consequences of a previously evaluated accident. However, due to design conservatism, maintenance and surveillance programs,

inspection programs and the plant Technical Specifications (TS), the proposed additional 3 years and 3 months of operation will have no significant impact on safety. That is, regardless of the age of the facility, the above-mentioned programs and TS ensure that components, systems and structures will be refurbished or replaced to maintain their requisite safety function.

2. Annual Radiological Impacts

a. Onsite Doses

The HBR-2 occupational (onsite) dose in the HBR-2 1975 FES was estimated to be 1000 person-rem/yr. The actual average occupational dose at HBR-2 over the 18 reactor years of operation through 1989 was 886 person-rem/yr. The average annual dose for the 3-year period from 1987 through 1989 for HBR-2 was 419 person-rem/yr. By comparison, the average for all PWRs for the same 3-year period is 333 person-rem/yr. Although the 3-year average dose for HBR-2 exceeds the industry average, the annual doses for HBR-2 have been decreasing in recent years.

In its July 9, 1990, response to staff questions, the licensee stated that it is taking several steps to reduce the collective doses at HBR-2. Since 75 to 90 percent of the dose comes from jobs during outages, the licensee has institued a Dose Reduction Program, which should improve outage and job planning, thereby resulting in lower doses. The Dose Reduction Program will also result in some exposure-rate reductions through crud control, cobalt elimination, and insitution of an elevated lithium control program. HBR-2 has eliminated one of its largest sources of exposure in the rector coolant pump bays by removing the resistance temperature detection bypass system. Other changes made at HBR-2 in an attempt to lower radiation doses include (1) live load valve packing, (2) a lowered RCS leak rate, (3) reduction of the contaminated area, (4) creation of the Plant Management ALARA Review Committee, and (5) assignment of a "rad budget" to plant work groups.

Although HBR-2 has exceeded its dose goals during the last 5 years (1985-1989), the licensee hopes that implementation of the exposure reduction techniques described above will lower the annual collective doses at HBR-2 in the upcoming years. The licensee intends to maintain the collective radiation dose below the 3-year rolling industry average, beginning in 1992.

b. Offsite Doses

Routine releases to the environment are governed by 10 CFR 20.1(c), which states that such releases should be as low as reasonably achievable (ALARA). Appendix I to 10 CFR Part 50 is more explicit in that it establishes radioactive design/dose objectives for liquid and gaseous offsite releases including iodine/particulate radionuclides. Table 2, Recent Effluent Doses to a Maximum Exposed Member of the

Public, provides a comparison of Appendix I limits with consolidated plant operating data. This table is derived from the licensee's letter of July 9, 1990. A review of the values in Table 2 indicates that the actual performance to control and limit liquid and gaseous radioactive releases of the plant has been well within the Appendix I radiation exposure limit objectives. The plant has demonstrated its ability to hold, process and reuse waste water to a degree that has not necessitated the routine release of significant radioactive liquid wastes.

The licensee has demonstrated that the gaseous radwaste system is capable of limiting releases associated with both routine operations and special occurrences, such as reloads, to a fraction of ALARA design objectives (See Table 2).

Based on the continued operation of the plant's existing liquid and gaseous radwaste systems, the staff concludes that the anticipated offsite doses during the period covered by the proposed license amendment would remain a fraction of 10 CFR Part 50, Appendix I, limits. The volume of solid waste at the HBR-2 has been below that generated at the average PWR since 1987. In addition, the licensee has committed to further reduce the amount generated in future years. The staff concludes that the radiation exposure impacts from the plant, both onsite and offsite, have remained within the bounds of the FES and have complied with the applicable portions of 10 CFR Parts 20 and 50, as discussed above. As a consequence, we would expect radiological impacts during the proposed license extension period to remain within these bounds, and the fractional increase in radiological impacts is insignificant when compared with that addressed in the FES.

3. Environmental Impact of the Uranium Fuel Cycle

The HBR-2 reactor contains 157 fuel bundles. Until recently, the plant operated in a 12-to-14-month fuel cycle. However, due to improved fuel designs, the plant is currently in an 18-month fuel cycle. This has reduced the demand for fissile uranium. The requested increase in the duration of the operating license for HBR-2 is approximately 3 years and 3 months. This additional period of operation would involve roughly two core reloads based on a refueling frequency of 18 months. The percentage change in the uranium fuel requirements for the lifetime of the unit is small.

In addition to the impacts associated with the operation of the reactor, there are impacts associated with the uranium fuel cycle noted in the 1975 FES. The uranium fuel cycle includes those facilities and processes (e.g., uranium mills, fuel fabrication plants, etc.) that are necessary to support the operation of the reactor. These impacts were based on 30 years of operation of a model 1000 MWe light water reactor. The fuel requirements for the model reactor were assumed to be one initial core load and 29 annual refuelings (approximately one-third of the core is replaced during each refueling).

In considering the annual fuel requirements for 40 years for a model reactor, fuel use is averaged over a 40-year operating life (one

initial core and 39 refuelings of approximately one-third core each). This averaging results in a slight reduction in annual fuel use for 40 years of operation, as compared to the annual fuel requirement averaged over a 30-year operating life. The net result is an approximately 1.5 percent reduction in the annual fuel requirements for the model reactor due to averaging the initial core over 40 years, instead of 30 years. This small reduction in fuel requirements would not lead to significant changes in the annual impacts associated with the uranium fuel cycle.

The staff concludes that considering 40 years of operation would not change the FES with regard to the uranium fuel cycle impact. If anything, the values in the FES become more conservative when a 40-year period of operation is considered, especially in light of refueling cycle intervals which have been extended from 12 months to 18 months. An additional margin in the values contained in 10 CFR 51.51, Table S-3, and 10 CFR 51.52, Table S-4, lies in the fact that the tables were developed based on the anticipated fuel requirements of a 1000 MWe reactor. HBR-2 is rated at 700 MWe and thus has lower fuel requirements. Therefore, we conclude that the proposed increase in duration of operation should remain consistent with the conclusions of the 1975 FES and are bounded by 10 CFR 51.51, Table S-3, 10 CFR 51.52, Table S-4, and are, therefore, acceptable.

4. Non-Radiological Impacts

The major non-radiological impact of the plant on the environment is discharging waste heat through the plant's cooling systems. CP&L noted in the Environmental Report for H. B. Robinson Steam Electric Plant, Unit 2, dated November 9, 1971, that the source of cooling water for HBR-2 is Lake Robinson. The lake was constructed in the late 1950's as a cooling facility for a 185 MWe fossil fueled unit placed in operation in May of 1960 and for anticipated future steam generating units.

Construction and operation of HBR-2 has had little effect on the water use compatibility of Lake Robinson. Lake Robinson has been and will continue to be used for fishing, boating, sailing, and other aquatic sports. There has been a mild increase in consumptive losses of water as a result of the increased evaporation accompanying the added heat load on the lake as predicted in the November 1971 HBR-2 Environmental Report. Water is stored in the lake during periods of high inflow, and flow downstream of Lake Robinson is augmented during dry periods by releases of stored water. The result is a more dependable water supply in Black Creek downstream of Lake Robinson.

All the municipal and industrial sources of potable water within a 20-mile radius of the HBR-2 site are obtained from groundwater sources. Within the vicinity of the plant, all domestic water is artesian in origin. With the construction of the fossil plant, Unit 1, two water wells of approximately 300,000 gallons per day each were provided at the Robinson site. These wells furnish water for boiler makeup, and for potable and sanitary uses. The construction of HBR-2

required three new water wells for make-up purposes and for backup in the event safety injection should be required and the service water system was not available for such use. A total of approximately 10,000 gallons per day is taken from the three new water wells. This usage coupled with that of the Unit 1 has had no effect on the surrounding ground water as evidenced by the continued artesian pressure in the area.

Other non-radiological impacts of the proposed license extension that were reviewed were the irreversible and irretrievable commitment of resources and the preservation of historical or archeological sites. The FES indicated that the operation of HBR-2 would have only minor impact on the environment. This conclusion is still correct and the extension of plant operations for another 3 years and 3 months would not change that conclusion, especially when compared to the impacts associated with construction of replacement power production facilities. While there have been modifications to the plant since the original license was issued, these have involved only readily available construction materials, not materials in short supply. The staff has not determined the need for any significant resource commitments as a result of the proposed license extension.

Through the requirements of Section 106 of the National Historic Preservation Act, the staff has an obligation to make a determination as to the impact of the proposed license extension on any significant nearby historical or archeological sites. The licensee has contacted the South Carolina Department of Archives and History with respect to any historic or archeological sites that might be impacted by extended operation of HBR-2. The licensee indicated in their July 9, 1990, letter that the state of South Carolina has indicated there would be no significant impact on any historical sites by extended operation of HBR-2. Based on the above, the staff has determined that the proposed license extension would have no adverse affect on any historic property.

5. Plant Equipment and Modification

Many modifications and design changes have taken place at the plant since its original construction. Those that involve an unreviewed safety question or require a change to the TS are submitted to the NRC for prior review and approval. This review includes a determination of the environmental effects of the proposed change. As provided by our regulations, other changes may be implemented by the licensee without prior NRC approval. The licensee must first perform a safety evaluation for any such changes, subject to NRC inspection and audit. The licensee also submits such changes to the staff in an annual report, that is reviewed by the staff. A complete detailed description of all the changes, including a summary of the safety evaluation, is included in the annual update of the FSAR. The staff reviews the FSAR updates to verify that the changes did not require prior NRC review and approval. In general, these changes improve plant reliability and do not adversely impact the environment. While it is recognized that the requested license

extension will possibly result in further routine design changes and modifications similar in nature to those already conducted, it is not anticipated that these would have any adverse impact on the environment.

Inservice inspection and surveillance of equipment important to safety is addressed in Section 4 of the TS. Basically, Section 4 invokes an American Society of Mechanical Engineers (ASME) Code, Section XI, program as required by 10 CFR 50.55a(g) on components categorized as ASME Code, Class 1,2, and 3. The Section 4 testing and inspection programs, in conjunction with the other parts of the TS, are utilized by the licensee to continuously assure that components are capable of operating when needed and are capable of performing their intended function. The TS and the Section 4 program serves to reverse most aging effects on replaceable components. The licensee discussed the impact of license extension on major difficult-to-replace components, equipment and plant structures in their July 9, 1990, letter. The items considered in this category are reactor vessel, steam generators, reactor coolant pumps and pressurizer.

HBR-2 was purchased from Westinghouse Electric Corporation as a "turnkey" project. Accordingly, the reactor coolant system, which is a 3-loop pressurized water reactor, was specified, designed and constructed according to applicable Westinghouse requirements. The reactor vessel was designed for a 40-year life in accordance with ASME Code, Section III. In a letter dated December 22, 1988, CP&L demonstrated by current methodology that the reactor vessel will retain acceptable radiation induced embrittlement characteristics for more than 95 effective full power years (EFPY) with HBR-2's present neutron fluence profile. The EFPY is a technical approach to account for the shutdown time, and industry experience has shown that calendar time is always greater than the EFPY. The NRC has accepted CP&L's evaluation of the reactor vessel heatup/cooldown limits using the material surveillance capsule data. These pressure and temperature limits are used to develop reactor vessel heatup and cooldown curves that are utilized in the TS, specifically 3.1.2. These heatup and cooldown curves are presently being developed by CP&L.

An extension of the operating license of 3 years and 3 months would increase the neutron fluence to the controlling location in the reactor vessel by about 7.3 percent to 2.1×10^{19} neutrons/centimeter x centimeter. This increase is small enough so that the changes on the heatup and cooldown limits and other parameters such as shelf energy decrease are insignificant. Finally, pressurized thermal shock (PTS) is covered by 10 CFR 50.61. The reference temperature for PTS when calculated following the guidance of 10 CFR 50.61 for projected neutron fluence must be less than the screening criterion of 300 degrees Fahrenheit for circumferential welds. The licensee stated in their July 9, 1990, letter that the reference temperature for PTS and the fluence projected for the extension would be 283 degrees Fahrenheit, which is less than the 300 degree Fahrenheit screening criteria and, therefore, the extended life on the reactor vessel would have no adverse environmental impact.

With respect to the steam generators, the licensee indicated in the letter of July 9, 1990, that the steam generators are designed for a nominal 40-year life. In addition, the tube bundle portion of each steam generator was replaced in 1984 with tube bundles that were also designed for a nominal 40-year life. Because the tube bundle is the boundary between the primary system and the steam system, the steam generator tube bundle is required by TS to be periodically inspected and a report of the results provided to the NRC. Therefore, the integrity of the steam generators poses no problem for the extension of the license for an additional 3 years and 3 months.

The reactor coolant pumps and the pressurizer are designed for a nominal 40-year life consistent with the rest of the reactor coolant system and, therefore, present no adverse environmental impact.

The electrical systems and equipment in HBR-2 are designed for the nominal 40-year design life. In general, the continued performance of these systems and equipment is assured by two programs. An environmental qualification (EQ) program is required by 10 CFR 50.49 and is in place at HBR-2. The EQ program is reviewed on a continuing basis by the NRC and deficiencies identified by these reviews are corrected. The second program is the plant preventive maintenance program.

The EQ program has reviewed the service environments of safety-related electrical equipment. For each item falling within the scope of the EQ program, a qualified life has been established based on available test data, engineering evaluation of this test data, and the specific service parameters for that item. The HBR-2 program monitors the operation and performance of EQ equipment. EQ equipment with less than a 40 year qualified life is replaced under the EQ program prior to expiration of the qualified life.

The continued operation of non-EQ electrical equipment, safety-related and non-safety-related, is monitored and assured through the preventive and corrective functions of the plant maintenance program. Therefore, with the nominal 40-year design basis and the EQ and preventive maintenance programs for periodic regeneration, the electrical systems and equipment should pose no problem to extending the license for the additional 3 years and 3 months and would present no adverse environmental impact.

The HBR-2 structures were reviewed to assess the impact of extending the license for an additional 3 years and 3 months. There are seven structures at HBR-2 that are classified and designed as Seismic Class I. Six of these structures, the containment, the spent fuel pit, the control room, the diesel generator rooms, the intake structure, and the auxiliary building are all reinforced concrete structures with some steel forms. The remaining Class I structure is a specific section in the turbine generator building and it is constructed of structural steel.

All of these structures were reviewed and found acceptable by the NRC at the time of licensing. The structures were designed to resist various combinations of dead loads, live loads, environmental loads, including those due to external phenomena such as wind, tornadoes and earthquakes, as well as loads generated by design accidents that include effects of pressure, temperature and pipe rupture. The prestressed concrete containment was designed in accordance with ASME Code, Section III, and American Concrete Institute Standard ACI-318-63.

Industrial experience with material such as concrete and steel establishes that a service life of well in excess of 40 years can be anticipated. In addition, CP&L is required by regulations to perform periodic surveillances that assure the Seismic Class I containment building is capable of performing its design function. Prior to initial plant operation, an integrated leak rate test (ILRT) was required to be performed on the containment at the original design pressure of 42 psig and a test pressure of 21 psig and at a temperature no lower than 50 degrees Fahrenheit to establish the respective measured leak rates The plant TS Section 4.4.1.1.g requires that the ILRT be performed twice between the major shutdowns for the 10-year inservice inspections at equal intervals and at the end of the 10-year interval. In addition to the ILRTs, there are tendon surveillance tests on the containment building which involve removing and inspecting test specimens from an embedded location after 5 and 25 years.

The durable nature of concrete and steel structures and the periodic surveillances of the containment building should assure that extending the license for an additional 3 years and 3 months should have no adverse impacts on these structures and would present no adverse environmental impact.

6. Conclusion of Environmental Impacts

Based on the above, we conclude that the proposed extension will not have any significant impact on the environment.

ALTERNATIVE USE OF RESOURCES

This action does not involve the use of resources not previously considered in the FES in relation to the operation of the plant.

BASIS AND CONCLUSION FOR NOT PREPARING AN ENVIRONMENTAL IMPACT STATEMENT

The conclusions of the April 1975 Final Environmental Statement remain valid and operation of the plant has demonstrated that its impact on the environment has been within the bounds predicted by the FES. The staff has reviewed the proposed license amendment 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 amendment 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 at Rockville, Maryland this 14 day of May 1991.

FOR THE NUCLEAR REGULATORY COMMISSION

Orignal signed by:

Anthony J. Mendiola, Acting Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

* See Previous Concurrence

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TABLE 1

A COMPARISON OF POPULATION ESTIMATES FOR
ENVIRONS OF ROBINSON, UNIT 2
(Initial FSAR Versus Updated FSAR)*

Miles	1980	1986	2000	2007	2010
0-1 (1)	502	534	557	665	686
0-1 (2)	448	537	642	680	697
0-5 (1)	13090	13940	16145	17362	17930
0-5 (2)	11124	12242	14546	15378	15501
0-10 (1)	31654	33564	38480	41202	42426
0-10 (2)	31044	34074	40221	42443	42672
0-50 (1)	729000	783813	928275	1010204	1047494
0-50 (2)	678037	736743	873075	926873	959634

(1) Population projections based on original FSAR (1960 census)
(2) Population projections based on updated FSAR (1980 census)
* Values for years not presented in the reference document were extrapolated from adjacent values.

TABLE 2

RECENT EFFLUENT DOSES
TO A MAXIMUM
EXPOSED MEMBER OF THE PUBLIC

Pathway	10CFR50 Appendix I (mrem/yr)	Effluent Doses to a Maximum Exposed Member of the Public For Recent Years (mrem/yr)*			
Gaseous		1986	1987	1988	1989
Total Body	5	0.126	0.230	0.261	0.035
Thyroid	15	0.900	2.000	0.349	0.034
Liquid					
Total Body	3	0.066	0.110	0.030	0.030
Thyroid	10	0.004	0.009	0.011	0.008

* Doses calculated by LADTAP & GASPARS

7590-01

UNITED STATES NUCLEAR REGULATORY COMMISSION

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-261

NOTICE OF ISSUANCE OF ENVIRONMENTAL ASSESSMENT

AND FINDING OF NO SIGNIFICANT IMPACT

The United States Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to Facility Operating License No. DPR-23 issued to the Carolina Power & Light Company (the licensee) for the operation of the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBR-2), located in Darlington County, Hartsville, South Carolina.

ENVIRONMENTAL ASSESSMENT

Identification of Proposed Action

The amendment would consist of a change to the operating license to extend the expiration date to July 31, 2010. The application for a license amendment was submitted August 17, 1987, and was supplemented July 9, 1990. The Commission's staff has prepared an Environmental Assessment of the proposed action, dated

Summary of Environmental Assessment

The Commission's staff has reviewed the potential environmental impact of the proposed change in expiration date of the operating license for HBR-2. This evaluation considered the previous environmental studies, including, the "Final Environmental Statement Related to the Operation of H. B. Robinson Steam-Electric Plant Unit 2," NUREG-75/024, April 1975, and more recent NRC Policy.

Radiological Impacts

The staff concludes that the Exclusion Area (owned and controlled by the licensee), the Low Population Zone (area within 5 miles of the site), and the nearest population center distance will probably remain unchanged from those described in the May 1981 Final Environmental Statement (FES). Based on the 1980 census, indications are that the population density within the Low Population Zone (LPZ) surrounding the site has increased more slowly than projected in the original Final Safety Analysis Report (FSAR), which was based on the 1960 census. For example, for the year 2010, the projected population in the LPZ based on the 1980 census is 15,501. However, the projection based on the original 1960 census is 17,930.

The additional period of plant operation (approximately 39 months) would not significantly affect the probability or consequences of any reactor accident. Station radiological effluents to unrestricted areas during normal operation have been well within Commission regulations regarding as low as reasonably achievable (ALARA) limits and are indicative of future releases. The proposed additional years of reactor operation do not increase the annual public risk from reactor operation.

With regard to normal plant operations, the occupational exposure for HBR-2 have been less than predicted in the 1975 FES, but greater than the national average for pressurized water reactors. The licensee is striving for further dose reduction utilizing ALARA programs, dose-saving plant modifications, and use of robotics to reduce increased doses from probable increased maintenance and corrosion product build-up. Accordingly, annual

radiological impacts on man, both offsite and onsite, are not more severe than those previously estimated in the FES, and the staff's previous cost-benefit conclusions remain valid.

The environmental impacts attributable to transportation of fuel and waste from HBR-2, with respect to normal conditions of transport and possible accidents in transport, would be bounded as set forth in Summary Table S-4 of 10 CFR Part 51.52. The values in Table S-4 would continue to represent the contribution to the environmental costs of transportation associated with plant operation.

Non-Radiological Impacts

The Commission has concluded that the proposed extensions will not cause a significant increase in the impacts to the environment and will not change any conclusions reached by the Commission in the FES.

FINDING OF SIGNIFICANT IMPACT

The Commission has reviewed the proposed changes to the expiration date of the Facility Operating License 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 non-radiological impacts associated with the proposed action and that the proposed license amendment 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 amendment.

For further details with respect to the action, see (1) the application for amendment dated August 17, 1987, as supplemented July 9, 1990, (2) the "Final Environmental Statement Related to Operation of H. B. Robinson Nuclear Steam-Electric Plant, Unit 2," issued in NUREG-75/024 April 1975, and (3) the Environmental Assessment dated May 14, 1991. These documents are available for public inspection at the Commission's Public Document Room, 2121 L Street, N. W., Washington, D.C., and at the Hartsville Memorial Library, Home and Fifth Avenues, Hartsville, South Carolina 29535.

Dated at Rockville, Maryland, this 14 day of May 1991.

FOR THE NUCLEAR REGULATORY COMMISSION

Orignal signed by:

Anthony Mendiola, Acting Director
Project Directorate II-1
Division of Reactor Projects - I/II

OFC	:LA:PD21:DRPE	:PM:PD21:DRPE	:PM:PD21:DRPE	:(A)D:PD21:DRPE	:
NAME	:PAnderson	:RBeckner	:RLo:dt	:AMendiola	:
DATE	:4/29/91	:4/29/91	:4/29/91	:4/29/91	:

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