

BEFORE THE WASHINGTON STATE ENERGY FACILITY
SITE EVALUATION COUNCIL

*Amended by Council
Order No 506 dated
7-26-76*

In the Matter of Application)
No. 73-2 of the)
WASHINGTON PUBLIC POWER)
SUPPLY SYSTEM)
A Municipal Corporation of)
the State of Washington)
.)

FINDINGS OF FACT,
CONCLUSIONS OF LAW,
AND ORDER

This matter came on regularly for hearing on August 5, 1975, in Elma Washington, pursuant to notice duly given, before the Washington State Thermal Power Plant Site Evaluation Council. The Council's hearing examiner was John von Reis. The hearings commenced on August 5, 1975, and were concluded on November 12, 1975. Testimony was taken in both Elma, Washington, and Olympia, Washington. Testimony from members of the public was taken at both Elma and Olympia in the course of the hearing.

The parties were represented as follows:

APPLICANT: WASHINGTON PUBLIC POWER
SUPPLY SYSTEM
by Richard Quigley
Attorney at Law
3000 George Washington Way
Richland, Washington 99352

and

By John Riley
Attorney at Law
900 Hoge Building
Seattle, Washington 98104

COUNCIL FOR THE ENVIRONMENT
By Malachy R. Murphy
Deputy Attorney General
Temple of Justice
Olympia, Washington 98504

CITIZENS FOR A SAFE ENVIRONMENT
By James E. Duree
Attorney at Law
P.O. Box 483
Westport, Washington 98595

GRAYS HARBOR NUCLEAR ENERGY COUNCIL
By John Stevens
P.O. Box 38
Satsop, Washington 98583

DEPARTMENT OF ECOLOGY
By Charles B. Roe
Assistant Attorney General
Temple of Justice
Olympia, Washington 98504

DEPARTMENT OF FISHERIES
By Donald E. Hayen
Assistant Attorney General
Temple of Justice
Olympia, Washington 98504

DEPARTMENT OF GAME
by Dennis Reynolds
Assistant Attorney General
Temple of Justice
Olympia, Washington 98504

The Department of Fisheries was represented in post hearing matters by Donald Hayen, Assistant Attorney General, Temple of Justice, Olympia, Washington 98504 and Dennis Reynolds, Assistant Attorney General, Temple of Justice, Olympia, represented the Department of Game.

Mr. Darrel Peeples, Assistant Attorney General from the Council, participated in the October 29, 1975, public testimony session conducted at Elma, Washington.

Having considered the evidence and record in this matter, the Council makes the following findings of fact and conclusions of law.

FINDINGS OF FACT

1. On December 17, 1973, the Washington Public Power Supply System ("WPPSS" or "the supply system") filed with the Thermal Power Plant Site Evaluation Council an application, subsequently amended, for site certification for its nuclear electric generating projects No. 3 and 5. The proposed site, applicant seeks to have certified, is located approximately two miles south of the town of Satsop in Grays Harbor County, State of Washington and is illustrated in Figure 100(1) of the application.

Project Description

2. Applicant described the metes and bounds of the plant site and appurtenant facilities in the course of its application proceedings.

3. The two nuclear fueled steam supply systems applicant proposes to construct at the site would have a net electric generation capacity of approximately 2480 megawatts.

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4. The plant site is located in the southeastern portion of Grays Harbor County south of the Chehalis River at a point approximately one mile southeast of the confluence of the Chehalis and Satsop Rivers. The project site has been devoted principally to tree farming and is characterized by undulating topography that is non-conducive for extensive agriculture or commercial purposes.

The climate of the region surrounding the project site is characterized by warm, generally dry, summers and wet, mild winters. Sections of the Willapa Hills protect the site from the strongest coastal winds. The prevailing wind direction is generally west to south southwest, with local deviations.

The site is located near the northern limit of the Willapa Hills. Foundations for primary facilities of the proposed project would rest on tertiary formations associated with and part of the Astoria Formation.

The site itself is unpopulated. The surrounding areas are sparsely populated. The nearest sizable population concentration is found at the town of Satsop, approximately two miles north of the exclusion zone's northern perimeter (The exclusion zone is described below). Approximately 225 people reside at Satsop.

The proposed project perimeter would be two miles from the nearest major state highway and would be separated both from

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densely populated areas and from known present or future industrial areas in the region.

5. Applicant proposes to construct two pressurized water nuclear electric generating units at the site, together with certain associated facilities. The major components of the two unit project will consist of reactor auxiliary buildings, turbine generator buildings, warehouses and machine shops, administrative buildings, water treatment plants, cooling towers, intake and discharge pipeline systems and structures, associated access roads, and an access railroad.

The estimated total construction cost of the project, including net financing costs during construction of the two unit plant, is \$1,997,200,000.

6. The existing roads and railroads which would be utilized for access to the proposed projects include U.S. Highway 12, which is a four-lane divided highway passing approximately three miles north of the site in an east-west direction; Chicago, Milwaukee, St. Paul and Pacific and the Union Pacific Railroad tracks, approximately one mile north of the site along the south bank of the Chehalis River; county roads in the vicinity of the proposed site, which together with private logging roads, connect with U.S. Highway 12 at several locations, more particularly described in Exhibit 1.

To provide access during construction and operation of the proposed projects, applicant will modify Wakefield Road, an existing county road which connects U.S. Highway 12 to south Elma, and will modify and extend Lambert Road, which connects south Elma to the project site in the manner described on Exhibit 1. Applicant will also construct an access railroad right-of-way, which will connect with the existing Chicago, Milwaukee, St. Paul and Pacific-Union Pacific tracks at the location shown in Exhibit 1. The railroad right-of-way will also serve as the right-of-way for intake pipelines for cooling water to be withdrawn from a system of wells applicant intends to install on the south bank of the Chehalis River in the south east quarter of section 10 and in the north half of Section 15, Township 17 North, Range 7 West of the Willamette Meridian. Applicant also intends to construct a barge slip on the south side of the Chehalis River approximately 2.2 miles upstream from the south Montesano highway bridge. Necessary grading and temporary road construction will permit off-loading of materials from barges and transportation of materials to the project site. The roadbed must be so constructed as to accommodate transporters used to move nuclear steam supply system components and any other materials so moved from the barge slip to the proposed site. Within the proposed site applicant will relocate certain existing county roads. Maintenance of modified, extended or relocated county roads during construction will be provided pursuant to agreements between applicant and Grays Harbor County.

7. The applicant is a joint operating agency of the State of Washington, established pursuant to RCW, Title 43, Chapter 52. Participants in the agency include 18 Washington state public utility districts and the municipalities of Seattle, Tacoma, and Richland, Washington.

Applicant proposes to undertake the projects to meet the needs of its member public utility districts and municipal power systems. Applicant has chosen this type of project to achieve an economy of scale not realizable if its members were individually to construct generating facilities.

In addition to Supply System members, participants in the proposed projects or their output include the Washington Water Power Company, Pacific Power and Light Company, Puget Sound Power and Light Company, and the Portland General Electric Company, together with certain municipal power systems, rural electric cooperatives, and public utility districts situation in the state of Washington and the states of Oregon, California, Nevada, Utah, Wyoming, Idaho, and Montana. The private utility companies above named will in combination own 30% of proposed project No. 3 and may participate in like amount in the output of proposed project No. 5. Supply system members and other participants which would use power generated by the projects will subscribe for individual percentage shares of the proposed projects related to various members' projected consumer needs within their respective distribution areas during project life. Individual participants will make payments in consideration of energy

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to be supplied them by the projects. Each participant is expected to enter into arrangements with the Bonneville Power Administration System for wheeling distribution and/or exchange of such power within the Bonneville Power Administration System. The need of individual participants in the projects is a function of individually projected loads and resource projections, which are in turn related to regional loads and resource projections.

Participants who distribute electric energy within the State of Washington have contracted for a majority of the output of both plants. However, at the time the plants come on line, any participant may sell all or a portion of its share of purchased output to other in-state or out-of-state distribution groups.

When a project the size of those herein considered comes on line, it creates in a short period of time a substantial block of power in addition to that previously consumed in the regional grid. For a period of time after a project comes on line, there is then normally available a surplus of power over that required by distributive organizations such as the participants in proposed projects 3 and 5. Applicant is presently contracting to sell output not required by participants as available from the proposed projects directly to industrial electric energy consumers at the same price charged or credited the projects' participant distributor organizations.

Financing and output marketing methods differ between the two projects. The ownership of proposed project No. 3 is

anticipated to be 70% public and 30% private. Participants in this project will obtain a right to the project's output. The participants must contract to pay the Supply System for the cost of operation plus debt service for project No. 3. The money so paid is credited to the participant's Bonneville Power Administration bills. Power from the project will be added into the Bonneville grid. When participants take the power from the grid at these points where their distribution systems begin, they will receive credits corresponding to the amounts paid applicant against their power purchase bills incurred with the Bonneville Power Administration.

The "net billing" arrangement described immediately above, which will be used to finance and to market output from project No. 3, has not been employed in financing and marketing arrangements for project No. 5. Eighty per cent of the No. 5 project is expected to be publicly owned. Twenty percent is expected to be privately owned. Participants in project No. 5 will buy plant output directly from the supply system, and thereby obtain a direct right to power purchased, although power will in most cases be transmitted through the Bonneville grid. The present marketing arrangements for project 5 output do not involve power sales to or power purchase from the Bonneville Power Administration.

The Washington Public Power Supply System has responsibility for raising capital for both projects. As of the time

of hearing on this application, the Supply System had sold some \$29,000,000 worth of bonds for project No. 3 and has issued \$100,000,000 worth of bonds with discretion to apply a portion of the capital obtained to financing project No. 5.

8. The most reliable present projections, for an annual regional electric energy demand growth of approximately 5.6% per year over the next 15 years, indicates that the energy to be supplied by the proposed projects will be needed to avoid anticipated Northwest electrical energy shortages.

The cost of power to be generated by the projects has been described in the proposal. After the price charged for power generated by the proposed projects is melded with the price charged for presently available, inexpensive, hydroelectric and other power produced in the region, the overall cost of electric energy in the northwest will remain low.

9. Substantial plant investment is attributable to environmental protection systems. Present construction cost estimates, including cost of money during construction, indicate that approximately \$35,589,000 is planned for construction of environmental consideration systems. These costs will be incurred in satisfaction of governmental requirements. The anticipated annual cost of programs intended to protect or enhance the environment during project operation, including the cost of all environmental monitoring programs, safety programs, as well as replacement of

environmentally oriented and safety programs, is \$1,421,000 per year.

10. Project construction would likely commence immediately upon site certification. Initial operation of the first unit (WPPSS No. 3) is anticipated in 1981. Applicant still must furnish a projected schedule, stated in months, of the time necessary for completing those project-related environmental studies not yet concluded.

Site Characteristics

11. Applicant has furnished a legal land description in its application and has likewise provided a statement of ownership interest in the proposed site for all primary and supporting facilities.

12. Applicant has furnished land use plans, zoning status, and surveys of land occupancy and land uses in the region surrounding the site and including the site. The Grays Harbor Planning Director has attested that the currently effective land use classification at the site permits site use for electric power plants. Public hearings were commenced on February 11, 1974, to determine whether or not the construction and operation of the project would be consistent with and in compliance with county and regional land use plans and zoning ordinance No. 38, as amended, of Grays Harbor County.

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13. Subsequent to entry of the Council's February 25, 1974, order finding and declaring that construction and operations on the proposed site would be consistent with area land use plans and zoning ordinances, applicant provided additional legal descriptions of the proposed locations of the power plant, related and supporting facilities, and certain associated transmission lines.

14. Additional public hearings were held on August 6, 1975, to determine whether or not the proposed locations of site-related and supporting facilities and the first 2,000 feet of transmission lines associated with the project were consistent with and in compliance with applicable land use plans and zoning ordinances in effect on the date of the original application. Construction and operation of the power plant, related and supporting facilities, and the first 2,000 feet of transmission lines at locations described in the application (Section 105, as amended, Figure 105(1) and Exhibit 1 in this proceeding) are consistent and in compliance with existing land use plans and zoning ordinances in effect in Grays Harbor County on the date of the application and on August 6, 1975. The Council has made no determination regarding whether or not affected land which would carry associated transmission lines beyond the first 2,000 feet are now zoned so as to permit their use for transmission lines.

15. The Council finds that future adjustments, if any, of locations of the power plant or related and supporting facilities

within the project site, will be, in their entirety, zoned in a manner compatible with applicant's proposed uses thereof, and in compliance and consistent with land use plans and zoning ordinances in effect in Grays Harbor County for said areas on the date of application and the dates of hearings conducted by the Council.

Associated Transmission Lines

16. Associated transmission lines to be constructed to operate at voltages in excess of 200,000 volts to connect the proposed project to the Northwest Power Grid will consist of two 230 kv and two 500 kv transmission lines, each of which is about 2,000 feet long. Said associated transmission lines will connect the project power plants with a new Bonneville Power Administration switchyard approximately 2,000 feet from the project generating buildings. These associated transmission lines are situated within the immediate plant site area which will be cleared to accommodate construction of primary facilities on the project.

17. The Council finds that the Bonneville Power Administration has final responsibility and jurisdiction for selecting the manner of and routing for additions to the Northwest Power Grid that will provide transmission line capability for transporting power produced by the facilities in this project to the load centers utilizing this power. The present capacity of the transmission lines within the existing transmission corridor be-

tween the proposed project site and the new BPA switchyard and Olympia are inadequate to provide transmission capability necessary to transport and distribute the energy produced by the facilities in the project and other previously anticipated regional needs.

18. The applicant has offered detailed evidence and data concerning criteria for power line routing and construction and design criteria that have been under consideration by the Bonneville Power Administration with respect to the extent of and location of improvements to the Northwest Power Grid. Approximately seventy (70) miles of new transmission lines must be constructed as a result of the output of the proposed projects, if the output is to be connected with and integrated into the Northwest Power Grid. The attendant environmental impacts are described in the "Satsop Integrating Transmission Supplement to the Environmental Statement, Fiscal Year 1976 Proposed Program" of the United States Department of Interior, Bonneville Power Administration. The Council has considered this document and finds that the various alternative routes described follow current environmental siting criteria although minor alterations in some areas of the alternatives will be considered by the BPA.

19. The Council further finds that substantial improvements to the Northwest Power Grid between Olympia and Aberdeen, Olympia and Chehalis will be required in the future in order to accommodate load growth anticipated by the BPA, whether the Satsop

projects are built or not; and that, in any case, consideration of multi-purpose utilization of rights of way as they presently exist and measures anticipated to be employed to restore, or rehabilitate disturbed areas are provided for in standards of the BPA used for location and construction of transmission lines.

Health and Safety

20. The supply system's proposal for construction and operation as set forth in the application as amended and described in hearings held on this application, subject to condition of the certification agreement, attached hereto, assures that members of the public will be able to safely utilize land in the areas over which the applicant exercises control and to which public access will be allowed. Applicant further assures that members of the public will be able to safely utilize the Chehalis River in the area of the plant blowdown discharge line and diffuser without fear of danger to health and/or equipment used while on the Chehalis River.

21. Methods of plant construction and operation as described in the record of hearings held on this matter, are sufficient to insure compliance with federal, state and local health and safety standards.

22. Applicant has supplied background radiation levels of appropriate receptor media pertinent to the site.

23. Applicant has described radioactive waste treatment processes, anticipated releases of radionuclides, the expected distribution and retention of radionuclides in the environment, the pathways which may develop to become sources of radiation exposure, and the estimates of resulting probable radiation dosages to human populations associated with operations conducted in accordance with applicant's proposal. Subject to the terms or conditions of the site certification agreement attached hereto, the proposed projects would produce radiation doses during plant operations at levels producing minimal adverse effects on the environment, ecology of the land and its wildlife, and the ecology of state waters and their aquatic wildlife.

24. During normal plant operations, the estimated average resulting radiation dose to a human being stationed on the plant perimeter approximately 4,300 feet from the nearest reactor, 24 hours a day, 365 days a year, would be less than one millirem (mr) per year.

25. The radioactive waste treatment processes to be employed for management and control of gaseous and liquid radionuclides and relative operational safeguards are at minimum consistent with and in compliance with Nuclear Regulatory Commission standards (Appendix I, 10 CFR 50). These radioactive waste treatment processes will achieve a release of radionuclides as low as practicable and are technically sufficient for the welfare and protection of citizens of the state of Washington. As de-

terminated in the Councils April 26, 1976 order, and as stated in the Council's NPDES permit attached to that order, no liquid containing radionuclides may be freely discharged from the project to state waters during normal operations.

26. Many of the proposed project's water intake facilities, water discharge facilities, and other facilities, either directly associated with the project or supporting the project during construction or operation phases, are proposed to be built in the flood plain of the Chehalis River. The plain is subjected to regularly recurring severe flooding. All portions of the proposed project and its associated or supporting facilities located within the 100-year flood plain of the Chehalis River must be constructed in strict adherence to all federal, state and local flood plain zone design, construction and operational standards.

27. Applicant has submitted a satisfactory preliminary description of emergency plans, which plans when complete will be intended to assure public safety, both on and off the site, in the event of a natural disaster, nuclear incident, or nuclear accident.

Further, as delineated in applicant's proposal, there apparently is adequate protection of plant facilities against damage from tsunamis, natural disasters other than those associated with flood waters, and threats of sabotage or vandalism.

Environmental Impact - Land

28. As modified by orders, permits and conditions issued by the Council in the course of its consideration of this matter, applicant has described satisfactory procedures in its proposal for minimizing erosion during excavation of borrow pits, disposal of surplus excavation material, and construction of earth fill to locations of activities. The quantities involved in such activities authorized by this and other orders issued by the Council in the course of its considerations herein have been described in the course of the application.

29. As modified by the NPDES permit issued by the Council on April 26, 1976, measures proposed to be employed by the applicant to restore landscape areas disturbed during construction, including temporary roads, are satisfactory and are consistent with guidelines of the Council and criteria for protection of the environment.

30. Applicant has agreed that temporary and permanent roads constructed in connection with the proposed project will, at minimum, be built to the requirements of state and county standards for such roads.

31. The applicant has submitted the results of a comprehensive geologic evaluation defining conditions of the site.

These results have focused particular attention on the nature of foundation materials and on recorded and potential seismic activities.

32. The Astoria formation, on which foundations for primary project facilities would rest, is a geologic formation separate and distinct from the Puget Sound formation. The foundation of structures will be on fresh sandstone at approximately 320 feet above sea level, thus, the site is not susceptible to liquefaction. The site is geologically suitable for the construction and operation of the proposed projects and will not be affected adversely by any likely potential earthquakes occurring within 200 miles.

33. The applicant's evaluation indicates that the most severe earthquake stress likely to be imposed on the site (safe shutdown earthquake) would be caused by quakes occurring on the Olympia Lineament, which, at its nearest point, approaches to within twenty-two (22) miles of the site. This postulated quake is essentially a replication of the 1949 Olympia earthquake, assumed to be centered on that portion of the Olympia Lineament nearest the site and with a 7.5 magnitude on the Richter scale. Such a quake would produce a peak horizontal base rock acceleration of .32 gravity at the site. The peak horizontal acceleration associated with an operating basis earthquake is .16 gravity. The estimated maximum base rock acceleration recently experienced at the proposed site is the estimated .11 gravity produced by the magnitude 7.1 earthquake which did occur near Olympia in 1949.

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34. The design basis for vibratory ground motion of .32 gravity is a reasonable design basis, considering the site location and the foundation material.

Environmental Impact - Water

35. Within its statutory mandate, the Department of Ecology conducted a study to determine water resources management policy for the Chehalis River Basin. Although the department had not adopted the findings, the study indicated in part that a base flow of 550 cubic feet per second must be maintained in that portion of the Chehalis River immediately above river mile 20.5. River mile 20.5 is located approximately three miles upstream from the proposed area of water withdrawal facilities for applicant's project. No significant tributary river inflow occurs between the withdrawal area and river mile 20.5. However, the Department of Ecology has set no base flow level for the area of withdrawal because of tidal influences in the river below river mile 20.5. RCW 90.54.020(3)(a) defines base flow as those flows necessary to provide for the preservation of wildlife, fish, scenic, aesthetic and other environmental values and navigational values.

New applicants seeking permits from the Department of Ecology to appropriate water for consumptive purposes from streams for which base flows have been established may, upon the satisfaction of other criteria, be permitted to divert water only

when river flow exceeds established base flows. The new appropriator may consume no water below base flow levels.

36. The project as proposed would include cooling water supply and makeup sources from well water sources along the south bank of the Chehalis River at a point approximately midway between the confluence of the Chehalis and Satsop Rivers and the confluence of the Chehalis and Wynoochee Rivers. The wells and the pumping and pipeline facilities connecting the intake areas to the project cooling system will be designed to provide a maximum instantaneous withdrawal rate of eighty (80) cubic feet per second. The maximum daily average evaporation rate for both project units using worst day data (July 3, 1965, Olympia) is approximately sixty-two (62) cubic feet per second. Instantaneous evaporation rates may at times exceed 62 cubic feet per second. A maximum of 16 cubic feet per second will become blowdown discharged from cooling tower recirculating water systems when necessary to control recirculating cooling water chemistry concentrations. This blowdown will be returned through a diffuser to the Chehalis River. The diffuser will be located upstream of the proposed intake facilities.

37. The up to 80 cfs water required for makeup water purposes will in effect be withdrawn from wells supplied from an aquifer closely related to the Chehalis River. Water withdrawn for the proposed projects' use must be continuously

metered and recorded. Applicant has proposed a separate well supply system for potable and construction water supply. A maximum of 1,000 gallons per minute for construction uses has been predicted. Potable water needs from the same system after construction has been completed is estimated to be 7 gallons per minute.

38. Cognizance must be taken of the Department of Ecology's establishment of a base flow for river mile 20.5, the desirability of preservation of those values sought to be protected by the establishment of base flows, insofar as they exist in areas of the Chehalis River subject to tidal influence, and the State's exclusive prerogative to establish regulations attendant upon the construction and operation of the proposed project. Therefore, it is found that applicant should not, at any time, withdraw water either directly from the Chehalis River Basin or from adjoining bodies of water in such manner as to cause the Chehalis River to flow at a rate of less than 550 cubic feet per second, exclusive of tidal influences.

39. Not including potable and construction water needs, the Council finds that withdrawal from well water supplies shall not exceed 80 cubic feet per second of water from the Chehalis River Basin for use in operation of these proposed projects.

40. During the life of the plant, it is not anticipated that applicant's withdrawal of water under circumstances described in findings of fact no. 35, 36, 37, 38, and 39 above would have appreciable adverse effect on other ground water users near the intake area. However, in the event that applicant's withdrawal of up to 80 cfs water in connection with its plant operation has an adverse effect on such ground water users, applicant agreed to make full compensation to the adversely affected users, and the taking of measures necessary to prevent recurrence of such adverse effects.

41. Withdrawal of water for the proposed projects in the manner described in findings 35, 36, 37, 38, 39, and 40 above would be consistent with the Department of Ecology's water resources management policy plan for the Chehalis basin as presented to the Council in the course of hearings held in this matter.

42. Withdrawal of up to 80 cfs of water in connection with operation of the proposed project in the manner described in findings of fact no. 35, 36, 37, 38, 39, and 40, above, will not interfere with the rights of any present appropriator or owner of surface waters of the Chehalis River or any tributary in the vicinity of the plant or intake area.

43. Applicant has considered multi-purpose use of cooling water in the course of structuring its application.

44. Withdrawals of up to 80 cfs of water from the Chehalis River basin in connection with operation of the proposed plant made in the manner described in findings of fact No. 35, 36, 37, 38, 39, and 40, above, will comply with laws and regulations relating to water quality and water management for waters of the state of Washington.

45. The Wynoochee River flows into the Chehalis at a point approximately five miles downstream from the proposed location of the proposed project's intake facilities. The Army Corps of Engineers has constructed the Wynoochee Dam to control the flow of the Wynoochee River.

The City of Aberdeen has appropriated rights to approximately 300 cubic feet per second of regulated flow from the Wynoochee River. Applicant has agreed to purchase 62 cubic feet per second of this from the City of Aberdeen and allow that to be released to the Wynoochee bed below the diversion dam to augment the 50 cubic feet per second release already required under a contract between the Corps of Engineers and the City of Aberdeen. This effort will maintain a guaranteed minimum Wynoochee low flow of 112 cfs below the diversion dam.

Since the 62 cfs applicant intends to purchase is not consumed at present, applicant's purchase will not add to the total net water flowing from the Wynoochee into the Chehalis at the present time. However, the intended purchase, if and when accomplished, would assist in future maintenance of Chehalis River water quality below the Wynoochee confluence.

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46. The use of Wynoochee water proposed by the applicant is compatible with the Department of Ecology's water resources management policy for the Chehalis River Basin as presented to the Council and is in accord with laws and regulations relating to water quality and water management for the waters of the state of Washington.

47. The application herein considered contains material pertaining to the environmental impact of discharges made from the proposed project to water. Within the scope of its responsibilities, the Council, on April 26, 1976, issued findings of fact, conclusions of law, and order and a National Pollutant Discharge Elimination System permit, which documents comprehensively analyze proposed discharges to water in accordance with provision of WAC 463-12-125 and other criteria and set forth conditions under which proposed discharges may be made in a manner consistent with federal, state and local water quality and other relevant environmental criteria. Matters dealt with in the April 26, 1976, NPDES order and permit include waste heat dissipation methods, offstream cooling facility plans, outfall configurations and locations, resultant effluent distribution characteristics, hydrographic studies of temperature, physical and water chemistry characteristics of the receiving waters that may influence waste discharge, dispersion and reconcentration, background water quality data pertinent to the site, surface water runoff control methods, erosion control methods, known available and reasonable waste prevention and treatment

methods, flow diagrams and design criteria for waste systems, specific as to sources, amounts, and characteristics of all liquid and water borne wastes, and the conceptual design for waste treatment and disposal.

48. All construction activity connected with the project or with related or associated facilities conducted in stream channels or on stream banks must be confined to the period from June 1 through September 15 unless Council shall, upon appropriate showing, make specific approval of a different time for conduct of a particular construction activity.

49. No radiological waste will be discharged during normal plant operations into the Chehalis River or its tributaries.

50. No operational discharges whatsoever may be made from the proposed plants to waters of the Chehalis River when either the net instantaneous river outflow is less than 550 cubic feet per second or when instantaneous river velocities are less than 1.0 foot per second at the diffuser location.

51. Applicant's mixing zone, proposed during the NPDES permit proceedings held in this matter would impact the river during low flow periods critical to the success of fish migrations and is unacceptable to the Council as a means of maintaining or enhancing water quality.

52. Many of the facilities applicant intends to construct in connection with the proposed projects and much of the construction work entailed in the building and placing of these facilities will be conducted within the Chehalis River flood zone. The flood zone is subject to severe recurrent floods potentially damaging to structures of projects located on the flood plain. All plans, all bid documents, and all actual work and resultant facilities constructed for the proposed project within the 100 year flood plain of the Chehalis River must comply with flood control requirements of the Department of Ecology and with federal, state and local flood zone standards.

53. The water intake structures applicant proposes to install are not expected to have adverse effects upon populations of aquatic biota. Should monitoring establish that water intake facilities, in fact, have deleterious effect upon aquatic biotic populations, said water intake facilities must be modified as the Council specifies.

Environmental Impact - Air

54. The proposed projects will produce nominal emissions from standby emergency generators, auxiliary plant boilers, and comfort ventilation, as well as periodic small exhaust from shop and maintenance areas, during operation. Similarly nominal emissions may occur during construction from construction equipment. Applicant has agreed to conduct open burning of construction

wastes in conformance with the requirements stated in WAC 18-12-040 and other relevant criteria. Emissions described in this paragraph are subject to federal new source performance standards, and emissions are permitted only upon the application of control methods described in the course of the record of this proceeding. Those emissions will be in compliance with air pollution control standards.

55. Gaseous wastes generated during plant operations in the primary coolant system, secondary system, and reactor auxiliary building will be managed and controlled respectively by a gaseous waste management system, a mechanical vacuum pump, and building ventilation and purge systems. All gaseous wastes will be subjected to systems for cleaning and filtration and absorption of gaseous radionuclides in a manner consistent with state of the art standards promulgated by the Nuclear Regulatory Commission. Applicant's proposed procedures for management and control of the gaseous waste management system and building ventilation and purge systems will be in accordance with highest and best practicable containment emission control technology and must in no event result in a release of elements and quantities thereof exceeding current NRC standards.

56. Applicant's programs for design, testing and maintenance of atmospheric clean-up systems, air filtration and absorption units, must be conducted pursuant to standards set forth in Regulatory Guide 1.52 of 10 CFR, Part 50, as currently promulgated or hereinafter amended by the Nuclear Regulatory Commission.

Applicant has identified pathways subject to atmospheric cleanup systems and air filtration and absorption units. The technology for atmospheric cleanup systems and air filtration and absorption units herein described reasonably assures management, control and filtration of gaseous wastes generated during plant operation at levels below the limitations on such emissions established by the Nuclear Regulatory Commission.

57. The applicant has provided data reflecting site air quality and meteorological conditions, including wind direction patterns, rainfall, temperature regimes, and topographic information sufficient to permit the Council to draft site certification for which such air quality and meteorological information is essential.

58. Vapor plumes created by operation of the proposed cooling towers will extend less than three miles for more than 80% of the time cooling towers are operated. Vapor plumes will extend less than two miles more than 70% of the time proposed cooling towers would be operated. Drift of vapor from the cooling towers will result in some misting in the immediate plant vicinity. Neither the length or elevation of plumes nor the amount of drift from towers will ordinarily have a significant effect on visibility, nor will the heat or moisture dissipated to the atmosphere add a perceptible increase to normal levels of fogging, misting or icing at ground levels. On clear or partly cloudy days, vapor plumes will be visible from Highway 12 or from the towns of Satsop or Elma, Washington.

On occasion plumes may extend to points directly over the towns of Satsop or Elma, Washington.

Environmental Impact - Vegetation, Fish and Animal Life

59. In its application, applicant has described the location and quantities of terrestrial vegetation, animal life, and other receptive media. Applicant has provided a generalized description of species of aquatic vegetation, fish, and other aquatic life which might potentially be affected by design, construction, operation and maintenance of the proposed plant and associated transmission lines.

60. Construction of the project and related and associated facilities will cause temporary loss of terrestrial vegetation, temporary loss or movement of present populations of animal life, and temporary loss of habitat in construction zones. The construction, operation and maintenance of the proposed plant, related facilities, and associated transmission lines, if accomplished in strict accord with terms stated in this order, the certification agreement attached hereto, and the Council's order and NPDES permit issued April 26, 1976, in this matter, are not expected to have lasting significant or measurable impacts on either the terrestrial vegetation, animal life, or other receptor media or aquatic vegetation, fish or other aquatic life. River construction or construction related disruption of tributaries to the Chehalis River on the south bank of the river may temporarily affect resi-

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dent or anadromous fish, other biota, and aquatic vegetation, but will, if conducted subject to conditions identified in this order, the attached certification agreement, and the Council's April 26, 1976, NPDES order and permit, provide reasonable and required protection for such aquatic vegetation, fish and other aquatic life.

61. In proposing its discharge facility, applicant did not make specific provision for fish protection measures intended to minimize fish attraction, to bypass fish safely to the natural waters, or to assure maximum protection to the resource. However, in its NPDES permit issued April 26, 1976, the Council has imposed conditions on the proposed discharges obviating the need for fish protection measures of the types specifically described in WAC 463-12-135(4). Normally, wells located near a river bank do not need fish protection measures and do not attract fish.

62. The monitoring programs required in the April 26, 1976, NPDES permit and in the Site Certification Agreement attached to this order, will effectively sense and measure project effects on terrestrial and aquatic receptor animal life, fish, and other aquatic life. In the event that such monitoring indicates any significant past, present or future disruption or impact upon terrestrial or aquatic receptor animal life, fish, or aquatic life caused by construction or operation of this project, the replacement and/or compensation provisions stated in the certification agreement attached hereto and powers of the Council under chapter 80.50 RCW will provide adequate means to mitigate such impacts or losses.

Environmental Impact - Aesthetics

63. If constructed and operated in strict accordance with terms stated in this document and in the Site Certification Agreement and the April 26, 1976, NPDES order and permit noted, the proposed plant and related facilities will be located and designed to assure that the physical appearance of the installation will be aesthetically compatible with its surroundings.

Environmental Impact - Recreation and Heritage

64. The applicant has made an inventory of historical and archaeological sites in the vicinity of the plant. None are known to exist within the proposed site boundaries including the first 2,000 feet of the transmission line. However, the great majority of the approximately 70 miles of transmission corridor length not inventoried was within or immediately adjacent to the existing previously noted Bonneville Power Administration transmission line corridor running between Olympia and the Aberdeen-Hoquiam area. Applicant has agreed to maintain a historical and archaeological site monitoring program to provide for preservation interpretation of any finds of historical or archaeological data in the course of construction of the project.

65. Construction of the project will result in improvement of roads in the immediate vicinity of the project. Applicant will establish a visitors' center for citizens interested in the

operation of the project. Property associated with intake facilities and discharge facilities along the Chehalis River and areas between the Chehalis River and the plant site proper and the screening areas surrounding the plant site proper will constitute public domain available for game and wildlife production.

66. Applicant proposes to construct a barge facility at a point on the south bank of the Chehalis River. In addition to any other conditions imposed on construction of the barge slip by this order, the Site Certification Agreement attached hereto or other permits of a similar nature during the course of this project, applicant must construct and maintain the barge slip in such manner as to minimize the adverse effects upon property on the opposite bank of the Chehalis River.

67. Construction and operation activities of the proposed project accomplished in accordance with terms stated herein and in the Site Certification Agreement and NPDES permit attached hereto, are not expected to cause loss or damage to recreational opportunities or facilities in the project influence area.

Monitoring and Future Studies

68. The applicant has agreed to continue to gather research data on biological, ecological, and meteorological, geological, hydrological, and general environmental data related to all phases of the projects. Such continued monitoring and studies

conducted by the applicant will be made available to interested state and local agencies through the Council and will be reported to the Council on a regular basis.

69. All pre-operational and operational monitoring programs will be developed and implemented in close consultation with the Council. Modification of monitoring programs necessary to achieve program purposes may be made as the Council directs.

70. Applicant will provide the Council with full access to information and data recorded by monitoring programs.

71. To insure the accomplishment of various monitoring program purposes, the number, occasion and use of on-site and off-site sampling locations must be determined in close consultation with the Council.

72. To assure accomplishment of monitoring program purposes, applicant will not terminate or modify any element of the monitoring program without obtaining approval by the Council.

73. All monitoring reports submitted will explain deviations and present comparisons with the previously established base line data. Initial reports shall be submitted to the Council within ninety (90) days after start-up of either proposed project, except that aquatic and terrestrial surveillance will be in

accordance with the schedule contained in Attachment IV - Environmental Monitoring Program.

74. Applicant will immediately inform the Council of any operational or functional anomaly, irregularity, or abnormality which directly or indirectly could affect normal plant operation, or the health, safety, or welfare of the public or plant employees.

75. Applicant will continue to evaluate geological information, including any information developed during construction, in order to take any and all construction or operation steps necessary to accommodate the proposed projects to geological conditions disclosed after the close of the record leading to this order.

76. The proposed pre-operational and continued environmental radiation monitoring programs and pre-operational and continuing water quality monitoring programs proposed by applicant in the application and the Council's April 26, 1976, NPDES order and permit, assure maintenance of water quality standards and continued beneficial use of the waters adjacent to the project area.

77. The pre-operational and continual air quality monitoring programs and meteorological data collection programs proposed by applicant as modified by this order and the site certification agreement attached hereto will monitor parameters of interest sufficient to assure sensing and detection of potential adverse air quality effects. The conditions set forth in the site

certification agreement attached hereto provide for monitoring of all potential pathways for release of radioactive gases sufficient to insure compliance with all regulations.

78. The pre-operational and continuing environmental quality surveillance programs proposed by applicant adequately provide for monitoring of project effects upon vegetation and other terrestrial and aquatic receptor animal life, fish and other aquatic life and area ecology. The pre-operational and continuing environmental quality surveillance programs, as modified, are adequate for purposes of public safety and protection of animal life, fish and other aquatic life resources of the area.

79. Applicant has retained the services of a competent archaeologist to inspect and report to the Council on construction and excavation of the project area and associated transmission line corridors to determine if archaeological or historical sites are being invaded or disturbed and to preserve and provide for interpretation of any historical or archaeological artifacts which may be discovered in the course of excavation and/or construction.

Socio-economic Impact

80. During the peak period of construction, anticipated to occur in 1980, applicant and its on-site contractors will require

unskilled and semi-skilled jobs. Workers drawn to the region to satisfy secondary employment demands for skilled and professional work must come largely from outside the five counties primarily influenced by the project. The influx of workers into the primary influence area must inevitably create a demand for additional medical services. Grays Harbor County, the single county which will be most impacted by the influx of workers, presently has an insufficient number of purveyors of primary care, pediatric medicine, psychiatric medicine, and other specialized practices. Likewise, the demand for law enforcement services will inevitably increase with the influx of construction workers, but present staffing limitations permit the Grays Harbor County Sheriff's Department to place no more than one man at a time on duty in the portion of the county likely to be most impacted by construction of the project.

83. Population increases in Grays Harbor County may be widely distributed, but most in-migrants can be expected to locate in eastern portions of the county, depending on housing availability. The capacity of schools in the Satsop, Elma, Montesano, and McCleary areas may be taxed by the enrollment of workers' children. Some local traffic patterns may be affected. The ability of emergency service personnel to respond to calls in the east Grays Harbor County area may be taxed by the addition of demands from project workers and their families. Available housing in the area surrounding the project can be anticipated to be scarce during periods when construction employment

is at its peak. Rents charged for apartments and homes in communities surrounding the proposed projects can be expected to sharply increase during the construction period, the increases severely impacting elderly and low-income residents. The record does not detail the possibility or extent of similar impacts in other counties within the project's area of influence.

84. Some social and economic problems which can be anticipated to be caused by the influx of workers can adequately be dealt with by affected communities. Local and regional correlation of monitoring and planning programs can assist in alleviating many impacts. However, the number of workers and worker family members settling in the primary influence area and the duration of their residency cannot be closely approximated with confidence. The demands placed by workers not residing in the area on community services will have significant impact. In general, the impact of construction on community services and facilities will occur in time before the proposed projects begin to add substantial tax revenue to area taxing district coffers. It is unlikely that tax receipts from the proposed project will be received by taxing districts in normal course in amounts sufficient to alleviate the impact caused by plant construction and operation upon services and facilities provided by those districts.

85. Construction of the proposed projects would offer additional employment opportunities to residents of Grays Harbor

County. Social and economic benefits likely to occur in the project's primary influence area include new housing markets, construction activities, increments, overtime, and ad valorem tax rolls resulting from any segments of the proposed project owned by private utilities, and from any new housing stimulated by the project, and added state and local excise and sales tax revenues. Over the life of the project, revenues realized on a state level and within the primary influence area should substantially exceed social and economic costs of constructing and operating the project. The most costly social and economic impacts of the project, however, will be felt before substantial tax revenues are realized from the project, and tax revenues will not, in all cases, accrue to those districts upon whom demands for services resulting from the project will most severely impact.

86. Applicant's witnesses and witnesses from certain local government units have provided detailed description of likely primary and secondary impacts on the socio-economic environment in Grays Harbor County and which may reasonably occur in the proposed power plant's area of influence such as Thurston County, as a result of activities related to plant construction and operation. Beyond that, applicant has failed to define geographically the extent of the area influence that will be impacted as a result of plant construction and operation activities.

87. Ad valorem taxes, in lieu of generation tax, revenue sharing during operations, and other possible tax revenues

will produce substantial revenue for local government units over the life of the project. Monitoring revenue deficiencies incurred by local government units from demands on their services occasioned by the influx of project construction workers and worker families is not an adequate solution to the stresses that the proposed project would place on local government units during the project's early years.

88. A commitment by applicant to alleviate financial burdens impacting or reasonably anticipated to impact local government units within the primary influence area as a direct or indirect result of the proposed project's construction or operation, the intent of the commitment being to assist the local government units in providing services of a quality at least equal to those presently provided would assist in reducing some adverse social and economic effects caused by the proposed projects and is an appropriate partial remedy for adverse socio-economic impacts caused by construction of the project.

89. The proposed projects, when operating, will offer permanent employment to a maintenance and operation force of approximately 200 persons. A significant portion of the 200 workers will be highly skilled and well-salaried. Most of these workers can be expected to be drawn from areas outside that primarily influenced by the proposed projects. The presence of this work force for approximately 35 years in eastern Grays

Harbor County is expected to create secondary employment and economic benefits within the primary influence area.

90. The portion of the proposed projects' value to be subjected to local ad valorem taxation will be approximately \$387,000,000 upon completion of the project. Permanent employees residing in the project area should also increase the county's tax base. Revenues derived by local government units from plant operation are expected to markedly exceed social and economic costs incurred during the period of plant operation. However, there is no necessary correlation between revenues derived by certain districts and service demands placed upon districts.

Summary Findings

91. The construction and operation of the proposed projects, pursuant to terms and conditions of the proposed site certification agreement appended hereto, and the Council's April 26, 1976 NPDES permit issued in this matter, assure citizens of the state that safeguards imposed upon operation of the proposed projects are at least as stringent as criteria established by the federal government and that those same safeguards are technically sufficient for the welfare and protection of citizens of the state of Washington.

92. Construction and operation of the project, according to the terms of the proposed site certification agreement appended

hereto, and the Council's April 26, 1976, NPDES order and permit, will preserve and protect the quality of the environment, will not detract from the public's opportunity to enjoy the aesthetic and recreational benefits of area water and land resources, will not impair air cleanliness, and will cause no significant detrimental changes in the environment.

93. When cost of the power generated by the proposed projects is blended with low cost power presently available from hydroelectric sources, the abundance of electrical energy will be enhanced and the comparative lower costs of such energy will remain.

94. Any and all fees required by RCW 80.50.070 in connection with the filing of this application pursuant to the provisions of Chapter 80.50 of the Revised Code of Washington and Section 463-08-020 of the Washington Administrative Code, have been paid and received by the State Treasurer.

95. Subject to the proposed certification agreement attached hereto and the Council's April 26, 1976 NPDES order and permit issued in this matter, the terms and conditions set forth in both documents will insure through available and reasonable methods that the location, construction (including the process of locating and fixing specific facilities and access routes) and operation of the proposed thermal power plants will produce minimal adverse effects on the environment, the ecology of the land and its wildlife, and the ecology of state waters and their aquatic life.

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96. Each and every condition stated in the site certification agreement recommendation herewith set forth in Attachment A appended hereto and by this reference made a part hereof have been drawn within the Council's scope of authority and is found essential to the lawful construction and operation of the projects applicant has proposed in this matter.

97. The April 26, 1976, NPDES order and permit issued by the Council in this matter, by reference made a part hereof, states conditions, each and all of which are essential to the lawful operation of the proposed project.

98. Application 73-2, as amended, is in accordance, where applicable, with WAC 463 chapter 12 guideline requirements. Conditions contained in documents identified in findings 96 and 97 remedy compliance deficiencies.

99. Subsequent to filing of the site application and prior to initial hearings as required by RCW 80.50.090(1), the Attorney General appointed Mr. Malachy M. Murphy, his deputy, as the Counsel for the Environment to represent the public during the course of the certification proceedings herein and for purposes of RCW 80.50.080.

100. Applicant has prepared a detailed statement within the requirements of the State Environmental Policy Act. The U.S. Nuclear Regulating Commission has prepared an adequate detailed

environmental impact statement pursuant to the National Environmental Policy Act. The Council, having found these documents adequate, has considered them along with other relevant information contained in Application 73-2 which was prepared and submitted to the Council pursuant to the thermal power plant site evaluation guideline requirement (RCW 80.50 and WAC 463-12). The files and records herein are in lieu of a repetitious and separately prepared environmental impact statement pursuant to RCW 43.21C.150.

101. The Governor of the state of Washington will act within the purpose of the statutes contained in RCW 80.50 by approving this recommendation for the proposed site, provided that such recommendation for certification is conditioned upon the application of each and every limitation stated in this order, the site certification agreement appended hereto, and Council's subsequently issued NPDES order and permit.

CONCLUSIONS OF LAW

1. The Washington State Energy Facility Siting Council, formerly the Thermal Power Site Evaluation Council, has jurisdiction over the persons and the subject matter of this application hearing.

2. Having evaluated the material contained in Application No. 73-2, the Council recommends to the Governor of the State of Washington, that he approve the above described site for construction of the thermal power plant electric generating facilities described therein, contingent upon execution by the governor and the applicant of a site certification agreement, as set forth by the Council in its "Site Certification Agreement for WPPSS Nuclear Projects Nos. 3 and 5 (WNP 3 & 5) between the State of Washington and the Washington Public Power Supply System", appended as Attachment A hereto, and by this reference made a part hereof, such appended site certification agreement to include all terms set forth in the Council's subsequent NPDES Order and Permit, issued in this matter. The said appended site certification agreement contains criteria specific to the site and to routing of transmission lines into and out of the proposed project to a new BPA switchyard approximately 2000 feet from the generation buildings, which criteria the Council deems essential to guarding the safety of the citizens of the state and to minimizing adverse effects of the proposed project.

From the foregoing findings of fact and conclusions of

law, the Council proposes the following order.

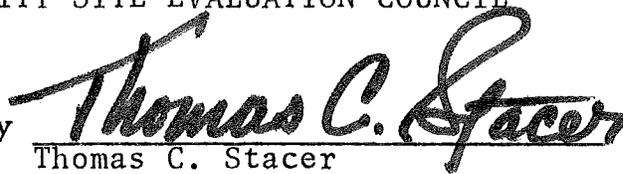
O R D E R

The Energy Facility Site Evaluation Council, formerly the Washington State Thermal Power Plant Site Evaluation Council hereby orders, declares and determines that Application No. 73-2 of the Washington Public Power Supply System complies with the Council's topical guidelines and its recommendation that the Governor of the State of Washington approve certification of the site for construction of thermal power plant electric generating facilities. The Council finds and determines that upon execution by the Governor and the applicant of the site certification agreement appended hereto as Attachment A and by this reference made a part hereof, which site certification agreement contains criteria specific to the site and to transmission line routing as said determination and contingent recommendations are embodied in the above findings of fact and conclusions of law and Attachment A, appended hereto, be reported and forwarded to the Governor of the State of Washington for his consideration and action.

ENTERED INTO this 21st day of June, 1976

WASHINGTON ENERGY FACILITY SITE EVALUATION COUNCIL

By



Thomas C. Stacer
Acting Chairman