

ATOMIC SAFETY AND LICENSING BOARD

Robert M. Lazo, Chairman
Marvin M. Mann, Member
Donald P. deSylva, Member

In the Matter of
WASHINGTON PUBLIC POWER
SUPPLY SYSTEM
(WPPSS Nuclear Projects
No. 1 and No. 4)

Docket Nos. 50-460
50-513
December 22, 1975

Upon application in uncontested proceeding for construction permits for WPPSS Nuclear Projects Nos. 1 and 4, Licensing Board issues its Initial Decision, authorizing the issuance of a construction permit for Project No. 1. Licensing Board defers resolution of financial qualifications issue with respect to Project No. 4 and, therefore, does not authorize the issuance of a permit for that project.

Messrs. Joseph B. Knotts, Jr., and Nicholas S. Reynolds, Washington, D. C., and Mr. Richard Q. Cullgley, Richland, Washington, for the applicant, Washington Public Power Supply System.

Mr. Edward G. Ketchen, for the United States Nuclear Regulatory Commission.

INITIAL DECISION
(Construction Permit)

I. BACKGROUND

This Initial Decision concerns the application to the United States Nuclear Regulatory Commission ("NRC" or "Commission") by the Washington Public

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Power Supply System ("WPPSS" or "Applicant") for construction permits for WPPSS Nuclear Projects No. 1 and No. 4 ("WNP-1" and "WNP-4"). In particular, this decision involves NRC review of the radiological health and safety considerations specified in the notice of hearing entitled "Applications for Construction Permits and Facility Licenses, Hearing: Time for Submission of Views on Antitrust Matters", published in the *Federal Register* (39 *Fed. Reg.* 33588) on September 18, 1974.

The general background of this proceeding is set forth in detail in the Partial Initial Decision (NEPA and Site Suitability Issues) issued by this Atomic Safety and Licensing Board ("Board")¹ on July 30, 1975. *Washington Public Power Supply System* (WPPSS Nuclear Projects 1 and 4), LBP-75-41, NRC-75/7-131 (July 30, 1975). In that Decision the Board held that the appropriate action to be taken is the issuance of construction permits for the facility subject to certain conditions for the protection of the environment and contingent upon the outcome of the evidentiary hearing on health and safety issues. The Board also retained jurisdiction over the environmental issues in this proceeding to the extent that any findings in the Partial Initial Decision might require modification due to information or data presented prior to completion of the radiological health and safety phase of the case. *Id.* at p. 150. The Partial Initial Decision is incorporated herein by reference.

Subsequent to the issuance of the Partial Initial Decision, and based upon the Board's favorable findings and determinations therein regarding environmental matters, site suitability, and certain safety matters, the Commission's Director of Nuclear Reactor Regulation by letter dated August 1, 1975, authorized the Applicant to conduct certain limited work activities at the site pursuant to 10 CFR § 50.10(e) (1) and (3). Notice of the issuance of this Limited Work Authorization ("LWA") was published in the *Federal Register* (40 *Fed. Reg.* 33740) on August 11, 1975.

Thereafter, the Board issued a "Notice and Order Setting Evidentiary Hearing On Further Limited Work Authorization Activities" on September 16, 1975, which was published in the *Federal Register* (40 *Fed. Reg.* 43776) on September 23, 1975. On September 29, 1975, in Washington, D. C., another evidentiary hearing was held to consider whether there were any unresolved safety issues which would preclude the extension of the LWA to additional limited work activities for which the Applicant had requested authorization.

On September 30, 1975, the Board issued its "Memorandum and Order Making Findings Pursuant to 10 CFR § 50.10(e) (3) Under Expedited Decisional Procedure Provided For In 10 CFR § 2.761" in which it determined that there were no unresolved safety issues relating to the additional LWA activities which

¹On November 3, 1975, the Chairman of the Atomic Safety and Licensing Board Panel issued a "Notice of Reconstitution of Board" in which the present Board Chairman was appointed, 40 *Fed. Reg.* 52444 (November 10, 1975).

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would constitute a good cause for withholding authorization to proceed with those activities. *Washington Public Power Supply System* (Nuclear Projects No. 1 and No. 4) Memorandum and Order, LBP-75-9, NRC1-75/9 573, September 1975. Based upon this determination by the Board, the Commission's director of Nuclear Reactor Regulation by letter dated October 3, 1975, authorized the Applicant to conduct certain limited work activities at the site pursuant to 10 CFR §50.10(e)(3). Notice of the issuance of this supplemental LWA was published in the *Federal Register* (40 *Fed. Reg.* 47545) on October 9, 1975.

The evidentiary hearing on radiological health and safety issues was conducted by the Board on November 11-13, 1975, in Richland, Washington. The parties presenting evidence at the hearing were the Applicant and the NRC Regulatory Staff.²

The decisional record in this proceeding is set forth in Appendix A to this Initial Decision. The documents received into the record as exhibits either will be cited herein by exhibit number or will be referred to by abbreviations of the titles, such as PSAR, ER, SER and FES. The transcript will be cited as "Tr."

To fulfill its responsibilities in this uncontested proceeding, the Board will make findings of fact relating to the health and safety issues specified in the Notice of Hearing, and will make appropriate conclusions of law. Finally, the Board will set forth an order ruling on issuance of the construction permits.

II. FINDINGS OF FACT—HEALTH & SAFETY

A. APPLICANT'S FINANCIAL QUALIFICATIONS FOR WNP-1

1. WPPSS is a municipal corporation and joint operating agency of the State of Washington. Its membership consists of 18 operating public utility districts and the cities of Richland, Seattle, and Tacoma, each of which operates an electrical distribution system within the State of Washington. WPPSS is empowered to acquire, construct, and operate facilities for the generation and transmission of electric power and energy, but does not engage in the sale or distribution of electric power or energy at retail.

2. WPPSS does not have rates and is not subject to the jurisdiction of any regulatory agency having control over rates. Rather, WPPSS is reimbursed for the

²By letter to the Board dated November 6, 1975, the Thermal Power Plant Site Evaluation Council ("TPPSEC") of the State of Washington notified the Board that TPPSEC had no concerns relating to WNP-1 and WNP-4, and that it would not participate further in the NRC proceeding. (TR. 653-55) TPPSEC had participated in the environmental hearing as an interested state pursuant to 10 CFR §2.715(c). NRC1-75/7 at p. 133.

cost of each project, including debt service, by the participants in that project. In this regard, the entire electrical capability of WNP-1³ has been purchased by 104 publicly and cooperatively owned utilities ("Participants"), all of which are statutory preference customers of the Bonneville Power Administration ("BPA"), and five investor-owned utilities ("Companies"). (Applicant's Exhibit 1, Staff Exhibit 8c, §20; Perko, Tr. following p. 670)⁴

3. The Applicant estimates the total cost of WNP-1 to be \$1.147 billion. This estimate includes nuclear production plant costs (\$1,042,509,000), transmission and general plant costs (\$15,426,000), and nuclear fuel inventory cost for the first core (\$89,065,000).

4. The Participants have executed "Net Billing Agreements" with WPPSS and BPA which provide that the Participants' portion of the capability of WNP-1 will be sold to the Participants, which in turn will assign the capability to BPA.⁵ The Net Billing Agreements provide that each Participant will receive a credit on its BPA power and service billings to the same extent that it makes payments to WPPSS for its share of the annual costs (including debt service) of WNP-1. The Net Billing Agreements provide that the Participants are obligated to pay WPPSS whether or not WNP-1 is completed, operable or operating, and notwithstanding the suspension, interruption, interference, reduction or curtailment of the output of WNP-1. Since, as noted, BPA gives credit to Participants for payments of costs made irrespective of energy actually received, there is assurance that the Participants will have funds to bear their share of costs of WNP-1 irrespective of operation of the project. In the event of default of a Participant, the remaining Participants are obligated to automatic step-ups in their billings by as much as 25% to satisfy the total obligations of the Participants.⁶ (Perko, Tr. following p. 670, Tr. 801-15; Staff's Exhibit 8c, §20)

³A discussion of WNP-4, which is financed independently of WNP-1, in the context of the Applicant's financial qualifications is contained herein, *infra*, in paragraphs 11 and 12.

⁴A detailed discussion of the Hydro-Thermal Program developed jointly by utilities of the Pacific Northwest and the BPA, and of the high degree of coordination and cooperation between utilities involved in the generation and transmission of electric power in the Pacific Northwest is presented in the Partial Initial Decision issued on July 30, 1975 (NRC1-75/7, at pp. 140-42).

⁵During the period of operation from 1980 to 1996, 32.47% of the capability of WNP-1 will be purchased in equal portions by the five Companies (*i.e.*, Portland General Electric Company, The Montana Power Company, The Washington Water Power Company, Puget Sound Power and Light Company, and Pacific Power and Light Company). During this same period of operation, the remaining 67.53% of the capability of WNP-1 will be purchased by the Participants. After 1996, the entire (100%) capability of WNP-1 will be purchased by the Participants (Applicant's Exhibit 1; Perko, Tr. following p. 670).

⁶A form of Net Billing Agreement is contained in the Official Statement of WPPSS prepared in connection with the sale in May of 1974 of WNP-1 Revenue Notes in the amount of \$77,000,000 (Applicant's Exhibit 1, Official Statement, at p. 43).

5. The Companies have executed "Exchange Agreements" with WPPSS and BPA, which provide that the Companies' portion of the capability of WNP-1 (32.47% for the period 1980-1996 only) will be sold to the Companies, which in turn will assign the capability to BPA. The Exchange Agreements provide that each Company will pay WPPSS for its respective share of the capability of WNP-1 during the period 1980-1990 an amount to be determined by applying BPA wholesale rates then in effect to the capacity and energy made available to each Company. For the period 1990-1996, each Company will pay WPPSS for its respective share based upon estimates by WPPSS of costs associated with the project. In turn, BPA will make available to each Company during the period 1980-1996 some 86,000 kilowatts of capacity and 68,000 average kilowatts (595,680,000 kilowatt hours annually). As is the case with the Participants, the Companies also are obligated to make payments whether or not WNP-1 is completed, operable or operating, and notwithstanding the suspension, interruption, interference, reduction or curtailment of the output of WNP-1.⁷ In the event of default of a Company, the nondefaulting Companies are obligated to satisfy the total commitments of the Companies. (Perko, Tr. following p. 670; Staff Exhibit 8c, §20.)

6. The sources of construction funds for WNP-1 are advances or guarantees from purchasers or prospective purchasers of the output of the project as an interim measure followed by the issuance of tax exempt short term debt securities. Permanent financing is effected by the issuance of tax exempt long term debt securities. WPPSS debt securities are of the revenue note (short-term) and revenue bond (long-term) variety. State of Washington law provides that WPPSS may issue revenue bonds or warrants payable from the revenues of the utility properties operated by it. R.C.W. (§43.52.3411).

7. The Board of Directors of WPPSS has adopted plan and system resolutions in connection with WNP-1 which authorize the issuance of securities. Specifically, resolutions were adopted both for revenue notes of \$25 million bearing an effective interest rate of 4.27%, issued on February 13, 1973, and for revenue notes of \$77 million bearing an effective interest rate of 6.05%, issued on May 15, 1974.⁸ Likewise, such a resolution was adopted for revenue bonds of \$175 million issued on September 1, 1975. These revenue bonds bear an effective interest rate of 7.73%. The long-term securities have been rated Aaa by Moody's Investor Service, Inc., and AAA by Standard and Poor. The resolutions adopted by the Board of Directors serve as the indentures to the buyers of

⁷A form of Exchange Agreement is contained in the record (Applicant's Exhibit I, Official Statement, at p. 69).

⁸A summary of the Resolution authorizing the issuance of revenue notes in the amount of \$77 million is contained in the record (Applicant's Exhibit I, Official Statement, at pp. 21-24).

WPPSS securities. However, there are three levels of underlying security for repayment of the bonds.⁹ The first level of security is the revenues to be derived from operation of WNP-1. The second level of security is the Net Billing Agreements executed by the Participants and the Exchange Agreements executed by the Companies, under which WPPSS receives a promise from the Participants and Companies that each will pay its respective portion of the costs of acquiring, constructing and operating the facility, whether or not the project is completed, operated, or curtailed. The aggregate of these obligations must equal the total costs of the facility. The third level of security is the obligation of the United States Government (through the Bonneville Power Administration) ultimately to pay the debt securities issued by WPPSS for WNP-1.

8. WPPSS has a record of successful financing of generation projects. For example, construction of the Packwood Lake Hydroelectric Project (27,000 kw) commencing in 1962 was financed by the sale of revenue bonds of \$13,700,000. The Packwood revenue bonds bear an effective interest rate of 3.66%, and are payable solely out of revenues from that project. The Packwood project output is sold to 12 public utility districts. Operating revenues for fiscal year 1975 were \$749,460.

9. Further, WPPSS successfully financed and is now operating the Hanford Generating Project (860,000 kw), which utilizes by-product steam produced in the dual purpose N-Reactor of the Energy Research and Development Administration on the Hanford Reservation. Construction costs were financed by the sale in 1963 of revenue bonds of \$122 million. These bonds bear an effective interest rate of 3.26%. The output of this project is sold to 76 publicly-owned and privately-owned utilities in the Pacific Northwest. Operating revenues for fiscal year 1975 were \$30,210,421.

10. Based on the information contained in paragraphs 1-9, *supra*, the Board finds that the Applicant possesses or has reasonable assurance of obtaining the funds necessary to cover estimated construction costs of WNP-1 and related fuel cycle costs.

11. With regard to WNP-4, the Applicant has requested that consideration of its financial qualifications to design and construct WNP-4 be deferred to a later time (Applicant's Exhibit 17). The Applicant's present plans are that the entire capability of WNP-4 will be purchased by publicly and cooperatively owned utilities through the execution of Participants' Agreements.¹⁰ However, execu-

⁹Revenues from the sale of bonds are applied to the retirement of outstanding notes. Thus, the total net funding available for WNP-1 to date is \$175 million (Tr. 849).

¹⁰Participants' Agreements are the second of a two-step procedure under which Participants commit to purchase a portion of the capability of WNP-4. The first step is the execution of Option Agreements under which potential participants obtain an option to purchase capability. The second step is the execution of Participants' Agreements under which Participants commit to purchase capability. Option Agreements for WNP-4 have been executed, but execution of Participants' Agreements is being delayed pending completion of secondary SEPA statements. (Tr. 825-29).

low of the Participants' Agreements for WNP-4 has been delayed pending completion of secondary environmental impact statements pursuant to the Washington State Environmental Policy Act ("SEPA"), R.C.W. §43.21C. The Applicant estimates that the secondary SEPA statements should be completed in approximately four to six months, and that execution of the Participants' Agreements will follow thereafter in due course.

12. The Board need not determine at this time when the Applicant will be in a position to demonstrate that it has reasonable assurance of obtaining financing for WNP-4. The Board will be kept informed as this matter develops, and will receive additional evidence from the Applicant and the Staff with a view toward supplementing this Initial Decision at a suitable time with appropriate findings of fact relating to the Applicant's financial qualifications in the context of WNP-4.

B. DESCRIPTION AND SAFETY EVALUATION OF THE FACILITY

13. The facility is to be located on a 972-acre site on the Hanford Reservation in Benton County, Washington, approximately 8 miles north of the city of Richland. The exclusion area consists of two overlapping circles each having a radius of 1.2 miles and a center located on each containment structure.

14. The Applicant has leased the site from the United States Energy Research and Development Administration (ERDA).¹¹ Since a portion of the exclusion area lies outside the area under lease, the Applicant and the ERDA have executed a "Supplemental Agreement" to the lease and a "Memorandum of Understanding." These documents provide the Applicant with the authority necessary under 10 CFR 100.3a to determine activities within the designated exclusion area.¹² The Board finds that the Applicant will have control over the exclusion area as required by 10 CFR 100.3a.

15. WNP-1 and WNP-4 are identical facilities. Each incorporates a nuclear steam supply system consisting of a Babcock & Wilcox pressurized water reactor with a two-loop reactor coolant system. Each unit will be designed for a core power level of approximately 3600 megawatts thermal.¹³ Water will serve as both moderator and coolant, and will be circulated through the reactor by four coolant pumps.

16. Each reactor has 205 fuel assemblies and each assembly is arranged in a 17 x 17 (Mark C) fuel rod array. The initial reactor fuel loading will be arranged in four regions, each containing a different enrichment of U-235. The fuel elements will consist of Zircaloy-clad uranium dioxide fuel pellets. All fuel rods

¹¹ Partial Initial Decision, NRC-75/7 at p. 145.

¹² Applicant's Exhibits 32, 33.

¹³ In the Partial Initial Decision the thermal power level was erroneously given as 3619 Mw, NRC 75/7 at p. 145; this figure includes about 19 Mw of primary pump heat.

cladding compressive stresses during service.

17. Each unit will have a containment building which will be a steel-lined reinforced concrete structure, and will house the reactor, steam generators, reactor coolant pumps, and pressurizer, and certain components of the plant engineered safety feature systems. The containment buildings are designed for an internal pressure of 52.0 psig, or about 23% above the peak of 42.3 psig calculated for the most severe design basis accident.

18. A General Services Building located next to the containment houses auxiliary systems, control equipment, certain components of the engineered safety systems, storage areas, emergency diesel generators, plant support systems and office space. Other major structures are the Turbine Generator Building, the spray pond (the ultimate heat sink) and the makeup water pump house located near the river. The steam and power conversion system for each unit will be designed to remove heat energy from the nuclear steam supply system and convert it into electrical energy by means of a steam turbine-generator. Waste heat rejected to steam condensers will be discharged from the closed-cycle circulating water system to the atmosphere through mechanical draft evaporative cooling towers.

19. The facility will have a number of engineered safety features designed for limiting the consequences of postulated accidents. The principal engineered safety features are the emergency core cooling systems, reactor containment systems, the containment spray system, the control room filtration system, the ultimate heat sink, the hydrogen control system, and the redundant onsite power system. These systems and components will be designed to be capable of assuring safe shutdown of the reactor under the adverse conditions of the various design basis accidents. They will be designed to seismic Category I requirements and must function even with complete loss of offsite power. Redundant engineered safety feature components and systems will be provided so that a single failure of any of these components or systems will not result in loss of the capability to achieve safe shutdown of the reactor.

20. On October 18, 1973, the Applicant submitted its preliminary Safety Analysis Report ("PSAR") pursuant to 10 CFR Part 50.¹⁴ The PSAR contains a description and safety assessment of the site and of the preliminary design of the facility, a description of the quality assurance program to be applied to the design, fabrication, construction and testing of the facility, a preliminary plan for the Applicant's organization, training of personnel and conduct of operations, a statement of the Applicant's technical and financial qualifications,

¹⁴ The PSAR (with amendments one through seventeen thereto) was received into the evidentiary record in this proceeding at the hearing held on May 13-15, 1975, as Applicant's Exhibit 2. Subsequently, Amendments 18 and 19 to the PSAR were filed by the Applicant. These amendments were received into evidence at the hearing held on November 11-13, 1975, as Applicant's Exhibits 37 and 38 respectively.

and other pertinent information. The Applicant has submitted all information required by the Commission's Regulations for issuance of a construction permit for WNP-4.¹⁵

21. The Staff performed a technical review and independent evaluation of the information and data submitted by the Applicant in the PSAR and amendments thereto. As a result of this review and analysis, the Staff prepared a Safety Evaluation Report ("SER"), issued in May of 1975. Two supplements to the SER were issued on June 2 and August 8, 1975.¹⁶ The Staff concluded in the SER that, assuming favorable resolution of the then outstanding matters discussed therein, the facility can be constructed and operated at the proposed site without undue risk to the health and safety of the public. In SER Supp. 1 the Staff addressed and resolved certain of these outstanding matters, and noted that favorable resolution of the remaining outstanding matters would be required before construction permits would be issued. In SER Supp. 2 the Staff addressed and resolved all remaining outstanding matters except for the following: (1) evaluation of the Applicant's analysis to demonstrate compliance with 10 CFR § 50.46 and Appendix K of 10 CFR Part 50 (involving acceptance criteria for emergency core cooling systems ("ECCS")); (2) the adequacy of the Applicant's authority to control the exclusion area pursuant to 10 CFR § 100.3(a);¹⁷ (3) compliance with Appendix I of 10 CFR Part 50.

22. At the hearing held on November 11-13, 1975, the Staff introduced testimony which set forth its conclusion regarding Applicant's compliance with the ECCS matter, *viz.*, that with certain modifications to which the Applicant has committed, the Applicant's preliminary ECCS design will be in conformance with NRC Regulations (Cox, Tr. following p. 714). The Board received into evidence five letters from the Applicant to the Staff which set forth commitments and provided analyses made by the Applicant regarding ECCS (Applicant's Exhibits 27 through 31). With regard to the Applicant's compliance with Appendix I of 10 CFR Part 50, the Staff introduced testimony which set forth its conclusion that WNP-1 and WNP-4 meet the design objectives presented in Appendix I (Komasiewicz, Tr. following p. 720; Stoddart, Tr. following p. 724; Fessig, Tr. following p. 727).

23. In the SER the Staff analyzed and evaluated the distribution of population and land use offsite, and the physical characteristics of the site including seismology, geology, hydrology, and meteorology. It analyzed and

¹⁵All information required by the Commission's Regulations for issuance of a construction permit for WNP-4 has been submitted with the exception of that information which will demonstrate the Applicant's financial qualifications to design and construct WNP-4. See discussion, *supra*, in paragraphs 11 and 12.

¹⁶The SER was admitted into evidence at the evidentiary hearing of November 11-13, 1975, as Staff Exhibit 8a, SER Supplement No. 1 ("SER Suppl. 1") as Staff Exhibit 8b, and SER Supplement No. 2 ("SER Supp. 2") as Staff Exhibit 8c.

¹⁷See discussion, *supra*, in paragraph 14.

evaluated the design, construction, and maintenance of the plant structures, systems and components important to safety, and the response of the facility to various operating transients and to a broad spectrum of postulated accidents, including design basis accidents. The Staff analyzed and evaluated the Applicant's plans for the conduct of plant operations and plans for actions to be taken in the event of an accident which might affect the general public, Applicant's organizational structure and the technical qualifications of operating and technical support personnel, and measures to be taken for industrial security. The SER also contains an analysis and evaluation of the design of the several systems provided for control of radioactive effluents from the plant, and the financial qualifications of the Applicant to design and construct the facility.

24. The Board has considered the Application, the PSAR and amendments thereto, and the SER and supplements thereto, and finds that the Staff's technical review and safety evaluation is adequate and comprehensive. Accordingly, the Board hereby incorporates by reference the conclusions reached by the Staff in the SER and Supplements 1 and 2 thereto, and the Staff's conclusions regarding compliance by the Applicant with 10 CFR 50.46, Appendix K of 10 CFR 50, and Appendix I of 10 CFR 50, except insofar as they may be modified by the findings made by the Board in this Initial Decision.

25. The Advisory Committee on Reactor Safeguards ("ACRS") has reviewed the application for WNP-1 and WNP-4 and has stated in its letter dated June 11, 1975, that the ACRS believes that if due consideration is given to items noted in the letter, "WNP-1 and 4, can be constructed with reasonable assurance that they can be operated without undue risk to the health and safety of the public" (Staff Exhibit 8c, Appendix D). The Applicant and the Staff have duly considered and are taking appropriate action to implement recommendations of the ACRS (Staff Exhibit 8c, § 18, Cox, Tr. following p. 714; PSAR Amendment 18, Applicant's Exhibit 37, p. Q7-17; Applicant's Exhibits 25 and 26; Noonan, Tr. following p. 740).

C. QUALITY ASSURANCE

26. The Applicant has formulated a comprehensive quality assurance program. The Staff conducted a review of the program and presented testimony at the evidentiary hearing that the program embodies sufficient policies, procedures, and instructions to fully implement Appendix B of 10 CFR Part 50. The program is being implemented and is functioning satisfactorily.¹⁸ The Board finds that the Applicant's quality assurance program complies with the requirements of Appendix B to 10 CFR 50.

¹⁸Tr. 919-25, 927-42.

27. At the evidentiary hearing held on November 11-13, 1975, the Applicant informed the Board that it intended to amend Section 17.3 of the PSAR which contains the QA program of Babcock & Wilcox ("B&W") for design and construction of WNP-1 and WNP-4.¹⁹ The amendment substitutes for Section 17.3 the B&W QA Topical Report²⁰ which has been approved by the Commission. (Applicant's Exhibit 40.) The B&W QA Topical Report was received into evidence as Applicant's Exhibit 40. The Board has considered the B&W QA Topical Report, and we confirm our previous finding that the Applicant's QA program including the B&W QA Topical Report, complies with Appendix B.

D. APPLICANT'S TECHNICAL QUALIFICATIONS

28. The Washington Public Power Supply System is a municipal corporation of the State of Washington. Currently it operates one hydroelectric project and the Hanford Generating Project, which utilizes byproduct steam energy produced by the New Production Reactor which is owned and operated by the Energy Research and Development Administration. WPPSS also has under construction WNP-2, a nuclear power plant on a site contiguous to the WNP-1, WNP-4 sites. WPPSS has a staff of approximately 340 full-time employees. About 50 professional employees, nuclear, electrical, mechanical and other engineers and operations personnel now have substantial direct involvement in the WNP-1 and WNP-4 projects. United Engineers and Constructors, Inc., has been retained by the Applicant to provide engineering, quality assurance, and construction management services for WNP-1 and WNP-4. The Babcock and Wilcox Company, which has substantial experience in nuclear power plants, will furnish the nuclear steam supply system.

29. Appropriate training programs for WPPSS personnel will be provided at existing reactors, on the site, and during preoperational testing of WNP-1 and WNP-4.

30. Based on the collective experience of WPPSS and its principal contractors, United Engineers and Constructors, Inc., and the Babcock and Wilcox Company, on the WPPSS organization and personnel, and on the WPPSS Quality Assurance Program, the Board finds that the Applicant is technically qualified to design and construct the WNP-1 and WNP-4 facility.

¹⁹ Subsequent to the evidentiary hearing held on November 11-13, 1975, the Applicant submitted Amendment 20 to the PSAR. The Staff was aware prior to the November 11-13, 1975 hearing of the changes to be made by Amendment 20 (Tr. pp. 703-704), and with one exception had already formally received the material to be included in Amendment 20. (Applicant's Exhibit 39; Tr. 999-1002). As agreed at the hearing, (Tr. 1017) PSAR Amendment 20, now designated as Applicant's Exhibit 41, is received into evidence.

²⁰ "B&W NPGD Quality Assurance Program for Nuclear Equipment, BAW-10096A, Rev. 1, Topical Report (March 1975).

E. RESEARCH AND DEVELOPMENT REQUIRED

31. The 17 x 17 (Mark C) fuel assembly to be supplied by Babcock & Wilcox will be identical in design to those previously reviewed and approved by the Staff for use in the Bellefonte Nuclear Plant, Units 1 and 2²¹ now under construction. While no new research and development programs are necessary to support the issuance of construction permits for WNP-1 and WNP-4, the Applicant has identified the ongoing research and development programs being conducted by B&W which may have an effect on the design for these facilities. These programs are intended to verify the 17 x 17 (Mark C) fuel assembly design and confirm the design margins of the nuclear steam supply system. Principal elements of the B&W research and development programs are fuel assembly flow tests, fuel assembly mechanical tests, critical heat flux tests, reactor vessel flow tests, component mechanical tests, control rod tests, and fuel densification tests. (PSAR §1.5.) The Staff has concluded that the test program outlined in the PSAR will provide the information necessary for the design and safe operation of WNP-1 and WNP-4 (SER §1.7). The Board finds that the Applicant has complied with the requirements of 10 CFR §50.35(a) with respect to required research and development programs.

F. COMMON DEFENSE AND SECURITY

32. The activities to be conducted under the construction permits will be within the jurisdiction of the United States. All of Applicant's directors and principal staff members are citizens of the United States, and the Applicant is not owned, dominated, or controlled by an alien, foreign corporation, or a foreign government. The activities to be conducted do not involve any restricted data, but the Applicant has agreed to safeguard any such data which might become involved in accordance with the Commission's Regulations. The Applicant will rely on obtaining fuel from sources of supply available for civilian purposes. Thus, no diversion of special nuclear material from military purposes is involved. The Board finds that the issuance of construction permits for WNP-1 and WNP-4 will not be inimical to the common defense and security.

G. COMPLIANCE WITH APPENDIX I TO 10 CFR 50

33. The Applicant has elected to exercise the option provided in paragraph H.D of Appendix I, as amended. 40 *Federal Register* 19439, May 5, 1975. 40 *Federal Register* 40818, September 4, 1975.

²¹ *Tennessee Valley Authority* (Bellefonte Nuclear Plant, Units 1 and 2) NRC Docket Nos. 50-438 and 50-439.

34. At the evidentiary hearing held on November 11-13, 1975, the Staff presented a detailed assessment of maximum individual doses to be expected offsite.²² To determine compliance with Paragraphs H.A, H.B, and H.C of Appendix I, doses from WNP-1 and WNP-4 were calculated on a per reactor basis. To determine compliance with the Annex in the September 4, 1975 amendment to Appendix I (and in lieu of Paragraph H.D of Appendix I), doses were calculated on a per site basis, combining doses from WNP-1, WNP-4, and WNP-2.

35. For liquid effluents, the annual total body dose was calculated to be 2.6 millirems per reactor, and the annual dose to any organ was calculated to be 3.4 millirems per reactor. These doses are within the Appendix I design objectives set forth in Paragraph H.A (3 millirems and 10 millirems, respectively). For noble gas effluents, the annual air doses for gamma radiation and beta radiation were calculated to be 0.21 millirad per reactor and 0.57 millirad per reactor, respectively. These doses are well below the design objectives set forth in Paragraph H.B.1 of Appendix I (10 millirads and 20 millirads, respectively). In addition, for noble gas effluents, the annual total body dose was calculated to be 0.087 millirem per reactor, and the annual skin dose was calculated to be 0.24 millirem per reactor. These doses are well below the design objectives set forth in Paragraph H.B.2 of Appendix I (5 millirems and 15 millirems, respectively). For radioiodines and other radionuclides released to the atmosphere, the annual dose to any organ was calculated to be 0.55 millirem per reactor, which is well below the design objectives set forth in Paragraph H.C of Appendix I (15 millirems). (Essig, Table 2, Tr. following p. 727.)

36. Since the Applicant elected to exercise the option of satisfying the Annex to Appendix I, the calculated doses from WNP-1, WNP-4, and WNP-2 (on a per site basis) were compared with the Annex to Appendix I. For liquid effluent, the Staff calculated the annual dose to the total body or to any organ to be 2.3 millirems, well below the design objective set forth in Paragraph A.1 of the Annex to Appendix I (5 millirems). For gaseous effluents, the annual air dose from gamma radiation and beta radiation was calculated to be 1.2 millirads and 1.7 millirads, respectively. These doses are well below the design objectives set forth in Paragraphs B.1 and B.2 of the Annex to Appendix I (10 millirads and 20 millirads, respectively). For gaseous effluents, the annual total body dose was calculated to be 0.45 millirem and the annual skin dose was calculated to be 1.0 millirem. These doses are well below the design objectives set forth in Paragraph B.3 of the Annex to Appendix I (5 millirems and 15 millirems, respectively). For radioiodine and other radionuclides released to the atmosphere, the annual dose to any organ was calculated to be 5.2 millirems, which is

²²Certain Staff dose models were revised to reflect the mandate contained in the Opinion of the Commission (April 30, 1975) in the Appendix I rulemaking proceeding prescribing realism wherever possible in the definition of input parameters for the dose models (Essig, Tr. following p. 727).

well below the design objective set forth in Paragraph C.1 of the Annex to Appendix I (15 millirems). (Essig, Table 1, Tr. following p. 727.)

37. Based upon the foregoing, the Board finds that the proposed radwaste system for WNP-1 and WNP-4 is capable of meeting the criteria presented in Appendix I, as amended, and that levels of radioactive material in effluents to unrestricted areas will be "as low as practicable."²³

II. BORON RECOVERY SYSTEM

38. At the evidentiary hearing held on May 13-15, 1975, the Board indicated that it wished to explore the basis for the Staff's assumption (10 CFR § 3.5.1.1) that approximately ten percent (one million gallons per year) of the evaporator condensate stream in the Boron Recovery System ("BRS") for each plant would be discharged to the Columbia River (Tr. 490). At the evidentiary hearing held on November 11-13, 1975, the Staff testified that the BRS is defined as a liquid radwaste system, and that the Staff's Standard Review Plan for evaluation of liquid radwaste systems assumes ten percent discharge to the environment after treatment. The Staff indicated that this assumption is based on experience at similar operating plants. Further, the Staff testified that current Staff evaluation practice is to use a minimum of ten percent discharge even though the liquid radwaste system is designed for maximum waste recycle and the system capacity is sufficient to process wastes for reuse during equipment downtime and anticipated operational occurrences. (Stoddart, Tr. following p. 729.)

39. It is anticipated that the annual liquid waste to be processed through the liquid radwaste system will be approximately one million gallons (PSAR § 11.2.2). Thus, the Staff's annual discharge assumption of one million gallons per plant from the BRS to the environment represents 100% of the total anticipated liquid radwaste input for each plant. The Applicant believes that this assumption is unrealistic for WNP-1 and WNP-4 and notes that the BRS is designed for total recycle (PSAR § 9.3.4.2; Tr. 980), and that leakage from the BRS can only reach the liquid radwaste system through floor drains. There is no other direct connection between the BRS and the liquid radwaste system, and there are no other means by which BRS water could be released to the environment. (PSAR Figures 9.3-12 through 9.3-7; Tr. 985.)

40. The Board believes that experience with this type of Boron Recovery System is not yet sufficient to provide a sound basis for judgment as to whether the Applicant's BRS assumptions or those of the Staff are the more realistic. In

²³The Staff has proposed that the term "as low as is reasonably achievable" to be substituted for the term "as low as practicable" in 10 CFR § 20.1, 50.34a, and 50.36a, and 10 CFR Part 50, Appendix I, 40 Fed. Reg. 33029 (August 6, 1975). This change is proposed pursuant to the direction of the Commission in its decision in the Appendix I rulemaking proceeding. See 40 Fed. Reg. 19440 (May 5, 1975).

any event, since it appears that the proposed radwaste system for WNP-1 and WNP-4 is capable of meeting with comfortable margin the criteria presented in Appendix I, as amended, of 10 CFR Part 50, on the basis of either assumptions, the Board believes that further inquiry into the matter is unnecessary at this time.

I. REACTOR PRESSURE VESSEL SUPPORTS

41. In its letter to the Commission dated June 11, 1975, regarding WNP-1 and WNP-4, the Advisory Committee on Reactor Safeguards ("ACRS") indicated that a question had arisen on a generic basis concerning loads on reactor pressure vessel ("RPV") support structures during certain postulated loss-of-coolant accidents in pressurized water reactors. The ACRS recommended that the RPV supports matter be resolved for WNP-1 and WNP-4 in a manner satisfactory to the Staff. (Staff Exhibit 8c, Appendix D) At the evidentiary hearing held on September 29, 1975, the Board indicated that it would inquire at the later hearing into the matter of RPV support design and analysis (Tr. 635-36). At the evidentiary hearing held on November 11-13, 1975, the Applicant and Staff presented documentary evidence and testimony concerning the RPV support matter.

42. The Staff testified that it has initiated a systematic generic review of the RPV support matter for pressurized water reactors. It also testified that a preliminary review of Applicant's calculations indicates satisfactory results. The Staff anticipates that the generic review will be completed in approximately one year, and that should any modification of design be necessary ample time is available to provide an acceptable solution.

43. The Board finds that the preliminary design for the reactor pressure vessel supports, and design criteria, have been adequately described, that this is a generic matter, and that the final design and analysis will be resolved during the construction stage.

III. FINDINGS OF FACT-ENVIRONMENTAL

A. COMPLIANCE WITH WATER QUALITY STANDARDS

44. On August 8, 1975, the Thermal Power Plant Site Evaluation Council of the State of Washington issued a final National Pollutant Discharge Elimination System Waste Discharge Permit ("NPDES Permit") to the Applicant for WNP-1 and WNP-4. The final NPDES Permit was received into evidence as Applicant's Exhibit 34. A draft NPDES Permit has been received into evidence at the environmental hearings as Applicant's Exhibit 16. The final NPDES Permit, *inter*

alia, establishes boundaries for the mixing zone and prohibits the discharge of any effluent which will cause a violation outside the prescribed mixing zone of any applicable State of Washington Water Quality Criteria or Standards contained in Washington Administrative Code ("WAC") §173-201, as they now exist or are hereafter amended. The mixing zone established in the final NPDES Permit is identical to that proposed in the draft permit.

45. In the Partial Initial Decision, the Board noted that the mixing zone proposed in the draft NPDES Permit would, if adopted, bring the chlorine discharge for WNP-1 and WNP-4 into compliance with the EPA Blue Book criteria.²⁴ As noted, the mixing zone prescribed in the final NPDES Permit is identical to that proposed in the draft NPDES Permit. Accordingly, the Board confirms its conclusion in the Partial Initial Decision that there is reasonable assurance that the discharge from WNP-1 and WNP-4 will comply with the water quality standards adopted by the Washington Department of Ecology on July 19, 1973, which were approved by the United States Environmental Protection Agency on March 18, 1974, pursuant to Section 303 of the Federal Water Pollution Control Act Amendments ("FWPCA"), 33 U.S.C. §125, *et seq.* (FES §4.2.5.1).²⁵

B. ANTI-BIOFOULING MEASURES

46. With regard to anti-biofouling measures to be utilized for WNP-1 and WNP-4, the Board found in the Partial Initial Decision "[b]ased upon current information . . . that the proposed chlorine system is environmentally preferable to other biocides, and that no mechanical systems are adequate substitutes for

²⁴ The EPA Blue Book is the current version of the "Report of the National Technical Advisory Committee on Water Quality Criteria, 1968", as revised in 1973. The 1968 Report on Water Quality Criteria is commonly known as the EPA Green Book. See NRCI-75/7 at p. 154. It should be noted that the Blue Book is not binding in a determination of the permissible levels of deleterious concentrations of toxic materials such as chlorine, since the State of Washington Water Quality Criteria merely provide that such a determination be made "in consideration of" the Blue Book. WAC §173-201-040(11).

²⁵ As the Board noted in the Partial Initial Decision, the Section 401 Certification issued for WNP-1 and WNP-4 precludes the Board from determining compliance with effluent limitations. NRCI-75/7 at p. 155. The Board concluded in that decision that since the 401 Certification relating to WNP-1 and WNP-4 did not address compliance with pertinent water quality standards, the Board had the authority and responsibility to make such a determination. The Board notes that the issuance by TPPSEC of the final NPDES Permit (Applicant's Exhibit 34), which was duly reviewed by EPA (Applicant's Exhibit 35), establishes the effluent limitations, standards and other water-related requirements for WNP-1 and WNP-4. In finding that there is reasonable assurance that discharges from WNP-1 and WNP-4 will comply with current water quality standards, the Board does not reach the question presented by the parties in their respective appeals of August 8, 1975 from the Partial Initial Decision, *viz.*, that the Board's action in making an independent determination of water-related issues was improper.

condition. 1985 F-107 at p. 137. At the evidentiary hearing held on May 13-15, 1975, the Board requested that the parties conduct certain studies concerning the effect of chlorine and other biocides on aquatic biota (Tr. 587-89). On June 16, 1975, the Applicant presented a proposed scope and schedule for submission of the studies. On June 26, 1975, the Staff responded to the Board's request by indicating that it would review and comment on the results of the Applicant's studies. The Staff maintained that a thorough and adequate evaluation had been conducted by the Staff in the Final Environmental Statement, and that the existing record supported its conclusion that no measurable adverse effects on fish due to chlorine are expected. By Memorandum and Order dated July 29, 1975, the Board confirmed that it approved the proposed scope and schedule for submission of the studies. See NRCL-75/7 at p. 152.

47. On September 29, 1975, the Applicant transmitted to the Board a report titled "Applicant's Critical Review and Study as Requested by the ASLB, Relative to WNP-1 and WNP-4 and the Columbia River". The Staff reviewed the Applicant's report and concurred in the conclusions set forth therein. The report was received into evidence as Applicant's Exhibit 36 at the evidentiary hearings held on November 11-13, 1975. Upon review of the report, the Board concluded that the Applicant's report was objective and comprehensive (Tr. 783). The Board finds that the report confirms the Board's findings in the Partial Initial Decision that the proposed chlorine system is environmentally preferable to other biocides, that no mechanical systems are adequate substitutes for chlorine, and that there is reasonable assurance that there will be no measurable effects on fish due to exposure to chlorine. NRCL-75/7 at p. 139.

C. SUPPLEMENTAL COST-BENEFIT ANALYSIS FOR WNP-1

48. On October 22, 1975, the Applicant requested that the Staff defer consideration of the issue of financial qualifications for WNP-4 and delay issuance of the construction permit for WNP-4 (Applicant's Exhibit 17). The Applicant indicated that the Washington State public utilities could not sign participation agreements for WNP-4 until certain secondary environmental impact statements required by State law are completed. The Staff reviewed the Final Environmental Statement and the Board's findings in the Partial Initial Decision in light of the Applicant's request to delay both consideration of the financial qualifications for WNP-4 and the issuance of a construction permit for WNP-4. The Staff addressed the effect of the requested delay by assuming, conservatively, an indefinite postponement of WNP-4. That assumption bounds an evaluation of any effects a limited delay (e.g., for six months) might have on the environmental effects evaluated in the FES and the findings by the Board in the Partial Initial Decision. The Staff also conservatively assumed that the majority of the impacts resulting from construction and operation of the project are assigned to WNP-1. The environmental effects due to construction and

operation of WNP-1 alone are set out in Supplemental Table A to the FES (Sharma and Connor, Tr. following p. 734). The Staff concluded, and the Board so finds, that in view of the generally small environmental costs from construction and operation for either WNP-1 and WNP-4 together, or WNP-1 alone, the cost-benefit balance is favorable for both cases.

49. The Staff also concluded, and the Board so finds, that the environmental analysis for WNP-1 and WNP-4 reflected in the FES, as supplemented by the further assessment with respect to the environmental impacts and the cost-benefit analysis for WNP-1, complies with the requirements of the National Environmental Policy Act of 1969 ("NEPA") and 10 CFR Part 51. Accordingly, the Board, after balancing the environmental, economic, technical and other benefits against environmental and other costs, and considering available alternatives, confirms its NEPA and site suitability findings made in the Partial Initial Decision. The Board finds that the review conducted by the Staff has been adequate and that the action called for under NEPA and 10 CFR Part 51 is the issuance of a construction permit for WNP-1 subject to the limitations for the protection of the environment listed in Paragraph 7 of the Summary and Conclusions on page ii of the FES. (Norris, Tr. following p. 732; Sharma and Connor, Tr. following p. 734.)

IV. SUPPORTING OPINION

A. APPENDIX I CONSIDERATIONS

At the evidentiary hearing held on May 13-15, 1975, the Board received into evidence as Applicant's Exhibit 12 certain information by which the Applicant sought to demonstrate that the numerical guides of Appendix I of 10 CFR Part 50 are met by WNP-1 and WNP-4. The information was submitted by the Applicant in anticipation of the effective date (June 4, 1975) of Appendix I.^{2*} The Applicant also presented in Applicant's Exhibit 12 a preliminary cost-benefit analysis, required at that time by Paragraph B.D of Appendix I, which was intended to show that there are no items of reasonably demonstrated technology which should be added to the radwaste systems sequentially and in order of diminishing cost-benefit return, and to show that further cost-effective reductions in population doses cannot be accomplished.

On July 29, 1975, the Board received into evidence the interim Appendix I calculations of the Staff which result in "upper-bound" estimates of doses to the general public. The Board also received the Staff's revised NEPA evaluation and

^{2*}The Commission issued its decision regarding Appendix I on April 30, 1975, and the decision was announced in the *Federal Register* on May 5, 1975 (40 *Fed. Reg.* 19439), and new Appendix I became effective on June 4, 1975.

cost-benefit analysis of radiological impacts from normal operation of WNP-1 and WNP-4. (Staff Exhibits 5, 6, and 7.) In its Partial Initial Decision the Board noted that the question of compliance with Appendix I would be addressed at the radiological health and safety phase of the proceeding. (NRCL-75/7 at p. 154.)

On September 2, 1975, the Commission issued an amendment to Appendix I which became effective on September 4, 1975. The amendment provided the Applicant with the option of dispensing with the cost-benefit analysis required by Paragraph II.D of Appendix I if the proposed radwaste systems for WNP-1 and WNP-4 satisfy the Design Objectives for Light-Water-Cooled Nuclear Power Reactors contained in the Concluding Statement of Position of the Regulatory Staff (dated February 20, 1974) in the Appendix I rulemaking proceeding (NRC Docket RM-50-2). These design objectives are set forth in the Annex to the September 4, 1975 Amendment. (See *Fed. Reg.* 40818.)

On September 2, 1975, the Staff requested that the Applicant inform the Staff as to whether the Applicant would comply with Paragraph II.D of Appendix I or whether the Applicant would elect to dispense with the cost-benefit analysis required by Paragraph II.D and demonstrate compliance with the Annex to the September 4, 1975 amendment (Staff Exhibit 10). By letter dated September 19, 1975, the Applicant replied that it would exercise the option of demonstrating compliance with the Annex. Attached to the letter was certain information requested by the Staff relating to compliance with the Annex. (Applicant's Exhibit 22.)

The Staff evaluated the radwaste systems proposed for WNP-1 and WNP-4 for the reduction of radioactive materials released to the environment in liquid and gaseous effluents. Based upon the information provided in Applicant's letter dated September 19, 1975, and based upon more recent operating data applicable to WNP-1 and WNP-4 and upon changes in the Staff's calculational model, the Staff generated new liquid and gaseous source terms in order to calculate releases from the site by WNP-1, WNP-4, and WNP-2 (Stoddart, Attachments 1-4, Tr. Following p. 724). The source terms for WNP-2 (a BWR) were calculated using the Staff's current models and methodology to assure consistency in the Staff's determinations of the new source terms for site-related criteria. These source terms were utilized by the Staff to calculate the individual doses presented in its testimony. (Stoddart, Tr. following p. 724.)

Included in the Staff's assessment are dose calculations of pathways associated with liquid effluents released to the Columbia River with noble gases released to the atmosphere, and with radioiodines and other radionuclides released to the atmosphere. Based upon meteorological data collected at the site and upon atmospheric transport and dispersion models, the Staff calculated relative atmospheric dispersion values (X/Q) for noble gases and X/Q and deposition values (D/Q) for radioiodines and radionuclides for locations where dose calculations were required. (Kornasiewicz, Tr. following p. 720.)

Answers to Board questions concerning the nature of the underlying assumptions, on which the Staff's calculations were based, indicate that by and large the dose estimates are reasonably realistic. The Staff witnesses explained the concept of "maximum exposed individual" as one who, by virtue of his living and dietary habits, exceeds what might be called the average individual in a given population. It would then appear unlikely that the dose received by the individual would be exceeded by any individual; indeed, it seems likely that the average individual would receive a rather smaller dose.

The Staff witnesses agreed that there is some conservatism in assumptions relative to source terms in that they are more likely to be in error on the conservative side. Such assumptions though appear to be based on actual experience in operating reactors insofar as is practicable. (Tr. 959-70.)

Recognizing that data concerning radioactive effluents are being collected continuously at operating plants, and that environmental monitoring programs are being implemented, this Board would urge maximum use of this information to gain even better knowledge and perspective with respect to the impact of radioactive effluents on the populations in the vicinity of nuclear power plants.

B. ORGANIZATION AND MANAGEMENT

In the interest of obtaining some understanding of the WPPSS organization and of administrative systems, both existing and planned, the Board questioned members of WPPSS management to determine the views and plans of top management relative to the design, construction, and operation of a complex nuclear facility. It appears that WPPSS management is committed to the further development and maintenance of a strong, affirmative program to assure responsible design and construction and safety of operation, and is committed to considered and appropriate allocation of authority and responsibility. It further appears that WPPSS management is conscious of necessary interactions among organizational units, involving established checks and balances, in both headquarters and plant organizations. WPPSS management has adopted the concept of "management by assurance" which calls for full understanding of administrative systems required and full administrative attention to the functioning of those systems with regard to design, construction, and operation of WNP-1 and WNP-4. (Tr 854-83, 901-14, 918)

It appears to this Board that WPPSS management reasonably comprehends the organizational and managerial necessities regarding the design, construction, and operation of a nuclear power plant. It can only urge the continuing and unrelenting attention by management to these vitally important matters throughout the life of the facility.

The Board notes that Chapter 13.0 of the SER contains a description and evaluation of the proposed plant operating organization, and briefly mentions plans for technical support. There is, however, no explicit mention of evaluation

by the Staff of management's understanding of and role in the design, construction, and operation of the plant. That role is to organize, to allocate authority and responsibility, to develop administrative systems and procedures, including appropriate checks and balances, and to devote continual attention to making the total system work.

The Staff appears to place substantial reliance on the formulation and existence of a Quality Assurance program and organization. There is little doubt that a well organized and executed quality assurance program, such as is envisioned by Appendix B to 10 CFR 50, can help greatly to produce a high quality facility. But the success of any system depends on the ability of management to develop, and propagate, a responsible attitude toward safety, whether the subject involved is design, construction, or operation. The safety of operation of a plant depends, vitally, not only on the technical and operational groups at the plant, but also on the continual attention by management and headquarters technical and operational groups, all involving appropriate checks and balances.

Therefore, this Board would urge the Staff to review and evaluate the management and organization of each Applicant explicitly at the construction permit stage with the objective of determining, among other things, whether management is planning soundly and is properly preparing for the assumption of responsibility for safety of operation of its facility.²⁷

V. CONCLUSIONS OF LAW

1. The Board has reviewed the entire record of this proceeding, including the proposed findings of fact and conclusions of law submitted by the parties. All of the proposed findings and conclusions submitted which are not incorporated directly or inferentially in this Initial Decision are herewith rejected as being unnecessary to the rendering of this Initial Decision.

2. In the Partial Initial Decision issued on July 30, 1975, the Board made findings of fact and determinations and reached conclusions of law, regarding environmental and site suitability matters, and on certain safety issues. Thereafter in its Memorandum and Order issued on September 30, 1975, the Board made additional determinations regarding certain additional safety issues. The Board has considered these earlier findings, determinations, and conclusions, as well as all of the documentary and oral evidence of record in this proceeding. This consideration and a review of the entire record, including that portion of

²⁷ See discussion of organization and management in Mississippi Power & Light Company and Middle South Energy, Inc. (Grand Gulf Nuclear Station Units 1 and 2) LBP-74-64, RA1-74-R, p. 348 (August 30, 1974), and Niagara Mohawk Power Corporation (Nine Mile Point, Unit 2), LBP-74-43, RA1-74-6, p. 1046 (June 14, 1973).

the record created since the issuance of the Partial Initial Decision, have led the Board to the foregoing discussion and findings of fact, and to the conclusions of law stated hereinafter.

3. The Board concludes that the review of the application by the Staff has been adequate, and that the application and the record of the proceeding contain sufficient information to support findings by the duly authorized official of the Regulatory Staff (and the issuance of a construction permit based thereon for WPPSS Nuclear Project No. 1) to the same effect as the conclusions of law of the Board, as follows:²⁸

A. In accordance with 10 CFR § 50.35(a):

(1) The Applicant has described the proposed design of the facilities, including but not limited to the principal architectural and engineering criteria for the design, and has identified the major features or components incorporated therein for the protection of the health and safety of the public;

(2) Such further technical or design information as may be required to complete the safety analysis, and which can reasonably be left for later consideration, will be supplied in the Final Safety Analysis Report;

(3) Safety features and components, if any, which require research and development have been described by the Applicant and the Applicant has identified, and there will be conducted, a research and development program reasonably designed to resolve any safety questions associated with such features or components; and

(4) On the basis of the foregoing, there is reasonable assurance that (i) such safety questions will be satisfactorily resolved at or before the latest date stated in the application for completion of construction of the proposed facilities, and (ii) taking into consideration the site criteria contained in 10 CFR Part 100, the proposed facilities can be constructed and operated at the proposed location without undue risk to the health and safety of the public.

B. The Applicant is technically qualified to design and construct the proposed facilities.

C. The Applicant is financially qualified to design and construct the proposed WNP-1 facility.

D. The issuance of permits for construction of the facilities will not be inimical to the common defense and security or to the health and safety of the public.

²⁸ With the exception of Conclusion of Law C, all conclusions of law herein apply to both WNP-1 and WNP-4. The Board has deferred consideration of the financial qualifications of the Applicant to design and construct WNP-4 and therefore makes no conclusion of law with respect to the financial qualifications issue for WNP-4. Thus, the Board will not authorize the issuance of a construction permit for WNP-4 at this time. Accordingly, Conclusion of Law C applies only to WNP-1.

4. As we concluded in our Partial Initial Decision dated July 30, 1975, in accordance with 10 CFR Part 51 of the Commission's Regulations, the Board concludes:

a. The environmental review conducted by the Staff pursuant to the National Environmental Policy Act of 1969 ("NEPA") as further augmented and modified herein is adequate.

b. The requirements of Sections 102(2)(C) and (D) of NEPA and 10 CFR Part 51 of the Commission's Regulations have been complied with in this proceeding.

c. The Board has independently considered the final balance among conflicting factors contained in the record of the proceeding, and has determined that appropriate action to be taken is issuance of construction permits for WNP-1 and WNP-4,²⁹ subject to the conditions for the protection of the environment recommended by the Staff (FES, p. ii), and set forth in the Partial Initial Decision.

VI. ORDER

Based upon the Board's findings and conclusions, and pursuant to the Atomic Energy Act of 1954, as amended, and the Commission's Regulations, IT IS ORDERED that the Director of the Division of Reactor Licensing, Office of Nuclear Reactor Regulation, is authorized to issue to the Washington Public Power Supply System a permit to construct WPPSS Nuclear Project No. 1, consistent with the terms of this Initial Decision, substantially in the form of Attachment A hereto. [Attachment A is omitted from this publication but is available at the NRC's Public Document Room, Washington, D. C.]

IT IS FURTHER ORDERED, in accordance with 10 CFR §2.760, §2.762, §2.764, §2.785 and §2.786 that this Initial Decision shall become effective immediately and shall constitute with respect to the matters covered therein the final action of the Commission forty-five (45) days after the date of issuance hereof, subject to any review pursuant to the Commission's Rules of Practice. Exceptions to this Initial Decision may be filed by any party within seven (7) days after service of this Initial Decision. Within fifteen (15) days thereafter [twenty (20) days in the case of the Staff] any party filing such exceptions shall

²⁹ See n. 28, at p. 50.

file a brief in support thereof. Within fifteen (15) days of the filing of the brief of the appellant [twenty (20) days in the case of the Staff], any other party may file a brief in support of, or in opposition to, the exceptions.

THE ATOMIC SAFETY AND LICENSING BOARD

Marvin M. Mann, Member
Donald P. deSylva, Member
Robert M. Lazo, Chairman

Issued at Bethesda, Maryland
this 22nd day of December, 1975.

[Appendix A (Decisional Record) and Attachment A (Construction Permit C-PPR-134) are omitted from this publication but are available at the NRC's Public Document Room, Washington, D. C.]