

Order No. 648
Date: March 28, 1983

BEFORE THE STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL

In the Matter of)	
Application No. 81-1 of)	
(Skagit/Hanford Nuclear)	
Project))	
)	
PUGET SOUND POWER & LIGHT)	FINDINGS OF FACT,
COMPANY)	CONCLUSIONS OF LAW AND
)	ORDER FOR NPDES PERMIT
A Washington Corporation)	AND SECTION 401
.)	CERTIFICATION

This matter having come before the Energy Facility Site Evaluation Council (Council) at a hearing held on May 6 and 7, 1982, in Pasco, Washington, and on June 2, 1982, in Olympia, Washington. Council members who participated in this proceeding and the agencies they represent, are as follows:

- | | |
|-----------------------------|--|
| Nicholas D. Lewis, Chairman | Energy Facility Site
Evaluation Council |
| Bert Baron | Planning and Community Affairs
Agency |
| Joe Bell | Department of Transportation |
| John A. Clark | Parks and Recreation Commission |
| John G. Douglass | State Energy Office |
| John Griffiths | Department of Natural Resources |

David H. Guier	Department of Emergency Services
Fred D. Hahn	Department of Ecology
Claude E. Lakewold	Office of Financial Management
Sam I. Reed	Department of Social and Health Services
Art Scheunemann	Department of Agriculture
Merlin Smith	Department of Commerce and Economic Development
Thomas C. Stacer	Utilities and Transportation Commission
John Ward	Department of Game
Charles Woelke	Department of Fisheries

The parties were represented as follows:

Applicant	<p>PUGET SOUND POWER & LIGHT COMPANY by F. Theodore Thomsen Attorney at Law Perkins, Coie, Stone, Olsen & Williams 1900 Washington Building Seattle, Washington 98101</p> <p>and Steven P. Frantz Lowenstein, Newman, Reis & Axelrad 1025 Connecticut Avenue, N.W. Suite 1214 Washington, D.C. 20036</p>
Department of Ecology	<p>Charles Lean Assistant Attorney General Temple of Justice Olympia, Washington 98504</p>
Departments of Fisheries and Game	<p>Paul S. Majkut Assistant Attorney General Temple of Justice Olympia, Washington 98504</p>

Intervenor

COLUMBIA RIVER INTER-TRIBAL
FISH COMMISSION (CRITFC)
by Rob Lothrop
Attorney at Law
8383 N.E. Sandy Blvd.
Portland, Oregon 97220

The Council's legal officers were Darrel L. Peeples and Patrick Biggs. Mr. Peeples presided at the hearing.

Testimony from the following witnesses was presented by the Applicant:

Robert V. Myers
Robert Van Popering
John W. Woods
Thomas H. Hamilton
Kan Lin
Jorge Schulz
Alan L. Toblin
William E. Joyce
Thomas L. Page
Robert W. Clubb

Testimony from the following witness was presented by the Department of Ecology.

Roger F. Stanley

Testimony from the following witnesses was presented by the Departments of Fisheries and Game:

Robert J. Gerke
James G. Fenton

CRITFC did not offer any witnesses, although its attorney, Rob Lothrop, did present an unsworn statement. No members of the public presented testimony during the course of the hearing.

The following exhibits were admitted into evidence:

<u>No.</u>	<u>Description</u>
1	Figure 2.1-1 Regional Map
2	Figure 3.1-1a Topographic Features in Vicinity of the Site and Associated Areas
3	Statement of Qualifications of Robert S. Van Popering
4	Figure 3.4-3 Intake and Discharge Configurations
5	Figure 3.4-2 Raw Water Pump House Section
6	Statement of Qualifications of John W. Woods
7	Statement of Qualifications of Thomas H. Hamilton
8	Table 3.4-1 Cooling Tower Evaporation, Blowdown & Drift as a Function of Weather Conditions
9	Table 3.4-2 Monthly Cooling Tower Evaporation, Blowdown, Drift and Blowdown Temperature for One Unit
10	Statement of Qualifications of Dr. Kan Lin
11	Figure 3.3-1 Waster Use Diagram
12	Table 3.6-1 Chemical Additions
13	Table 3.6-5 Water Quality Parameters (Maximum Values)
14	Table 3.6-6 Water Quality Parameters (Average Values)
15	Figure 1 Monitoring Point Locations
16	Table 1 NPDES Monitoring Device Capabilities
17	Table 5.3-1 Chemical Concentrations in the Project Discharge Before and After Dilution Compared to Ambient Levels
18	Table 3.6-3 Operations Causing Change in Dissolved Solids Concentration
19	Table 3.6-4 Discharge to the Columbia River from Contributions of Added Chemicals
20	Schulz References
21	Statement of Qualifications of Jorge Schulz
22	Table 3.5-6 Expected Yearly Activity Released from Liquid Waste Management Systems (1) Used for Evaluation of Compliance with App.1 of 10 CFR 50 (per unit)
23	Table 3.5-7 Calculated Effluent Activity Concentrations for Evaluation of Radioactive Releases to Columbia River

24	Page References
25	Statement of Qualifications of Dr. Thomas L. Page
26	Figure 3.4-3 Intake and Discharge Configurations
27	Table 5.1-2 Description of Excess Temperature Isotherms in the Columbia River Near the Proposed Thermal Discharge Zone
28	Table 5.1-3 Estimated Downstream Extent of Excess Temperature Near the Project Discharge During Peak Downstream Movement of Juvenile Chinook Salmon (Case 2) and in August-September (Case 1)
29	Table 3.6-5 Water Quality Parameters (Maximum Values)
30	Table 3.6-6 Water Quality Parameters (Average Values)
31	Table 5.3-1 Chemical Concentrations in the Project Discharge Before and After Dilution Compared to Ambient Levels
32	Toblin References
33	Statement of Qualifications of Alan L. Toblin
34	Figure 5.1-1 River Cross-Sections in the Vicinity of the Discharge
35	Table 5.1-1 Study Case Parameters
36	Figure 5.1-2 Downstream Surface Penetrations vs. Excess Temperature
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38	Figure 5.1-4 Volume vs. Excess Temperature
39	Figure 5.1-5 Surface Excess Temperature Isotherms-Regulatory Limiting Case (1)
40	Figure 5.1-6 Surface Excess Temperature Isotherms-Average Case (2)
41	Figure 5.1-7 Surface Excess Temperature Isotherms-Large Excess Temperature Case (3)
42	Figure 5.1-8 Vertical Excess Temperature Isotherms-Along Plume Centerline-Regulatory Limiting Case (1)
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45	Table 5.3-1 Chemical Concentrations in the Project Discharge Before and After Dilution Compared to Ambient Levels

46 Figure 11.2-7 Dilution Factor and Travel
Time of River Discharge Plume vs. Down-
stream Distance
47 Joyce References
48 Statement of Qualification of William E.
Joyce
49 Table 5.2-3 Individual Doses from Liquid
Radioactive Effluents at Ringold Farms
50 Table 5.2-7 Comparison of Maximum Organ
Doses to Appendix I Limits
51 Table 2.1-5 1980 Annual Production and
Approximate Yield of Crops Grown Within
50-Mile Radius of S/HNP
52 Table 2.1-9 1978 Sport Fishing Catch in
the Columbia River Above Bonneville Dam
53 Table 2.1-11 Surface Water Permits 50
Miles Downstream from S/HNP Discharge
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cation as of May 18, 1981
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59 Statement of Qualifications of Robert W.
Clubb
60 Table 6.2-1 Water Quality Monitoring
Stations Operational Program
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tebrate Sampling Stations for the Pre-
operational Monitoring Program
63 Figure 6.1-2 Aquatic Biological Sampling
Stations for the Preoperational Monitor-
ing Program
64 Table 6.1-6 Proposed Fish Sampling Fre-
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the Preoperational Monitoring Program
65 Memorandum dated April 27, 1982 Re:
Skagit/Hanford NPDES Review to Charles
Lean from Roger Stanley
66 DOE Report entitled General Procedure for
Static-Bioassay to Evaluate Industrial
Effluent Toxicity
67 Letter dated May 3, 1982 Re:
Skagit/Hanford Nuclear Project to Darrel
Peeples from Paul Majkut

68 Resume of Robert J. Gerke
69 Memorandum dated December 31, 1981 Re:
Fish Screening Criteria from Rolland A.
Schmitten
70 Resume of James G. Fenton
71 Letter dated April 26, 1982 Re: Skagit/
Hanford Nuclear Project
72 Table 1. Comparison of Trace Metal Con-
centrations at Various Stations in the
Hanford Reach of the Columbia River;
Spring, 1981
73 Table 2. Comparison of Trace Metal Con-
centrations at Various Stations in the
Hanford Reach of the Columbia River;
sample date May 4, 1981
74 Letter dated May 14, 1982 Re: Skagit/Han-
ford Nuclear Project to Darrel L. Peeples
from F. Theodore Thomsen

Judicial notice was taken of the following documents:

<u>No</u>	<u>DESCRIPTION</u>
1	Application for Site Certification/Envi- ronmental Report for Skagit/Hanford Nu- clear Project, as revised through Amend- ment 5
2	45 Fed. Reg. 79,318 <u>et seq.</u> (November 28, 1980)
3	National Interim Drinking Water Regula- tions, EPA publication, Office of Water Supply
4	Proposed NPDES Permit

The members of the Council voting on this matter having heard or read the evidence and having personally considered the whole record in this matter, now make the following Findings of Fact and Conclusions of Law and adopt the following Order.

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FINDINGS OF FACT

A. Background of the Proceeding

1. On December 30, 1981, pursuant to Chapter 80.50 of the Revised Code of Washington, Puget Sound Power & Light Company (Applicant) filed with the Council an Application for Site Certification/Environmental Report (ASC/ER or Application) for a proposed site (the Site) located on the Hanford Reservation in Benton County, Washington, for a proposed thermal power plant, the Skagit/Hanford Nuclear Project (S/HNP or Project). The Application included an application for a National Pollutant Discharge Elimination System (NPDES) Permit and an application for a certification in accordance with Section 401 of the Federal Water Pollution Control Act (FWPCA), as amended, 33 U.S.C. Subsection 1341. By letter dated March 23, 1982, the Applicant filed with the Council an amendment to the Application (Amendment 5 to the ASC/ER.)
2. The Application was assigned No. 81-1. A notice of hearing on the Application was published on January 27, 1982, which permitted any person who satisfied the requirements of WAC 463-30-400 to file a petition to intervene by March 31, 1982.
3. On March 12, 1982, a group of public agencies and municipal corporations, collectively referred to as the "Construction Impact Group," filed a petition to intervene which alleged that construction of S/HNP will affect the members of the Group. By order dated March 22, 1982, the Council admitted the Construction Impact Group as an intervenor on the subject of the impact of construction on the Group. The Construction Impact

Group did not participate in the hearings on the NPDES Permit and Section 401 Certification.

4. On May 4, 1982, the Columbia River Inter-Tribal Fish Commission (CRITFC) filed a petition to intervene, which was amended on May 14, 1982. CRITFC represents the fish and wildlife committees of the Confederated Tribes of the Warm Springs Indian Reservation, the Confederated Tribes and Bands of the Yakima Indian Nation, the Nez Perce Tribe of Idaho, and the Confederated Tribes of the Umatilla Indian Reservation. CRITFC's petition alleged that construction and operation of S/HNP would adversely affect the fish and aquatic biota in the Columbia River and the tribes' treaty rights to fish in the Columbia River. By order dated May 24, 1982, the Council admitted CRITFC as an intervenor on the issues specified in their petition.

5. At its regular meeting on March 22, 1982, the Council made a tentative determination to issue an NPDES Permit for S/HNP (proposed NPDES Permit, attached hereto as Appendix A). Additionally, it ordered that a public hearing on the application for the NPDES Permit and Section 401 Certification be held beginning May 6, 1982. Notice was duly given pursuant to WAC 463-38-041 and 042, providing a 30-day comment period in addition to the opportunity for any person to be heard at the hearing. No comments were received.

6. Prehearing conferences were held on April 12, 1982, and May 4, 1982. Pursuant to the notice of public hearing, the hearing on the NPDES Permit and Section 401 Certification commenced at 1:30 p.m. on May 6, 1982, in the Pasco Public Library, 1320 West Hopkins, Pasco,

Washington, and continued through May 7, 1982. Further hearings were held on June 2, 1982, in the Council's hearing room in Olympia, Washington. The transcript of this hearing consists of 453 pages. References to pages in the transcript will hereinafter be denoted as (Tr. page number). Seventy-four exhibits were admitted into evidence during this hearing. References to specific exhibits will hereinafter be denoted as (Ex. exhibit number). The Council took official notice of four documents, including the ASC/ER and the proposed NPDES Permit issued as part of the tentative determination.

B. General Description

7. The S/HNP Site is located on the U.S. Department of Energy's Hanford Reservation in Benton County, Washington. The S/HNP Site is approximately 5 miles west of the Washington Public Power Supply System's Nuclear Project No. 2 (WNP-2) unit. It is also approximately 7 miles west of the Columbia River and 12 miles northwest of the City of West Richland. (Myers, Tr. 14).
8. S/HNP will be a two-unit steam electric generating plant and will utilize two light water moderated boiling water reactors (BWR) supplied by General Electric Company. Each unit is designed to supply a net electrical output of approximately 1275 MWe. S/HNP will be jointly owned by Puget Sound Power & Light Company, Portland General Electric Company, Pacific Power & Light Company, and the Washington Water Power Company. (Myers, Tr. 13-14; ASC/ER Subsection 3.2).
9. In a BWR, water circulates through the reactor core, absorbing heat at a rate equivalent to the nuclear

steam supply system power level. The heated water boils, and the resulting steam, which accumulates at the top of the reactor vessel, is piped to the turbine. In going through the turbine, the steam expands, loses energy, and cools. The steam which is exhausted from the turbine is then condensed in the main condenser into liquid (condensate) and is treated in the condensate demineralizers to remove any impurities it may have picked up in the pipes, turbine or condenser. The treated liquid, called feedwater, is then heated and pumped back for use in the reactor and once again becomes reactor coolant.

In S/HNP, heat will be dissipated from the main condensers by means of a closed-cycle Circulating Water System. Cooling water for condensing the turbine exhaust will be pumped from the basins of mechanical draft cooling towers to the condensers. In the condensers, heat will be exchanged from the turbine exhaust to the cooling water. The heated water will then be directed to the mechanical draft cooling towers, which will cool the water largely by means of evaporative cooling. The cooled water will then be collected in the basins of the cooling towers, completing the cycle. Evaporation in the cooling towers will increase the concentration of chemicals and solids in the Circulating Water System and necessitate blowdown to limit the concentrations to desired levels. The range of cycles of concentration will be between 7 and 13 with an average of 10. (Hamilton, Tr. 48-49; Lin, Tr. 72; ASC/ER Subsections 3.2 and 3.4).

10. Water required for operation of S/HNP will be withdrawn from the Columbia River. The Project intake is designed to withdraw a maximum of about 42,000 gallons per minute (gpm) (60.5×10^6 gallons per day), which is 0.26% of the regulated minimum flow of the Columbia River. Expected maximum and average intakes are 39,460 gpm (56.8×10^6 gallons per day) and 28,040 gpm (40.4×10^6 gallons per day), respectively. (Lin, Tr. 63).

11. Most of the water withdrawn from the Columbia River for operation of S/HNP will ultimately be lost in the form of evaporation and drift from the cooling towers. Water will also be consumed during operation as a result of plant irrigation, domestic water consumption, discharge of treated sanitary water to a percolation pond located on-site, and in-plant losses. The only sources of liquid discharges to navigable waters during plant operation will be cooling water blowdown, a waste stream referred to as "low volume waste" in the proposed NPDES Permit, and intermittent discharges of excess processed water inventory from the liquid radwaste system. These three components will combine to form the Project discharge, which will be discharged to the Columbia River through a single discharge pipe that is designated in the proposed NPDES Permit as Outfall Discharge Serial Number 001. During construction, water used in hydrostatic testing and flushing of piping systems may be discharged to the Columbia River through the same discharge pipe. (Lin, Tr. 65-66; Myers, Tr. 14-15).

12. Testimony regarding intake design and location and impacts regarding in-river construction of the intake and discharge structures will be held open and be addressed

in the site certification process. While the testimony of some witnesses did address these issues during the NPDES hearing no specific findings shall be entered related thereto in the NPDES proceeding.

C. Hydrostatic Testing and Flushing Waste Discharge

13. Water used for hydrostatic testing and flushing will be demineralized water, and the waste water produced as a result of hydrostatic testing and flushing is expected to have chemical concentrations which are less than the maximum concentrations in the Project discharge. Waste water from hydrostatic testing and flushing of piping systems during the construction period will be routed to one of various possible collection points to allow settlement of any solids. This water will be sampled for total suspended solids and pH and will be discharged to the Columbia River if the pH is between 6.5 and 8.5 and if the daily maximum and average daily of the total suspended solids to be discharged do not exceed 83.5 lbs/day and 25 lbs/day, respectively. Further, the Applicant will not discharge hydrostatic testing and flushing wastes if trace metals of cadmium, chromium, copper, iron, lead, mercury, and zinc exceed the following maximum amounts:

<u>Metal</u>	<u>Concentrations in Ug/l</u> <u>(micrograms per liter)</u>
Cadmium	38.4
Chromium	257.4
Copper	360.4
Iron	3735.0
Lead	939.7
Mercury	12.87
Zinc	1159.2

If the pH, the total suspended solids, or the concentration of other above referred trace metals exceed those limits, the Applicant will not discharge the waste water to the Columbia River without further treatment until it conforms to those limits. The waste water will not be discharged if it is contaminated with oil and grease or chemical cleaning agents. The flow rate of the discharge to the Columbia River will be monitored to assure that the discharge will not exceed 0.1×10^6 gallons per day (gpd). (Van Popering, Tr. 29, 119-20; Tr. 391). Prior to discharge of hydrostatic testing and flushing waste, the Applicant shall submit for Council approval a plan, procedure and schedule for the treatment and discharge of hydrostatic and flushing waste.

14. The Council finds the discharge of hydrostatic testing and flushing wastes pursuant to the provisions in paragraph 13 to be acceptable.

D. Low Volume Waste Discharge

15. Low volume waste will consist of aluminum hydroxide sludge and filter backwash from the Raw Water Pretreatment System, neutralized regenerant waste from the Demineralization System, and nonradioactive wastewater collected by floor drains. (Lin, Tr. 67-69).
16. The low volume waste will be treated for suspended solids, oil and grease, and pH in the Low Volume Waste Treatment System. The low volume waste will be processed and will not be discharged until the following limits are met: total suspended solids, 72.1 lbs/day with maximum concentration not exceeding 100 milligrams per liter (mg/l) at any time and a daily average of 6.1

lbs/day; pH between 6.5 and 9.5 at all times; and oil and grease, 14.4 lbs/day with maximum concentration not exceeding 20 mg/l at any time and a daily average of 3.1 lbs/day. The maximum and average low volume waste discharge flows from the Project are expected to be 60 gpm (86,400 gpd) and 17 gpm (24,480 gpd), respectively. (Lin, Tr. 66, 69-71).

17. Prior to confluence with other liquid discharge streams, the low volume waste will be monitored for total suspended solids, pH, oil and grease, and flow to provide assurance that the low volume waste discharge limits will not be exceeded. (Lin, Tr. 71).
18. The Council finds the discharge of low volume wastes as proposed to be acceptable.

E. Intermittent Discharges of Excess Water Inventory from the Liquid Radwaste System

19. In addition to the low volume waste described above, the proposed NPDES Permit would authorize the Applicant to discharge on an intermittent basis 504,000 gpd (350 gpm) from the Liquid Radwaste Treatment System. The discharges will be subject to the condition that the Applicant demonstrate by sampling and analysis that the discharge complies with applicable regulations on liquid radioactive discharges.
20. The Liquid Radwaste System will be designed for total recycling of liquid radwastes generated during operation of S/HNP. However, excess water inventory may be generated as a result of non-routine maintenance and refueling activities, and the design of S/HNP will permit the release of such excess water to the Columbia

River. To prevent inadvertent releases during normal conditions, a removable pipe spool piece will be removed from the liquid radwaste line to the S/HNP discharge line and will be installed only for those infrequent occasions when excess water must be released. (Schulz, Tr. 91-93).

21. Liquid radwaste will be processed and sampled prior to release. As a result of the processing, the liquid radwaste discharge will be essentially chemically pure. It is expected that the radwaste discharge will contain less than 1 parts per million (ppm) total suspended solids and 1 micromho/cm conductivity; will have a pH between 6.5 and 8.5; and will have very low levels of oil and grease which will not exceed the limits set out in paragraph 16 herein. Volume wastes will have very minute amounts of metals. The radioactive concentrations in the Project discharge will be within the limits of 10 CFR Part 20, Appendix B. The Applicant will maintain the flow of any release to within 350 gpm (504,000 gpd). (Schulz, Tr. 91-93, 185, 209-14; Lin, Tr. 67, 82; Ex. 15).

22. The Council finds the discharge of processed liquid radwaste as proposed to be acceptable.

F. Discharge of Cooling Water Blowdown

23. Evaporation in the cooling towers will result in concentration of the chemicals and solids in the cooling water in the Circulating Water System. In order to limit the concentration of these chemicals and solids, blowdown of the cooling water will be required. The maximum and average blowdown flows from the Project are expected to be 5,500 gpm (7.92×10^6 gpd) and 2,800 gpm (4.03×10^6 gpd), respectively. (Lin, Tr. 66, 72).

24. Makeup water from the Circulating Water System will be raw water withdrawn from the Columbia River. Thus, the Circulating Water System and the blowdown will contain the same chemicals and solids as the Columbia River, but concentrated as a result of cooling tower evaporation. Additionally, the chemical composition of the blowdown will be affected by the addition of sulfuric acid and sodium hypochlorite to the Circulating Water System for scale and pH control and control of biological fouling. The Applicant will not use corrosion inhibitors in the Circulating Water System. (Lin, Tr. 72-76, 78).
25. The operation of the sulfuric acid feed will be regulated by circulating water sensors to maintain pH of the circulating water between 6.5 and 8.5. The Applicant will chlorinate one unit at a time and will terminate blowdown from that unit during the addition of sodium hypochlorite. Blowdown from the unit will not resume until the total residual chlorine in the circulating water has dropped to less than 0.14 mg/l for 15 minutes. (Lin, Tr. 72-74).
26. The blowdown will be taken from the cold water return to the condenser. Consequently, the temperature of the blowdown will not exceed the lowest temperature of the recirculated cooling water prior to the addition of the makeup water. (Hamilton, Tr. 49).
27. Prior to confluence with other liquid discharge streams, the cooling water blowdown will be monitored for temperature, total residual chlorine, pH, and flow. This monitoring will assist in providing assurance that discharge limits will not be exceeded. (Lin, Tr. 74).

28. The Council finds the discharge as proposed of cooling water blowdown to be acceptable.

G. Project Discharge

29. S/HNP will discharge a maximum of 5,910 gpm (8.5×10^6 gpd) and an average of 2,817 gpm (4.1×10^6 gpd) to the Columbia River. Approximately 99% of the average Project discharge and 93% of maximum Project discharge will consist of cooling water blowdown. The remaining 1% and 7% respectively will be miscellaneous treated wastes from the Low Volume Waste System. (Lin, Tr. 74).

30. The Project discharge will consist essentially of river water, modified by the addition of chemicals and modified by evaporation of circulating water in the cooling towers. Bicarbonate concentrations in the Project discharge will be less than in ambient river water due to the depletion of bicarbonate through the addition of sulfuric acid. The maximum sodium, sulfate and chloride concentrations in the Project discharge are expected to be greater than in ambient water by factors of 38, 57 and 33, respectively, as a result of the addition of chemicals to water used for S/HNP. (Lin, Tr. 74-75). Expected average and maximum chemical concentrations in the Project discharge are listed in Ex. 45. The project discharge will not exceed the following maximum chemical concentrations of cadmium, chromium, copper, iron, lead, mercury and zinc, reported and monitored on a quarterly basis using at least monthly composite samples:

<u>Metal</u>	<u>Concentrations in Ug/l</u>
Cadmium	38.4
Chromium	257.4
Copper	360.4
Iron	3735.0
Lead	939.7
Mercury	12.87
Zinc	1159.2

31. Trace metals will not be introduced into the Project discharge from operation of S/HNP, and it is not expected that any detectable amount of corrosion products from the stainless steel condenser tubes and other piping will be present in the discharge. No polychlorinated biphenyl compounds will be discharged. The Applicant will not use any water treatment chemicals which contain the 129 priority pollutants listed in Appendix B to proposed 40 CFR Part 423 (45 Fed. Reg. 68355-56, October 14, 1980). (Lin, Tr. 74-75, 78-79, 192-98). These priority pollutants include all of the toxic pollutants listed in 40 CFR Part 129.
32. Since the cooling water blowdown will comprise about 99 % of the average Project discharge and 93% of the maximum Project discharge, the temperature of the Project discharge will be essentially the same as the blowdown. The temperature of the blowdown itself will vary depending upon the weather conditions and the time of year. The maximum temperature of the blowdown is expected to be 84.5° F. (Hamilton, Tr. 51-52).

33. The mixing zone boundaries will be:
- a. The boundaries in the vertical plane shall extend from the receiving water surface to the riverbed;
 - b. The upstream and downstream boundaries shall be 50 feet and 300 feet, respectively, from the center line of the discharge point; and
 - c. The lateral boundaries shall be separated by 100 feet.
34. The Columbia River at the proposed S/HNP discharge location is classified by the Washington Water Quality Standards as Class A (excellent). (WAC 173-201-080). By using a computer model of the mixing of the discharge with the ambient water, the Applicant's witness Toblin determined that the Project discharge would be diluted by at least a factor of approximately 190:1 at the dilution zone boundary specified in the proposed NPDES Permit. (Toblin, Tr. 269, 274-75).
35. Washington State Water Quality Criteria (the Criteria) require that the temperature increase in water outside of the dilution zone boundary for S/HNP shall not exceed 0.3°C (0.54°F) when ambient water temperature is less than 20.0°C (68.0°F) and shall not exceed $t = 34/(T + 9)$ at any time. (WAC 173-201-080). Even assuming the worst-case conditions of maximum Project discharge temperature and flow and minimum river temperature and flow, the calculated water temperature increase at the dilution zone boundary is only 0.28°F , or within the limits specified in the Criteria. (Toblin, Tr. 275-77). Therefore, the Council finds that levels of thermal discharges proposed by the Applicant are acceptable.

36. The Criteria require that the fecal coliform organisms shall not exceed 100 organisms/100 milliliter (ml) outside the dilution zone boundary for S/HNP. (WAC 173-201-045). The only fecal coliforms discharge to the river from S/HNP will be those which are present as a result of the existence of fecal coliforms in the intake water. Since the maximum ambient levels have been determined to be 13 organisms per 100 ml, the number of fecal coliform organisms at the dilution zone boundary following mixing of the Project discharge and ambient water should be well within the limits specified in the Criteria. (Toblin, Tr. 278). Consequently, the Council finds that the amounts of fecal coliform proposed to be discharged by the Applicant are acceptable.
37. The Criteria require that dissolved oxygen shall exceed 8.0 mg/l outside the dilution zone boundary for S/HNP. (WAC 173-201-045). The expected levels of dissolved oxygen in the Project discharge were determined to range from 7.74 to 9.6 mg/l, with an average value of 8.52 mg/l. (Ex. 45). Following mixing with the ambient water, which has been determined to have a minimum dissolved oxygen content of 8.1 mg/l, the minimum amount of dissolved oxygen at the dilution zone boundary is expected to be 8.1 mg/l, which is above the requirement specified in the Criteria. (Toblin, Tr. 284). The Council finds that the amounts of dissolved oxygen proposed to be discharged by the Applicant are acceptable.
38. The Criteria require that total dissolved gas shall not exceed 110% of saturation at any point of sample collection. (WAC 173-201-045). Since the temperature

of the Project discharge will always be greater than the ambient river temperature, and since the amount of total dissolved gas in the Project discharge will not exceed saturation, the Project discharge will not cause the levels of total dissolved gas in the river to exceed saturation. (Lin, Tr. 76-77). Consequently, the Council finds that the amounts of total dissolved gas proposed to be discharged by the Applicant are acceptable.

39. The Criteria require that the pH shall be within the range of 6.5 to 8.5 outside the dilution zone boundary for S/HNP, with a man-caused variation of less than 0.5 units. (WAC 173-201-045). As previously discussed, the low volume waste and the cooling water blowdown will both have pH within 6.5 and 8.5, and thus the Project discharge will also have a pH between 6.5 and 8.5. (Ex. 45). Since the pH of the ambient river water ranges from 7.1 to 8.8 (Ex. 45), and given the minimum dilution factor of 190:1, any Project-induced change in the pH at the dilution zone boundary will be less than 0.5 units. Therefore, the Council finds that the levels of pH in the Project discharge proposed by the Applicant are acceptable.

40. The Criteria require that turbidity outside of the dilution zone for S/HNP shall not exceed 5 Nephelometer Turbidity Units (NTU) over background when the background is 50 NTU or less. (WAC 173-201-045). There is no direct correlation between turbidity and total suspended solids, and turbidity can only be determined empirically. Nevertheless, given the amount of mixing which is predicted to occur in the dilution zone for S/HNP, it is likely that the Project discharge will

satisfy the turbidity criterion. (Lin, Tr. 76). Moreover, the Applicant plans to monitor turbidity as part of its operational monitoring program (Ex. 61), and General Condition G4 of the NPDES Permit attached as Appendix A, prohibits the discharge of any effluent which would cause a violation of the Criteria. Consequently, the Council finds that the measures which have been proposed provide sufficient assurance that the turbidity levels resulting from the Project discharge will be acceptable.

41. The Criteria require that aesthetic values shall not be impaired by the presence of materials or their effects which offend the senses of sight, smell, touch, or taste. (WAC 173-201-045). The Project discharge will be colorless, odorless, and without surfactant generating substances (Lin, Tr. 74). Therefore, the Council finds that the Project discharge proposed by the Applicant is acceptable from the standpoint of aesthetics.

H. Impacts of the Project Discharge

42. The Hanford Reach is the only remaining free flowing portion of the Columbia River in the U.S. above the Bonneville Dam. It serves as the last mainstem spawning grounds for Chinook salmon and Steelhead and is an important migration route for salmonoids. The nearest spawning area is 7.5 miles downstream from the proposed discharge point. Salmon and steelhead migrate through this area all year with the greatest numbers passing from spring to early fall. The primary routes for adult and juvenile salmon in the Hanford Reach are expected to be in the near-shore areas, however, the exact migration patterns in the area of the discharge have not been studied.

43. The Criteria require that toxic, radioactive, or deleterious material concentrations outside the dilution zone for S/HNP shall be below those of public health significance, or which may cause acute or chronic toxic conditions to aquatic biota, or which may adversely affect any water use. (WAC 173-201-045).
44. Using models developed by the Nuclear Regulatory Commission, the Applicant's witness Joyce calculated the doses which are expected as a result of the release of radioactive material in the Project discharge. (Joyce, Tr. 287-88). These calculations indicate that the maximum total body dose to an individual will be less than 0.0028 million rems per year per unit (mrem/yr-unit) and that the dose to the population within 50 miles of the Project will be approximately 0.069 man-rem/yr-unit as a consequence of radioactive liquid effluents from S/HNP. (Exs. 50 and 57). The population dose is small, and the maximum individual dose is as low as reasonably achievable within the meaning of 10 CFR Part 50 Appendix I. (Joyce, Tr. 292, 295-96). The Council finds that the radioactive discharges from S/HNP will not be significant.
45. Average and maximum chemical concentrations for ambient conditions and expected chemical concentrations at the dilution zone boundary for S/HNP are given in Ex. 45. As this exhibit indicates, expected concentrations at the dilution zone boundary are only a few percentage points different from ambient concentrations. The natural variation in ambient concentrations is far greater than the difference between ambient concentrations and concentrations at the dilution zone boundary.

The Applicant's witness Page concluded that the incremental increases in chemical concentrations at the dilution zone boundary should not have any detrimental effects upon aquatic biota. (Page, Tr. 249-51). The Department of Fisheries' witness Gerke concluded that if the average and maximum chemical concentrations at the dilution zone boundary for the project are as identified in Exhibit 45, the increases in chemical concentrations over ambient at that point should not have any detrimental effects on salmon. (Gerke, Tr. 413, 418-419, 425-26). Similarly, even under unrealistic bounding conditions, the maximum temperature differential at the dilution zone boundary for S/HNP was calculated to be only 0.28° F, which is far less than the natural variation in ambient water temperature. (Toblin, Tr. 276; Ex. 9). Considering the small increases in temperature and concentrations expected to result from the Project discharge, and considering that these increases are far smaller than the natural variance in ambient conditions, the Council finds that, outside of the dilution zone, the proposed Project discharge should not affect any water use, pose any threat to the public health, or cause acute or chronic toxic conditions to aquatic biota.

46. The Criteria also require that the dilution zone shall be limited to that size which will not cause acute mortalities of sport, food, or commercial fish and shellfish species or important species to a degree which damages the ecosystem. (WAC 173-201-035).
47. Proposed chemical and biocide discharges from S/HNP will not have any significant adverse impact on aquatic life. In particular, an analysis of expected chlorine

discharges from S/HNP indicates that aquatic life passing through the discharge plume will remain unharmed. Although sessile benthic organisms immediately downstream of the discharge location may be adversely affected, the impacted area will be small and should have no significant effect on the aquatic community as a whole. (Page, Tr. 249-51; Gerke, Tr. 413).

48. Copper will not be added to the Project discharge as a result of operation of S/HNP. However, ambient levels of copper will be concentrated between 7 and 13 concentrations with an average of 10 in the Project discharge as a result of cooling tower evaporation. (Lin, Tr. 189). The expected copper concentrations in the Project discharge, at the point of discharge, are 102.6 ug/l with average ambient concentrations at 10 cycles of recirculation and 360.4 ug/l with maximum ambient concentrations at 13 cycles of recirculation. The expected copper concentrations at the edge of the mixing zone are 10.5 ug/l average at 10 cycles of recirculation and 29.7 ug/l at a maximum of 13 cycles of recirculation. Copper concentrations in the range of 103-360 ug/l have been found to be lethal to salmon upon short exposure duration in water conditions of less hardness than present in the Columbia River in the area of the Hanford Reach. Copper concentrations in the range of 10-38 ug/l have produced 96-hour LC50 in water conditions of less hardness than present in the Columbia River in the area of the Hanford Reach. The effects of copper upon salmon decrease with increasing hardness of the water. It is expected that the 96-hour LC50 or the concentration of copper that would kill one-half of the fish in 96 hours would be 2-3 times the above values (10-38 ug/l) in the Columbia River waters

in the Hanford Reach area. The expected copper concentrations in the Project discharge, should not be instantaneously toxic but may be in the range of a 96-hour LC50 for some species of fish. These concentrations would be rapidly diluted by the river, and it is unlikely that any fish would remain in the Project discharge plume for a sufficient length of time for a toxic response to occur. (Page, Tr. 260-62, 333-35; Gerke, Tr. 413-14, 438-42). The discharge plume is further expected to be approximately midstream and away from the expected nearshore migration routes. The Council finds that the expected discharge of copper from S/HNP therefore should not have a significant adverse impact on Columbia River fish.

49. The temperature of the proposed Project discharge and the temperature differential caused by the proposed Project discharge will be sufficiently low so that no significant effect upon plankton, periphyton, or benthic organisms is expected. (Page, Tr. 236-40). Similarly, the thermal plume produced by the Project discharge and its expected position approximately midstream should be sufficiently small and positioned so that it will not effect expected migration routes and fish drifting through the plume will not be adversely affected by the plume's temperature or its temperature differential. (Page Tr. 240-49; Gerke, Tr. 415). Moreover, due to the small size of the plume relative to the width of the river and its expected position, fish will likely avoid the plume and still be able to pass the discharge location. (Page, Tr. 245).

50. Based upon the above, the Council finds that the proposed Project discharge should not cause acute mortalities of fish, shellfish, or important species to a degree which damages the ecosystem, and that the proposed dilution zone for S/HNP is acceptable.
51. Based on the testimony presented in these hearings the Council finds that operation of S/HNP is unlikely to pose a significant contribution to impacts upon aquatic life caused by operation of other facilities in the area of S/HNP for the following reasons:
- a. The chemical concentrations at the edge of the dilution zone for S/HNP are expected to be 1.4% above ambient under average discharge and flow conditions and 6.3% over ambient under worst case conditions.
 - b. The maximum metal concentrations under worst case conditions at WNP 1 and 4 sites 9.5 miles downstream would be 0.7% above ambient concentrations, and under average flows and project discharge 0.1% above ambient concentrations.
 - c. Ambient chemical concentrations used in the Applicant's evaluation of Project discharge concentrations and resultant aquatic impacts were based on data taken by U.S.G.S. upstream from S/HNP at Vernita Bridge. The concentrations determined from these data exceed the concentrations which were measured at the discharge locations for S/HNP and WNP-2, which is located approximately 9 miles downstream from S/HNP. (Page, Tr. 263; Exs. 72 and 73)

52. The Applicant will institute a program to monitor discharges from S/HNP to the Columbia River. This program will include monitoring of the radioactive, chemical, and physical properties (including cadmium, chromium, copper, iron, lead, mercury, nickel and zinc) of the river in the vicinity of the S/HNP discharge and intake locations. Additionally, the program will monitor any aquatic impacts resulting from the Project discharge. (Clubb, Tr. 300-09). The Council will review the program for sufficiency to detect any significant impacts upon aquatic life when the detailed program required by NPDES Condition G.12 is provided.

ADDITIONAL FINDINGS

53. The Applicant and some of the parties agreed to several stipulated permit terms and conditions. These stipulated terms and conditions are listed in Appendix B, attached hereto. Since the stipulated terms and conditions are not less stringent than those in the proposed NPDES Permit, the Council will adopt the stipulations and modify the proposed NPDES Permit accordingly.
54. The proposed NPDES Permit which was a part of the tentative determination, should be modified, and the modified permit is hereinafter referred to as the "Permit" and a copy is attached hereto as Appendix A.
55. The provisions, limitations and conditions of the Permit will assure the protection of public water supplies and agricultural and industrial uses; the protection and propagation of a balanced population of shellfish, fish and wildlife; and the protection of recreational activities in and on the waters that will receive, or be affected by, the discharges from the Project.

56. The Permit, issued for a period of five years from the date of issuance, is sufficient, adequate and appropriate for the Skagit Hanford Nuclear Project and for the regulation of discharges authorized by the Permit.

From the foregoing Findings of Fact, the Council makes and enters the following Conclusions of Law:

CONCLUSIONS OF LAW

1. Pursuant to RCW 80.50, RCW 90.48.262(a) and section 402 of the FWPCA, the Washington State Energy Facility Site Evaluation Council has jurisdiction over the subject matter of this application and the parties to this proceeding.
2. The discharges authorized by the Permit which will result from the construction and operation of the Project will not violate the applicable Water Quality Standards of the State of Washington and are in compliance with RCW Chapter 90.48, RCW Chapter 80.50, RCW Chapter 43.21c and all applicable regulations issued pursuant to said laws.
3. The discharges authorized by the Permit which will result from the construction and operation of the Project will comply with the applicable provisions of Sections 301, 302, 303, 306 and 307 of the FWPCA and 40 CFR Part 423.
4. The Permit applies and ensures compliance with all applicable effluent limitations under Sections 301 and 302 of the FWPCA; all applicable standards of performance for new sources under Section 306 of the FWPCA;

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all applicable effluent standards, effluent prohibitions and pretreatment standards under Section 307 of FWPCA; and all limitations necessary to meet and implement the Water Quality Standards of the State of Washington.

5. The Council is authorized to, and may properly, issue to the Applicant an NPDES Permit for the Project in the form of the Permit attached hereto as Appendix A, for a period of five years from the date of its issuance, said issuance to be contingent upon and concurrent with execution of a site certification agreement for the Skagit/Hanford Nuclear Project pursuant to RCW Chapter 80.50.

6. The Council is authorized to, and may properly issue to the Applicant, a Certificate in accordance with Section 401 (33 U.S.C. Subsection 1341) of the Federal Water Pollution Control Act (FWPCA; 33 U.S.C. Subsection 1251, et seq.)

From the foregoing Findings of Fact and Conclusions of Law, the Council makes and issues the following Order:

ORDER

WHEREFORE, IT IS HEREBY ORDERED That the application of Puget Sound Power & Light Company for an NPDES Permit authorizing the discharge of pollutants from the construction and operation of the Skagit/Hanford Nuclear Project shall be, and the same is hereby, granted, SUBJECT TO the conditions and limitations set forth in the Permit attached hereto as Appendix A and by this reference made a part hereof.

IT IS FURTHER ORDERED That issuance of said Permit be contingent upon and be concurrent with execution of a certification agreement for the Skagit/Hanford Nuclear Project pursuant to RCW Chapter 80.50 and that said Permit be issued for a term of five years from the date of its issuance.

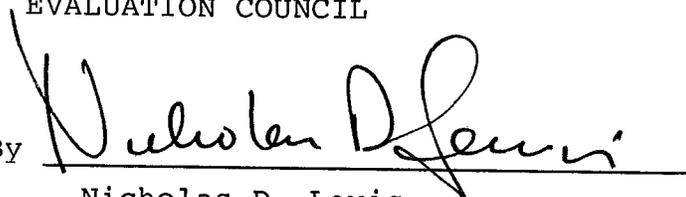
IT IS FURTHER ORDERED That a Certificate be issued forthwith to the Applicant in accordance with Section 401 (33 U.S.C. Subsection 1341) of the Federal Water Pollution Control Act (FWPCA; 33 U.S.C. Subsection 1251, et seq.) stating that any discharge to the navigable waters from the construction or operation of the Skagit/Hanford Nuclear Project in compliance with the NPDES Permit to be issued pursuant to this Order will comply with the applicable provisions of Sections 301, 302, 303, 306 and 307 of the FWPCA, 40 CFR Part 423 and all requirements of state laws and

regulations, and the provisions of the NPDES Permit to be issued pursuant to this Order assure such compliance.

ENTERED THIS 28th day of March, 1983.

WASHINGTON STATE ENERGY FACILITY SITE
EVALUATION COUNCIL

By

A handwritten signature in cursive script, reading "Nicholas D. Lewis", written over a horizontal line.

Nicholas D. Lewis
Chairman

APPENDIX A

Permit No. WA-005152-8
Page 1 of 23
Issuance Date: Upon certification
Expiration Date:

NATIONAL POLLUTANT DISCHARGE ELIMINATION
SYSTEM WASTE DISCHARGE PERMIT

State of Washington
Energy Facility Site Evaluation Council
Olympia, Washington 98504

In Compliance With the Provisions of
Chapters 80.50 and 90.48 Revised Code of Washington as amended

and

The Clean Water Act, as amended
Public Law 95-217

PUGET SOUND POWER & LIGHT COMPANY SKAGIT/HANFORD NUCLEAR PROJECT
Puget Power Building
Bellevue, Washington 98009

Plant Location

Section 33, T.12N, R27E W.M.
North of Richland
Benton County, Washington

Receiving Water:

Columbia River

Discharge Location:

S/HNP 1 & 2 001
Latitude: 46°34'59" N
Longitude: 119°22'01" W

Industry Type:

Nuclear Steam Electric
Generating Plant
(Skagit/Hanford 1 and 2)

Water Segment No.: 26-03-00

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

Approved:



Nicholas D. Lewis, Chairman
Energy Facility Site
Evaluation Council

SPECIAL CONDITIONS

S.1 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The issuance of this permit shall be contingent upon and be concurrent with the execution of a certification agreement for the Skagit/Hanford Nuclear Project pursuant to RCW 80.50.

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

A. LOW VOLUME WASTE SOURCES PORTION OF S/HNP 1 & 2 DISCHARGE SERIAL NUMBER 001

PARAMETER	EFFLUENT LIMITATIONS (1)		MONITORING REQUIREMENTS (2)	
	Daily Maximum	Daily Average	Minimum Frequency	Sample Type
Total Suspended Solids (lb/day)	72.1 (3)	6.1	Weekly	Grab
pH	Between 6.5 and 8.5 at all times		Weekly	Grab
Oil and Grease (lb/day)	14.4 (4)	3.1	Weekly	Grab
Flow (gpd) (5)	86,400	24,500	Continuous while discharging	N/A

Compliance with these limitations shall be determined by monitoring all low volume waste sources including liquid radwaste prior to their confluence with the recirculated cooling water.

- Note (1): These limitations apply regardless of whether one, two or no units are in operation.
- Note (2): Permittee shall monitor the effluent prior to confluence with other inplant streams.
- Note (3): The maximum concentration of total suspended solids shall not exceed 100 mg/l at any time
- Note (4): The maximum concentration of oil and grease shall not exceed 20 mg/l at any time
- Note (5): Permittee is allowed on an intermittent basis to discharge subject to the provisions of G.5 herein to a maximum of 504,000 gpd additional flow originating from the liquid radwaste treatment system.

B. RECIRCULATED COOLING WATER BLOWDOWN PORTION OF S/HNP 1 & 2 DISCHARGE SERIAL NUMBER 001

<u>PARAMETER</u>	<u>EFFLUENT LIMITATIONS</u>	<u>MONITORING REQUIREMENTS (1)</u>
Temperature	Daily Maximum <u>Note (2)</u>	<u>Minimum Frequency</u> Continuous
Total Residual Chlorine (mg/l) (lb/day)	0.14 (3) 9.22	Continuous (4) N/A
pH	Between 6.5 and 8.5 at all times	Continuous (5) N/A
Flow (gpd)	7.92×10^6 4.00×10^6	Continuous N/A

Note (1): Permittee shall monitor the effluent prior to confluence with other implant streams.

Note (2) The temperature of the recirculated cooling water blowdown shall not exceed, at any time, the lowest temperature of the recirculated cooling water prior to the addition of the makeup water.

Note (3): Upon initiating chlorination of a unit, permittee shall terminate all discharges from the recirculating cooling water system for that unit to the receiving water until the total residual chlorine concentration has been at or below 0.14 mg/l for 15 minutes. For compliance, chlorine will be measured at, and will be characteristic of, the unit being chlorinated.

Note (4) Continuous recording of total residual chlorine is required during periods of active chlorination and thereafter until chlorine residual reaches an undetectable level. If continuous chlorine monitor malfunctions, grab samples will be analyzed by amperometric titration every 15 minutes until total residual chlorine reaches 0.14 mg/l maximum prior to discharge.

Note (5) Permittee shall include an alarm system for the pH control and for total residual chlorine to provide an indication of any variance from established limits. The concentration of total residual chlorine at the downstream edge of the mixing zone shall not exceed 0.002 mg/l.

C. HYDROSTATIC TESTING AND FLUSHING WASTES PORTION OF S/HNP 1 & 2 DISCHARGE SERIAL NUMBER 001 PER UNIT

<u>PARAMETER</u>	<u>EFFLUENT LIMITATIONS (1)</u>		<u>MONITORING REQUIREMENTS (2)</u>	
	<u>Daily Maximum</u>	<u>Daily Average</u>	<u>Minimum Frequency</u>	<u>Sample Type</u>
Total Suspended Solids (lbs/day)	83.5	25	3 times per day when discharging	Grab
pH	Between 6.5 and 8.5	at all times	3 times per day when discharging	Grab
Flow (gpd)	0.1×10^6	0.1×10^6	Each discharge	N/A

Note (1): No water contaminated with oil and grease or chemical cleaning agents shall be discharged. Neither the concentration of iron nor the concentration of copper in the discharge shall exceed 1.0 mg/l; compliance with these limitations shall be monitored by grab samples 3 times per day when discharging.

Note (2): Permittee shall monitor the effluent prior to confluence with other implant streams.

GENERAL CONDITIONS

- G1. No discharge of polychlorinated biphenyl, such as transformer fluid, shall be permitted. There shall be no discharge of water treatment chemicals which contain any of the 129 priority pollutants listed in Appendix B to proposed 40 CFR Part 423 (45 Fed. Reg. 68355-56, October 14, 1980). The discharge of water treatment additives which are not identified in the permit application shall be subject to Council approval.
- 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 raw 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.
- G3. The effluent limitation for the total combined flow discharged from Discharge No. 001 for any particular pollutant, excluding pH, shall be the sum of the amounts for each contributing inplant stream as authorized by the special or general conditions of this permit.
- G4. Permittee shall not discharge any effluent which shall cause a violation of any applicable State of Washington Water Quality Criteria or standards contained in WAC 173-201, as they exist now or hereafter are amended, outside the mixing zone, the boundaries of which shall be:
- a. The boundaries in the vertical plane shall extend from the receiving water surface to the riverbed;
 - b. The upstream and downstream boundaries shall be 50 feet and 300 feet, respectively, from the center line of the discharge point; and
 - c. The lateral boundaries shall be separated by 100 feet.

- G5. Excess process water shall not be discharged to the river unless sampling and analysis have demonstrated that the water complies with the applicable regulations on liquid radioactive discharges. Excess process water not meeting these conditions shall be processed in the liquid radwaste treatment system prior to discharge to the river. The liquid radwaste treatment system shall provide facilities with 24-hour retention capabilities and liquids may be discharged only after sampling and analysis demonstrate that all applicable regulations are complied with. No other liquid radwaste shall be discharged at the holding facilities.
- G6. Permittee shall notify the Council no later than 120 days before the date of anticipated first discharge from Discharge 001 under this permit.
- G7. As used in this permit, the following terms are as defined herein:
- a. The "daily maximum" discharge means the total discharge by weight during any calendar day, or in the case of concentration limitation, "daily maximum" means the maximum concentration of samples collected during any calendar day.
 - b. The "daily average" discharge means the total discharge by weight 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 operating day.
 - d. "Grab sample" is an individual sample collected in a period of less than 15 minutes.
- G8. Permittee shall study the use of chlorine for biofouling prevention in cooling tower operation for the first year of operation. The purpose of the study shall be to determine the minimum daily discharge of free available and total residual chlorine which will allow efficient plant operation.

The results of this study will be evaluated by the Council for use in the potential modification of this permit.

- G9. Permittee shall install an alternative electric power source capable of operating any electrically powered pollution control 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 the pollution control equipment by controlling production.
- G10. The Additional Federal General Conditions set forth on pages (11) through (23) of this permit are hereby incorporated in this permit.
- G11. All sanitary sewage from the plant shall be treated on site and discharged to a percolation pond, thereby precluding any discharge thereof to the 001 Discharge.
- G12. Prior to commencement of discharges from the 001 Discharge, Permittee shall submit to the Council for review and approval a proposed monitoring program designed to (1) assess discharge effluent and changes in receiving water quality brought about by the 001 Discharge, (2) document the plant's compliance status with applicable standards, and (3) monitor ambient levels of cadmium, chromium, copper, iron, lead, mercury, nickel and zinc in the area of the intake system.
- G13. Permittee shall perform static or other Council-approved salmonid bioassays on the 001 Discharge quarterly for one year following start-up of each unit. The results shall be submitted to the Council for review. Following their review, further tests may or may not be required by the Council.
- G14. Nothing in this permit shall be construed as excusing Permittee from compliance with any federal, state or local statutes, ordinances or regulations.
- G15. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve Permittee from any responsibilities, liabilities or penalties to which Permittee is or may be subject.
- G16. Prior to the on-site storage of oil and hazardous waste materials, 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 and unplanned discharges and a compliance schedule to install any necessary facilities in accordance with the approved plan; and
- (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 Permittee from compliance with, nor ensure compliance with, the federal spill prevention requirement contained in 40 CFR Part 112. 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.

G17. Permittee shall notify and afford the Council reasonable opportunity to review and comment on completed design drawings, specifications and operational procedures dealing directly with water intake, treatment and discharge facilities.

G18. The project discharge shall not exceed the following expected maximum chemical concentrations:

<u>Metal</u>	<u>Concentrations</u> <u>in Ug/l</u>
Cadmium	38.4
Chromium	257.4
Copper	360.4
Iron	3735.0
Lead	939.7
Mercury	12.87
Zinc	1159.2

These concentrations are approximately 13 times the expected maximum concentrations of these metals in the ambient intake water, which reflect the fact that the cooling systems of the Project are not expected to operate at more than 13 cycles of concentration. Permittee shall monitor the concentrations of these metals in the Project discharge and shall calculate

a quarterly average concentration of at least monthly composite samples. If the quarterly average concentration of any of these metals exceeds the above-listed concentration, Permittee shall report this fact to the Council orally within 24 hours of the time Permittee becomes aware of this fact and in writing within five days of such time. Promptly after receipt of any such oral report, Permittee shall confer with the Council, or its authorized representative, to evaluate the situation and attempt to agree upon the appropriate action to be taken. If Permittee and the Council are not able to reach agreement on action to be taken, the Council may require Permittee to perform additional monitoring and studies and take all reasonable steps necessary to minimize, correct or compensate for any adverse impact on the environment resulting from concentrations in the Project discharge in excess of those listed above.

- G19. Permittee will not discharge hydrostatic testing and flushing wastes if trace metals of cadmium, chromium, copper, iron, lead, mercury and zinc exceed the following maximum amounts:

<u>Metal</u>	<u>Concentrations</u> <u>in Ug/l</u>
Cadmium	38.4
Chromium	257.4
Copper	360.4
Iron	3735.0
Lead	939.7
Mercury	12.87
Zinc	1159.2

- G20. Prior to discharge of hydrostatic testing and flushing waste, Permittee shall submit for Council approval a plan, procedure and schedule for treatment and discharge of hydrostatic and flushing waste. Permittee shall submit for Council approval an operating procedure for notification in noncompliance situations, consistent with Additional Federal General Condition II.I, contained herein.

ADDITIONAL FEDERAL GENERAL CONDITIONS

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II. MONITORING, RECORDING AND REPORTING REQUIREMENTS

- A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under this permit shall be collected from the effluent streams prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge.
- B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.
- C. Penalties for Tampering. The Clean Water Act (33 USC 1251 et seq) provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.
- D. Reporting of Monitoring Results. Monitoring results shall be summarized each month on a Discharge Monitoring Report (DMR) form (EPA No. 3320-1). The reports shall be submitted quarterly and are to be postmarked by the 28th day of the month following the end of the quarter. The first report is due by the 28th day of the month following the end of the quarter in which the first discharge under this permit occurs. Legible copies of these, and all other reports, shall be signed and certified in accordance with the requirements of Part IV.G Signatory Requirements, and be submitted in duplicate to EPA and the Council at the following addresses:

U.S. EPA Region #10
Attn: Water Compliance
Section M/S 521
1200 6th Avenue
Seattle, WA 98101

EFSEC
Attn: Executive Secretary
Mail Stop PY-11
Olympia, WA 98504

Department of Ecology
Attn: Industrial Section
Mail Stop PV-11
Olympia, WA 98504

- E. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.
- F. Additional Monitoring by Permittee. If permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR. Such increased frequency shall also be indicated.
- G. Records Contents. Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
 2. The individual(s) who performed the sampling or measurements;
 3. The date(s) analyses were performed;
 4. The individual(s) who performed the analyses;
 5. The analytical techniques or methods used; and
 6. The results of such analyses.
 7. The date(s) and amounts regarding additional flows pursuant to Special Condition S.1.A. Note (5).
- H. Retention of Records. Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Council at any time.

I. Twenty-four Hour Notice of Noncompliance Reporting.

1. The following occurrences of noncompliance shall be reported orally within 24 hours from the time the permittee becomes aware of the circumstances:
 - a. Any noncompliance which may endanger health or the environment.
 - b. Any unanticipated bypass which exceeds any effluent limitation in the permit. (See Part III.G. Bypass of Treatment Facilities.)
 - c. Any upset which exceeds any effluent limitation in the permit. (See Part III.H. Upset Conditions.)
 - d. Violation of a maximum daily discharge limitation for any of the pollutants listed in the permit to be reported within 24 hours.
2. A written submission shall also be provided within 5 days of the time that permittee becomes aware of the circumstances. The written description shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected; and
 - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
3. The Council may waive the written report on a case-by-case basis if the oral report has been received within 24-hours.
4. Reports shall be submitted to the addresses in Part II.D. Reporting of Monitoring Results.

- J. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for Part II.D. are submitted. The reports shall contain the information listed in Part II.I.2.

- K. Inspection and Entry. Permittee shall allow the Council, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
1. Enter upon permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
 4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

III. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply. Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. Permittee shall give advance notice to the Council of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- B. Penalties for Violations of Permit Conditions. The Clean Water Act provides that any person who violates a permit condition implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions implementing sections 301, 302, 306, 307, or 308 of the Clean Water Act is subject to a fine of not less than

\$2,500, nor more than \$25,000 per day of violation, or by imprisonment for not more than 1 year, or both, except as provided in permit conditions in Part III.G. Bypass of Treatment Facilities and Part III.F. Upset Conditions. Nothing in this permit shall be construed to relieve permittee of the civil or criminal penalties for noncompliance.

- C. Duty to Halt or Reduce Activity. Upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power of the treatment facility fails or is reduced or lost. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- D. Duty to Mitigate. Permittee shall take all reasonable steps to minimize, correct and compensate any adverse impact on the environment resulting from noncompliance with this permit.
- E. Proper Operation and Maintenance. Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.
- F. Removed Substances. Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering navigable waters.
- G. Bypass of Treatment Facilities:
 - 1. Bypass not exceeding limitations. Permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation.

These bypasses are not subject to the provisions of paragraphs 2 and 3 of this section.

2. Notice.

- a. Anticipated bypass. If permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
- b. Unanticipated bypass. Permittee shall submit notice of an unanticipated bypass as required under Part II.I. Twenty-Four Hour Notice of Non-compliance Reporting.

3. Prohibition of bypass.

- a. Bypass is prohibited and the Council may take enforcement action against a permittee for a bypass, unless:
 - (1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if permittee could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - (3) The permittee submitted notices as required under paragraph 2 of this section.
- b. The Council may approve an anticipated bypass, after considering its adverse effects, if the Council determines that it will meet the three conditions listed above in paragraph 3.a. of this section.

H. Upset Conditions:

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology-based permit effluent limitations if the requirements of paragraph 2 of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
 2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - a. An upset occurred and that permittee can identify the specific cause(s) of the upset;
 - b. The permitted facility was at the time being properly operated; and
 - c. Permittee submitted notice of the upset as required under Part II.I. Twenty-Four Hour Notice of Noncompliance Reporting.
 - d. The permittee complied with any remedial measures required under Part III.D. Duty to Mitigate.
 3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.
- I. Toxic Pollutants. Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

IV. GENERAL REQUIREMENTS

- A. Changes in Discharge of Toxic Substances (Not Applicable-Prohibited by Condition G2)
- B. Planned Changes. Permittee shall give notice to the Council, as soon as possible, of any planned physical alterations or additions to the permitted facility.

Permittee shall also give advance notice of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

- C. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- D. Duty to Reapply. If permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, permittee must apply for and obtain a new permit. The application should be submitted at least 180 days before the expiration date of this permit.
- E. Duty to Provide Information. Permittee shall furnish to the Council, within a reasonable time, any information which the Council may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Permittee shall also furnish to the Council, upon request, copies of records required to be kept by this permit.
- F. Other Information. When permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Council or its authorized representatives, it shall promptly submit such facts or information.
- G. Signatory Requirements. All applications, reports or information submitted to the Council shall be signed and certified.
 - 1. All permit applications shall be signed as follows:
 - a. For a corporation: by a principal executive officer of at least the level of vice president;
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
 - c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.

2. All reports required by the permit and other information requested by the Council shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described above and submitted to the Council.
 - b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)
3. Changes to authorization. If an authorization under paragraph IV.G.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph IV.G.2. must be submitted to the Council prior to or together with any reports, information, or applications to be signed by an authorized representative.
4. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

- H. Penalties for Falsification of Reports. The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.
- I. Availability of Reports. Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Energy Facility Site Evaluation Council and the Regional Administrator. As required by the Act, permit applications, permits and effluent data shall not be considered confidential.
- J. Oil and Hazardous Substance Liability. 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 under Section 311 of the Act.
- K. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.
- L. Severability. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
- M. Transfers. This permit may be automatically transferred to a new permittee if:
1. The current permittee notifies the Council at least 30 days in advance of the proposed transfer date;

2. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and
3. The Council does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2. above.

APPENDIX B

STIPULATIONS BETWEEN PARTIES
REGARDING PERMIT TERMS AND CONDITIONS

I. Stipulations between the Applicant and the Department of Ecology:

<u>Stipulation</u>	<u>Tr.</u>
A. Add the following new condition to II.G:*	387
7. The date(s) on which any additional flow has occurred pursuant to S.1.A Note (5).	
B. Add the following new condition:	388-89
G.12 Prior to commencement of discharges from the 001 Discharge, Permittee shall submit to the Council for review and approval a proposed monitoring program designed to (1) assess changes in receiving water quality brought about by the 001 Discharge and (2) document the plant's compliance status with applicable standards.	
C. Replace S.1.B Note (5) with the following:*	390
Note (5): Permittee shall include an alarm system for the pH control and for total residual chlorine to provide an indication of any variance from established limits. The concentration of total residual chlorine at the downstream edge of the mixing zone shall not exceed 0.002 mg/l.	
D. Replace S.1.C Note (1) with the following:*	391
Note (1): No water contaminated with oil and grease or chemical cleaning agents shall be discharged. Neither the concentration of iron nor the concentration of copper in the discharge shall exceed 1.0 mg/l; compliance with these limitations shall be monitored by grab sample 3 times per day when discharging.	

* The precise formulation of this condition was not a subject of the stipulation. The formulation which appears here represents the Applicant's understanding of an acceptable condition.

<u>Stipulation</u>	<u>Tr.</u>
E. Add the following new condition:	391-92
G.11 All sanitary sewage from the plant shall be treated on site and discharged to a percolation pond, thereby precluding any discharge thereof to the 001 Discharge.	
F. Replace the first sentence of Condition G.8 with the following sentence:	392
Permittee shall study the use of chlorine for biofouling prevention in cooling tower operation during the first year of operation.	
G. Add the following new condition:	393
G.14 Nothing in this permit shall be construed as excusing Permittee from compliance with any federal, state or local statutes, ordinances or regulations.	
H. Add the following new condition:	393
G.15 Nothing in this permit shall be construed to preclude the institution of any legal action or relieve Permittee from any responsibilities, liabilities or penalties to which Permittee is or may be subject.	
I. Add the following new condition:	394-95
G.16 Prior to the on-site storage of oil and hazardous waste materials, Permittee shall obtain Council approval of a spill prevention containment and countermeasure 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 and unplanned discharges and a compliance	

Stipulation

Tr.

schedule to install any necessary facilities in accordance with the approved plan; and

- (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 Permittee from compliance with, nor ensure compliance with, the federal spill prevention requirement contained in 40 CFR Part 112. Oil Spill Prevention Containment and Countermeasure Plans prepared in accordance with the above federal requirement may be used in partial fulfillment of this permit requirement.

- J. Add the following new condition: 395
 - G.17 Permittee shall notify and afford the Council reasonable opportunity to review and comment on completed design drawings, specifications and operational procedures dealing directly with water intake, treatment and discharge facilities.
- K. Add the following new condition: 396
 - G.13 Permittee shall perform static or other Council approved salmonid bioassays on the 001 Discharge quarterly for one year following start-up of each unit. The results shall be submitted to the Council for review. Following their review, further tests may or may not be required by the Council.
- L. Revise Condition II.D to add the Department of Ecology to those to receive copies of the reports.
- M. In Condition IV.F, insert the words "or its authorized representative" following the word "Council" in line 2. 397-99

II. Stipulation between the Applicant and the Departments
of Game and Fisheries:

Stipulation

Tr.

A. Replace Condition III.D with the following: 398-400

D. Duty to Mitigate. The Permittee shall take all reasonable steps to minimize, correct and compensate for any adverse impact on the environment resulting from noncompliance with this permit.