

May 31, 1978

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Docket No. 50-334

Duquesne Light Company
ATTN: Mr. C. N. Dunn, Vice President
Operations Division
435 Sixth Avenue
Pittsburgh, Pennsylvania 15219

Gentlemen:

Pursuant to the enclosed Initial Decision dated May 4, 1978, of the Commission's Atomic Safety and Licensing Board, we have issued the enclosed Amendment No. 14 to Facility Operating License No. DPR-66 for the Beaver Valley Power Station, Unit No. 1.

The amendment consists of changes in the Technical Specifications that permit modifications of the spent fuel storage pool which will increase the storage capacity from 272 fuel assemblies to a capacity of 833 fuel assemblies. The amendment is in response to your application dated December 3, 1976, as supplemented by filings dated February 1, April 13, May 23 and 31, 1977, and February 14, and March 6, 1978 (two letters).

A copy of a related Notice and Negative Declaration which is being filed with the Office of the Federal Register for publication is enclosed. Copies of our Safety Evaluation dated August 12, 1977, and Environmental Impact Appraisal dated August 12, 1977, and minor changes to each document, identified as Amendment No. 1 were sent to you by our letters dated August 12, 1977, and March 7, 1978, respectively.

Sincerely,

ORIGINAL SIGNED BY
DARRELL G. EISENHUT

Darrell G. Eisenhut, Assistant Director
for Systems & Projects
Division of Operating Reactors

Enclosures:

1. Initial Decision
2. Amendment No. 14 to DPR-66
3. Notice/Negative Declaration

cc w/encl:
See next page

*405 5/31/78
Called plant mgr.
Working (out of office)
Left message with H. Williams
that Amendment #14 issued
today. SJ Reeves*

BHarless
JSaltzman
JMcGough
RDiggs
CMiles
JGuibert

*Const. 1
61*

OFFICE	DOR:ORB#1	OELD Sms	DOR:ORB#1	DOR:8&P	
SURNAME	EReeves:Tb	S. SOHINKI	ASchwencer	DEisenhut	VStello
DATE	5/22/78	5/26/78	5/31/78	5/30/78	5/31/78



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

May 31, 1978

Docket No. 50-334

Duquesne Light Company
ATTN: Mr. C. N. Dunn, Vice President
Operations Division
435 Sixth Avenue
Pittsburgh, Pennsylvania 15219

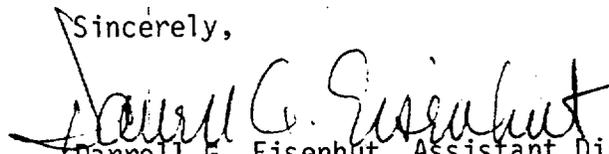
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Sincerely,


Darrell G. Eisenhut, Assistant Director
for Systems & Projects
Division of Operating Reactors

Enclosures:

1. Initial Decision
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3. Notice/Negative Declaration

cc w/encl:
See next page

May 31, 1978

cc
Gerald Charnoff, Esquire
Jay E. Silberg, Esquire
Shaw, Pittman, Potts & Trowbridge
1800 M Street, N.W.
Washington, D.C. 20036

Karin Carter, Esquire
Special Assistant Attorney General
Bureau of Administrative Enforcement
5th Floor, Executive House
Harrisburg, Pennsylvania 17120

Marvin Fein
Utility Counsel
City of Pittsburgh
313 City-County Building
Pittsburgh, Pennsylvania 15219

Mr. J. M. Cumiskey
Stone & Webster Engineering
Corporation
P. O. Box 2325
Boston, Massachusetts 02107

Mr. J. D. Woodward
R&D Center
Westinghouse Electric Corporation
Building 7-303
Pittsburgh, Pennsylvania 15230

Mr. Thomas M. Gerusky, Director
Office of Radiological Health
Department of Environmental Resources
P. O. Box 2063
Harrisburg, Pennsylvania 17105

Mr. Thomas J. Czerpah
Mayor of the Burrough of Shippingport
P. O. Box 26
Shippingport, Pennsylvania 15077

Mr. Jack Carey
Technical Assistant
Duquesne Light Company
P. O. Box 4
Shippingport, Pennsylvania 15077

Ohio Edison Company
c/o Chief Nuclear QA Engineer
76 South Main Street
Akron, Ohio 44308

Pennsylvania Power Company
Ray E. Semmler, President
One E Washington Street
New Castle, Pennsylvania 16103

John W. Cashman, M.D.
Director of Health
450 East Town Street
Columbus, Ohio 43216

Ohio Environmental Protection Agency
Division of Planning
Environmental Assessment Section
P. O. Box 1049
Columbus, Ohio 43216

Honorable Arch A. Moore, Jr.
Governor of West Virginia
Charleston, West Virginia 25305

Mr. Carl Frasure
Committee of State Officials on
Suggested State Legislation
Department of Political Science
West Virginia University
Morgantown, West Virginia 26505

Mr. Joseph H. Mills, Acting Commissioner
State of West Virginia Department of
Labor
1900 Washington Street
East Charleston, West Virginia 25305

Mr. R. E. Martin
Duquesne Light Company
435 Sixth Avenue
Pittsburgh, Pennsylvania 15219

Beaver Area Memorial Library
100 College Avenue
Beaver, Pennsylvania 15009

cc

N. H. Dyer, M. D.
State Director of Health
State Department of Health
State Office Building No. 1
1800 Washington Street, East
Charleston, West Virginia 25305

Chief, Energy Systems Analyses
Branch (AW-459)
Office of Radiation Programs
U. S. Environmental Protection
Agency
Room 645, East Tower
401 M Street, S.W.
Washington, D. C. 20460

U. S. Environmental Protection
Agency
Region III Office
ATTN: EIS COORDINATOR
Curtis Building (Sixth Floor)
Philadelphia, Pennsylvania 19106

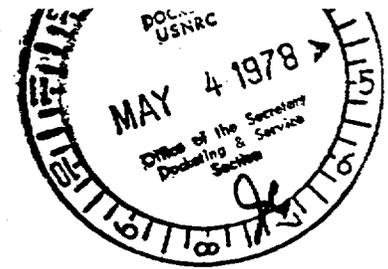
Mr. James A. Worling
Plant Superintendent
Beaver Valley Power Station
P. O. Box 4
Shippingport, Pennsylvania 15077

Governor's Office of State Planning
and Development
ATTN: Coordinator, Pennsylvania
State Clearinghouse
P. O. Box 1323
Harrisburg, Pennsylvania 17120

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Ivan W. Smith, Chairman
Lester Kornblith, Jr., Member
Dr. James C. Lamb, III, Member



SERVED MAY 5 1978

In the Matter of

DUQUESNE LIGHT COMPANY, ET AL.

Beaver Valley Power Station
Unit No. 1

(Spent Fuel Pool Modification)

Docket No. 50-334

May 4, 1978

INITIAL DECISION

(Amendment to Operating License)

Appearances

George F. Trowbridge, Esq., for the Licensees.

Marvin A. Fein, Esq., for the City of Pittsburgh.

Stephen Sohinki, Esq., David A. Kubichek, Esq., and
Michael Grainey, Esq., for the Nuclear Regulatory
Commission Staff.

Dr. Thomas M. Gerusky, Director, Pennsylvania Bureau
of Radiological Health, for the Commonwealth of
Pennsylvania.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)

DUQUESNE LIGHT COMPANY, ET AL.)

Beaver Valley Power Station)
Unit No. 1)

(Spent Fuel Pool Modification))

Docket No. 50-344

INITIAL DECISION

(Amendment to Operating License)

I. INTRODUCTION

1. On December 12, 1976, the co-owners of Beaver Valley Power Station Unit No. 1 (BVPS-1), Duquesne Light Company, Ohio Edison Company and Pennsylvania Power Company (Licensees) filed an application for an amendment to the operating license to expand the capacity of the spent-fuel storage pool. The amendment would permit the replacement of the existing low density spent fuel storage racks having a capacity of 272 fuel assemblies with higher density racks capable of housing 833 assemblies. In this decision the Board determines all the matters in controversy among the parties in a manner supporting the issuance of the requested amendment.

2. On January 27, 1977 the Commission issued a notice of "Proposed Issuance of Amendment to Facility Operating License." 42 Fed. Reg. 5155. The notice provided an opportunity to any interested person to file a petition for leave to intervene and a request for hearing pursuant to 10 CFR §2.714. The City of Pittsburgh (Pittsburgh) filed such a petition and request. A Board was constituted to consider the petition and on April 1, 1977 the petition was granted, and a hearing was ordered with Pittsburgh as a party to the proceeding.

3. The Pennsylvania Bureau of Radiological Health, representing the Commonwealth of Pennsylvania, participated in the proceeding pursuant to 10 CFR §2.715(c). Dr. Thomas M. Gerusky, Director of the Bureau, attended a portion of the evidentiary hearing. BVPS is located near the Borough of Shippingport, Pennsylvania. James M. Keller, Esq., Solicitor for the Borough, made a limited appearance statement in opposition to the proposed amendment pursuant to provisions of §2.715.

4. The Board convened a prehearing conference on May 10, 1977 in Pittsburgh, Pennsylvania to consider Pittsburgh's contentions. Subsequently the Board issued a special prehearing conference order dated May 27, 1977

in which some of Pittsburgh's contentions were admitted as issues in controversy. Pittsburgh's Contention No. 1 asserted that the activity contemplated by the proposed amendment would be an action significantly affecting the quality of the human environment and, for that reason, the Licensees should submit an environmental report and the Commission should issue an environmental impact statement pursuant to the National Environmental Policy Act of 1969. The Board rejected this as a contention because it appeared that it was not a factual contention but an ultimate issue to be decided later by the Board. This issue is discussed below under "Negative Declaration" ¶16 et seq.

5. On August 12, 1977, the NRC Staff issued a Safety Evaluation and Environmental Impact Appraisal of the proposed modification. The appraisal concluded that there will be no significant environmental impacts attributable to the proposed modification, that therefore no environmental impact statement need be prepared and that a negative declaration to this effect is appropriate.

6. Following issuance of the Staff Safety Evaluation and Environmental Impact Appraisal, Pittsburgh filed on November 4, 1977, a Motion to Amend or Expand Contentions,

which motion was subsequently revised by an amended motion, dated December 1, 1977. The amended motion, in addition to seeking to add new contentions lettered (a) through (h), withdrew all but Contentions 6 and 13 of Pittsburgh's contentions previously allowed by the Board. By Memorandum and Order dated February 1, 1978, the Board ruled on the amended contentions, again allowing some and rejecting others.

7. In addition to the Intervenor's contentions the Board requested that the parties address the balance between the reduction of occupational radiation exposure achievable by installing all of the proposed racks in a single phase prior to the first fuel reloading and the potential extra cost of a two-phase procedure involving the later installation of the last four racks in the pool when it contains spent fuel. On March 6, 1978 counsel for Licensees informed the Board that a single phase installation prior to fuel reloading was feasible and it was therefore Licensees' intention to install all of the racks prior to that time. Licensees Proposed Findings ¶7.

8. An additional issue arose when it became known that the Beaver Valley spent fuel pool had been utilized for the storage of slightly radioactive waste liquid pumped from the trenches and sump of the auxiliary building.

This circumstance has been treated as a contention in our Findings of Fact below.

9. On March 13 and 14, 1978 the evidentiary hearing was held in Bethesda, Maryland. The Licensees and the Staff presented exhibits and the testimony of witnesses who addressed each issue in controversy. Pittsburgh presented no affirmative evidence, limiting its case to cross-examination of the Licensees' and Staff's witnesses.

10. The record in this proceeding consists of the NRC Staff's Safety Evaluation and Environmental Impact Appraisal, plus respective amendments thereto;^{1/} the Licensees' application for the modification of the spent fuel pool;^{2/} the Licensees' responses to two Staff requests for additional information;^{3/} the Licensees' proposed changes to the Technical Specifications relating to the spent fuel storage pool;^{4/} and the testimony and cross-examination of witnesses presented by both the Staff and the Licensees at the March 13-14, 1978 hearings.

1/ Tr. 2053, 2058 and 2061, respectively.

2/ Licensees' Exhibit 1.

3/ Licensees' Exhibits 2 and 3.

4/ Licensees' Exhibit 4.

11. Pursuant to the provisions of 10 CFR §2.754 the parties were provided an opportunity to file proposed findings of fact, proposed conclusions of law, briefs and a proposed form of order or decision. The Licensees and the NRC Staff filed proposed findings of fact, conclusions of law, briefs and a proposed form of order and decision. The City of Pittsburgh, however, filed only proposed findings of fact as we discuss next.

II. PITTSBURGH'S INTERVENTION

12. In a proceeding for the issuance of an amendment to an operating license such as this one, a hearing is conducted only as a result of a valid petition for leave to intervene and request for a hearing under 10 CFR §2.714. In such proceedings usually only the matters placed into controversy by an intervenor and, in extraordinary circumstances, by the Board are considered. The Board has therefore very carefully examined Pittsburgh's intervention papers and filings to determine exactly what relief it seeks.

13. We learn from Pittsburgh's petition that it seeks to ensure that a nuclear waste disposal facility is not being created indirectly near its municipal boundaries. It wants other alternatives to the disposal of spent

nuclear fuel besides those presented in the application for the amendment to be considered and it wants the long term effects of any revision to be seriously investigated. In addition, Pittsburgh seeks to ensure that the spent fuel storage pool will be designed, constructed, operated and maintained so as to prevent adverse environmental and health effects to its residents and to protect the public health from any hazards resulting from the storage of additional spent fuel.^{5/} In its amendments to the petition to intervene^{6/} Pittsburgh requests only that its contentions be considered by the Commission in its review of the application in this proceeding.

14. Nowhere in its prehearing filings does the City of Pittsburgh take the position that the application to expand the spent fuel storage pool should be denied. It seems that Pittsburgh quite appropriately simply wishes to be assured that full consideration be given to the radiological health and safety and environmental aspects of the proposed expansion.

^{5/} Intervention Petition pp. 2 & 3.

^{6/} Motion to Amend or Expand Contentions served November 4, 1977 and Amended Motion to Amend or Expand Contentions served December 1, 1977.

15. Now, after Pittsburgh has taken advantage to the fullest of its opportunity in the adjudicative process to examine all of the evidence on the issues in controversy, including the cross-examination of Licensees' and Staff's witnesses, the City still does not oppose the expansion of the spent fuel storage pool nor does it urge any conclusion which would support the denial of the application. It is a fair inference that the City of Pittsburgh, represented by its experienced and learned utilities counsel, has examined the evidentiary record in this proceeding and has not been able to identify any reason it wishes to assert for denying the application. In fact, if the Board were to adopt verbatim each of Pittsburgh's Proposed Findings of Fact our conclusions and the ultimate decision would not materially be affected.^{7/}

^{7/} We do not deem Pittsburgh's failure to file Proposed Conclusions of Law, Briefs or a Proposed form of Order or Decision to be a default. The Board did not direct the filing of conclusions or a proposed form of order. 10 CFR §2.754(a). We respect Pittsburgh's right even now to take no ultimate position but simply to be assured that the law is being followed. Accordingly, we will resolve all issues placed into controversy.

III. NEGATIVE DECLARATION AND CONSIDERATIONS
OF COST-BENEFIT AND ALTERNATIVES

16. Section 102(2)(C) of the National Environmental Policy Act of 1969, (NEPA), 42 U.S.C. §4332(2)(C) requires the preparation and circulation of a detailed environmental impact statement on all major federal actions significantly affecting the quality of the human environment. The Staff has concluded that, pursuant to 10 CFR §51.5, an environmental impact statement is not required and that a negative declaration supported by an environmental impact appraisal (EIA) is appropriate in this case. This was the issue raised by Pittsburgh's rejected Contention No. 1, but we don't know whether Pittsburgh continues to believe that a full environmental impact statement is required.

17. The Board concurs in the Staff's judgment that the proposed action will not have significant environmental impacts. The negative declaration supported by the environmental impact appraisal satisfies the NEPA requirements and the provisions of Part 51. As evidentiary support for this conclusion, we adopt almost verbatim the Staff's Proposed Findings, 11 and 12 as in our paragraphs 18 and 19 following:

18. With respect to both incremental impacts and cumulative or synergistic impacts, the proposed action will not result in any significant environmental impacts. As

determined in the Staff's EIA, this modification will not require a commitment of additional land resources.^{8/} Nor will it result in a significant increase in the facilities' consumption of water.^{9/} Further, the potential off-site radiological impacts associated with the modification will also be environmentally insignificant;^{10/} no incremental addition to the long-lived radioactive effluents released from the facility is expected;^{11/} there will result only an insignificant increase in the amount of solid radioactive waste produced;^{12/} no increase in liquid releases of radioactive effluent is expected;^{13/} and there will occur only an insignificant increase in occupational exposures.^{14/}

19. In addition, the license amendment will result in no changes in either the quantity or the character of the

8/ Staff EIA at p. 8.

9/ Ibid.

10/ Id., at 9.

11/ Id., at 9-10.

12/ Id., at 12.

13/ Id., at 13.

14/ Id., at 14.

chemical and biocidal effluents discharged from the facility,^{15/} and will result in only a negligible increase in the facilities' thermal impact on the Ohio River.^{16/} Finally, installation and use of the new high density racks will not result in radiological consequences from postulated fuel handling accidents different from those reported in the Beaver Valley FES.^{17/}

20. Having concluded that the proposed action will not have significant environmental impacts and that the negative declaration is appropriately supported by the environmental impact appraisal, the Board concludes further that considerations of cost-benefit and alternatives to the proposed action under NEPA are not required either as a matter of law or as a matter of logic. Commission Regulation, 10 CFR §51.7, concerning the requirements for negative declarations and environmental impact appraisals, makes no reference to cost-benefit evaluations and consideration of alternatives. The Board's findings and conclusion on the adequacy of the negative declaration alone would warrant an order authorizing the Director of

^{15/} Id., at 15.

^{16/} Id., at 16.

^{17/} Id., at 17; Final Environmental Statement related to the Beaver Valley Power Station, Unit 1 (July, 1973), Table 7.2 at 7-4.

Nuclear Reactor Regulation to proceed with the processing of the application for an amendment. Counsel for Licensees agrees with this view, but counsel for Pittsburgh and the NRC Staff take the position that cost-benefit analyses and considerations of alternatives to the extent covered in the environmental impact appraisal and by Pittsburgh's contentions are traditional and necessary.^{18/} This issue remains in controversy. It is therefore appropriate for the Board to make such findings, and in the interest of presenting a suitable record for review, the Board proceeds to resolve the Intervenor's contentions and other issues.

IV. CONTENTIONS AND OTHER ISSUES

21. The Board adopts the organization proposed by the NRC Staff in discussing contentions in two categories. First, contentions concerned with the adequacy of the Staff's analysis of the proposed license amendment are discussed under "A. COST-BENEFIT BALANCE" and those concerned with alternatives to expanding the pool are dealt with below under "B. ALTERNATIVES."

^{18/} See Memorandum and Order dated November 23, 1977. Licensees agree that the Board should make findings on cost-benefit and alternatives.

A. COST-BENEFIT BALANCE

Contention (a): The cost-benefit analysis employs the wrong cost per assembly for the increased capacity inasmuch as there is an inadequate consideration of the construction costs, added costs of holding a large fuel inventory, loss of credit for reprocessed fuel and decontamination costs of the additional fuel storage facilities.

22. Pittsburgh's Proposed Findings of Fact, ¶18, and its cross-examination of witnesses on this contention (Tr. 2163-2177, and Tr. 2186-88) ignored the portions relating to construction costs, added costs of holding a large fuel inventory, and loss of credit for reprocessed fuel. Its proposed finding on this contention is limited to decontamination and decommissioning expenses in the cost per assembly of additional fuel storage facilities.

23. With respect to construction costs, the Licensees' witness Carey^{19/} testified concerning the breakdown of the construction costs of the two phases of the fuel rack replacements. The total cost is about \$1.94 million. No further analysis is required.

^{19/} Licensees' Carey Testimony on Contention (a), following Tr. 2183.

24. Licensees' Sieber Testimony on Contention (a), following Tr. 2183, and the Staff's Nash Testimony of Contention (a), following Tr. 2162, demonstrate that there are no costs associated with holding a large inventory of spent fuel since fuel costs are amortized prior to discharge. The same testimony points out that Licensees carry no credit for spent fuel in their accounts.

25. From Intervenors' proposed finding ¶18 (p.4) we learn that its position on the decontamination and decommissioning costs attributable to the proposed expansion depends upon the assumption that there will not be a permanent repository or reprocessing plant. This possibility is remote.^{20/} This being so, additional decontamination and decommissioning costs attributable to the pool enlargement would not be discernible. Nash Testimony on Contention (a), pp. 5-6.

Contention (b): The costs of storage per assembly are understated because the cost of the additional fuel storage has not been amortized on a yearly basis.

26. The Board accepted Contention (b) because there were no objections to it. However we did not understand

^{20/} Northern States Power Company (Prairie Island Units 1 and 2) ALAB-455 (January 27, 1978).

how the costs would be affected by the amortization expression. So in the Memorandum and Order dated February 1, 1978 we asked the Intervenor to explain its position. No explanation was submitted, the contention was not covered on cross-examination, and we cannot identify any proposed finding addressed to it.^{21/} In any event, the Johnson and Sieber Testimony, pp. 15-16, following Tr. 2125 and the Nash Testimony following Tr. 2162 expresses these costs on an annually amortized basis apparently to the satisfaction of Pittsburgh.

Contention 13: The amendment request and supporting documentation failed to discuss adequately the continued integrity of the spent fuel rods during the long-term storage in the pool and possible increased radioactive release from loss of rod integrity, which may create difficulties in moving and shipping the rods from the site after prolonged storage.

27. Both the Licensees and the Staff presented competent experts^{22/} to discuss the long-term integrity

^{21/} See Pittsburgh's Proposed Findings of Fact pp. 3 and 4.

^{22/} Pittsburgh's Proposed Findings of Fact, pp. 6-8 identify certain limitations to the experience of Licensees' witness. The Board does not conclude that these adversely affect his qualifications.

of spent fuel rods under storage conditions.^{23/} Both witnesses concluded that long-term storage would not affect the integrity of the fuel or jeopardize subsequent normal handling operations. Ferrari Testimony, p. 7; Weeks Testimony, pp. 1, 3.

28. They based their conclusions on their (and others') observations of Zircaloy clad fuel that was exposed to reactor operating conditions and subsequently stored for relatively protracted periods in fuel storage pools. Such fuel has been stored for up to 18 years with no evidence of degradation. Ferrari, pp. 5-6; Weeks, pp. 1-2. Observations also show that fuel that was defective at the time it was stored suffered no further degradation during storage and that the UO₂ pellets themselves were sufficiently corrosion-resistant to prevent significant contamination of the storage pool. Ferrari, p. 2. The likelihood of clad deterioration is inherently low because of known corrosion resistance of Zircaloy-4^{24/} and is further reduced by the moderate temperature and the controlled water chemistry in the fuel storage pool. Ferrari,

^{23/} Applicants' Testimony of Harry M. Ferrari on Contention 13 following Tr. 2097; Weeks Testimony on Contention 13 following Tr. 2112.

^{24/} Licensees' testimony shows that even at 500°F, the corrosion rate is only about 10⁻⁵ inches per year. Ferrari, pp. 4-5.

pp. 4-5; Weeks, p. 3. Any contamination released to the pool will be removed by the purification system. EIA, p. 8.

29. Pittsburgh, in Proposed Finding of Fact 10 asserts that Zircaloy-4 is a chemically reactive material (Licensees' witness agrees, Tr. 2107) and that a report questioning its use as a cladding material was not considered by Licensees' witness in preparation of his testimony. The witness pointed out, however, that the report dealt with behavior of the material during a loss-of-coolant accident rather than during pool storage and that both Westinghouse and the NRC had considered the report (presumably in a different context) and arrived at a contrary conclusion. Tr. 2103-05.

30. 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.

Contention (g): The environmental impact of the proposed modification has not been analyzed adequately because the potential long-term effects of the release of I-129 to the environment have not been considered in the Environmental Impact Appraisal.

31. The assertion that the potential long-term effects of the release of I-129 was not specifically considered in the EIA is correct. The testimony presented^{25/} and the information developed through subsequent cross-examination brought out that the reason for this is that the effects are completely insignificant and do not warrant specific attention.

32. The Staff's calculations indicate an annual gaseous release rate of I-129 of .014 microcuries per year for the entire reactor. The resulting dose estimates are less than .001% of the total estimated dose from the station set forth in the FES. Donohew Testimony, p. 2. The Licensees' witness gave a more conservative best-estimate of one microcurie per year. Tr. 2201-03. For either estimate, the Board finds the effects are inconsequential.

33. Pittsburgh, in its Proposed Findings of Fact, sets forth a number of statements which are, for the most part, accurate but which, in the circumstances, are immaterial.

^{25/} Johnson Testimony following Tr. 2192; Donohew Testimony following Tr. 2209. (Note: In at least some copies of the transcript, the testimony of Mr. Donohew on this contention and his testimony on Contention (h), which should follow Tr. 2226, are interchanged).

Contention (h): There is no indication in the Environmental Impact Analysis that the total anticipated occupational radiation exposures are known, therefore, there is no validity to the estimate on page 14 that the proposed modification will add less than 1% to the total annual occupational radiation exposure burden.

34. The Staff's witness testified that experience at other facilities leads him to estimate an occupational exposure of about 2.4 man-rem per year from the unmodified spent fuel pool and an insignificant increase in this value resulting from the modification. This exposure, together with the Staff's estimate of total occupational exposure of 500 man-rem per year at a typical PWR, leads to the Staff's estimate of less than a 1% increase in the total annual occupational indication exposure border. Testimony of Donohew, following Tr. 2226 (see fn. 25, supra).

35. The Licensees' estimate was arrived at in a similar way but is somewhat smaller. Testimony of Carey, following Tr. 2222. We find therefore that the proposed modification will add less than one percent to the total annual occupational exposure.

B. FUEL STORAGE POOL CONTAMINATION

36. The Beaver Valley spent fuel pool has been used since September 1976, for the storage of slightly radioactive waste liquid pumped from the trenches and sump of the BVPS-1 Auxiliary Building. The pumping occurred at a time when both the high and low level waste tanks were full and when the only alternative to pumping the liquid waste into the spent fuel pool was to shut down the plant. Tr. 2298-99. Licensees testified that the pool and existing racks will be decontaminated prior to the installation of the new racks and estimated that the residual radioactivity following decontamination will result in an occupational exposure of approximately 1 man-rem during the period of removal of the existing racks and installation of the new racks. Carey Testimony on Contamination of Spent Fuel Pool, pp. 4-6, following Tr. 2297. Because this additional exposure is relatively insignificant, we find it does not in any way alter our conclusion with respect to the acceptability of the proposed amendment.

37. We are concerned, however, about the manner in which this matter was handled by the Licensees. It was brought to the Staff's attention only as a result of an inspection by the Office of Inspection and Enforcement in

January 1978, Tr. 2059, although the Licensees had been aware of it since its inception sixteen months earlier. As a result, the Staff's Safety Evaluation and Environmental Impact Appraisal were prepared on an incorrect (albeit harmlessly so) basis and this incorrect basis was not brought to the attention of either the Staff or the Board by the Licensees. Further, examination of the Licensees' witness brought out information indicating that either the Licensees did not handle the contamination in a completely responsible fashion or the witness was not fully informed on what had taken place. Tr. 2300-10, 2317-19. Although this entire matter is within the scope of the Staff's normal activities and we have no doubt will be or has been adequately addressed, we feel obliged to take this opportunity to remind the Licensees that, in future cases, it is imperative that they fully apprise the Staff of significant new developments or changed circumstances in a timely fashion. The demonstrated reticence of the Licensees in this case serves neither the Staff, the Licensees, nor the public.

C. ALTERNATIVES

Contention 6: In its request for amendment and modification of its license and in the documentation supporting that request, the Licensee fails to address alternatives for the storage of spent fuel in the short term. Although the Licensee is a member of the Central Area Power Coordination Pool, commonly known as CAPCO, it nowhere indicates in its application that the CAPCO members have considered joint financing of off-site storage facilities for spent fuel from the many nuclear power plants owned or planned by CAPCO members.

38. The parties stipulated that the only alternative raised by this contention is the alternative of building an independent off-site CAPCO fuel storage facility.

Tr. 1969, 1977-78.

39. An independent CAPCO fuel storage facility would have two built-in cost disadvantages. It would require double handling of fuel. This is self evident, requiring no citation. Because of its greater size and the CAPCO fuel use pattern it would have a lower utilization factor for many years. Johnson and Sieber Testimony on Contention 6, pp. 11-12 following Tr. 2124.^{26/} An analysis of this effect by Messrs. Johnson and Sieber, Id. at 10-15,

^{26/} See also Nash Testimony on Contention 6, following Tr. 2124.

is persuasive and remains unchallenged. Expanding the BVPS-1 pool is clearly cheaper. In addition, a joint CAPCO storage facility would not be ready on time. Id. at p. 8, 15.

40. Intervenor now ignores the dollar cost disadvantages of off-site fuel storage. In cross-examination, Tr. 2164-66, and in proposed findings, paragraphs 14, 15, Pittsburgh suggests that the issue was really environmental costs. Pittsburgh did not raise this issue before the hearing. It failed to make any showing sufficient to require reasonable minds to inquire further.^{27/} Without such a showing there is nothing inherent in the off-site suggestion to indicate that such a consideration would be appropriate. In fact, with double shipping, and all else being equal, the off-site alternative would appear to be inherently more costly in the environmental sense as well as in its economic aspects.

Contention (d): The cost-benefit analysis in the Environmental Impact Appraisal does not adequately consider either short-term or long-term shutdown of the plant as an alternative based on actual power needs in the CAPCO service area for the period during which the additional fuel storage capacity will be needed.

^{27/} See U.S. Supreme Court in Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc., et al. 46 LW 4301, 4310 (April 3, 1978).

41. Licensees address this contention under a hypothesis where it is assumed that the single licensee, Duquesne Light Company, could meet its system demand without Beaver Valley-1 by replacing the 850 Mw of lost power with fossil units within its system or by purchased power. Sieber Testimony on Contention (d), following Tr. 2232. The Staff employs a similar approach. Zelinski Testimony on Contention (d) following Tr. 2272.

42. Licensees' witness testified that replacing Beaver Valley power would cost on a yearly average about \$203,000 per day. Sieber (d) Testimony, pp. 2-3. Staff's estimate of replacement costs ranges from \$92,000 to \$240,000 per day. Zelinski Testimony pp. 2-6. Under either estimate, it requires little balancing to see that the \$1.94 million cost of the pool expansions would soon be exceeded by the cost of replacement power. Moreover, only incremental costs are compared, with no consideration given to capital costs which would continue even with BVPS-1 shutdown.^{28/}

43. Pittsburgh challenges these conclusions by questioning Duquesne's computer code data base and the Staff's use of data from other power systems in computing

^{28/} But in its EIA, pp. 20 and 21, Staff reports that in addition to the cost of replacement power, the cost of maintaining the plant in a shutdown condition would be about \$100 million per year. Apparently this would include capital costs.

the costs of operating nuclear power facilities. The Board believes that an analysis of the Licensees' position, with its conservative assumption and reliable foundation, is dispositive of the issue. The Staff testimony, although reliable enough for its purpose, is cumulative and findings concerning Staff's testimony are not required.

44. Pittsburgh challenges Licensees' testimony by Mr. Sieber because it was based on computer printouts, and in some instances he was unable to satisfy the Intervenor's queries about present costs of operating certain fossil and nuclear plants, future costs of nuclear fuel, costs of operating Beaver Valley on a partially derated basis, and because of assertedly incomplete data on the BVPS operating history.^{29/}

45. To estimate the incremental production costs of replacing BVPS-1 with fossil units or purchased power, Licensees used a Duquesne Company computer code called "PRODCOST" which simulates the operation of the economic load dispatch system to produce the most efficient operation of the system and then computes production costs. Two code runs were made, one assuming the availability of BVPS-1 and the other that BVPS-1 would be shutdown. The

^{29/} Pittsburgh proposed findings paragraphs 28-32. Cross-examination following Tr. 2233.

cost differentials were then determined. The computations were made for the year 1978 but would be generally similar for any year through the 1980's. Sieber Contention (d) Testimony.

46. The PRODCOST code accepts as input the historical fuel costs with appropriate escalation, historical plant performance factors, historical hourly system load demand profiles, monthly predicted peak and average system demands, scheduled outages on a per unit basis and historical forced outage rates. The code uses Monte Carlo simulation techniques to distribute the forced outages for the units over the calendar year, develop incremental loading schedules and using these loading schedules, simulates the operation of the economic load dispatch system to produce the most efficient operation of the existing system configuration, and the costs associated therewith, on an hour-by-hour basis for the time period under study. Id., p.2.

47. On cross-examination, the most Intervenor was able to develop with respect to the testimony on the PRODCOST code was that witness, Mr. Sieber, did not have mastery of all the input details, and that some data, for example future costs of nuclear fuel, may not be reliable. While it is true that Mr. Sieber could not testify to all details

of the input data, he was thoroughly familiar with the methodology. E.g., Tr. 2252. Moreover the PRODCOST code was developed and is actually used by Duquesne for budget purposes. Not only has it produced a preponderance of the reliable, probative and substantial evidence on this issue, but it is probably the best practical evidence of these facts.

48. As we state above, the Licensees' assumptions were conservative in that the contention was not addressed on a need-for-power-basis, despite the fact that proceedings within this Commission have already produced decisions that there is a need for nuclear generation in the CAPCO pool.^{30/} In fact Intervenor seems to recognize the need for BVPS-1 in its proposed finding 38, where it states that without BVPS-1, the projected reserve margin in 1986 would be 14.76%, falling somewhat short of the Federal Power Commission recommendations of 15-20% and the 20% found to be desirable in the CAPCO pool.^{31/} Finally, no decision shutting down an operating power reactor under the circumstances argued here could be justified without an

^{30/} See, e.g., The Toledo Edison Company, et al. (Davis-Besse Nuclear Power Station, Units 1 & 2), LBP 75-75, 5 NRC 993, 1012-1017. (December 31, 1975)

^{31/} Davis-Besse Id. at 1013.

analysis of the marketability of the power and considerations of regional needs and national energy policies.

49. The Board finds that contrary to the contention, adequate consideration has been given the effects of shutting down BVPS-1, and that alternative is undesirable.

Contention (e): The proposal of the Department of Energy released on October 18, 1977 must be considered as an alternative.

50. On October 18, 1977 the Department of Energy announced a program to provide interim storage facilities for spent nuclear power plant fuel. Under this program DOE predicted that storage facilities would be available in 1983. Witnesses for both the Licensees^{32/} and the Staff^{33/} expressed doubts that this date was realistic. Their skepticism is reasonably founded because the DOE proposal would require enabling legislation to begin with; then, if the 1983 date were to be met, Congress would have to provide some relief relating to the need for environmental review under NEPA. Johnson and Sieber, Ibid. Given the uncertain nature of the required Congressional approvals, and the

^{32/} Johnson and Sieber Testimony on Contention (e), pp. 18-19, following Tr. 2124.

^{33/} Roberts Testimony on Contention (e), p. 2, following Tr. 2162.

necessary lead time to plan, license, and build the BVPS-1 expansion, it would be poor planning to defer the project to see if the DOE proposal proceeds as it has predicted. The DOE proposal therefore is not a suitable alternative.

ORDER

51. The Board having considered and decided all matters in controversy among the parties, the Director of Nuclear Reactor Regulation is authorized to make such additional findings on uncontested issues as may be necessary to the issuance of an operating license amendment authorizing modification of the BVPS-1 spent fuel storage pool.

52. In accordance with 10 CFR §§ 2.760, 2.762, 2.764, 2.785 and 2.786, this Initial Decision shall be effective immediately and shall constitute the final action of the Commission 45 days after the issuance thereof subject to any review pursuant to the above-cited rules. Exceptions to this Initial Decision must be filed seven (7) days after service of this Initial Decision. A brief in support of the exceptions must be filed within 15 days thereafter (20 days in the case of the NRC Staff). Within

15 days of the filing and service of the brief by the appellant (20 days in the case of the NRC Staff), any other party may file a brief in support of, or in opposition to, the exceptions.

IT IS SO ORDERED.

THE ATOMIC SAFETY AND
LICENSING BOARD

Lester Kornblith, Jr.
Lester Kornblith, Jr., Member

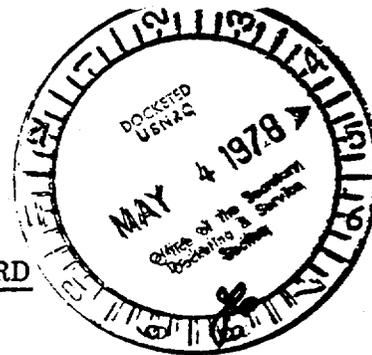
Dr. James C. Lamb III by I. W. S.
Dr. James C. Lamb, III, Member

Ivan W. Smith
Ivan W. Smith, Chairman

Dated at Bethesda, Maryland
this 4th day of May, 1978.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD



In the Matter of
DUQUESNE LIGHT COMPANY, ET AL.
Beaver Valley Power Station
Unit No. 1
(Spent Fuel Pool Modification)

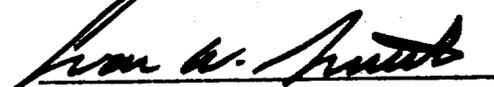
Docket No. 50-334

CORRECTIONS TO TRANSCRIPT

<u>Page No.</u>	<u>Line No.</u>	<u>Correction</u>
2146	3-4	Change "expense of the fuel pool by adding the fuel reaction" to "expansion of the fuel pool by adding the fuel racks"
Following 2162		Add, Supplemental Testimony of NRC Staff In Response To the City of Pittsburgh Contention 6 by Darrel A. Nash
2175	25	Change "decontamination" to "decommissioning"
2185	19 & 21	Change "Locland" to "Laughlin"
2237	16	Change "Alrama" to "Elrama"
2238	1	Change "Prudhoe" to "Brunot"
2259	19	Change "Bruno" to "Brunot"
2281	17	Change "Alrama" to "Elrama"

IT IS SO ORDERED.

THE ATOMIC SAFETY AND
LICENSING BOARD


Ivan W. Smith, Chairman



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

DUQUESNE LIGHT COMPANY

OHIO EDISON COMPANY

PENNSYLVANIA POWER COMPANY

DOCKET NO. 50-334

BEAVER VALLEY POWER STATION UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 14
License No. DPR-66

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Duquesne Light Company (the licensee) dated December 3, 1976, as supplemented by filings dated February 1, April 13, May 23 and 31, 1977, and February 14 and March 6, 1978 (two letters), complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility License No. DPR-66 is hereby amended to read as follows:

"(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 14, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications."

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Victor Stello, Jr., Director
Division of Operating Reactors
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 31, 1978

ATTACHMENT TO LICENSE AMENDMENT NO. 14

FACILITY OPERATING LICENSE NO. DPR-66

DOCKET NO. 50-334

Replace or revise as indicated the following pages of the Appendix "A" Technical Specifications with the enclosed pages. Revised pages are identified by Amendment number and contain vertical lines indicating the area of change. Corresponding overleaf pages are also provided to maintain document completeness.

Pages

5 - 4

5 - 5

5 - 6

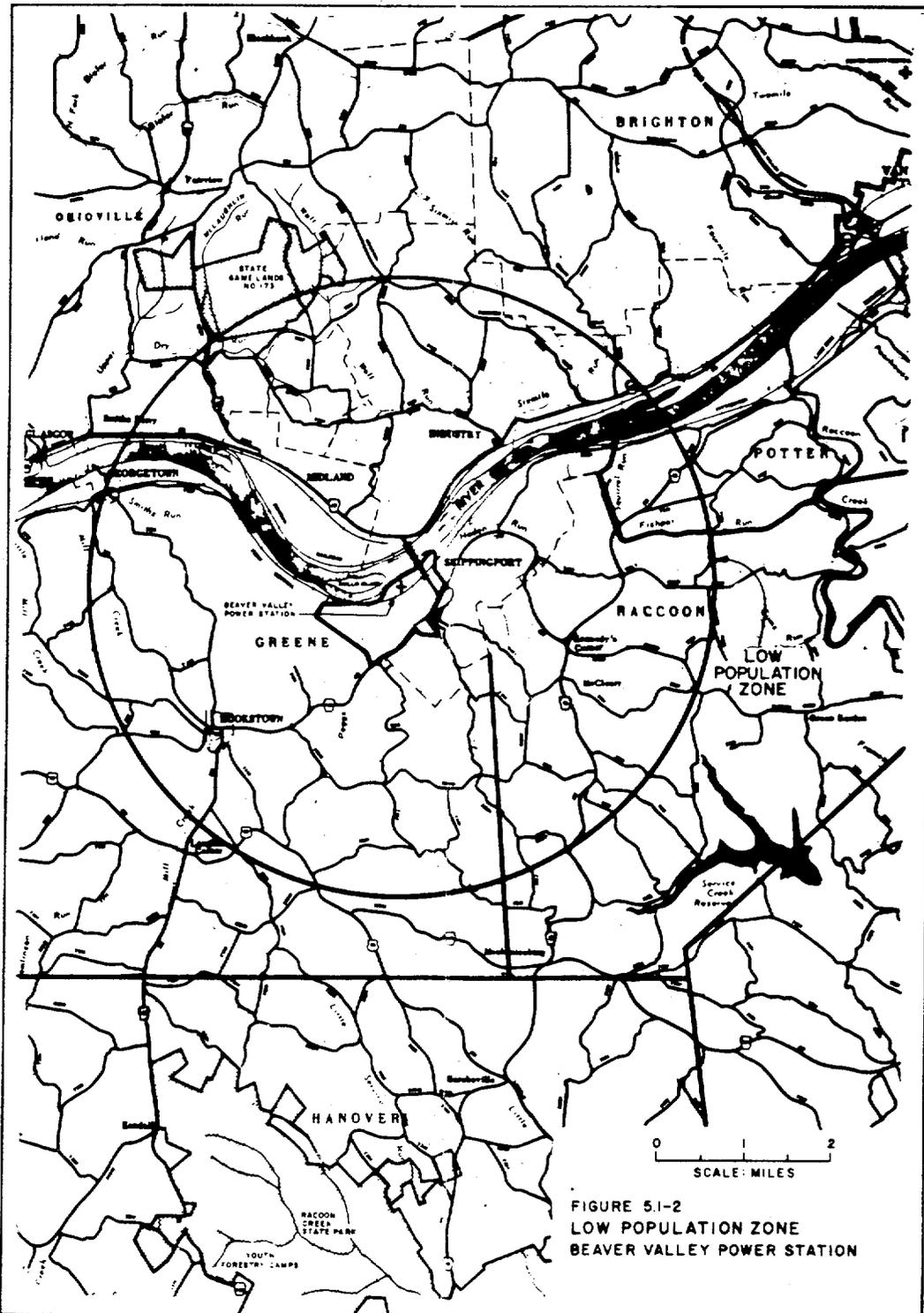


FIGURE 5.1-2
 LOW POPULATION ZONE
 BEAVER VALLEY POWER STATION

DESIGN FEATURES

DESIGN PRESSURE AND TEMPERATURE

5.2.2 The reactor containment building is designed and shall be maintained for a maximum internal pressure of 45 psig and a temperature of 280°F.

PENETRATIONS

5.2.3 Penetrations through the reactor containment building are designed and shall be maintained in accordance with the original design provisions contained in Section 5.2.4 of the FSAR with allowance for normal degradation pursuant to the applicable Surveillance Requirements.

5.3 REACTOR CORE

FUEL ASSEMBLIES

5.3.1 The reactor core shall contain 157 fuel assemblies with each fuel assembly containing 264 fuel rods clad with Zircaloy -4. Each fuel rod shall have a nominal active fuel length of 144 inches and contain a maximum total weight of 1766 grams uranium. The initial core loading shall have a maximum enrichment of 3.2 weight percent U-235. Reload fuel shall be similar in physical design to the initial core loading and shall have a maximum enrichment of 3.3 weight percent U-235.

CONTROL ROD ASSEMBLIES

5.3.2 The reactor core shall contain 48 full length and 5 part length control rod assemblies. The full length control rod assemblies shall contain a nominal 142 inches of absorber material. The part length control rod assemblies shall contain a nominal 36 inches of absorber material at their lower ends. The nominal values of absorber material shall be 80 percent silver, 15 percent indium and 5 percent cadmium. All control rods shall be clad with stainless steel tubing. The balance of the void length in the part length rods shall contain aluminum oxide.

DESIGN FEATURES

5.4 REACTOR COOLANT SYSTEM

DESIGN PRESSURE AND TEMPERATURE

- 5.4.1 The reactor coolant system is designed and shall be maintained:
- In accordance with the code requirements specified in Section 4.2 of the FSAR, with allowance for normal degradation pursuant to the applicable Surveillance Requirements,
 - For a pressure of 2485 psig, and
 - For a temperature of 650°F, except for the pressurizer which is 680°F.

VOLUME

5.4.2 The total water and steam volume of the reactor coolant system is 9370 cubic feet at a nominal T_{avg} of 525°F.

5.5 EMERGENCY CORE COOLING SYSTEMS

5.5.1 The emergency core cooling systems are designed and shall be maintained in accordance with the original design provisions contained in Section 6.3 of the FSAR with allowance for normal degradation pursuant to the applicable Surveillance Requirements.

5.6 FUEL STORAGE

CRITICALITY

5.6.1 The spent fuel storage racks are designed and shall be maintained with a minimum of 12.0625 inch center-to-center distance between fuel assemblies placed in the storage racks to ensure a k_{eff} equivalent to ≤ 0.95 with the storage pool filled with unborated water. The k_{eff} of ≤ 0.95 includes a conservative allowance of at least 1.4% $\Delta k/k$ for uncertainties.

DRAINAGE

5.6.2 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 750' - 10".

DESIGN FEATURES

CAPACITY

5.6.3 The fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 833 fuel assemblies.

5.7 SEISMIC CLASSIFICATION

5.7.1 Those structures, systems and components identified as Category I Items in Appendix "B" of the FSAR shall be designed and maintained to the original design provisions with allowance for normal degradation pursuant to the applicant Surveillance Requirements.

5.8 METEOROLOGICAL TOWER LOCATION

5.8.1 The meteorological tower shall be located as shown on Figure 5.1-1.

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-334

DUQUESNE LIGHT COMPANY

OHIO EDISON COMPANY

PENNSYLVANIA POWER COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE

AND

NEGATIVE DECLARATION

The U.S. Nuclear Regulatory Commission (the Commission) has, pursuant to the Initial Decision of its Atomic Safety and Licensing Board dated May 4, 1978, issued Amendment No. 14 to Facility Operating License No. DPR-66, issued to the Duquesne Light Company (the licensee), which revised the license and Technical Specifications for operation of Unit No. 1 of the Beaver Valley Power Station (the facility) located in Beaver County, Pennsylvania. The amendment is effective as of its date of issuance.

The amendment revised the license and Technical Specifications for the facility to permit replacement of the existing spent fuel storage racks having a capacity of 272 fuel assemblies with new storage racks having a capacity of 833 fuel assemblies.

The Initial Decision is subject to review by an Atomic Safety and Licensing Appeal Board prior to its becoming final. Any decision or action taken by an Atomic Safety and Licensing Appeal Board in connection with the Initial Decision may be reviewed by the Commission.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Notice of Proposed Issuance of the Amendment was published in the Federal Register on January 12, 1977 (42 F.R. 5155). A hearing was requested by the City of Pittsburgh. The hearing was held March 13 and 14, 1978, and subsequently the above-referenced Initial Decision issued May 4, 1978.

The Commission has prepared an Environmental Impact Appraisal relating the environmental considerations associated with modifications to the Spent Fuel Pool of the Beaver Valley Power Station, Unit No. 1, dated August 12, 1977, and has concluded that an environmental impact statement for this particular action is not warranted because the actions authorized by the license amendment will not significantly affect the quality of the human environment.

For further details with respect to this action, see (1) the application for amendment dated December 3, 1976, as supplemented by filings dated February 1, April 13, May 23 and 31, 1977, and February 14 and March 6, 1978 (two letters), (2) Amendment No. 14 to License No. DPR-66, (3) the Commission's related Safety Evaluation dated August 12, 1977, and Amendment No. 1 dated March 7, 1978, (4) the Commission's Environmental Impact Appraisal dated August 12, 1977, and Amendment No. 1 dated March 7, 1978, and (5) the Initial Decision of the Atomic Safety and Licensing Board dated May 4, 1978. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, NW., Washington, D.C. and at the Beaver Valley Memorial Library, 100 College Avenue, Beaver, Pennsylvania. A single copy of items (2), (3), (4) and (5) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 31st day of May 1978.

FOR THE NUCLEAR REGULATORY COMMISSION



A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors