ORDER NUMBER: 502
DATED: JUNE 21, 1976

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	)	FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDER
A Municipal Corporation of the State of Washington	)	
. . . . .	)	

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:

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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.

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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.

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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.

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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

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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

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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

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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 connsistent 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

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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-

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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

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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.

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23. Applicant has described radioactive waste treatment processes, anticipated releases of radionucleides, the expected distribution and retention of radionucleides 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 radionucleides 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 radionucleides as low as practicable and are technically sufficient for the welfare and protection of citizens of the state of Washington. As de-

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termined in the Councils April 26, 1976 order, and as stated in the Council's NPDES permit attached to that order, no liquid containing radionucleides 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.

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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.

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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

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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

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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.

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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.

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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

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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.

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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

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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 radionucleides 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.

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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 perceptable 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.

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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.

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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

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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

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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

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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

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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

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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

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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 correllation 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

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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

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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

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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

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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

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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.

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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

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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
Thomas C. Stacer
Acting Chairman

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ATTACHMENT A

SITE CERTIFICATION AGREEMENT FOR WPPSS NUCLEAR PROJECTS NO. 3 AND NO. 5 (WNP 3 and 5) BETWEEN THE STATE OF WASHINGTON AND THE WASHINGTON PUBLIC POWER SUPPLY SYSTEM

This certification agreement was made and entered into pursuant to chapter 80.50 of the Revised Code of Washington by and between the State of Washington, acting by and through the Governor of the State of Washington, and the Washington Public Power Supply System ("Supply System" or "applicant"), a municipal corporation and joint operating agency of the State of Washington organized in January 1957 pursuant to chapter 43.52 of the Revised Code of Washington.

I. SITE CERTIFICATION

A. Site and Project Description

1. The site at, on and in which the project, identified as WNP 3 and 5, is to be constructed and operated is located in Grays Harbor County, Washington, south of the Chehalis River. The site is more particularly described in Application 73-2.

B. Site Certification

1. The Supply System's nuclear electric generating project known as WNP 3 and 5 is authorized to be located,

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constructed and operated on the site described in Section I.A.1. hereof. The "project" consists of two nuclear fueled generating units. Each of the units includes a pressurized water reactor with a maximum rated output of approximately 3800 megawatts (thermal), a turbine generator, a natural draft evaporative cooling tower system, a reactor auxiliary building, certain associated transmission and service lines and other associated facilities required for the generation and transmission of electric power necessary for achieving a net electric generation capacity of approximately 1240 megawatts from each unit.

2. This certification agreement certifies, to the extent authorized by state law, that within and on the above site the Supply System may construct and operate the project subject to the terms and conditions of this certification agreement.

II. GENERAL CONDITIONS

A. Legal Relationship

1. This certification agreement is made in lieu of any permit, certificate or similar document not specifically described herein required by any department,

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agency, division, bureau, commission or board of this state.

2. The Supply System agrees to enter into a lease with the State Department of Natural Resources for use of certain public state land needed for ths project.

3. This agreement ratifies a permit issued April 26, 1976, pursuant to 33 USC §1341 by the State of Washington, acting by and through the Council, that liquid discharges from the project to navigable waters made in accordance with terms stated in the NPDES permit and order issued in this matter April 26, 1976, will comply with the applicable provisions of §§ 1311, 1312, 1316, 1317, Title 33, United States Code.

4. This certification agreement shall bind the applicant and the state or any of its departments, agencies, divisions, bureaus, commission, or boards subject to all the terms and conditions set forth herein.

5. This certification agreement is subject to federal laws and regulations applicable to the project and to the terms and conditions of any permits and licenses which may be issued to the Supply System by appropriate federal agencies.

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6. This certification agreement constitutes the whole and complete agreement between the parties and supersedes any other negotiations, representations or agreements, either written or oral, and not identified herein.

B. Enforcement of Compliance

1. This certification agreement is subject to all penalties and remedies available at law, or in equity, to any person.

2. This certification agreement may be revoked, suspended, or modified for failure to comply with any of the terms and conditions herein, and for violations of chapter 80.50 RCW, regulations issued thereunder, and any other applicable state or federal laws or regulations.

3. Where approval or agreement of the Coucil is required by this agreement, the Council may, but is not required to, conduct a hearing pursuant to RCW 34.04. If the Council withholds or refuses approval of a requested action and a moving party requests a hearing, it shall be conducted pursuant to RCW 34.04.

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C. Notices and Filings

1. Filing of any document or notice with the Energy Facility Site Evaluation Council formerly the Thermal Power Plant Site Evaluation Council ("Council") shall be deemed to have been duly made when delivered to the Council's offices in Olympia, Washington. Notice to be served upon the Supply System shall be deemed to have been duly made when delivered to the office of the Managing Director of the Supply System.

D. Right of Inspection

1. The Supply System shall provide access, subject to applicable health and safety regulations, to designated representatives of the Council in the performance of official duties to the project and all of its environs herein described.

E. Certification Compliance Costs

1. The Supply System agrees to pay those reasonable costs, which are determined to be necessary during plant construction and operation, to assure compliance with conditions of the site certification agreement. Such costs shall be paid in amounts and at such times as are prescribed by the Council.

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III. CONSTRUCTION OF THE PROJECT

A. Construction Schedule

1. The Supply System agrees to submit quarterly a Summary Construction Progress Report to the Council.

2. The Supply System will (a) notify the Council immediately in the event of any significant change in the construction schedules on file with the Council, and (b) serve copies on the Council of all "Notices to Proceed" which are issued to contractors with respect to contracts requiring work in the Chehalis River when issued to such contractors.

B. Access Roads and Railroads

1. All permanent primary roads, temporary roads, and railroads constructed by the Supply System or its contractors for servicing the plant's central facilities will be constructed so as to meet or exceed appropriate Washington State Standards. Design and construction plans must be made available on request by the Council.

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C. Aesthetics and Landscaping

1. The Supply System agrees to construct the project in a manner which is aesthetically compatible with the adjacent area.

2. The Supply System agrees to landscape the project lands within the fenced perimeter in a manner which is compatible with its surroundings.

3. Should any vegetation be disturbed as a direct result of any construction done by the Supply System, the Supply System agrees to restore suitable vegetation. This will be done by returning the area to original topsoil condition, in order to promote revegetation of indigenous plant species.

D. Surface Run-off and Erosion Control

1. During all construction work, the Supply System agrees to require its contractors to employ all means necessary to meet standards set in this agreement and all other reasonable means in order to avoid soil erosion. The Supply System agrees to set forth such conditions for achieving those purposes in its bidding

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documents, plans, and contracts, which will be developed through consultation with the Council.

2. The Supply System will comply with provisions relative to excavation and erosion control described in Attachment 2 and will require all contractors to comply therewith, compliance to be implemented by adherence to methods and procedures identical to those set forth in Subsection D.1. of this agreement.

3. Conditions and specifications set forth in bidding documents, plans, and contracts must meet accepted industry standards.

4. Sedimentation, erosion control, dust control, and related construction plans pertaining to work on the site and on permanent and/or temporary roads and railroads must conform to exhibits as presented during the Council's NPDES and Site Certification hearings held in the matter of application 73-2.

5. All sedimentation and erosion control system plans must be made available, on request, to the Council.

6. Should any unforeseen surface water runoff problem arise during construction of the project, the Supply

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System must comply with all pertinent industry standards for control during construction and must agree to take whatever actions are deemed necessary by the Council to correct and avoid said runoff. Applicant shall promptly notify the Council of the occurrence or likely occurrence of any previously unforeseen surface water runoff problem.

E. Transmission Lines

1. Associated transmission lines for the project will connect the project to the existing Northwest Power Grid at a point approximately 2000' North of the project on the Bonneville Power Administration rights-of-way which passes immediately north of the site and presently connects the Aberdeen-Hoquiam and Olympia areas.

2. All associated transmission lines and service lines must be constructed where applicable so as to comply in all steps of design and construction with standards stated in the following listed documents:

   A. "Environmental Criteria for Electrical Transmission Systems," U.S. Department of Interior, U.S. Department of Agriculture, February, 1970.

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B. Satsop Integrating Transmission Supplement to the Environmental Statement, Fiscal Year 1976, Proposed Program of the United States Department of the Interior, Bonneville Power Administration (Draft), February 26, 1975.

C. BPA Environmental Statement for Fiscal Year 1976.

D. "Measuring the Social Attitudes and Aesthetic and Economic Considerations Which Influence Transmission Line Routing, Appendix A, Environmental Guidelines for Transmission Lines," by P. L. Hendrickson, R. W. Bahl, B. A. Gray, and W. S. Maynard, Battelle Pacific Northwest Laboratories, Richland, Washington, July, 1974.

F. Water Intake Systems

1. The Supply System shall be permitted to construct and maintain an intake system to withdraw water utilizing wells in conformance with limitations stated in this agreement for construction and operation of the project.

2. The Supply System agrees to consult with the Council or with its designated representatives in development

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of plans, bid documents, and contracts for construction of the intake system. Plans, bid documents, contracts, design, and location of the intake system must, on request, be made available to the Council.

3. The Supply System further agrees to make available in a timely manner specific location plans, drawings and construction contracts for installation of the intake systems to the Council for its study review. If the Council does not approve the particulars of any such submittal, it agrees to respond in a likewise timely manner with comments indicating reasons for the disapproval. The parties may, by mutual agreement, agree on a date certain for such response.

4. The Supply System agrees to install the permanent power supply to the water intake facilities by means of an underground circuit.

5. The construction of the water intake systems must be subject to the following terms and conditions:

   A. In any well system utilized for potable, construction, or operations water, no portion of any well or lateral can be nearer than twenty (20) feet from the Chehalis River. There will be no cross connection permitted between the

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potable/construction water supply system and the plant makeup water supply system. Applicant may withdraw up to 1000 gallons per minute for construction/potable water uses from well locations near the confluence of the Chehalis and Satsop Rivers.

B. The Supply System must agree that any material which is placed upon the bank for bank protection shall be clean and of sufficient size to prevent it from being washed away, and that any bank activities must be coordinated with the Council or its designated representatives.

6. Applicant must provide a continuous recording metering system on its water intake facilities designed and operated so as to provide a written chronologic record of the amount of water withdrawn by the project at all times. Records of flow metering must be available for inspection by the Council at all times. Summaries of these records in cubic feet per second, indicating instantaneous maximum withdrawal, daily average withdrawal, and monthly average withdrawal. Such records must be furnished the Council on a quarterly basis, commencing within ninety (90) days of first operation of the intake system.

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7. Construction activity in Chehalis River main stem or tributary stream channels or on stream banks must be confined to the period May 31 and before September 16 of any year unless otherwise specifically approved by the Council.

8. Subject to terms stated in this agreement, applicant may withdraw water for the operation of its projects from the Chehalis River aquifer at a maximum instantaneous withdrawal rate of eighty (80) cubic feet per second. Withdrawal for purposes of operating the project is authorized only from a location on 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 at or near river mile 17. Applicant may not exercise its right to withdraw up to 80 cfs maximum instantaneous use as otherwise authorized in this paragraph if such withdrawal would deplete the flow of the Chehalis River so as to cause the river's net instantaneous downstream flow at the point or any of the points of withdrawal to fall below a flow of 550 cubic feet per second, exclusive of any tidal influence.

9. Should applicant's withdrawal of up to 80 cfs water in connection with plant operations produce any

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adverse effect on ground water users in the area of the plant, applicant must make full compensation to the adversely affected users and must take all appropriate measures to eliminate or reduce adverse effects.

10. The Chehalis River in the area of intake is a state designated flood control zone. Plans and bid documents for construction of the intake system must comply with all state, federal and local flood zone requirements.

11. The Supply System shall purchase 62 cfs from the City of Aberdeen for continual release below Aberdeen's diversion dam near river mile 8.1 on the Wynoochee River, assuring a minimum flow below that dam of 112 cfs.

G. Discharge System

1. The Supply System shall be permitted to construct maintain and operate a discharge system on the shoreline of, and in the bed of the Chehalis River, within the site, as required for operation of the project and subject to the related conditions in this agreement and in Attachment 3 hereto, in-

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corporated herein, which attachment includes the Council's April 26, 1976, NPDES permit.

2. The Supply System agrees to consult with the Council and its designated representatives in the development of plans, bid documents, and contracts for construction of the discharge system on the shoreline of and in the bed of the Chehalis River.

3. The Supply System further agrees as a condition precedent to any site preparation or construction to make available specific location and design plans, drawings, bid documents, and construction contracts for installation of the discharge system to the Council for timely study and review. If the Council does not approve the particulars of any such submittal, it agrees to respond in a likewise timely manner with comments indicating reasons for such disapproval. Unless the parties by mutual agreement establish the time for response to a date certain.

4. The Supply System must schedule construction of the discharge structure and all other project-related structures or routes in the Chehalis River main stem or tributary beds, or on banks, to a period after May 31 and before September 16 of any year, unless

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work at other times is specifically authorized by the Council.

5. No liquid radiological waste may be discharged to the Chehalis River, its tributaries, or other state waters during normal plant operations.

6. Site preparation, construction, and operation of the project shall adhere to all procedures, plans, features, and other conditions required in Attachment 3 hereto, which attachment includes the Council's April 26, 1976, NPDES permit.

7. The Supply System must continuously, efficiently, and assiduously maintain and operate the cooling tower and all other waste recovery and pollution abatement facilities under its control throughout the duration of this certification.

8. All sanitary wastes shall be disposed of in a manner consistent with the Council's April 26, 1976, NPDES permit.

9. The discharge pipe used to discharge effluent from plant operation must be buried at a sufficient depth to insure its integrity and shall be covered with

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a layer of natural materials level with the bed of the river. Excavated material must not be placed, held or stockpiled in the river while being retained for later replacement over the pipe. If the outlet structure is to be composed all or in part of concrete, this must be isolated from the river waters during any placing and securing.

10. Subject to conditions stated in this site certification agreement, and other orders and permits issued by the Council in the matter of application 73-2, including but not limited to, the Council's April 26, 1976, NPDES permit, applicant may discharge up to 16 cfs maximum daily effluent from its project cooling towers at a location in the southwest quarter of Section 7, Township 17 North, Range 6 West of the Willamette Meridian, location more specifically identified in the Council's April 26, 1976, NPDES permit, and applicant may make other discharges as specifically authorized in this agreement or other orders and permits issued by the Council in this matter.

H. Barge Slip

1. The Supply System shall be permitted to construct and maintain a barge slip for construction of the

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project, subject to conditions stated in this agreement or other attachments hereto.

2. The Supply System agrees to consult with the Council and its designated representatives concerning the exact location and the development of plans, bid documents, and contracts for construction of the barge slip.

3. The Supply System further agrees to submit specific location plans, drawings, and contruction contracts for installation of the barge slip to the Council for timely study and review. Should the Council not approve any particulars of the documents so submitted, the Council agrees to respond in a likewise timely fashion with comments indicating reasons for disapproval, unless the parties, by mutual agreement, establish the time for response to a date certain.

4. Unless otherwise specifically approved by the Council, all construction associated with the barge slip which in any way would affect the river bed or river banks or tributary stream beds or stream banks must be scheduled to the period after May 31 and before September 16 of any year.

TPS 005290

5. Applicant must provide comprehensive data at the earliest possible time indicating the effect of construction of the barge slip on turbidity in the Chehalis River and its tributaries in the vicinity of the barge slip. Applicant must demonstrate to the Council that its construction of the barge slip will not cause the turbidity level in state waters to exceed criteria set in State Water Quality Standards except when, on request, the Council has granted a waiver to such standards.

6. During construction of any such temporary barge slip, applicant must: (a) establish and maintain grading and sloping on the bed and bank of the Chehalis River and tributary creek construction area so as not to create fish traps; (b) construct the barge slip in the dry during periods of low river flow; (c) submit plans to the Council, if requested, concerning all proposed procedures for underwater excavation attendant on the construction of such facilities; and (d) do no dredging in the Chehalis River or its tributaries except for entrance to the barge slip.

7. After the temporary barge facilities have served their intended purpose, applicant agrees to revert the disturbed area to water oriented uses including recreational through consultation with the Council.

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Applicant must arrange for the arrival of the reactor vessel barges to coincide with times during which the net instantaneious downstream flow of the river is sufficient to provide adequate river passage and navigational control of barges and prime movers.

I. Construction Clean Up

1. The Supply System agrees upon completion of construction to dispose of all temporary structures not required for future use. It also agrees to dispose of used timber, brush, refuse or inflammable material resulting from the clearing of lands or from the construction of the project in a manner acceptable to the Council.

J. As-Built Drawings

1. The Supply System agrees to allow access to the Council on request to complete sets of as-built drawings for the following listed project components and for other components the Council may in the future require:

   a. Water intake systems;
   b. Water discharge system, including construction runoff control systems;

TPS 005292

c. Sanitary waste disposal system;

d. Cooling towers and condenser coolant loop;

e. Demineralized water system;

f. Radwaste system;

g. All associated electrical transmission and service lines and substations;

h. Off gas stack and associated systems;

i. Temporary barge off loading facility;

j. Environmental monitoring installations;

k. Access and temporary construction roads;

l. Railroad right-of-way.

K. Archaeological Site Protection

1. The Supply System agrees to retain the services of a competent archaeologist to inspect the construction site in the course of the construction and excavation of the project, including associated transmission line corridors, to determine whether archaeological or historical sites are being invaded or disturbed and to preserve and provide for interpretation of any archaeological site discovered in the course of construction.

2. The Supply System agrees to report to the Council all archaeological or historical findings made during the course of excavation and construc-

TPS 005293

tion of the project and associated transmission lines.

3. The Supply System agrees to consult with the Council to arrange for preservation of artifacts and for interpretation of any archaeological or historical site discovered in the course of any construction.

IV. OPERATION OF THE PROJECT

A. Water Withdrawal

1. The Supply System is hereby authorized for plant operation purposes to withdraw from the ground and surface waters at a location adjacent to the Chehalis River within Sections 10 and 15, Township 17, Range 7, West, W.M. a maximum of 52,000,000 gallons per day and a 30-day average of 48,500,000 gallons per day, subject to terms and conditions stated elsewhere in this agreement. Instantaneous withdrawal may at no time exceed 80 cfs and may violate no terms of this agreement.

B. Water Discharge

1. All discharges by the Supply System to state waters shall be subject to the terms of and conditions

TPS 005294

of this agreement and of a valid National Pollutant Discharge Elimination System permit as issued by the Council in this matter on April 26, 1976, which is attached hereto as Attachment III and by reference incorporated herein.

C. Discharge Into Air

1. The Supply System agrees to construct and operate the project in such a manner as to not discharge nor cause to be discharged into the ambient air materials resulting from the operation of the auxiliary boilers and emergency diesel engines which, measured at the point of discharge, will directly result in:

   a. Nitrous oxides, measured as nitrogen dioxide, in excess of 0.3 lbs/10^6 BTU;

   b. Sulfur dioxide in excess of 0.8 lbs/10^6 BTU; or

   c. Ash in excess of 0.2 lbs/10^6 BTU.

2. The Supply System agrees to incorporate all known, available and reasonable technology in the design of the cooling towers and to operate so as to

TPS 005295

minimize fogging and icing effects on the surrounding areas and highways.

3. Levels of radioactive discharges to the atmosphere shall be as low as practicable and shall not exceed applicable federal standards.

D. Vegetation, Fish, and Animal Life: Aesthetics

1. Should any vegetation be disturbed as a result of any construction done by the applicant, its contractors or subcontractors, applicant agrees to restore topsoil conditions in order to promote revegetation of indigenous plant species.

2. The applicant agrees to restore the hill slope and the pipeline corridor or corridors of the intake systems and of the discharge systems to topsoil conditions similar as the original so as to promote revegetation of indigenous plant species.

3. The applicant agrees to provide replacement and/or compensation, as established by the Council, for any wildlife, fish, or other aquatic life or ecosystem damage or loss caused by construction or operation of the proposed project.

TPS 005296

4. Applicant shall provide such additional measures for protection of wildlife, fish, and other aquatic life and the ecology of area environs found to be necessary by the Council to minimize impacts from construction or operation of the plant.

5. Applicant agrees to construct the project in a manner aesthetically compatible with the adjacent area, using native plants and vegetation where possible. Areas within the project fence perimeter should be landscaped in a manner compatible with surroundings.

V. PUBLIC AND ENVIRONMENT PROTECTION

A. Emergency Plan

. The Supply System will develop an Emergency Plan in accordance with 10 CFR 50.34a and 10 CFR 50 Appendix E. In preparing that plan the Supply System shall in addition:

a. Coordinate such development with local, state and federal agencies directly involved in implementing such a plan.

b. Include detailed provisions in the Emergency Plan for the health and safety of the people,

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emergency treatment, special training programs and prevention of property damage.

c. Comply with relevant provisions as set forth in the Washington State Department of Emergency Services' Radiological Emergency Response Plan or successor document.

d. Periodically provide the Council with current lists of responsible individuals, communication channels and procedures.

B. Security Plan

1. The Supply System will submit a comprehensive physical Security Plan for the protection of the project against acts of industrial sabotage in accordance with the Nuclear Regulatory Commission as a part of the NRC's operating licensing process.

2. A short description of the Security Plan will be published in Section 13.7 of the Final Safety Analysis Report, which will be available for public review; however, the actual Security Plan will be withheld from public disclosure pursuant to 10 CFR 2.790d.

TPS 005298

C. Monitoring Program

1. The Supply System agrees to initiate and maintain Environmental Monitoring Programs as described in Attachment IV of this agreement. The programs shall be developed and implemented in close consultation with the Council and with Council approval. Reasonable modifications shall be made, with approval of the Council, when these are necessary to achieve the purposes of the program. Aquatic, terrestrial ecology and water quality surveillance shall begin prior to land clearing or other site alteration. Other programs shall begin in accordance with schedules contained in Attachment IV - Environmental Monitoring Program.

2. The Radiological Monitoring Program shall be initiated two years prior to fuel loading to provide for measurement of radioactive releases from the facility and to provide for a reliable assessment and record of their distribution and retention in the environment within an area to be described by the Council and approved by other regulatory agencies.

3. The Supply System may retain or employ a qualified consultant or firm of consultants to carry out all or any portion of the environmental monitoring studies required to effect the Monitoring Program

TPS 005299

set forth in Attachment IV hereof. The Supply System agrees to submit the requirements for the consultant's qualifications, and bid documents, to the Council for acceptance prior to solicitation of proposals from any such consultant. Such consultant must be specifically obligated by contractual provisions approved by the Council to adhere to all conditions stated in this agreement and in the Council's April 26, 1976, NPDES permit.

4. The Supply System agrees to submit to the Council, on request, any information or data recorded by the Supply System's Monitoring Program.

5. The Supply System agrees to submit to the Council, on a regular basis, copies of reports from the Monitoring Programs. Where additional reports or notifications are required to be filed by the Nuclear Regulatory Commission's construction permit, operating license or other regulations, copies of such reports or notifications shall be submitted to the Council, at the same time as when submitted to the Nuclear Regulatory Commission.

6. In carrying out Monitoring Programs, the Supply System shall establish to the Council's satisfaction and approval sampling locations on and off

TPS 005300

the project site sufficient to provide a representative sampling of environmental effects in the surrounding area.

7. At the time of start-up of the first unit, a report shall be made that summarizes pre-operational monitoring data and establishes baseline reference values for all parameters. The report shall be submitted to the Council within ninety (90) days after start-up of the first unit. Annual reports on a calendar year basis shall be submitted thereafter by March 31 of each year summarizing operational data, anomalies therein and comparisons made with previously established baseline data.

8. Requirements of the Monitoring Program may be changed upon a showing that the degree of monitoring is not commensurate with the actual or intended results of such efforts. Such changes shall be effected as found necessary by the Council and the Supply System. Such changes shall be governed by the procedures in this paragraph and shall not be subject to the modifications procedures specified in Section VI.C. hereof.

TPS 005301

VI. MISCELLANEOUS PROVISIONS

A. Project Visitation and Recreation

1. The Supply System agrees to provide visitor information facilities for the project.

2. The Supply System agrees to provide replacement of recreational opportunities which may be found by the Council to be adversely affected as a direct or indirect consequence of project activity. Affected areas may include but are not limited to land owned or controlled immediately outside the project security area and detached parcels associated with project facilities or routes. The applicant may impose reasonable health, safety, welfare, and security regulations on use of public areas. Recreational use includes hunting, fishing, and other appreciative uses.

3. The Supply System agrees to implement the means to assure that members of the public will be able to use the land and water areas safely over which the Supply System exercise control and to which public access has been granted.

4. All reporting costs and other costs, directly or indirectly incurred as a function of the monitoring

TPS 005302

or surveillance programs found necessary herein must be borne by the Supply System.

B. Social and Economic Impacts

1. The Supply System agrees to monitor primary and secondary socio-economic impacts of the project during construction and to report quarterly such results to the Council.

2. The Supply System agrees to honor any claims made by counties, school districts, or other units of local government which demonstrate an incurred or clearly anticipated net financial burden or deficiency due to primary or secondary impacts from the projects' construction or operation. Such burdens may be calculated after credit for revenues attributable to the project and are deemed to be realizable by the claiming district by the time the burden or deficiency is created. A burden or deficiency shall exist in circumstances which shall include, but are not limited to, a local government unit's present or clearly anticipated inability to provide services of a quality at least equal to those presently provided.

TPS 005303

3. Any dispute arising out of this Section VI.B shall be determined by decision of the Energy Facility Site Evaluation Council made pursuant to RCW 34.04.

C. Modification of Agreement

1. This certification agreement may be amended pursuant to Council rules and procedures then in effect in a like manner as the development of this original certification agreement, including, but not limited to, the obtaining of the approval of the Governor Any such amendments to this agreement shall be made in writing.

2. In circumstances where a significant degree of impact on the environment exists or is imminent, the Council may impose specific conditions or requirements upon the applicant in addition to the terms and conditions of the certification agreement as a consequence of said situation.

D. Decommissioning

Applicant shall submit for the Council's approval within five (5) years of execution of this agreement, a plan for decommissioning and disposal of these facilities.

TPS 005304

E. Nothing in this certification agreement may be in any way interpreted to authorize discharge of pollutants from the projects to state waters in any fashion other than that authorized in the Council's April 26, 1976, NPDES permit.

F. Attachments

Attachments hereto by this reference are included in this agreement:

I. Site Description.

II. Provision regarding excavation and erosion control.

III. NPDES permit, as issued April 26, 1976.

IV. Monitoring programs.

DATED and effective this _____ day of _____, 1976.

For the State of Washington: _____
Daniel J. Evans
Governor

For the Washington Public Power Supply System: _____
J. J. Stein

TPS 005305

ATTACHMENT I

SITE DESCRIPTION

The proposed site for the Washington Public Power Supply System Nuclear Projects No. 3 and 5 is located in the southeastern portion of Grays Harbor County. The project is approximately 16 miles east of Aberdeen, the nearest sizeable population center, and approximately two miles south of the community of Satsop. The site lies in Section 17 of Township 17 North, Range 6 West.

The site, with total land area of approximately 2100 acres, is one mile southeast of the confluence of the Chehalis and Satsop Rivers in the Willapa Hills region of the Pacific Coast Range. The largest portion of the site is located on a ridge above the Chehalis River, typified by flat to rising topography. The proposed project elevation is approximately 390 feet above Mean Sea Level. Elevations from the Chehalis River north of the site to hills south of the site range from approximately 20 to 700 feet Mean Sea Level. The site is drained by Fuller Creek on the west and an unnamed creek on the east. Open fields as well as stands of Douglas fir, red alder and mixed stands comprise the vegetative cover. A transmission corridor of the BPA grid system containing two 115 kV and one 230 kV capacity line crosses the site area in an east-west direction.

The Chehalis Valley floor begins immediately north of the Chehalis River and extends for approximately three miles where it meets rising hills with elevations of approximately 400 feet Mean Sea Level. The

valley floor is fertile and occupied by dairy and vegetable farms as well as by housing and commercial developments.

The WNP 3 and 5 Project Site is located entirely within Grays Harbor County. Legal descriptions of proposed locations of the plant area related or supporting facilities are more fully identified in Application 73-2, Section 105.

TPS 005307

ATTACHMENT II

EXCAVATION AND EROSION CONTROL MEASURES

I. INTRODUCTION

A. Objective

The objective of the erosion and sediment control measures to be implemented throughout the construction of Washington Public Power Supply System Nuclear Projects Numbers 3 and 5 is to insure that the effluent discharged from the plant area does not violate state and federal effluent and water quality standards as stated in the Council's April 26, 1976 NPDES permit and elsewhere as a result of site preparation and construction of the projects.

II. ON-SITE EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION

A. Construction Run-off Control

1. In order to maintain proper control of runoff from the construction site during all phases of construction, two distinct erosion and sediment control systems will be implemented. The first on-site construction activity will include in-

TPS 005308

stallation of the Temporary Construction System, described in Section B. below, to control runoff from all disturbed areas prior to the completion of grading. As each area reaches its final grade, control of runoff will be assumed by the Permanent Construction System described in Section C.

2. Erosion control methods commonly employed will be used for both the temporary and permanent construction systems. Approximately 260 acres (85% of the site) will be constructed at about 2% slope, with local deviations to minimize erosion but assure drainage. The excavation and fill activities will proceed with the objective of creating and maintaining this slope wherever possible. The remaining 15% of the site consists of the cut and fill slopes to the west, south, and east of thyplant island. These slopes will be constructed at a 3.1 (horizontal-to-vertical) grade. At 25 foot vertical intervals a horizontal berm will be constructed with a ditch to direct runoff from each level of the slope to a retention basin. Ditches must be placed at every berm to limit the distance water can flow down the slopes and cause erosion.

TPS 005309

3. The length of time soil will be exposed to the erosive energy of rainfall will be minimized. The cut and fill slopes will bear no construction traffic after their completion, making it possible to cover the soil and seed these slopes with quick-growing grass early in the construction process. Shrubery may also be planted in accordance with the final landscaping plan. Erosion control measures will include shielding and/or binding the soil where slope stabilization is necessary.

4. Areas that experience heavy construction traffic will be stabilized and protected. Construction roads and parking areas will be covered with a coarse base material and compacted. Other areas disturbed by construction will be shielded and seeded to reduce erosion.

5. Drainage ditches used will vary in size depending upon the volume of water and rate of flow each ditch is required to handle. Ditches will be lined with grass, rip rap, or other suitable material to prevent erosion of the ditch sides if needed. Energy dissipators will be installed at the outfall of ditches where necessary.

TPS 005310

B. Temporary Construction System

1. The Temporary Construction System will collect runoff from the construction area during the excavation and fill activities. This temporary control system will consist of collection ditches and/or berms, a large retention pond at the north end of the main plant area, and local erosion an/sediment control programs where needed. The collection structures will be reconstructed to maintain the integrity of the erosion and sediment control system when the excavation or fill activities require such changes.

2. The main retention pond will be designed, constructed, and operated to hold runoff from the site construction area due to a 10 year, 24 hour rainfall event long enought to decrease the amount of suspended solids, settleable solids, and pH to effluent limits, inclusive of the quantity of sediment that will accumulate in the retention basin. Pond discharge structures will route released effluent to points identified in the Council's April 26, 1976, permit. Energy dissipators will be used to insure that the natural stream or riverbed will minimally be disturbed.

TPS 005311

3. The collection system for the main retention pond will collect runoff at the perimeter of the site construction area. The runoff will be routed northward to the main retention pond. This perimeter collection system will be established at the lowest possible elevation permitted by the filled retention pond water elevation. In certain plant areas it is not possible to route the runoff from the construction areas to the planned retention pond. Where this occurs, localized control structures will be created. These structures will consist of berms to isolate the construction area from surrounding undisturbed areas and berm ditches to collect the runoff from construction areas. Runoff so collected will be processed by retention ponds outside of the fill area so that applicable effluent limits will at all times be met.

4. After the permanent construction system has been constructed, the main retention pond will be filled with earth and become part of the plant laydown area. The temporary collection system will either become a part of the Permanent Construction System or be filled.

C. Permanent Construction System

1. The permanent construction system utilizes multiple

TPS 005312

retention ponds to retain water runoff until its quality is acceptable for release.

2. Extensive use of diversion ditches divides the 300 acre site into several distinct drainage areas and directs the runoff to the ponds.

3. The use of multiple retention ponds allows each drainage area to act independently of the other. In the event a single pond requires maintenance, such activity will be done with minimizing effect on other ponds.

4. The retention ponds must be designed, constructed, and operated to hold all runoff from a 10 year, 24 hour rainfall. Additional depth will be provided to handle all settled solids accumulated over the construction period, lessening the need for periodic cleaning of the pond bottoms.

5. Inflow structures to each pond will be provided to minimize any turbulent flow or churning that may disrupt the settling process. These structures will be equipped with baffles.

6. Each pond will have a discharge structure designed, constructed and operated to hold the runoff in the

TPS 005313

basin as long as is necessary to achieve required effluent and water quality. The discharge structure will carry the water to points identified in the Council's April 26, 1976, NPDES permit and discharge it in such a manner that the stream will be used where necessary to eliminate turbulence or excessive velocity of water flow.

7. In addition to the use of retention ponds and diversion ditches in the permanent system, best methods will be employed where possible to shield exposed soil. As each area reaches its final grade, the soil will be covered, and seeded. The type of treatment used will be dependent upon the slope of the land, size of the area, and amount of construction activity.

III. OFF-SITE EROSION AND SEDIMENT CONTROL

Several facilities will be constructed at locations not in the immediate project area that will not fall under the control of the temporary or permanent erosion and sediment control system. Some special control programs for these facilities are described in the sections below:

A. Barge Facility

1. The barge facility will be located on the south

TPS 005314

bank of the Chehalis River as far upstream as possible without dredging.

2. The barge facility construction area will be isolated from its surroundings with berms and/or ditches and runoff from undisturbed areas will be routed around the construction area. Runoff from the construction are will be collected and treated in a retention pond. The barge slip will be partially excavated behind an in-place natural earth barrier. Excavation occurring in the river will be limited to that required to obtain clearance for barge access to the slip. Spoil from these excavation activities will be disposed of in an area controlled by a retention pond. Construction area runoff and excavated spoil will be retained for settlement so that effluent and water quality requirements will be met when discharging. Upon completion of the construction activity, exposed earth will be revegetated. All runoff control facilities must be designed, constructed, and operated to treat the volume of runoff associated with a 10 year 24 hour rainfall event so that all discharges meet applicable effluent and water quality limitations.

TPS 005315

B. Roads and Railroads

1. Access to the plant area will be by an asphalt road from the east and a combination railroad/ construction road from the west.

2. The installation of the East Access Road will involve the construction of 10,000 ft. of new road between the plant area and the existing terminus of Lambert Road and the upgrading of the full length (5000 ft.) of Lambert Road, and the upgrading of Workman Creek Road (3000 ft.) from its juncture with Lambert Road to the South Elma Bridge. The West Access Railroad will run approximately 21,000 feet from its junction with the existing Union Pacific tracks in the vicinity of Elizabeth Creek to the plant area. The South Bank Road will be improved from its terminus to the barge slip area. A haul road from the barge slip will be constructed to connect the barge slip to the South Bank Road.

3. The methods used for erosion and sediment control will be the same for both access facilities. A system of collection ditches and/or berms will be used to collect the runoff from both fill and cut areas. This runoff will then be retained to reduce the amount of suspended solids. Upon com-

TPS 005316

pletion of each cut and fill area the exposed soil will be shielded and revegetated to achieve permanent slope stabilization. Runoff from undisturbed areas will be collected by berm ditches and diverted past the road/railroad facilities through culverts. All runoff control facilities must be designed, constructed and operated to treat the runoff associated with a 10 year 24 hour rainfall event so that all discharges meet state and federal effluent and water quality standards.

C. Makeup, Plant Construction and Potable Water, and Blowdown Facilities

1. The makeup facility will consist of a group of installations to remove the water from the ground and a pipeline to take the water from its source to the plant area. The makeup pipeline will be placed in the railroad embankment from the plant area to approximately the intersection of Elizabeth Creek and the common subgrade. Beyond this point a system of pipeline, pumps, and either wells or Ranney well Collectors will be installed in a large flood plain between the Union Pacific Railroad tracks and the Chehalis River.

TPS 005317

2. The plant construction and potable water supply will consist of wells and a pipeline to take the water from its source to the plant area.

3. The blowdown facility runs between the plant area and the Chehalis River. A pipeline will run from the plant cooling towers to the river, at which point a submerged diffuser will be extended from approximately forty-five to seventy-five feet into the river. The submerged diffuser pipe will be buried beneath the riverbed and will have ports projecting approximately one foot above the riverbed.

4. The discharge system pipe must be buried at sufficient depth to assure its integrity and shall be covered with a layer of natural, clean materials, level with the bed of the river. Excavated material must not be placed, held, or stockpiled in the river while being retained for later replacement over the pipe. Any concrete outlet structure must be isolated from the river during all placing and curing. All spoil must be disposed of on shore. Effluent limitations and water quality criteria must be met. Sediment-trapping barriers will be placed around excavation areas.

TPS 005318

5. Any portion of the water supply installations for removing water from the ground that are grouped in close enough proximity will have common erosion and sediment control features. All other water supply installations will have individual erosion and sediment control features. The construction areas will be isolated from the surrounding undisturbed areas by ditches and/or berms. Runoff from undisturbed areas will be routed around the construction areas. The construction area runoff will be collected by ditches and/or berms and released in a controlled manner in compliance with applicable requirements. Ditches and berms must be designed, constructed, and operated to treat runoff associated with a 10 year 24 hour rainfall event so that all discharges meet state and federal water quality and effluent standards.

6. All pipelines will have continuous erosion and sediment controls that will travel with the pipe laying operation. A temporary diversion berm will be placed around the pipe laying operation which will route runoff from undisturbed areas past the pipe laying areas. All runoff will be collected and held within the construction area until discharge from the temporary diversion berm. Upon completion of pipe laying activities, the ditch will be

TPS 005319

backfilled as soon as possible. The soil will then be treated and revegetated. Ditches and berms must be designed, constructed, and operated to treat runoff associated with a 10 year 24 hour rainfall event so that all discharges meet state and federal water quality and effluent standards.

IV. EROSION AND SEDIMENT CONTROL MONITORING

A. Implementation

1. Inspecting, testing and monitoring the Erosion and Sediment Control System is to be part of the implementation.

2. Retention basins will be periodically monitored as required in the NPDES Permit, Attachment III to this Certification Agreement.

3. In addition to monitoring each retention basin, the entire system of erosion control structures and ditches will be inspected periodically to insure they are kept in proper condition.

4. In the event that improvements are necessary, the procedures employed for system improvement will be

TPS 005320

determined by the Environmental Engineer, subject to Council approval, to adhere to best practicable procedures.

V. MISCELLANEOUS

All sedimentation and erosion control measures must equal or exceed standards described by the applicant in the course of the NPDES hearings commenced on April 10, 1975, and the site certification hearings commenced on August 5, 1975, in the matter of Application 73-2.

All sedimentation and erosion control measures must equal or exceed standards stated in the Council's Site Certification Agreement to which this order is attached, or in the Council's April 26, 1976, NPDES permit issued in the matter of application 73-2.

Standards stated in sections III and IV of this erosion and sediment control plan in no way indicate Council determination to issue NPDES permits authorizing any discharges from the facilities identified therein.

TPS 005321

ATTACHMENT III

Permit No. WA-002496-1
Issuance Date:
Expiration Date:

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM WASTE DISCHARGE PERMIT

State of Washington
Thermal Power Plant Site Evaluation Council
Olympia, Washington 98504

In Compliance With the Provisions of
Chapter 155, Laws of 1973, (RCW 90.48) as Amended

and

The Federal Water Pollution Control Act Amendments of 1972,
Public Law 92-500

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
3000 George Washington Way
Richland, Washington 99352

Plant Location:	Section 17 T. 17N, R 6W W.M. South of Satsop Grays Harbor County, Washington	Receiving Water: See Page 2 Discharge Location: See Page 2
Industry Type:	Nuclear Steam Electric Generating Plant (WPPSS Nos. 3 & 5)	Waterway Segment No.: See Page 2

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is authorized to discharge in accordance with the special and general conditions which follow.

APPROVED: April 12, 1976

AMENDED: April 26, 1976

Thomas C. Lacer
Acting Chairman
Thermal Power Plant Site
Evaluation Council

TPS 005322

OUTFALL IDENTIFICATION (1)

OUTFALL	RECEIVING WATER	DISCHARGE LOCATION	WATER SEGMENT NO.
001	Chehalis River	Lat. 46°58'26"N Lo. 123°29'19"W	10-22-12
002	Fuller Creek	Lat. 46°58'22"N Lo. 123°27'43"W	10-22-12
003	Workman's Creek	Lat. 46°57'27"N Lo. 123°27'49"W	10-22-12
004	Fuller Creek	Lat. 46°57'55"N Lo. 123°28'27"W	10-22-12
005	Fuller Creek	Lat. 46°58'1" N Lo. 123°28'20"W	10-22-12
006	Fuller Creek	Lat. 46°58'6" N Lo. 123°28'9" W	10-22-12
007	Fuller Creek	Lat. 46°58'12"N Lo. 123°28'9" W	10-22-12
008	Fuller Creek	Lat. 46°58'22"W Lo. 123°47'21"W	10-22-12
009	Chehalis River	Lat. 46°58'30"N Lo. 123°27'15"W	10-22-12
010	Purgatory Creek	Lat. 46°58'20"N Lo. 123°27'19"W	10-22-12

(1) No pollutant discharge from any construction activity or operation associated with this project is authorized from any outfall other than those ten outfalls identified above.

TPS 005323

SPECIAL CONDITIONS

S.1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning with the issuance of this permit and lasting until the expiration date of this permit, the permittee is authorized to discharge effluents from Outfall Discharge Serial Number 001 subject to the following limitations and monitoring requirements:

TPS 005324

A. LOW VOLUME WASTE SOURCES PORTION OF DISCHARGE SERIAL NUMBER 001 PER UNIT(1)

PARAMETER	EFFLUENT LIMITATIONS (2)		MONITORING REQUIREMENTS(3)	
	Daily Maximum	Daily Average	Minimum Frequency	Sample Type
Total Suspended Solids (lb/day)	70	12.5	3 times per week	Grab
(mg/l)	100			
pH	Between 6.5 and 8.5 at all times		3 times per week	Grab
Oil and grease (lb/day)	10.5	6.3	weekly	Grab
(mg/l)	15			
Flow (GPD)(4)	**8.4×10^4**	$5. \times 10^4$	Each discharge	Log tank contents prior to discharge

Note (1) Permittee shall mix effluent from this source with cooling water blowdown when either cooling tower is operational.

Note (2) When neither cooling tower is operational, low volume wastes must be retained.

Note (3) Permittee shall monitor the effluent from the low volume waste sources for TSS, pH, oil and grease and flow volume prior to mixing with cooling tower blowdown or other in-plant streams.

Note (4) Permittee shall discharge from this source only on an intermittent basis.

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B. RECIRCULATED COOLING WATER BLOWDOWN PORTION OF DIFFUSER DISCHARGE SERIAL NUMBER 001 PER UNIT

PARAMETER	EFFLUENT LIMITATIONS(1)		MONITORING REQUIREMENT	
	Daily Maximum	Daily Average	Minimum Frequency	Sample Type
Temperature	Note(2)		Continuous	Instantaneous
Free Available Chlorine (lb/day)	Note(3) 1.4	.5	Continuous(4)	Instantaneous
(mg/l)	0.0013			
pH	Between 6.5 and 8.5 at all times		Continuous(5)	Instantaneous
Flow (GPD)(6)	4.03×10^6	3.7×10^6	Continuous	Instantaneous
Copper (mg/l)	0.0013		Weekly	Grab
CFS	6.3			

Note (1) Permittee shall monitor the effluent for temperature, chlorine, pH and flow prior to being mixed with other inplant streams.

Note (2) The discharge temperature of the recirculated cooling water and component auxiliary cooling system water to the blowdown system shall not exceed either 65° F or the lowest temperature of the recirculating system prior to the addition of the makeup water.

Note (3) The maximum concentration of total residual chlorine at the outfall shall not exceed 0.0013 mg/l at any time. For compliance, chlorine will be measured at and will be characteristic of the discharge of the unit being chlorinated.

Note (4) Continuous recording of total residual chlorine during periods of active chlorination and for 3 hours after recommencing discharge or until chlorine residual reaches an undetectable level.

Note (5) Permittee shall include alarm systems for pH control, for chlorine residual, to provide indication of any variance from established limits.

Note (6) No discharge is permitted from this source at any time either when instantaneous river velocities are less than 1.0 feet per second at the diffuser, or when instantaneous flow volumes are less than 550 cfs.

TPS 005325

C. METAL CLEANING WASTES PORTION OF DISCHARGE SERIAL NUMBER 001 PER UNIT

PARAMETER	EFFLUENT LIMITATIONS (1)		MONITORING REQUIREMENTS (2)	
	Daily Maximum	Daily Average	Minimum Frequency	Sample Type
Total Iron (lb/day)	0.42	0.17	3 times per day when discharging	Grab
Total Copper (lb/day)	0.42	0.17	3 times per day when discharging	Grab
(mg/L)	.0013			
Total Suspended Solids (lb/day)	42	5	3 times per day when discharging	Grab
(mg/L)	100			
pH	Between 6.5 and 8.5 at all times		3 times per day when discharging	Grab
Oil and Grease (lb/day)	6.3	2.5	3 times per day when discharging	Grab
(mg/l)	.15			
Flow (GPD)	5×10^4	2×10^4	Each Discharge	Calculated Total Volume

Note (1) The daily values indicated are permitted for one cleaning operation only and the discharges are limited to one unit at a time. The cleaning operation discharges may be made only at times when river flow volume at the outfall exceeds 6600 cfs.

Note (2) Permittee shall monitor the metal cleaning wastes prior to their confluence with any other discharge stream emitting from the project.

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D. SANITARY SERVICE PORTION OF DISCHARGE SERIAL NUMBER 001 (1)

PARAMETER	EFFLUENT LIMITATIONS(2)		MONITORING REQUIREMENTS(3)	
	Daily Maximum	Daily Average	Minimum Frequency	Sample Type
Biochemical Oxygen Demand (lb/day)	7.5	5.0	Weekly	Composite
(mg/l)	45	30		
Total Suspended Solids (lb/day)	7.5	5.0	Weekly	Composite
(mg/l)	45	30		
Fecal Coliform Bacteria	400 per 100 ml	200 per 100 ml	Weekly	Day shift grab
pH	Between 6.5 and 8.5 at all times		3 times weekly	Day shift grab
Flow (GPD)	2×10^4	2×10^4	Continuous	Instantaneous
Total Residual Chlor ine (mg/l)	0.5 mg/l maximum prior to mixing with cooling tower blowdown		3 times weekly	Grab

Note (1) When neither cooling tower is operational, sanitary wastes must be retained.

Note (2) Permittee shall mix effluent from this source with cooling water blowdown when either cooling tower is operational.

Note (3) Permittee shall monitor the effluent prior to mixing with other inplant streams.

TPS 005328

S.2 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS FOR OUTFALL DISCHARGE SERIAL NUMBERS 002, 003, 004, 005, 006, 007, 008, 009, and 010.

During the period beginning with the issuance of this permit and lasting until the expiration date of this permit, the permittee is authorized to discharge effluents from Outfall Discharge Serial Numbers 002, 003, 004, 005, 006, 007, 008, 009 and 010 subject to the following limitations and monitoring requirements:

1. pH factor, coliform content, dissolved oxygen, total dissolved gas content and temperature should not exceed normal area runoff amounts.

2. The presence of oil, grease, or polychlorinated biphenyl in outfall discharges will not be tolerated.

TPS 005329

A. COLLECTED STORM RUN-OFF DRAINAGE OF DISCHARGE SERIAL NUMBERS 002, 003, 004, 005, 006, 007, 008, 009 and 010

PARAMETER	EFFLUENT LIMITATIONS(1)	MONITORING REQUIREMENTS	
		Minimum Frequency	Sample Type
Total Suspended Solids	50 (mg/l) maximum	Once per 1/2 day when there is discharge from the storm collector basins	Grab 2-hours after discharge begins and daily
Settleable Solids (ml/l)	0.1		
pH	Between 6.5 and 8.5 at all times	Once per 1/2 day when there is discharge from the storm collector basins	Grab 2-hours after discharge begins
Flow(2)	Pond Discharges shall not cause tributary creeks to exceed their immediately previous maximum storm levels.		

Note (1) Any untreated overflow from facilities designed, constructed and operated to treat the volume of material storage runoff and construction runoff which is associated with a 10-year 24-hour rainfall event shall not be subject to the limitations here stated for total Suspended Solids, settleable solids, and pH.

Note (2) All ditches must be appropriately routed to sedimentation and erosion control ponds.

TPS 005330

GENERAL CONDITIONS

G1. No discharge of polychlorinated biphenyl compounds, such as transformer fluid, is permitted. No discharge of materials added for corrosion inhibition including but not limited to zinc, chromium and phosphorus is permitted.

G2. All discharges and activities authorized herein shall be consistent with the terms and conditions of this permit. Permittee is authorized to discharge those pollutants which are: (1) contained in the water supply, (2) entrained from the atmosphere, or (3) quantitatively and qualitatively identified in the permit application; except as modified or limited by the special or general conditions of this permit. However, the effluent concentrations in permittee's waste water shall be determined on a gross basis and the effluent limitations in this permit mean gross concentrations and not net addition of pollutants. The discharge of any pollutant more frequently than or at a level in excess of that authorized by this permit shall constitute a violation of the terms and conditions of this permit. There shall be no discharge of liquid radioactive wastes during normal plant operations.

G3. Permittee shall notify the Council no later than 120 days before the date of anticipated first discharge from outfall 001 under this permit.

G4. Notwithstanding any other condition of this permit, the permittee shall not discharge any effluent which shall cause a violation of any State of Washington water quality criteria or standards as they exist now or hereafter are amended, at discharge points specified by this permit.

G5. The permittee shall provide an adequate operating staff which is qualified and shall carry out the operation, maintenance, testing and reporting activities required to assure compliance with the conditions of this permit.

G6. Notwithstanding any other condition of this permit, Permittee shall handle and dispose of all solid waste material from plant operations, including settled silts, sludges, and other wastes from cooling towers, waste retention basins, or any other source in such a manner as to prevent any pollution of ground or surface waters. Further, permittee shall not permit leachate from such solid waste material to cause adverse effect on ground or surface water quality. Prior to the production of solid wastes, the permittee shall obtain Council approval of the proposed method of handling and disposing of solid wastes.

G7. Whenever a facility expansion, associated construction operation, production increase, or process modification is anticipated which will result in a new or increased discharge, or which will cause any of the conditions of this permit to be exceeded, a new NPDES application must be submitted together with the necessary reports and engineering plans for the proposed changes. No such change

shall be made until plans have been approved and a new permit or permit modification has been issued. If such changes will not violate the effluent limitations specified in this permit, permittee shall notify the Council of such changes prior to such facility expansion, production increase or process modification.

G8. If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under state law or under Section 307(a) of the Federal Act for a toxic pollutant which is present in the permittee's discharge and such standard or prohibition is more stringent that any limitation upon such pollutant in this permit, this permit shall be revised or modified in accordance with the toxic effluent standard or prohibition and the permittee shall be so notified.

G9. If, for any reason, the permittee does not comply with or will not be able to comply with any effluent limitations specified in this permit, the permittee shall:

a. Immediately take appropriate action to stop, contain, and clean up the unauthorized discharge and correct the problem.

b. Provide the Council and Department of Ecology with the following information, in writing, within 48 hours of becoming aware of such conditions:

(1) A description of the discharge and cause of noncompliance; and

(2) The period of noncompliance, including dates and times; or if not corrected, the anticipated time the noncompliance is expected to continue and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

Compliance with these requirements does not relieve the permittee from responsibility to maintain continuous compliance with the conditions of this permit or the resulting liability for failure to comply.

G10. The permittee shall at all times maintain in good working order and efficiently operate all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit.

G11. The diversion of any discharge or bypass of any facilities utilized by the permittee to maintain compliance with the terms and conditions of this permit is prohibited, except (a) where unavoidable to prevent loss of life or severe property damage, or (b) where excessive storm drainange or runoff (See Special Condition 2(a) Note (1).) would clearly damage any facilities necessary for compliance with the terms and conditions of this

permit. The permittee shall promptly notify the Council and the Department of Ecology in writing of each such diversion or bypass (See Special Condition 2(A) Note (2).) in accordance with the procedure specified in condition G9.

G12. Permittee shall install an alternative electric power source capable of operating all electrically powered pollution control and monitoring facilities; or, alternatively, permittee shall certify to the Council that the terms and conditions of this permit will be met in case of a loss of primary power to any pollution control or monitoring equipment by controlling production.

Monitoring

G13. Permittee shall comply with the Monitoring Program requirements set forth herein:

Monitoring results for the previous quarter shall be summarized on a monthly basis and reported on a Discharge Monitoring Report Form (EPA 3320-1), postmarked no later than the 28th day of the month following the end of the quarter. The first report is due by the 28th day of the first month following the end of the quarter in which the first discharge under this permit occurs. Duplicate signed copies of these, and all other reports required herein shall be submitted to EPA, the Council and DOE at the following addresses:

U.S. EPA Region X
1200 6th Avenue
Seattle, WA 98101
Attention: Permits Branch

Dept. of Ecology
Olympia, WA 98504

EFSEC
Attention:
Executive Secretary
820 East 5th Ave.
Olympia, WA 98504

G14. The permittee shall retain for a minimum of three years all records of monitoring activities and results, including all reports of recordings from continuous monitoring instrumentations, record of analysis performed and calibration and maintenance of instrumentation. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or when requested by the Council.

G15. All samples and measurements made under this program shall be representative of the volume and nature of the monitored discharge.

G16. The permittee shall record such measurement or sample taken pursuant to the requirements of this permit for the following information: (1) the date, place and time of sampling; (2) the dates the analyses were performed; (3) who performed the analyses; (4) the analytical techniques or methods used; and (5) the results of the analyses.

G17. As used in this permit, the following terms are as defined herein:

a. The "daily maximum" discharge means the total pollutant discharge by weight during any calendar day and where specified, the maximum permissible pollutant concentration.

b. The "daily average" discharge means the total pollutant discharge by weight and where specified the average pollutant concentration during a calendar month divided by the number of days in the month that the respective discharges occur. Where less than daily sampling is required by the permit, the daily average discharge shall be determined by the summation of the measured daily discharges by weight divided by the number of days during the calendar month when the measurements were made.

c. "Composite sample" is a sample consisting of a minimum of six grab samples collected at regular intervals over a normal operating day and combined proportional to flow, or a sample continuously collected proportional to flow over a normal collecting day.

d. "Grab sample" is an individual sample collected in a time span of less than 15 minutes.

G18. All sampling and analytical methods used to meet the monitoring requirements specified in this permit shall conform to regulations published pursuant to Section 304(g) of the Federal Act, or if there is no applicable procedure, shall conform to the latest edition of the following references:

a. American Public Health Association, Standard Methods for the Examination of Water and Wastewaters.

b. American Society for Testing and Materials, A.S.T.M. Standards, part 23, Water, Atmospheric Analysis.

c. Environmental Protection Agency, Water Quality Office Analytical Control Laboratory, Methods for Chemicals Analysis of Water and Wastes.

Alternative methods may be utilized if approval pursuant to 40 CFR 136 or as amended is received by permittee. The Council shall be notified of each such alternative method approved for use.

G19. Except for data determined confidential under Section 308 of the Federal Act, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Council and the Regional Administrator. As required by the Federal Act, effluent data shall not be considered confidential. Knowingly making a false statement on any such report may result in the imposition of criminal penalties as provided in Section 309 of the Federal Act.

Other Provisions

G20. After notice and opportunity for a hearing this permit may be modified, suspended or revoked in whole or in part during its term for cause including but not limited to the following:

a. Violation of any terms or conditions of this permit;

b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;

c. A change in conditions of the receiving waters that requires either a temporary or permanent reduction or elimination of the authorized discharge;

d. If any provision of this permit is declared invalid by the courts.

G21. The permittee shall, at all reasonable times, allow authorized representatives of the Council upon the presentation of credentials:

a. To enter upon the permittee's premises for the purposes of inspecting and investigating conditions relating to the pollution of, or possible pollution of any of the waters of the State, or for the purpose of investigating compliance with any of the terms of this permit;

b. To have access to and copy any records required to be kept under the terms and conditions of this permit;

c. To inspect any monitoring equipment or monitoring method required by this permit; or

d. To sample any discharge of pollutants.

G22. Nothing in this permit shall be construed as excusing the permittee from compliance with any applicable, Federal, State or local statutes, ordinances, or regulations.

G23. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject.

G24. The permittee shall notify and afford the Council reasonable opportunity to review and comment on completed design drawings, specifications, and operational procedures for facilities including, but not limited to, the following:

a. Liquid radioactive waste discharge prevention;
b. Sanitary sewage treatment;
c. Low volume waste treatment, including frequency of discharges;
d. Construction run-off ponds;

writing of all such problems.

G28. All construction related bid documents and construction and installation contracts must contain explicit provisions which adequately and specifically inform contractors of contractors' obligations to adhere to all sedimentation and erosion control standards set forth herein. These contracts shall be made available to the Council on request.

G29. Applicant must monitor and record on a daily basis, water conditions and composition at the water intake location, should its proposed project be authorized, to detect any variation which may have a significant effect on water quality downstream from the diffuser.

G30. The Council may order applicant to take all appropriate steps, including management of discharges, to maintain water quality conditions. Instantaneous river flow conditions, including any tidal influence, shall be continuously monitored in the vicinity of the diffuser at outfall 001.

G31. Prior to the start of construction, applicant shall submit to the Council for its review, sedimentation and erosion control plan modifications sufficient to insure that no construction runoff discharges wherein suspended solids concentrations exceed 50 mg/l are made and that water quality criteria will be met at construction runoff discharge points, except on occurrence of specific circumstances described in S 2 (a) and G11 of this permit.

G32. In addition to complying with other conditions of this permit, applicant must at all times adhere to all standards of practice and performance it committed to in the course of hearings held on April 10, 11, 15, 16 and 17, and July 24 and 25, 1975, in this matter.

G33. Empirical measurements of turbidity resulting from discharges must be made at earliest possible times for all outfall locations and as necessary thereafter; measurements taken together with measurement methods must be submitted to the Council for the Council's review and determination that water quality criteria relating to turbidity have been met; and applicant must at the earliest practicable date perform such modifications as are necessary and approved by the Council to assure that discharges made at outfall locations 001 through 010 meet state water criteria relating to turbidity without causing such discharges to exceed other limits set herein.

G34. River flow volumes, which accurately represent outflow conditions immediately above the diffuser pipe, shall be measured on a continuous and permanent recording basis by such method as may be proposed by the permittee and approved by the Council.

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e. Outfalls and diffusers;
f. River flow measuring stations and tidal effect measuring stations;
g. Metal cleaning waste discharges;
h. Water composition and condition stations.

The Council reserves the right to reject any drawing or procedural manuals for failure to conform to conditions stated in this permit and accompanying order. The Council further reserves the right to require amendments to any drawings or procedural manuals to produce conformance with conditions stated in this order or accompanying permit. Nothing contained herein shall be construed to relieve permittee from any liability arising from deficiencies or omissions in drawings, specifications, or operating procedures.

G25. Prior to the on-site storage of oil and hazardous waste materials the permittee shall obtain Council approval of a spill prevention containment and counter-measure plan which shall include:

a. A description of the reporting system which will be used to alert responsible facility management and appropriate legal authorities.

b. A description of preventive facilities (including overall facility plot) which prevent, contain, or treat spills an/unplanned discharges and a compliance schedule to install any necessary facilities in accordance with the approved plan.

c. A list of all hazardous materials used, processed or stored at the facility which may be spilled directly or indirectly into state waters.

Submittal of this plan in accordance with this requirement does not relieve the permittee from compliance with, nor ensure compliance with, the Federal spill prevention requirement contained in 40 CFR part 112 of the Federal Register. Oil Spill Prevention, Containment and Counter-measure Plans prepared in accordance with the above federal requirement may be used in partial fulfillment of this permit requirement.

G26. Permittee must, where applicable, continuously, efficiently, and assiduously operate all pollutant control facilities required by this permit for the duration of this certification.

G27. All necessary action must be taken to eliminate any new unforeseen surface runoff problems threatening to cause discharge of pollutants in quantities or concentrations greater than those authorized by this permit. Permittee must obtain Council approval of all such actions and must promptly notify the Council in

ATTACHMENT IV

ENVIRONMENTAL MONITORING PROGRAM

I. GENERAL DESCRIPTION

The Environmental Monitoring Program established by the Supply System will have as its objective the determination of the effects of the project on the environment. Monitored items will include the expected physical effects on land and adjacent waters, and effects on terrestrial and aquatic ecosystems as a result of project construction and the radiological effects, if any, as a result of plant operation. The program will provide an environmental measurement history for evaluation by the Supply System and the Council. Such a program will use best reasonable and available methods and techniques and must be maintained at necessary levels through the life of the project.

The Environmental Monitoring Program will be flexible and may be modified upon approval of the Council as detailed information is acquired from the program. Any modifications will be based upon: (a) project effects, if any, on the terrestrial and aquatic ecology including the wildlife, fish and other aquatic life in the project influence area, (b) informational inputs obtained during the pre-operational monitoring, (c) siting of other nuclear or other facilities in

TPS 005338

areas surrounding the site, (d) technological developments in the field of environmental monitoring, (e) changes in type and abundance of natural vegetation, (f) changes in conditions which relate to the pathways which lead to human radiation exposure, and (g) changes in applicable acceptable levels of project discharges to the environment or effects on the environment.

The monitoring program shall be designed to assure appropriate reaction will occur when an unexpected variance occurs in the data results.

Changes, supplements or revisions to the Environmental Monitoring Program will be submitted to the Council for its review and approval.

II. ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM

A. Program Elements

1. Air sampling locations will be established onsite and offsite. Special attention will be given to location of air samplers within five miles of the plant and in areas where populations are concentrated.

TPS 005339

2. In the terrestrial monitoring part of this program (vegetation, soil, farm products), the area within a ten-mile radius of the site will be of primary concern. Special emphasis will be placed on dairy farming.

Particular emphasis will be placed on the collection of those primary food chain components which lead to man. Soil samples, vegetation, dairy products (milk) and other items will be sampled.

3. In the aquatic program, sampling will include samples from the Chehalis River, its tributaries, ground water and water supply from wells.

The aquatic food chain constituents included in this program will be taken from the Chehalis River and Grays Harbor and will include the collection of bottom sediments and organisms, plankton, periphyton, and aquatic vegetation, and fish.

Sampling frequencies will depend upon weather, growing season, animal and fish activity and other considerations stated in orders, permits or agreements issued by the Council or deemed appropriate in each case.

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B. Surveillance Levels

The radiological monitoring program outlined in Table 1 attached herewith and made a part hereof, represents the level of surveillance during the pre-operational and operations phases.

Analytical Procedures shall be compatible with but not limited to the following documents, or later documents representing state of the art improvements:

1. "Handbook of Radiochemical Analytical Methods," U.S. Environmental Protection Agency, EPA-680/4-75-001, February, 1975.

2. "Health and Safety Laboratory Procedures Manual," U.S. Energy Research & Development Administration, HASL-300, 1972.

3. "Standard Methods for the Examination of Water," American Public Health Association, 13th Edition.

For comparison purposes, the Supply System will furnish the Council or its designated representatives, upon request, half samples of specimens for their evaluation and analysis.

TPS 005341

Sample stations are described in the following discussion of sample types.

1. Atmosphere

a. Gamma Detectors:

The external gamma spectrum will be continuously monitored at four positions.

b. TLD Dosimeters:

Levels of external radiation will be established by exposing thermo-luminescent dosimeters (TLD) for various periods of time at fifteen locations. Nine dosimeters will be maintained at each station: three dosimeters are changed and read monthly, three dosimeters are changed and read quarterly, while the other dosimeters are changed and read annually.

2. Airborne Particulates and Iodine:

Airborne radioactive particulates and gaseous iodine will be collected on a weekly basis at four of the TLD stations.

TPS005342

3. Plant Discharge Water

Discharge Water will be monitored continuously for gamma activity.. A weekly sample will be taken for more detailed analysis and for calibration of the continuous gamma monitor.

4. River Water:

Sampling of the Chehalis River will be performed on a monthly basis from four locations: two miles upstream of outfall, at outfall, 1000 meters downstream from outfall, and at the mouth in Grays Harbor. Sampling on a monthly basis will also be performed at one location on the Satsop River one mile above its confluence with the Chehalis.

5. Groundwater

Sampling of groundwater will be performed monthly from wells near the station. The wells include the Elma water supply.

TPS 005343

6. Vegetation

a. Garden Vegetables:

Samples of the edible portions of garden vegetables will be collected three times annually during the growing season.

b. Pasture Grass:

Edible portions of food and feed crops will be sampled at three locations within a ten-mile radius of the station. Samples will be collected at the same locations as the milk samples and will be collected three times during the growing season.

7. Soil

Soil samples will be collected semi-annually at three locations.

8. Sediment Samples

Samples of the Chehalis River bottom sediment will be collected quarterly at three locations in common with water and aquatic organism sampling.

TPS 005341

9. Milk Samples

In the selection of milk sample locations, an attempt will be made to select milk producers who are likely to remain in the business of milk production during succeeding years of plant operations. Information regarding source of feed will be included with milk sample results. A pooled area sample and a controlled sample will also be obtained.

10. Aquatic Biota

a. Animals

Fish will be collected quarterly from the Chehalis River and Grays Harbor at the same locations used for the water sampling.

b. Benthic organisms will be collected quarterly at four stations.

c. Aquatic plants and plankton will be sampled at two locations, one above and below the outfall.

TPS 005345

11. Wildlife

a. At least one raccoon or substitute animal will be collected annually from land adjacent to the site.

b. At least two waterfowl from resident species will be collected annually near the site.

III. METEOROLOGICAL PROGRAM AND AIR QUALITY

A. Onsite Meteorological Program

The Supply System will maintain a meteorological tower to record meteorological characteristics of WNP-3 and WNP-5 during the life of the project. The program will begin at least two years prior to start-up. Detailed measurements of wind speed, direction, low level stability and humidity will be gathered.

B. Air Quality Monitoring Program

Stack monitoring will be conducted when the diesel generators or auxiliary boilers are being operated.

IV. AQUATIC MONITORING PROGRAM

The aquatic monitoring program will be an integrated program for all phases of WNP-3 and WNP-5 site development and use.

TPS 005346

The intensity of effort on the monitoring program will vary with increasing activity immediately before and after the initial operation of each project. Continuous evaluation of monitoring data will be accomplished to produce a more efficient environmental surveillance program. Portions of the program may be adjusted depending upon an evaluation of program results.

A. Pre-Operational Aquatic Monitoring Program

The pre-operational monitoring program for WNP-3 and WNP-5 will include an effort in each of the trophic levels of importance.

1. Benthic Macroinvertebrates Program

Benthic macroinvertebrates and drift-emergent insect fauna will be studied at three Chehalis River stations during the period from prior to site preparation for the first unit. These stations include:

Discharge (to 1000 ft. below)

Greenbanks

Intake Area

TPS 005347

The sampling schedule is as follows:

Macrobenthos/Drift/Emergent Insect

	J	F	M	A	M	J	J	A	S	O	N	D
Macrobenthos	X		X	X	X	X	X	X	X			
Drift/Emergent Insect	X		X	X	X	X	X	X	X			

Following the conclusion of the initial year of the pre-operational studies each task and sampling effort will be reviewed.

2. Drift - Emergent Insect Fauna

The drift-emergent insect study will complement the benthic program. Sampling stations and the monthly sampling frequency of benthos/drift will coincide as to provide a more complete picture of the river fauna.

3. Periphyton Program

Beginning before site preparation, three stations in the Chehalis River will be utilized for periphyton studies. These stations coincide with those established for the fisheries program and the benthid macroinvertebrade/drift-emergent insect program.

TPS 005348

4. Fisheries Program

The pre-operational monitoring period beginning two years prior to start-up of the first unit will include as fisheries study sites: the intake area, the discharge area (to 1000 ft. downstream), the "Greenbanks" region, the Fuller Bridge area, the Chehalis River holding area above the discharge, a station on the Wynoochee within one mile of its mouth, and a station on Workman Creek above its mouth.

Fisheries work performed will include estimates of species composition, food habits, length and weight relations, and an identification of Chehalis River habitat utilization by adult and juvenile fishes, including migratory routes and spawning areas. Sampling of the fishery will be performed monthly for the initial two year period.

Fishery work planned for the first two years of the pre-operational studies and for the last year before startup of the first unit will involve an intensive survey of fishery community characteristics. These will include: species composition, growth patterns, condition factors, population age structure, food habits, habitat utilization by species, species di-

TPS 005349

versity, timing of sexual maturity, incidence of disease and migrational patterns of anadromous fish. Water depth, temperature, dissolved oxygen, turbidity, and BOD will be measured simultaneously with biological sampling.

B. Operational Aquatic Monitoring

The operational aquatic monitoring program will be a continuation of the pre-operational preliminary sampling program. The scope of the operational aquatic monitoring program will be determind as the results of the preliminary survey are developed. This program will be developed by the Supply System and approved by the Council prior to operation of either project.

V. WATER QUALITY MONITORING PROGRAM

This program will be established to monitor water quality parameters. Data obtained by this program will also supply necessary information to the study of the aquatic life in the river. Monitoring will begin two years prior to start-up of the first unit.

A. Construction of Blowdown Diffuser

Measurements of suspended sediment concentrations and turbidity will be performed at river cross-sections

TPS 005350

100 feet above and 300 feet downstream from the outfall structure. The measurements will be conducted weekly in mid-afternoon during construction of river bank facilities. The sampling areas and frequency may be modified according to the sampling results. Sediment concentrations will be measured by a conventional suspended sediment sampler.

B. Surface Water

Four sampling stations have been selected on the Chehalis River and one on the Satsop. An additional five stations have been located on creeks in the vicinity of the project site.

1. Construction Period

Suspended solids, turbidity, oil and grease, fecal coliform and pH are to be measured weekly. Total dissolved solids, alkalinity, total hardness, dissolved oxygen, conductivity, sulfate, nitrate, nitrite, BOD, COD, total dissolved gas, ammonia-nitrogen, kjeldahl nitrogen, total coliform and total phosphate are to be measured monthly.

TPS 005351

2. Pre-Operational Period

All of the above parameters will be measured monthly; in addition calcium hardness, chloride, flouride, calcium, magnesium, sodium, bicarbonate, carbonate and phenol will be measured monthly at the four Chehalis River sites and one Satsop River site.

3. Operational Period

The operational water quality monitoring program will be a continuation of the pre-operational sampling program. The scope of the operational program will be determined as the results of the pre-operational survey are developed. This program will be developed by the Supply System and approved by the Council prior to operation of either project.

4. Thermal Effluent Monitoring

Surface and bottom temperatures of the river 100 feet above and 100 feet below the blowdown diffuser and the blowdown itself will be monitored continuously.

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VI. TERRESTRIAL ECOLOGY PROGRAM

The terrestrial ecology monitoring program for WNP-3 and WNP-5 is part of an integrated monitoring program for the construction, pre-operational and operational phases. Pre-construction monitoring will begin in 1976 and continue for a minimum of two years.

The purpose of the terrestrial ecology program will be to identify the impact of construction activities and plant operation upon the terrestrial ecosystem.

A. Aerial Photography

Aerial photographs in natural color and false color infrared of the site and adjacent area will be made to provide a basis fo mapping the extent of changes in existing plant communities. Future photography will depend on the utility of the photographs as determined by the Council.

B. Establishment of Experimental Watersheds

Four experimental watersheds, each comprising 40 to 60 acres, will be located within 1.5 miles of the plant facilities. Selection of watersheds and delineation of

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boundaries will be based on an analysis of aerial photographs, vegetation maps, topographic maps, and existing soil survey information.

C. Vegetation Sampling

A quantitative description of the vegetation of the four experimental watersheds will serve three purposes: aid analysis of the eco-system processes selected for monitoring possible biological responses to construction and operation of the pwer plant; provide estimates of similarities and differences between the vegetation of the four experimental watersheds; and allow comparison of the watersheds with other Douglas fir forests of western Washington which have been the focus of watershed eco-system studies.

1. Establishment of Sampling Quadrats

Ten quadrats, each 5 meters by 15 meters, will be established in each watershed. Additional quadrats will be added during the construction program until the variability of the recorded data is reduced to an acceptable level. Initial work will commence

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in 1976, after selection of the experimental areas on sites corresponding to points randomly selected from a grid system developed for each watershed.

2. Recorded Data

Species, diameter at breast height (dbh), and estimated height will be recorded for each canopy (dbh greater than or equal to 10cm) and subcanopy trees (dbh greater than 5 cm but less than 10 cm). Cores may be obtained with an increment borer, from selected trees to determine stand age, should this information not be available. Species, density, and estimated cover will be recorded for shrubs (dbh greater than 1.0 cm but less than 50 cm) and herbs (dbh less than 1.0 cm). These data will be recorded in a form suitable for computer calculation of density, dominance, frequency, and importance values for each species.

Aspect and slope will be determined at each quadrat with a compass and clinometer. Insect damage, disease and other natural stresses on vegetation will be noted and recorded photographically.

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D. Distribution and Chemical Composition of Lichens and Mosses

This aspect of the program will provide information needed to assess the importance of atmospheric inputs associated with cooling tower operation.

1. Lichen Distribution

A systematic photographic record of lichens and mosses at ground level and different heights above ground will be obtained at each quadrat established in the Vegetation Sampling Program. Lichen studies will be conducted, initially, at two experimental watersheds and expanded if preliminary data do not provide a data statistically adequate description of lichen distribution. Lichens will be identified in the field, when possible, and appropriate voucher specimens are collected. A less intensive lichen program will be conducted during the period of plant construction to obtain information on natural variability of lichen species abundance.

2. Chemical Composition

From analysis of field data, a species of lichen which is relativley abundant and widely distribu-

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ted will be selected for chemical analyses. Lichen thalli will be ashed and analyzed with atomic absorption techniques or appropriate standard methods for S, Cl, Ca, Na, and the heavy metals Hg, Cu, Zn, and Cr. This phase of the program will be conducted once prior to construction, two years before scheduled startup of the first unit.

E. Chemical Composition of Follar Leachate

Analysis of precipitation which has filtered through the canopy foliage leachate will be utilized, along with data obtained from the Meteorology - Air Quality Programs, assessing possible biological responses to atmospheric inputs resulting from cooling tower operation.

1. Collection

Leachate will be collected at least monthly during the first year of the program, at five stations in each of two experimental watersheds. Additional stations will be established if data analyses reveals an unacceptable level of variation. A collector at each station will retain leachate and minimize entry of particulate matter and evaporation of leach between collection periods.

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2. Analysis

Leachate will be analyzed, using standard technique methods for $SO_4^=$, Cl-, CA++, Na+. Sampling of foliar leachate will be conducted throughout the construction period, although the intensity of sampling may be altered after analysis and review of the initial data.

F. Soil Characteristics

1. Classification

Classification of the soils of the four experimental watersheds as to series and type will be ascertained from existing soil surveys. This information will be necessary to determine the similarity of the watersheds, and to interpret the measured chemical composition of soil and stream water.

2. Chemistry

Soil samples will be extracted with an auger from two definable horizons, decomposed litter (O_2) and mineral - litter interface (A_1). Additional samples may be obtained from only one of the two

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horizons, based on observed variability of chemical analyses. Three soil samples will be collected at each of the vegetation quadrats described in Section B.

Replicate analyses will be conducted, with standard techniques, for available $SO_4^=$, CL-, CA++, Na+ and Hg, Cu, Zn, and Cr.

G. Watershed - Ecosystem Analysis

The program of watershed ecosystem analyses is designed to collect information which will describe the principal interrelationships between terrestrial and aquatic ecosystems. These are the interrelationships responsible for the transfer of terrestrial organic production from the forest to the aquatic system, upon which the latter is largely dependent. This program will attempt to scientifically assess several of the key processes which the terrestrial and aquatic ecosystem depend on.

Physical processes will be monitored by the meteorology, and water quality programs. These data will be interpreted as inputs to and outputs from the proposed experimental watersheds. In this scheme, the forest is viewed as the recipient of atmospheric inputs. The terrestrial ecosystem processes these inputs and then

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exports, by way of the streams, a spectrum of organic and inorganic materials. The stability and diversity of these receiving bodies is, in large part, dependent upon the amount and rates of flux of these substances.

1. Leaf Litter

Litter fall will be collected on screen traps (0.25 m^2) arrayed in three groups of five in two watersheds. Allocation of sampel stations will be based upon a review of aerial photographs, in an effort to insure homogeneity of forest type. Samples will be collected monthly, sorted into representative constituents, oven dried, and weighed.

2. Leaf Litter Decomposition

Leaf litter decomposition will be studied using the mesh bag techniques of Cromack (1973) during the summer and fall of 1976. These will be compared statistically with IBP studies conducted at Thompson Forest.

Soil arthropods will be collected at five stations in two watersheds using soil coring apparatus. Core samples will be split into O_1 and O_2 horizons and

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their arthropod populations extracted using Berlese funnels. Soil arthropods will be oven dried (70°C) to constant weight. These data will be correlated with soil respiration (CO_2), moisture content, temperature and litter depth.

3. Organic-Inorganic Export

Organic-inorganic export from each of the watersheds will be monitored on primary forest streams monthly by the water quality program. Particulate carbon, dissolved carbon, Ca, Na, K, NO_3, PO_4, F, and SO_4 will be measured.

4. Ariolimax Columbianus

Because of the potential importance of A. columbianus in detrital processes, populations of these species will be estimated using exclusion traps in two watersheds during the summer of 1977-1979.

5. River-Stream Litter Decompositin

Litter input to primary and secondary forest streams will be monitored monthly using litter traps (10/ stream; wire mesh screens). A preliminary study of stream litter decomposition will begin during

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the fall of 1976. Information obtained will include rates of decomposition, amount of litter input and the benthic fauna associations in the primary-secondary streams.

This program will be reviewed annually.

H. Faunal Program

Monitoring terrestrial fauna will focus upon surveys of deer, ruffed grouse and birds. The overall program will be limited to seasonal observations of each population. Efforts involved will be limited to qualitative estimates of changes in habitat utilization and seasonal occurrence.

Deer and ruffed grouse habitat utilization will be quantified and described within each watershed. Methods used to describe deer and ruffed grouse habitat utilization procedures will be the same as those employed during the licensing period studies.

Deer techniques include three pellet track transects (200 ft.) in each watershed and observation. Grouse techniques will include call counts. Frequency of sampling will be monthly during the spring, summer and

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fall, 1976-1979. This program will be reviewed at the end of the 1979 sampling period.

Aviacommunities will be studied by spot census at the twenty stations selected during the licensing period. Comparative data (spot census) from the four watersheds surrounding the project will be collected. Bird species presence - absence data will be collected four times during each spring, summer, fall and winter season.

I. Operational Program

The operational terrestrial ecology monitoring program will be a continuation of the pre-operational sampling program. The scope of the operational program will be determined as the results of the pre-operational survey are developed. This program will be developed by the Supply System and approved by the Council prior to operation of either project.

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TABLE 1

SAMPLING SUMMARY

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM

Sample Type	Stations	Sampling Frequency	Analysis
1. Background			
a. External Gamma Spectrum	4	Continuous	(Background Gamma
b. TLD Dosimeters	15	Monthly, Quarterly, Annually	(Readout & Record (at Noted Frequency
2. Air			
a. Particulates	4	Weekly	(Gross Beta (Gamma Scan
b. Iodine	4	Weekly	(Radio Iodine
3. Plant Discharge Water	1	Continuously	(Gamma Activity
	1	Weekly	(Gross Alpha (Gross Beta (Gamma Scan & Tritium
4. River Water	5	Monthly	(Gross Alpha (Gross Beta (Gamma Scan & Tritium (Quarterly ^{90}Sr & ^{89}Sr
5. Groundwater	2	Monthly	(Gross Beta (Gamma Scan & Tritium

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Sample Type	Stations	Sampling Frequency	Analysis
6. Vegetation			
a. Garden Vegetables	2	At Harvest	(Gamma Scan
b. Pasture Grass	3	3 Times during growing season	(Gamma Scan
7. Soil	3	Semi-annually	(Gross Beta (Gamma Scan (^{90}Sr & ^{89}Sr
8. Sediment	3	Quarterly	(Gross Beta (Gamma Scan (^{90}Sr & ^{89}Sr
9. Milk	5	Monthly	(^{131}I (^{90}Sr & ^{89}Sr (Gamma Scan
10. Aquatic Biota			
a. Fish	4	Quarterly	(^{90}Sr & ^{89}Sr (Gamma Scan
b. Benthos	4	Quarterly	(^{90}Sr & ^{89}Sr (Gamma Scan
c. Vegetation & Plankton	2	Quarterly	(^{90}Sr & ^{89}Sr (Gamma Scan
11. Wildlife			
a. Raccoon/Substitute	1	Annually	(Gamma Scan
b. Waterfowl	1	Annually	(Gamma Scan

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