December 17, 1986

Docket No. 50-334

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Mr. J. D. Sieber, Vice President
Duquesne Light Company
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Dear Mr. Sieber:

Enclosed is a copy of the Environmental Assessment relating to your November 7, 1985 application for a license amendment. The proposed amendment would change the expiration date for the Beaver Valley, Unit 1, Facility Operating License, DPR-66 June 25, 2010 to January 29, 2016.

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,

Peter S. Tam, Project Manager
Project Directorate No. 2
Division of PWR Licensing-A
Office of Nuclear Reactor Regulation

Enclosures:
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ENVIRONMENTAL ASSESSMENT AND FINDING OF
NO SIGNIFICANT IMPACT
DUQUESNE LIGHT COMPANY
DOCKET NO. 50-334

1.0 INTRODUCTION

The currently licensed term for Beaver Valley Power Station, Unit 1, (BVPS-1) is 40 years commencing with issuance of the construction permit (June 26, 1970). Accounting for the time that was required for plant construction, this represents an effective operating license term of 34 years. The licensee's application dated November 7, 1985, requested a 40-year operating license term for BVPS-1.

2.0 THE NEED FOR THE PROPOSED ACTION

The granting of the proposed license amendment would allow the licensee to operate BVPS-1 for approximately 6 additional years beyond the currently approved date of June 25, 2010 to January 29, 2016.

3.0 ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

The staff has compared the 30 year assessment performed for BVPS-1 in the Final Environmental Statement (FES) dated July 1973, with the impact of 40 years of operation derived from estimates for 40 years of operation of a model light water reactor (LWR) similar to BVPS-1. In addition, the environmental and radiological assessments performed for Beaver Valley Unit 2 in the Unit 2 FES dated September 1985, and the Unit 2 Final Safety Analysis Report were also used. These assessments consider 40 years of operation for Unit 2 and contain 1980 population statistics and projections through the year 2030.

3.1 Radiological Impacts

The NRC staff has considered the radiological impacts expected as a result of a hypothetical, design basis accident at the BVPS-1 including the impact of the revised population estimates.

In 1973 and 1974 (Safety Evaluation Report, Beaver Valley Power Station, Unit 1, October 11, 1974, and Final Environmental Statement, Beaver Valley Power Station, Unit 1, July 1973), the staff evaluated the regional demography and found the land area within a 25 mile radius, as indicated by the population statistics, to be about 40% rural, with highly industrialized river valleys.

The population within 50 miles of the plant was 3,831,000 in 1960, 3,804,000 in 1970, and 3,555,283 in 1980, with 3,726,327 projected for the year 2000, and 4,631,398 projected for the year 2030. Most of the growth is still projected to occur in the Pittsburgh area, about 20 miles southeast of the plant. The population density for the 25-mile radius has not changed significantly (a slight decline has occurred for the area within 10 miles over the period 1970 to 1985), based on 1980 and later census data. The area remains and is projected

to remain significantly rural with highly industrialized river valleys. Based upon a comparison of population projections in the FES (for Beaver Valley 1) and the population trends and census data since the plant began operating (Beaver Valley 1 & 2 FSAR and FES), the forecasts of total population and population density have been generally conservative, and it appears that they will remain so throughout the period of extended operations to the year 2016.

The outer boundary of the low population zone (LPZ) is at a nominal distance of 3.6 miles from the plant. Based on the 1970 census, the LPZ population was about 14,000, declining to 10,828 in 1980; 11,114 is estimated for 1985, and the projected resident population for the LPZ for 2030 is 11,656. The nearest population center with more than 25,000 people is now the Township of McCandless, located 17 miles from the plant, replacing the formerly indicated population center of East Liverpool, Ohio, which has declined in population.

The staff has concluded that, based upon these population estimates, the current Exclusion Area Boundary, Low Population Zone, and nearest population center distances would likely be unchanged from those originally used for licensing Unit 1. Therefore, the conclusion reached in the staff's Safety Evaluation in 1972, that Beaver Valley meets the requirements of 10 CFR Part 100, remains unchanged.

Additionally, the total-body population doses from effluent releases have been well below the projected values (NUREG/CR-2850, Volume 4, June 1986; Annual Environmental Report, 1985). The BVPS-1 annual offsite dose calculation values are well below PWR averages, and have typically been so for each year of operation of the Unit. These values are expected to remain typical for plant operations through the year 2016. Thus, an increase of even as much as 10% in these pathways would remain well below the Appendix I guidelines and would not be significant. The staff expects some changes in calculational methodology and reported values as a result of Unit 2 operations, however these have been evaluated for radiological impact in the Unit 2 FES and have been found to meet NRC guidelines and criteria.

3.1.2 Environmental Impacts-Uranium Fuel Cycle

For BVPS-1, the staff expects three or four additional refuelings (of about 1/3 core each) over the extended plant life for Unit 1 (approximately 5 years, 7 months), considering the transition to an extended 18 month cycle from the refueling cycle of 12 months originally considered in the FES. This extended

plant life entails a longer production run for the fuel cycle and, consequently, 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 FES for BVPS-1 and BVPS-2.

The request to extend the operating license to 40 years does not involve any power level change. Consequently, there is essentially no change in the amount of U-235 needed annually by BVPS-1, and no annual change in the scope (ore mined, fuel enriched, etc.) of the associated fuel cycle. Therefore, the staff judges that there would not be any changes to the FES that would be necessary in order to consider 40 years of operation.

3.1.3 Environmental Impacts - Occupational-Exposures

The staff has evaluated the licensee's dose assessment for the time period 2010 to 2016 (the additional years during which Unit 1 would operate), and compared it with current Beaver Valley and overall industry occupational dose experience. The average dose for Unit 1 over the recent five year period covering 1980-1984, has been 431 person-rem per year, which is below the current 5 year average of 569 person-rem dose per unit per year for operating pressurized water reactors in the United States.

The staff expects that Unit 1 will incur an average annual dose of about 584 person-rem for each additional year of operation. The total occupational dose projected over the period of the operating license extension is approximately 3260 person-rem, and considers 3 to 4 additional refuelings during the period, with no major unanticipated maintenance. This is only a small fraction (i.e., 1%) of the 271,813 person-rem accumulated by all operating reactors over a similar 5 year period (1980-1984). The staff expects that increased doses from increased maintenance and corrosion product build-up will be offset by a continually improving ALARA program, dose-saving plant modifications, and reduced requirements for TMI-related modifications, but that overall, average annual doses could increase by about 10%.

BVPS-1 has also been higher than average in numbers of workers receiving measurable doses, but well below average in dose per worker during this same period, compared to other U.S. PWRs. Overall, occupational radiation exposures can be expected to remain about as estimated in the FES and as experienced during the initial operation of Unit 1, with the same cost/benefit considerations.

The licensee is presently averaging about 28 radwaste shipments per year, within a range of 18 to 36 shipments in any given year. This is somewhat more than the 22 shipments per year estimated in the FES for solid radwaste alone, but less than the 40 to 75 shipments estimated when spent fuel shipments were considered in the FES.

Beaver Valley has averaged less than half the volume of solid radwaste shipped by the average PWR over the period 1980-1985, and ranks sixth lowest in overall volume of radwaste shipped during this same period. Occupational doses and population doses from radwaste processing and shipping are well within the estimates made in the FES. Radioactive waste shipments are expected to remain at about the present level for the life of the plant.

Spent fuel will be stored in the reracked spent fuel pool (previously evaluated by the staff for radiological environmental consequences, Amendment No. 14, May 31, 1978) in lieu of shipment offsite as stated in the FES, and in accordance with current national policy. Any future expansion of on-site spent fuel storage capacity (such as through rod consolidation) will be further evaluated for radiological and environmental effects by the NRC staff.

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 will be maintained as low as is reasonably achievable and in continued compliance with the requirements of 10 CFR Part 20.

3.2 Non-Radiological Impacts

Reexamination of the staff's FES of July 1973 reveals that the assessments of non-radiological impacts were based on several considerations depending on the type of impact being addressed. For some types of impact, the assessments were based on a fixed life-of-plant; for other types, the assessments were based on plant design features, on relative loss of renewable resources, or on relative loss or degradation of available habitat.

A time scale reaching far into the future was considered in the relationship between short-term uses of the environment and maintenance of the site for the 30- to 40-year life of the plant (FES Section 8.3). The biota of the region was studied for probable impact by the plant for significant short- or long-term effects including the use of the environment (FES Section 5.6). In essence, no significant short- or long-term damage or loss of biota of the region has occurred or is anticipated. Should an unanticipated significant detrimental effect to any of the biotic communities or the environment occur, the monitoring programs that are in place are designed to detect such anomalies and corrective measures will be required of the licensee.

Amendment No. 64 to the Operating License, issued by letter dated March 11, 1983, deleted the water quality monitoring requirements (Appendix B) from the Technical Specifications since these requirements are administered by the U. S. Environmental Protection Agency (EPA), under a National Pollutant Discharge Elimination System (NPDES) permit. The licensee will request extension of the NPDES permit, as appropriate, to match the extended license.

With regard to intake and thermal discharge effects on aquatic organisms, the design of the structures provides for additional environmental protection. These include: (1) the plant's cooling towers are designed to reduce the condenser coolant discharges to receiving waters to temperatures that are compatible with maintaining a healthy population of fish and other aquatic organisms; (2) the temperature change in the discharge canal will be gradual, thus permitting fish and other aquatic organisms to acclimate to temperature changes extending over hours rather than minutes, minimizing cold shock impact; and (3) the

absence of obstructions in the river will provide freedom of movement of fish into and out of the thermal plume. These additional environmental protection conditions will continue to be in place for the proposed license extension and will in no way change the existing effects on aquatic organisms.

A number of plant modifications have been made since the FES was issued. These modifications have either been reviewed by the staff or have been done under provisions of 10 CFR 50.59, and the environmental impact has been minimal. The plant modifications are described in the updated Final Safety Analysis Report, which is revised annually. In addition, the 40-year plant operating life has been considered part of the design and construction of the modifications. Components 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 by the licensee will have no detectable environmental impact resulting from the plant modifications.

All potential impacts have been identified, described, and evaluated in previously issued environmental impact statements and/or appraisals by the NRC and reviews by the NPDES permitting authority under the Clean Water Act. All operational non-radiological impacts on biological resources have been assessed by the staff on bases other than a life-of-plant basis; hence, the requested extension of the operating license will not alter previous staff findings and conclusions.

4.0 ALTERNATIVES TO THE PROPOSED ACTION

The principal alternative to issuance of the proposed license extension would be to deny the application. In this case, BVPS-1 would shut down upon expiration of the present operating license.

In Chapter 8 of the FES, a cost-benefit analysis is presented for BVPS-1. Included in the analysis is a comparison among various options for producing an equivalent electrical power capacity. Even considering significant changes in the economics of the alternatives, operation of BVPS-1 for approximately an additional 6 years would only require incremental yearly costs. These costs would be substantially less than the costs associated with the purchase of replacement power or the installation of new electrical generating capacity. Moveover, the overall cost per year of the facility would decrease since the large initial capital outlay would be averaged over a greater number of years. In summary, the cost/benefit advantage of BVPS-1, 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 "Final Environmental Statement Relating to Operation of Beaver Valley Power Station, Unit 1," dated July 1973.

6.0 AGENCIES AND PERSON CONSULTED

The NRC staff reviewed the licensee's request and consulted with the Pennsylvania Department of Environmental Resources (Mr. R. Janati). That Agency did not indicate a concern in granting the proposed extension.

7.0 BASIS AND CONCLUSION FOR NOT PREPARING AN ENVIRONMENTAL IMPACT STATEMENT

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, and environmental impact statement need not be prepared for this action.

Principal Contributors

R. Serbu, Health Physicist
J. Guillen, Project Engineer
P. Tam, Project Manager

Dated

December 17,1986

UNITED STATES NUCLEAR REGULATORY COMMISSION

DUQUESNE LIGHT COMPANY

BEAVER VALLEY GENERATING STATION UNIT 1

DOCKET NO. 50-334

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 License No. DPR-66, issued to Duquesne Light Company (the licensee), for operation of the Beaver Valley Power Station, Unit 1 (BVPS-1), located in Shippingport, Beaver County, Pennsylvania.

Identification of Proposed Action:

The amendment would consist of changes to the operating license authorizing an extension to the expiration date for the BVPS-1 Operating License DPR-66 from June 25, 2010 to January 29, 2016.

The amendment to the license is responsive to the licensee's application dated November 7, 1985. The NRC staff has prepared an environmental assessment of the proposed action, dated December 17, 1986.

Summary of Environmental Assessment:

The NRC staff has reviewed the potential environmental impact of the proposed change in the expiration date of the Operating License for BVPS-1. The staff considered previous environmental studies, including the "Final Environmental Statement" for BVPS-1 dated July 1973, and documents submitted by Duquesne Light Company to support licensing of Beaver Valley Power Station, Unit 2.

Radiological Impacts:

The population in the vicinity of BVPS-1 has decreased slightly and 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. 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 will continue to comply with these requirements during any additional years of facility operation and also apply advanced technology when available and appropriate.

Non-Radiological Impacts:

The NRC review identified no additional degradation of the habitat surrounding BVPS-1 with regard to indigenous plant and animal species for the additional years of facility operation. In addition, the National Pollutant Discharge Elimination System permit, administered by the Environmental Protection Agency, provides additional environmental protection.

FINDING OF NO SIGNIFICANT IMPACT:

The staff has reviewed the proposed change to the expiration date of the BVPS-1 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 nonradiological 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 staff 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 this action, see (1) the application for amendment dated November 7, 1985, (2) the Final Environmental Statement Relating to Operation of Beaver Valley Power Station Unit 1, issued July 1973, and (3) the Environmental Assessment dated December 17, 1986 . These documents are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C., 20555 and at the B.F. Jones Memorial Library, 663 Franklin Avenue, Aliquippa, Pennsylvania 15001.

Dated at Bethesda, Maryland, this 17th day of December, 1986.

FOR THE NUCLEAR REGULATORY COMMISSION

L S Rubenstein

Lester S. Rubenstein, Director
Project Directorate #2
Division of PWR Licensing-A