State of Washington

EFSEC

HANFORD WILDLIFE MITIGATION PROJECT

Washington State:

Department of Wildlife

Energy Facility Site Evaluation Council

Washington Public Power Supply System

1987 - 1990

CURTIS ESCHELS
Chairman

STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL
Mail Stop PY-11 • Olympia, Washington 98504 • (206) 459-6490 • (SCAN) 585-6490

May 19, 1988

Mr. Donald W. Mazur
Managing Director
Washington Public Power
Supply System
P.O. Box 968
Richland, WA 99352-0968

Dear Mr. Mazur:

During its regular meeting of April 25, 1988, the Council approved amendments to Resolution No. 238, see enclosed, related to the development, operation and maintenance of the Wildlife Mitigation Plan for the Supply System's Hanford-sited projects.

The amendments to the resolution provide additional assurances that the Department of Wildlife will not be liable for operation and maintenance (O&M) costs and that the Council will pursue O&M funding in the event one or more of the projects are sold or ownership transferred. The total of development costs is also increased from $81,000 to $110,000 to reflect updated project costs since the plan was originally adopted over a year ago.

The Council and the department continue to appreciate the efforts of your staff in working with the state to implement this project.

Sincerely,

Curtis Eschels

Curtis Eschels
Chairman

CE:MEM:ab

Enclosure

cc: Jack Howerton
Gary Fenton
Bill Kiel
Ron Chitwood

RESOLUTION NO. 238 (AMENDED)

WHEREAS, The following conditions from the Site Certification Agreements (SCA) issued by the Washington State Energy Facility Site Evaluation Council (Council) for the Washington Public Power Supply System (Supply System) Nuclear Projects Nos. 1, 2 and 4 provide for the protection and mitigation of wildlife impacted by the projects:

Ecosystem Replacement

WNP-2 IV.D.1 "The Supply System agrees to provide replacement and/or compensation for any wildlife, fish and other aquatic life and ecosystem damage or loss caused by project construction and operation when such damage or loss is substantiated by the Council."

WNP-1/4 IV.D.1 "The Supply System agrees to provide replacement and/or compensation as found to be necessary by the Council for any wildlife, fish and other aquatic life and ecosystem damage or loss caused by the project construction and operation."

Additional Protective Measures

WNP-2 IV.E.1 "The Supply System agrees to provide such additional measures for the protection of wildlife, fish and other aquatic life and the ecology of the area environs, based upon analysis and results of the Monitoring Program, as found to be necessary by the Council."

WNP-1/4 IV.E.1 "The Supply agrees to provide such additional measures for the protection of wildlife, fish and other aquatic life and the ecology of the area environs, based upon analysis and results of the Monitoring Program, as found to be necessary by the Council"; and

WHEREAS, The Environmental Monitoring Program, including the terrestrial ecology monitoring program, is part of an integrated monitoring program for the pre-operational, construction and operational phases for all three of the Supply System's nuclear power plants (WNP-1, 2 and 4) located on the Hanford Site; and

WHEREAS, The Supply System and the Washington State Department of Wildlife (WDW) have conducted terrestrial wildlife monitoring studies at the Hanford Site to examine the impact of the Supply System facilities upon animal populations and it has been determined that construction of the plants resulted in the loss of wildlife and wildlife habitat; and

WHEREAS, In 1985 the WDW developed a wildlife compensation plan to look at mitigating (moderating the effects of the plants upon wildlife populations) the loss of wildlife habitat at the plant sites; the plan proposed to address the certification conditions by improving habitat, through the restoration of vegetation and ecosystem replacement either on or off the plant sites, such that the improved habitat could support additional wildlife; and

WHEREAS, In 1986 discussions were held between the Supply System, WDW and the Council concerning implementation of the wildlife compensation plan by developing six areas near the plant sites as good quality habitat; however, lack of suitable water sources prevented implementation of most provisions of the plan; and

WHEREAS, The Supply System and WDW continued to pursue methods that would compensate for wildlife losses, and in the fall of 1986, jointly developed a mitigation plan which would improve wildlife habitat on the near-by Sunnyside Habitat Management Area - Rattlesnake Hills Unit in lieu of habitat improvement on the Supply System sites; and

WHEREAS, WDW submitted for Cou.. .1 consideration, with a recommendation for .1 implementation, a proposed Wildlife Mitigation Plan (February 1987), detailing habitat improvements, to include shrub plantings and irrigation, that WDW considered to be an appropriate level of development for mitigation; and

WHEREAS, The WDW has a Permit (Contract No. R006-86PR10972.000) with the U.S. Department of Energy (USDOE) to use the Hodges Ranch Well and appurtenances on the Hanford Site as the source of water identified in the plan;

WHEREAS, The Certificate Compliance Committee met with both parties to review the size and scope of the habitat improvements being proposed under the plan and found the proposal to be adequate and reasonable mitigation for the loss of wildlife habitat associated with the construction and operation of the Supply System facilities on the Hanford Site;

NOW, THEREFORE, BE IT RESOLVED, That the Council hereby approves the Wildlife Mitigation Plan, dated April 1987, which is incorporated herein as Attachment 1, for Supply System Projects 1, 2 and 4, and directs the Supply System to work with WDW to implement provisions of the plan in accordance with the following conditions:

1. The Supply System is to provide funds for the development, operation, maintenance and component replacement costs to carry out the Wildlife Mitigation Plan for the life of the projects.

   WDW shall not now or in the future be held liable for improvements or operation and maintenance (O&M) costs for mitigation of these projects.

2. a. The total of development costs is $110,000; to be allocated by the Supply System between the WNP-2 and WNP-1 and 4 sites.

   b. In the event that any of the projects are unable to provide the specified amount of funding, the Council retains the right to consider alternative funding methods, to include setting aside or delaying an obligation until such time that funds, if ever, become available; developing an allocation formula based on project status, etc.; and

      In the event one or more of the projects are sold or ownership transferred, the Council shall pursue O&M funding for mitigation for each project for the life of the projects.

3. a. Development costs shall be funded by the Supply System, to the extent practical, from FY 1987 funds. The balance shall be appropriated from FY 1988 funds, as available. Any remaining funding obligations will be met in ensuing fiscal periods.

   b. The Council will request a deposit from the Supply System to cover anticipated FY 1987 development costs following adoption of this resolution. For ensuing fiscal periods, the normal quarterly deposit requests will include estimates for development costs.

4. An operation and maintenance fund will be established by the Supply System, consistent with the funding requirements identified in Attachment 1, to meet such expenses during the life of these projects. The arrangement to cover these expenses will be agreed to, in writing, by the Council, WDW and the Supply System. It is understood that unused system replacement funds shall be refunded to the Supply System at the end of the life of the projects; and

5. Implementation of the plan is contingent upon a Department of Ecology Groundwater Permit/Certificate being obtained by WDW; and

6. The WDW will operate and maintain the Hodges Ranch Well and its appurtenant facilities, to include providing electricity to the well site, pursuant to its permit with USDOE.

7. The plan will be implemented in a timely manner, generally following the implementation schedule in Attachment 1; and

BE IT FURTHER RESOLVED, It is intended that implementation of the plan will satisfy wildlife mitigation requirements; however, if there are unanticipated circumstances that prevent the plan from being completed and/or satisfactorily implemented, the Council may require the Supply System to undertake appropriate remedies to ensure wildlife mitigation.

Dated this 1st day of May 1987.

Washington State Energy Facility
Site Evaluation Council

BY /S/
Curtis Eschels
Chairman

ATTEST:

BY /S/
William L. Fitch
Executive Secretary

Amended this 25th day of April 1988.

Washington State Energy Facility Site
Evaluation Council

BY
Curtis Eschels
Chairman

ATTEST:

BY
William L. Fitch
Executive Secretary

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352

May 20, 1988
EP-RAC-88-028

Mr. William Fitch, Executive Secretary
Energy Facility Site Evaluation Council
Mail Stop PY-11
820 E. 5th Avenue
Olympia, Washington 98504

Dear Mr. Fitch:

SUBJECT: WILDLIFE MITIGATION PLAN - RESPONSE TO EFSEC RESOLUTION 238 (AMENDED)

REFERENCE: Letter, G. C. Sorensen to William Fitch, entitled "Wildlife Mitigation Plan, WNP-2 and WNP-1/4 Sites and Transmittal of First Warrant," dated June 4, 1987.

The reference letter detailed the Supply System response to Resolution 238 which defined the Wildlife Mitigation Plan which was required for the impacts defined by Section V D.1 of the Site Certification Agreement. Resolution 238 (Amended) modified the payment and program to account for increased installation costs. This letter updates how we plan to respond to the amended resolution.

1. The Supply System is to provide funds for the development, operation, maintenance, and component replacement costs to carry out the Wildlife Mitigation Plan for the life of the projects.

   WDW shall not now or in the future be held liable for improvements or operation and maintenance (O&M) costs for mitigation of these projects.

   Response

   The Supply System plans to provide funds for the development, operation, maintenance, and component replacement costs to carry out this Wildlife Mitigation Plan for the life of the project.

2. a. The total of development costs ~~shall not exceed $81,000~~ is $110,000; to be allocated by the Supply System between the WNP-2 and WNP-1 and 4 sites.

b. In the event that any of the projects are unable to provide the specified amount of funding, the Council retains the right to consider alternative funding methods, to include setting aside or delaying any obligation until such time that funds, if ever, become available; developing an allocation formula based on project status, etc.; and

In the event one or more of the projects are sold or ownership transferred, the Council shall pursue O&M funding for mitigation for each project for the life of the projects.

Response

It is our understanding that the cost of the project is $110,000. Based upon our discussions with WDW, the approximate breakdown to develop 54 mini-plots is:

		41 Mini-Plots Estimated Cost
Engineering	$ 4,865	$ 4,865
Elec. Power	23,421	23,421
Pump	5,100	5,100
Materials	47,604	36,144
Plants	11,664	8,856
Labor	7,400	5,619
	$100,054	$84,005
Tax	7,804	6,552
Contingency	2,142	
Total	$110,000	$90,557

The allocation will be as defined in the referenced letter, with monies currently available from WNP-1 and WNP-2. We have assigned 27 mini-plots to WNP-2, 14 to WNP-1, and 13 to WNP-4.

We request that EFSEC utilize existing monitoring funds assigned to WDW to pay labor costs to the extent possible. We estimate that to be about $6,000. Additionally, a warrant will accompany this letter and, along with the $30,000 transmitted in 1987, will bring the funding to $84,000. This exhausts the funding available for 1988. Since this work will continue into the fall, we suggest that you proceed with the project and bill us for the remaining $6,557, when and if it is required.

3. a. Development costs shall be funded by the Supply System, to the extent practical, from FY 1987 funds. The balance shall be appropriated from FY 1988 funds, as available. Any remaining funding obligations will be met in ensuing fiscal periods.

   b. The Council will request a deposit from the Supply System to cover anticipated FY 1987 development costs following adoption of this resolution. For ensuing fiscal periods, the normal quarterly deposit requests will include estimates for development costs.

   Response

   a/b The Supply System will fund the $90,557 assigned to WNP-1 and WNP-2 as described previously.

4. An operation and maintenance fund will be established by the Supply System, consistent with the funding requirements identified in Attachment 1, to meet such expenses during the life of these projects. The arrangement to cover these expenses will be agreed to, in writing, by the Council, ~~WBG~~ WDW, and the Supply System. It is understood that unused system replacement funds shall be refunded to the Supply System at the end of the life of the projects; and

   Response

   The Supply System will fund the operation and maintenance of this project on a yearly basis. Payments can be on a quarterly basis against documented actuals. These routine costs are not expected to exceed $2,400 per year (1987 dollars adjusted for inflation). Other non-routine cost items such as tank replacement, valve or pipe breakage, well costs, will be justified and funded as required by the Supply System.

5. Implementation of the plan is contingent upon a Department of Ecology Groundwater Permit/Certificate being obtained by ~~WBG~~WDW; and

   Response

   No Supply System response necessary.

6. The ~~WBG~~ WDW will operate and maintain the Hodges Ranch Well and its appurtenant facilities, to include providing electricity to the well site, pursuant to its permit with USDOE.

   Response

   No Supply System response necessary.

7. The plan will be implemented in a timely manner, generally following the implementation schedule in Attachment 1; and

Response

Supply System funding distributions have been and will continue to be timely and will not delay this project.

Transmitted with this response to Resolution 238 (Amended) is a voucher for $48,000 which will serve as funding to continue this project. If you have questions concerning this matter, please call me on (509) 372-5238.

Very truly yours,

G. C. Sorensen, Manager
Regulatory Programs

GCS/RAC/vlc

Washington Public Power Supply System
P.O. Box 968 3000 George Washington Way Richland, Washington 99352 (509) 372-5000

June 4, 1987
G02-87-0194

Mr. William Fitch, Executive Secretary
Energy Facility Site Evaluation Council
Mail Stop PY-11
820 E. 5th Avenue
Olympia, Washington 98504

Dear Mr. Fitch:

SUBJECT: WILDLIFE MITIGATION PLAN, WNP-2 AND WNP-1/4 SITES, AND TRANSMITTAL OF FIRST WARRANT

The subject resolution defines the wildlife mitigation plan that has been developed by the Washington State Department of Game as compensation for the impacts deferred by Section V.D.1 of the certification requirements. This letter describes how we plan to respond to the resolution requirements.

Resolution Requirements

1. The Supply System is to provide funds for the development, operation, maintenance, and component replacement costs to carry out the Wildlife Mitigation Plan for the life of the projects.

   Response

   The Supply System plans to provide funds for the development, operation, maintenance, and component replacement costs to carry out this Wildlife Mitigation Plan for the life of the project.

2. a. The development costs shall not exceed $81,000 to be allocated by the Supply System between the WNP-2 and WNP-1 and 4 sites.

   b. In the event that any of the projects are unable to provide the specified amount of funding, the Council retains the right to consider alternative funding methods, to include setting aside or delaying an obligation until such time that funds, if ever, become available; developing an allocation formula based on project status, etc.; and

Response

The allocation will be 50% for the WNP-2 Site and 50% for the WNP-1/4 Site. A further allocation for the WNP-1/4 Site is 25% for WNP-1 and 25% for WNP-4, which is consistent with the historical cost sharing practices. Because monies are not available from the terminated WNP-4 project, the part of the Rattlesnake Hills Unit Project that can be attributed to it, will not be funded until such a time that funds become available. Since the total project size is six acres of drip irrigation or 60 mini-vegetation plots, we would assign 30 mini-plots to WNP-2, 15 to WNP-1, and 15 to WNP-4 (if funds become available). We estimate that the project cost for 45 mini-plots is about $66,750. We believe it is appropriate to use that figure as the not to exceed cost.

3. a. Development costs shall be funded by the Supply System, to the extent practical, from FY 1987 funds. The balance shall be appropriated from FY 1988 funds, as available. Any remaining funding obligations will be met in ensuing fiscal periods.

   b. The Council will request a deposit from the Supply System to cover anticipated FY 1987 development costs following adoption of this resolution. For ensuing fiscal periods, the normal quarterly deposit requests will include estimates for development costs.

Response

The Supply System can fund $30,000 of the capital cost immediately and the remaining $36,750 can be provided any time after July 1, 1987.

4. An operation and maintenance fund will be established by the Supply System, consistent with the funding requirements identified in Attachment 1, to meet such expenses during the life of these projects. The arrangement to cover these expenses will be agreed to, in writing, by the Council, WDG, and the Supply System. It is understood that unused system replacement funds shall be refunded to the Supply System at the end of the life of the projects; and

Response

The Supply System will fund the operation and maintenance of this project on a yearly basis. Payments can be on a quarterly basis against documented actuals. These routine costs are not expected to exceed $2,400 per year (1987 dollars adjusted for inflation). Other, non-routine cost items such as tank replacement, valve or pipe breakage, well costs, will be justified and funded as required by the Supply System.

5. Implementation of the plan is contingent upon a Department of Ecology Groundwater Permit/Certificate being obtained by WDG; and

Response

No Supply System response necessary.

6. The WDG will operate and maintain the Hodges Ranch Well and its appurtenant facilities, to include providing electricity to the well site, pursuant to its permit with USDOE.

Response

No Supply System response necessary.

7. The plan will be implemented in a timely manner, generally following the implementation schedule in Attachment 1; and

Response

Supply System funding distributions are expected to be timely and will not delay this project.

BE IT FURTHER RESOLVED, It is intended that implementation of the plan will satisfy wildlife mitigation requirements; however, if there are unanticipated circumstances that prevent the plan from being completed and/or satisfactorily implemented, the Council may require the Supply System to undertake appropriate remedies to ensure wildlife mitigation.

Response

The Supply System fully intends to meet the obligations defined by the Energy Facility Site Evaluation Council. We expect to pay reasonable costs to develop and maintain this project. At the same time we do not expect to be held accountable for negligent actions by others or for such things as vandalism that might develop as a consequence of the increased recreational use of this area.

Transmitted with this response to Resolution 238 is a voucher for $30,000 which will serve as funding to initiate this project promptly. If you have questions concerning this matter, please call me on (509) 372-5238.

Very truly yours,

for G. C. Sorensen, Manager
Regulatory Programs

GCS/RAC/vlc

Final Report

Proposed Wildlife Mitigation
for
Washington Public Power Supply System Facilities
WNP-1, 2 and 4

Submitted to

State of Washington
ENERGY FACILITY SITE EVALUATION COUNCIL
Olympia, WA

by

WASHINGTON DEPARTMENT OF GAME
Region 3
2802 Fruitvale Boulevard
Yakima, WA 98902

Prepared by

Brent D. Renfrow

April, 1987

TABLE OF CONTENTS

1. Introduction

Washington Public Power Supply System (WPPSS) has leased 850 ha. (2,100 acres) of the Hanford Nuclear Reservation for construction and operation of three commercial nuclear power plants (WNP-1, 2 and 4) and adjunct facilities. Certification for WNP-2 was granted in May of 1972 and site preparation began in May of 1973. Site certification for WNP-1 and 4 was granted in June and August of 1975 respectively and site preparation commenced in 1976.

Site certification agreements for WNP 1, 2 and 4 include the stipulations that:

> "The Supply System agrees to provide replacement and/or compensation for any wildlife, fish and other aquatic life and ecosystem damage or loss caused by Project construction and operation when such damage or loss is substantiated by the Council.
>
> "The Supply System agrees to provide such additional measures for the protection of wildlife, fish and other aquatic life and the ecology of the area environs, based upon analysis and results of the Monitoring Program, as found to be necessary by the Council."

During the fall of 1986, WPPSS and WDG jointly developed a mitigation plan which would improve wildlife habitat on the near-by Sunnyside Habitat Management Area - Rattlesnake Hills Unit in lieu of habitat improvement on the WPPSS site. Habitat improvements would include shrub plantings and irrigation. Although WDG and WPPSS are in general agreement regarding the nature of the proposal, the two entities are not in agreement over how much of the proposal should be developed as mitigation and funded by WPPSS.

WPPSS maintains that it should fund only partial development of the proposal such that costs to WPPSS are comparable to those of the previously proposed on-site mitigation plan (refer to section 6, page 3). Partial development would consist of developing the mainline of the irrigation system and planting and irrigating 1.2 acres of shrubs (12 0.1-acre plots). The estimated development cost for this partial development is $40,000. WPPSS would also establish a small trust fund to be managed by WDG. Income from this fund would pay a portion of the operation and maintenance costs necessary to maintain this habitat improvement during the 40-year life of the WPPSS facilities. Upon completion of the habitat improvement and establishment of the trust fund, WPPSS would be relieved of any further wildlife mitigation responsibilities. Some operation and maintenance expenses and any additional habitat improvement would be the responsibility of WDG.

In contrast, WDG maintains the proposal should be developed in full with all development, operation and maintenance funds provided by WPPSS.

Development would consist of an irrigation system with a mainline and 10 lateral lines to service 6 acres of shrubs (60 0.1-acre plots). The estimated development cost is $81,253. WPPSS would provide operation and maintenance funds through a trust fund or cost reimbursement basis. WDG believes full implementation of this proposal is warranted as:

- To date no significant wildlife mitigation has been implemented during the more than 13 years of construction and operation of the WPPSS facilities.

- WPPSS is seeking release from any further wildlife mitigation responsibilities as a condition of the proposal.

- The proposed level of mitigation is actually well below that necessary to fully replace habitat lost from construction of facilities.

- The proposal requires less habitat development than the previous on-site proposal agreed to by WPPSS.

- The difference in cost between the current proposal and the previous on-site mitigation proposal is largely due to the cost of providing electricity and water to the Rattlesnake site and does not reflect an increase in the level of mitigation. (In the previous proposal WPPSS assumed costs of providing water, power, maintenance and operation. These costs were not included in the previous on-site proposal.)

- Full development of the proposal will provide visible benefits to wildlife and the public.

Full development of the proposal is described below so that the Energy Facility Site Evaluation Council (EFSEC) can review the components and make a decision regarding the level of development necessary for mitigation.

2. Description of WPPSS Site

The WPPSS site has been described by WPPSS (1980 and 1985). Soils are sandy and the vegetation of the site is best characterized as shrub-steppe (Daubenmire 1970). Primary shrub species are Artemesia tridentata, Pursha tridentata, and Chrysothamnus spp. Primary herbaceous species included Bromus tectorum, Stipa commata, Agropyron Spicata and introduced forbes. Much of the site was burned by wildfires in 1961, 1970 and 1984, which destroyed much shrub cover.

Resident wildlife is typical of shrub-steppe vegetation in the Columbia Basin and has been listed by WPPSS (1980). Wildlife use of the WPPSS site is influenced by the sites proximity to the Columbia River and the habitat provided by the surrounding Hanford Reservation which includes areas of sand dunes and stands of tall, dense shrubs. The Columbia River serves as a migration corridor for birds and the riparian habitat along the river's edge is critical for many of the site's wildlife species. During summer the river is the only source of free water available to most wildlife.

3. Review of Wildlife Monitoring on WPPSS Site

Monitoring of terrestrial wildlife was initiated in 1974 to determine the impact of cooling tower operations upon animal communities through pre and post operation field studies. Small mammal and bird populations were sampled from 1974-1979; mule deer were studied during 1975-76 (WPPSS 1981). These studies provided estimates of population densities of mule deer and small mammals, and the relative abundance of birds in the vicinity of WNP 1, 2 and 4. At the request of Washington Department of Game (WDG) WPPSS conducted additional terrestrial wildlife studies from 1981 to 1986 to provide more detailed information on mule deer, rabbits and birds. Descriptions and results of these studies are provided in WPPSS (1981 and 1986).

To monitor vegetation changes, aerial photographs of the WPPSS site were taken in 1975 and 1976. Battelle (1976) reported these photographs showed landscape changes due to construction and roadways, and noted that construction activities would account for the major loss of wildlife habitat.

4. Habitat Losses and Approach to Mitigation

Construction of nuclear power plants WNP-1, 2 and 4 resulted in the loss of 520 ha. (1,285 acres) of steppe habitat to placement of facilities, roads, borrow pits, pipeline and utility corridors, etc. Wildlife dependent upon this habitat was also lost.

This loss of wildlife habitat can be mitigated by improving a sufficient amount of low-quality habitat (either on or off the WPPSS site) such that the improved habitat can support additional wildlife. Ideally the improved habitat would support:

1) the same species as those which occurred on the pre-project WPPSS site.

2) an additional number of individuals of those species equal to the number that were lost to the WPPSS project.

If mitigation is 100% effective then all wildlife losses will be compensated for by the additional wildlife production and use on the improved habitat.

Because of special circumstances surrounding the WPPSS Hanford project, the current and previous mitigation proposals have not required complete mitigation but rather have sought to provide significant wildlife compensation at a cost affordable by WPPSS.

5. Previous Mitigation Efforts

In 1985 an agreement was reached between WPPSS, the Energy Facility Site Evaluation Council (EFSEC) and WDG, whereby WDG would assist WPPSS to develop and implement a wildlife compensation plan to mitigate impacts to

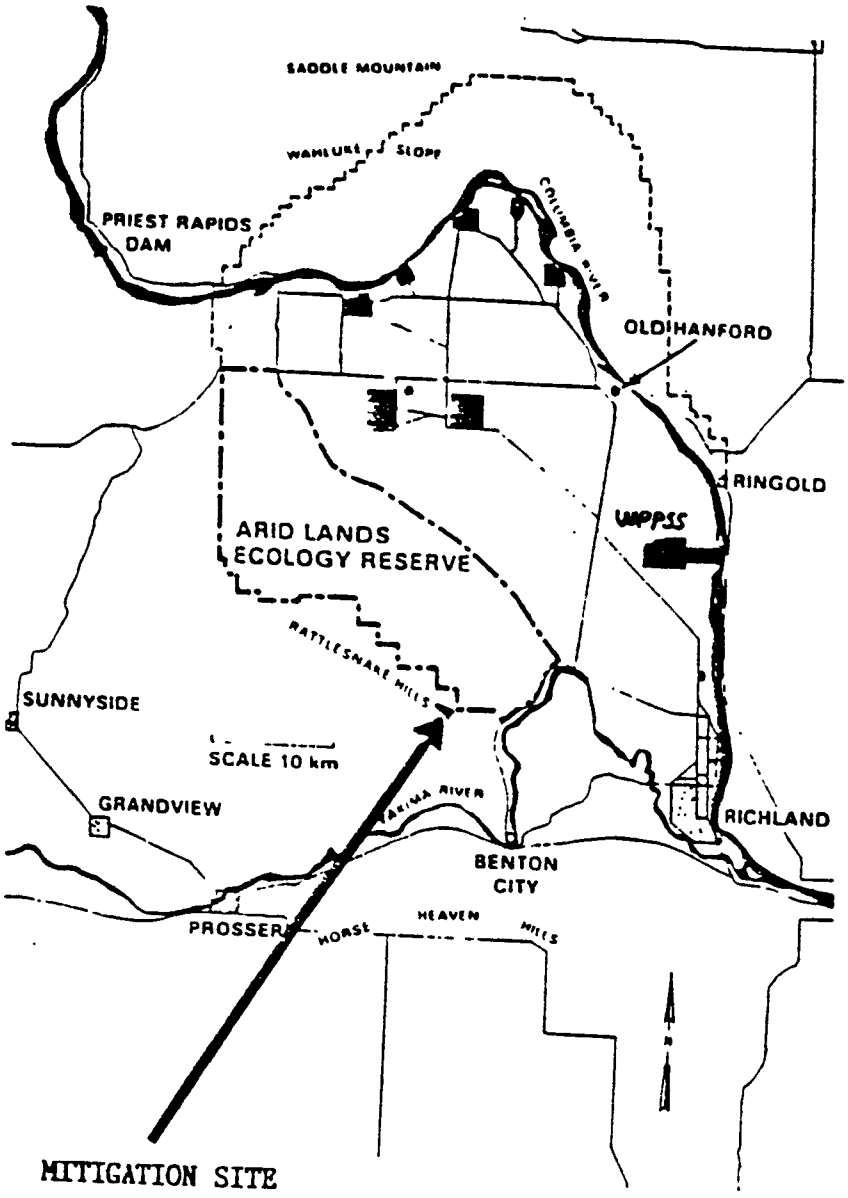
wildlife from construction and operation of the facilities. A plan was submitted to EFSEC and approved in 1986 which focused on converting small, disturbed areas on the WPPSS site to good quality habitat. Two sites totaling 31.5 acres would have been planted with containerized arid-land shrub seedlings, four sites totaling 10.5 acres would have been irrigated and planted with containerized riparian shrub seedlings and two half-acre sewage lagoons would have been converted to wetlands suitable for wildlife. These "islands" of good-quality habitat would have improved the overall wildlife value of the 850 ha. (2,100 acre) WPPSS site and provide partial compensation for habitat lost to facilities. The development cost of this mitigation was estimated as $34,000. (Water, electricity and operation and maintenance were to be provided by WPPSS and are not figured into the estimate.) Lack of suitable water sources prevented implementation of most provisions of this plan.

6. Proposed Mitigation

To compensate for wildlife losses from construction of WNP-1, 2 and 4, we propose that WPPSS, in cooperation with WDG, enhance habitat on the Sunnyside Habitat Management Area (HMA) - Rattlesnake Hills Unit (Figure 1). Enhancement would consist of establishing small, scattered plots of shrubs and constructing a drip irrigation system to provide water to these plantings (Figure 2). These irrigated plots would be located across the unit in a manner that would mimic natural riparian draws. The total area to be irrigated and planted would be 2.4 hectares (6 acres). These plots would provide a limited amount of water and riparian vegetation in an area where currently none exists, thereby providing large benefits for wildlife.

The importance of riparian plant communities to wildlife is well documented (Oliver 1969, Hubbard 1977, Carothers 1977, etc.). Riparian habitat is a complex plant community which offers more food, cover and habitat niches than any other plant community type in dryland areas of eastern Washington. Because of this a greater diversity of wildlife can exist within riparian habitat than in surrounding dryland habitats. Equally important is that the wildlife value of dryland habitats is greatly enhanced by the presence of adjacent riparian habitat. Thus creating riparian habitat on the Rattlesnake Hills Unit where currently none exists, would both add a new plant community which can support additional species of of wildlife, and increase the number of species and population levels that could be supported by the existing dryland habitat.

The habitat value of the Rattlesnake Hills Unit is presently low. Proper interspersion of cover requirements, food and water is necessary for wildlife to make maximum use of a site. The proposal, by increasing diversity of habitat and interspersion of water and cover with food, would greatly improve the habitat value for most game and nongame wildlife. Habitat plots would be spaced so as to maximize the benefit from the sphere of influence of each plot. Travel distances between plots would be such that water, thermal and escape cover would be favorably distributed across the area.



Rattlesnake Hills Unit
Sunnyside Wildlife Area

Figure 1. Location of proposed mitigation land

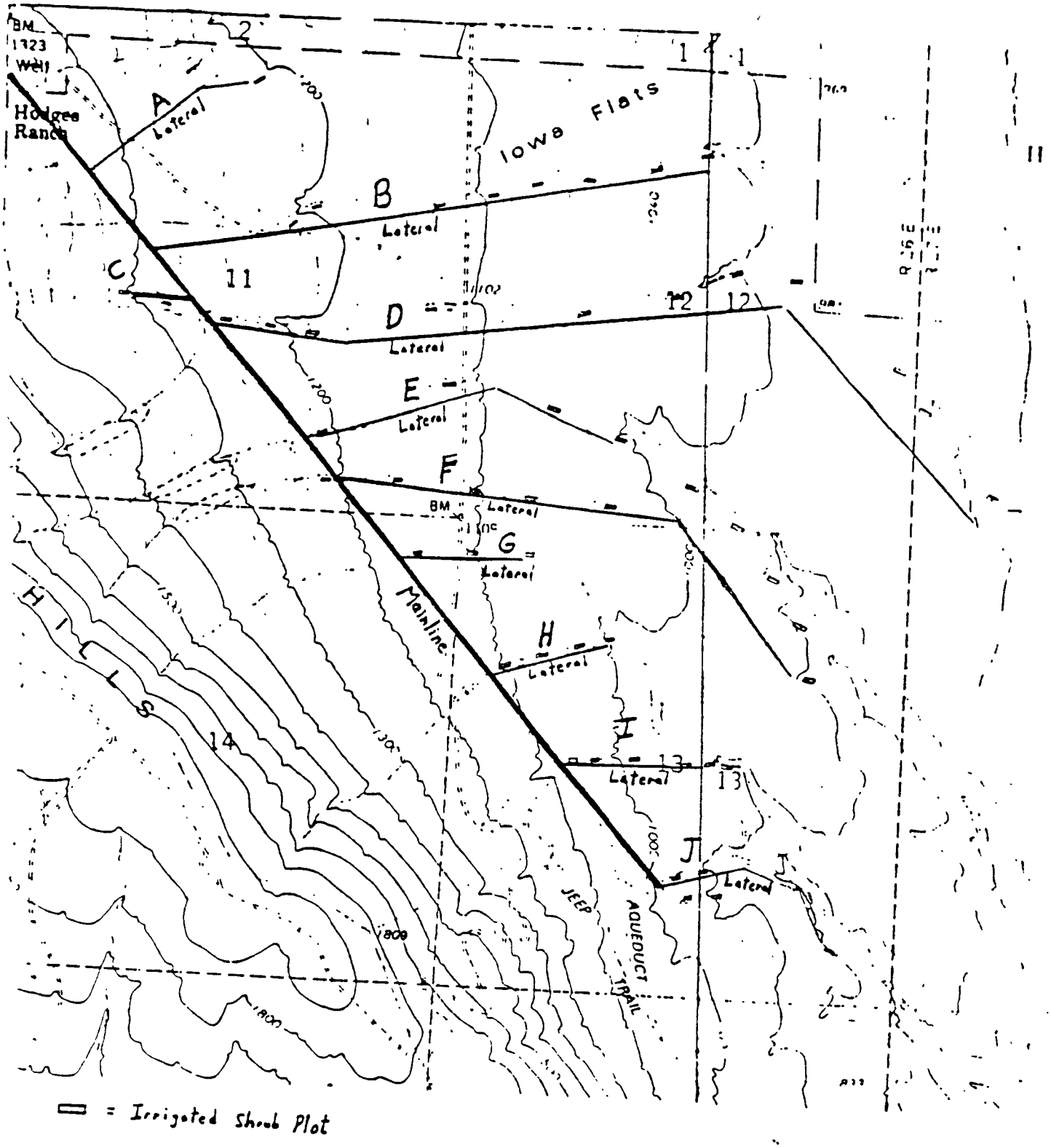


Figure 2. Irrigation system design for Rattlesnake Hills Unit, Sunnyside Wildlife Area.

6.1 The Rattlesnake Hills Site

The Rattlesnake Hills Unit of the Sunnyside HMA is located approximately six miles north of Benton City. The property lies along the northeast slope of the Rattlesnake Hills and is immediately south of the Hanford Reservation's Arid Lands Ecological Reserve. The unit is an extensive area of steppe habitat dominated by plant communities of bunch grasses, cheatgrass and sagebrush. A wildfire in 1984 destroyed much of the sagebrush cover. The unit has very little vegetative diversity and no perennial natural water sources. Wildlife populations are typical of the driest parts of eastern Washington, with little species diversity and low densities. Resident game populations include small numbers of chukar, gray partridge, Nutall's cottontail, black-tailed jackrabbit, and mule deer. Mourning dove, pheasant, and California quail have also been observed on the site. Nongame species reported on the site include western meadowlark, horned lark, short-eared owl, burrowing owl, gyrfalcon, prairie falcon, goshawk, deer mouse, bushy-tailed woodrat and Great Basin pocket mouse.

6.2 Description of Facilities and Improvements

Implementation of the proposal requires bringing electricity to the site, developing a well, installing an irrigation system and planting of trees and shrubs. These developments are described below.

6.2.1 Electrical Power

The original power lines to the well were damaged by fire in 1984 and were subsequently removed. Therefore construction of approximately one and one half miles of new, single phase powerline is required. Funds necessary for construction would be provided by WPPSS. Since the well is in the Benton County PUD service area, actual construction and maintenance of the new powerlines would be the responsibility of the PUD.

6.2.2 Well and Pump

An agreement has been made with the U.S. Department of Energy (DOE) to use the Hodges Ranch Well on the Hanford Reservation as the source of irrigation water. The well is capable of producing 24 gallons of water per minute on a sustained basis. Currently the well is fitted with an antiquated, five horsepower reciprocating pump of limited capacity and which is in need of repair. This pump would be replaced with a new, five-horsepower submersible pump capable of producing 24 gallons of water per minute. To minimize maintenance requirements, the pump would be a high-quality, stainless steel impeller type, and the power cable servicing the pump motor would be enclosed in PVC pipe.

6.2.3 Irrigation System

The water distribution system would consist of the following components:

a) 10,000 gallon storage tank which is currently in place at the well site. DOE has granted permission to use this tank.

b) Mainline of PVC pipe, running approximately 11,000 feet southeast from the storage tank.

c) Ten PVC lateral lines running from the mainline. These lines would parallel draws leading from the Rattlesnake Hills.

The distribution system would include air relief and pressure relief valves, risers and drain valves where necessary. The mainline and lateral lines would be buried a minimum of 24 inches below the ground surface to protect them from frost and physical damage from vehicles, etc.

A drip-type water application system would be used for shrub plots located along each lateral line. The application system for each plot would consist of a series of lays of polyethylene tubing fitted with one-gallon per hour drip emitters at approximately four foot intervals. To prevent damage from ultra-violet light, rodents and coyotes, the polyethylene tubing would be buried a few inches below the surface in a shallow, hand-dug trench. Emitters would be left protruding above the ground. Each emitter would water a single tree or shrub. An ideal plot would be one tenth acre in size with 272 emitters on an approximately 4 ft. x 4 ft. spacing. A small wildlife watering basin would be included in each plot and would be supplied with water by three emitters. A pressure regulator and shut-off and drain valves would be needed at each plot.

The operation of the irrigation system would be as follows:

- The well would run continuously from the spring irrigation start-up date to the fall shut-off date. This would produce the maximum amount of water for wildlife benefits and save wear and tear on the pump motor (continuous operation puts less strain on the pump motor and switches than does repeated cycling on and off). Circuit breakers, pressure relief and check valves would protect the pump in the event of system failure.

- Pump output would be regulated to fill the 10,000 gallon storage tank three times each day.

- The storage tank provides enough water to irrigate 20 plots at a time with each plant receiving approximately 2 gallons of water. The irrigation system would be divided into three units of 20 plots each, with each unit controlled by electric timers and valves where the lateral lines join the mainline. Valves to each unit would be electrically opened for two hours each day. Thus each 20-plot unit would receive one tankfull of water per day.

6.2.4 Shrub Plots

A total of six acres would be irrigated and planted to shrubs. These six acres would comprise 60 plots, each 1/10 acre in size, distributed along the lateral lines of the irrigation system. The location of each plot would take into consideration soil, topography, aspect, drainage, and the plots overall location with respect to other plots. In general plots would be located on north-facing slopes of draws and other locations with favorable microsites. An ideal plot would be approximately rectangular (145' x 30') however actual plot size and shape would vary with site conditions.

Shrub plantings would include both evergreen and deciduous shrubs and trees, and plant species would be selected to provide both cover and food. Species selected for planting are listed in the Appendix. Plant spacing would be approximately 4 ft. x 4 ft. with one seedling planted by each emitter. This dense spacing is needed to compensate for expected seedling mortality and is consistent with planting densities previously used by WDG for successful habitat plantings.

The planting site for each tree/shrub seedling would be prepared by scalping existing vegetation from a two-foot square area. Seedlings would be planted in an auger-drilled hole, 6 inches wide by 2 feet deep and marked with a small, wire flag. If bare-root seedlings are used, the roots would be dipped in a solution of "Terrasol" prior to planting to improve survival. One year following planting, "Casoran" beads would be applied by hand to the area around the base of each seedling to reduce competition from grasses and forbes.

6.3 Life of Irrigation System Components

To ensure continued mitigation, the irrigation system and plantings would be maintained for the estimated 40-year life of the WPPSS facilities. During this time, the well pump, electric timers and emitters would need periodic replacement. Pump manufacturers generally warrant pumps for five years. However a small pump such as required by this system, if operated within its rated optimum performance range on a continual basis, could last over twenty years with 10-12 years being a reasonable life expectancy (Morton Pump & Supply, pers. commun.; Smith Pump Service, pers. commun.). Electric valve timers have a life expectancy of 5-10 years (Akland Pump & Irrigation, pers. commun.). Emitters tend to accumulate mineral deposits over time and thus have a limited life expectancy of about five to seven years (Morton Pump & Supply, pers. commun.). The existing water storage tank is of heavy duty construction and appears in good condition. It may last indefinitely. A new water storage tank can be expected to last in excess of 20 years (Ace Tank & Equipment Co., pers. commun.). PVC pipe when buried should last indefinitely and the life expectancy of polyethylene tubing is as yet undetermined but such tubing has remained functional for 15 years to date in ongoing field tests (Morton Pump & Supply, pers. commun.).

6.4 Schedule for Implementation

The implementation schedule revolves around the requirement that shrubs and trees be planted during the cool temperatures and favorable soil moisture conditions of spring and fall. We propose implementation for summer and fall of 1987. All work could be completed within five months.

Action	J	J	A	S	O	N
Install power			———			
Install new pump			—			
Install irrigation system			———			
Plant shrubs				———		

6.5 Cost Estimates and Funding

We propose that WPPSS provide funds for development, operation, maintenance, and component replacement costs for the period the WNP-1, 2 & 4 projects occupy the Hanford site. Costs are described below.

6.5.1 Development Costs

Development costs are presented in Table 1. These costs are based on "over the counter" estimates and will likely be revised when bids are solicited.

TABLE 1. Development Costs

Item	Materials	Labor	Total
Final Engineering		$ 2,500	$ 2,500
Power Line Construction	$19,000		19,000
Well Pump	1,100	600	1,700
Filter	250		250
Mainline	3,888	2,691	6,579
Lateral A	277	483	760
Lateral B	1,051	1,497	2,548
Lateral C	148	138	286
Lateral D	2,033	2,645	4,678
Lateral E	490	920	1,410
Lateral F	1,235	1,495	2,730
Lateral G	150	345	495
Lateral H	152	345	497
Lateral I	152	289	441
Lateral J	575	552	1,127
Subtotal Main & Lat. Lines	10,151	11,400	21,551
60 Shrub Plots	20,326	15,926	36,252
Total	$50,827	$30,426	$81,253

6.5.2 Operation and Maintenance Costs

Periodic inspection and service of the irrigation system would be necessary to ensure it is working properly. Since success of the mitigation is dependent upon the reliable operation of the irrigation system, operation and maintenance of the system is a key consideration. Estimated annual operation and maintenance expenses are listed in Table 2.

TABLE 2. Annual Operation and Maintenance Costs

Item	Total
Annual system start-up (travel & labor)	252
Annual system shut-down (travel & labor)	252
18 weekly site visits (travel & labor)*	1,120
Annual Electricity Costs (18,900 kwh)	470
Contingency	200
Total Annual Costs	2,294

* The HMA Manager periodically visits the site as part of regular duties. These visits have been considered in determining the number and cost of necessary site visits. Since the cost of these periodic visits is born by WDG, they are not added into this item.

6.5.3. System Replacement Costs

Because the well pump, electric timers and emitters would not last for the entire 40 year life of the WPPSS facilities, replacement costs for these components would be incurred. Assuming the life of the pump would be 10 years and the life of valve timers and emitters would be seven years, the estimated 40 year cost for replacement of these components would be $27,100. In addition $16,000 of contingency money is needed for unexpected costs such as tank replacement, valve or pipe breakage, etc. In the event DOE revokes the permit for use of the Hodges Ranch Well, an additional $15,000 will be required to develop a replacement well. These costs are listed in Table 3.

TABLE 3. Replacement Costs for Pump and Emitters

Item	Annualized Cost	40-Year Total
Pump	127	5,100
Emitters	500	20,000
Electric Timers	50	2,000
Contingency	400	16,000
Well Replacement (if necessary)	375	15,000
Total	1,452	58,100

7. Benefits of Proposal

The proposal would provide sources of water, increased vegetative structure and improved habitat diversity in an area where all of these are lacking. At maturity the developed habitat plots would greatly increase the wildlife habitat value of approximately seven and 1/2 square kilometers (3 sq.

miles) and could influence populations of chukar, gray partridge, California quail, pheasant, mule deer and nongame wildlife over about a 21 sq. km. (eight sq. mi.) area. Because this habitat would be accessible to the public, consumptive and nonconsumptive wildlife recreation opportunities would be enhanced.

LITERATURE CITED

Battelle 1977. Terrestrial ecology studies in the vicinity of Washington Public Power Supply System Nuclear Power Stations 1 and 4, draft progress report for 1976. Battelle Pacific Northwest Laboratories, Richland, WA

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Daubenmire, R. 1970. Steppe vegetation of Washington. WSU Ag. Exp. Sta. Tech. Bul. 62. Pullman, WA. 131pp.

Hubbard, J. P. 1977. Importance of riparian ecosystems: biological considerations. In Importance, Preservation and Management of Riparian Habitat: a Symposium. R. Johnson and D. Jones ed. USDA Forest Service Gen. Tech. Rep. RM-43.

Merker, C. 1985. Proposed wildlife habitat mitigation plan for WPPSS at Hanford Energy Reservation, Washington. In files, WA Dept. of Game. 17pp.

Oliver, W. 1969. Riparian lands - key to habitat for upland birds. WA Dept. of Game. Game Bulletin 21:1:3-5.

WPPSS 1981. Summary of Hanford animal studies. Washington Public Power Supply System, Richland, WA.

WPPSS 1985. Operational ecological monitoring program for nuclear plant 2, 1985 annual report. Washington Public Power Supply System, Richland, WA.

APPENDIX 1. Plant Materials Recommended for Habitat Plots

Black locust (Robinia pseudoacacia)

Caragana (Caragana arborescens)

Hedgerose (Rosa spp.)

Lemonade Sumac (Rhus trilobata)

Rocky Mountain juniper (Juniperus scopulorum)

Russian Olive (Elaeagnus angustifolia)

Silver buffaloberry (Shepherdia argentea)

Tatarian Honeysuckle (Lonicera tatarica)

Western Chokecherry (Prunus virginiana)

Western clematis (Clematis lingusticifolia)

SITE CERTIFICATION AGREEMENT

BETWEEN

THE STATE OF WASHINGTON

AND

THE WASHINGTON PUBLIC POWER SUPPLY SYSTEM

HANFORD NO. 2

(Executed May 17, 1972; Amended September 25, 1975)

NUCLEAR ELECTRIC GENERATING FACILITY
BENTON COUNTY, WASHINGTON

ENERGY FACILITY SITE EVALUATION COUNCIL

820 EAST FIFTH AVENUE
OLYMPIA, WASHINGTON

AMENDMENT NO. 1 TO THE
SITE CERTIFICATION AGREEMENT FOR HANFORD NO. 2
BETWEEN
THE STATE OF WASHINGTON
AND
THE WASHINGTON PUBLIC POWER SUPPLY SYSTEM

This amendment to the 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, a municipal corporation and a joint operating agency of the State of Washington organized in January 1957 pursuant to Chapter 43.52 of the Revised Code of Washington.

It includes changes to the terms for the construction of the intake system, commencement of the meteorological and environmental surveillance program, scope of the agreement limitations, dimensions of the mixing zone, and specifications for management of waste water discharges. The entire section containing water discharge limitations has been superseded and replaced by the issuance of a National Pollutant Discharge Elimination System Waste Discharge Permit in compliance with the provisions of Chapter 90.48 RCW as amended and the Federal Water Pollution Control Act Amendment of 1972, Public Law 92-500.

This amendment, when duly authenticated, becomes a part of the Certification Agreement and will be filed in front of the Agreement. The following is changed:

A. Section II.C.1. is amended to read as follows:

This Certification Agreement, together with those commitments made by the applicant expressed in its application, as amended, except as to commitments made for the design for the intake and discharge systems, constitute the whole and complete agreement between the parties and supersedes any other negotiations, representations, or agreements, either written or oral.

B. Section III.G.4.(a) is deleted.

C. Section III.G.4.(b) is replaced with the following:

The Supply System shall schedule the construction of the intake structure in the portion of the river bed during the period after July 31 and before October 15. Any work at other times directly in the stream bed of the Columbia River shall require approval of the Council.

D. Section III.H. Add the following as Paragraph 6:

The outfall shall include features as required to achieve dilution within the limits prescribed in General Condition 4 of the attached NPDES Permit.

E. Section IV.B. is deleted and replaced with the Hanford No. 2 National Pollutant Discharge Elimination System Waste Discharge Permit hereby appended as Attachment II to the Certification Agreement.

F. Section V.B.1. The last sentence of this paragraph is deleted and replaced with the following:

"The Supply System agrees to begin the meteorological and environmental surveillance program no later than two years prior to fuel loading; provided that fish impingement monitoring shall begin no later than intake pump startup."

Dated at Olympia, Washington, this 25th day of September 1975.

FOR THE STATE OF WASHINGTON

Daniel J. Evans, Governor

FOR THE WASHINGTON PUBLIC POWER SUPPLY SYSTEM

J. J. Stein, Managing Director

Approved as to form this ___ day of _____ 1975

Darrel L. Peeples
Assistant Attorney General

SITE CERTIFICATION AGREEMENT

BETWEEN

THE STATE OF WASHINGTON

AND

THE WASHINGTON PUBLIC POWER SUPPLY SYSTEM

FOR

HANFORD NO. 2

Nuclear Electric Generating Facility
Benton County, Washington

May 17, 1972

TABLE OF CONTENTS

SITE CERTIFICATION AGREEMENT
FOR HANFORD NO. 2
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"), a municipal corporation and a 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 an 1100 megawatt (electric) nuclear electric generating plant is to be constructed and operated is located in Benton County, Washington, entirely within the federally owned area known as the Hanford Operations Area, United States Atomic Energy Commission, and an adjacent portion of the Columbia River, and is within Sections 2, 3, 4 and 5 of Township 11 North, Range 28 East, W.M., and more particularly described as follows:

> Beginning at the Southwest corner of Section 11, Township 11 North, Range 28 East, W.M., said corner having Washington State coordinates, South zone, of North 408,335.30 and East 2,307,653.50; thence North 0°41'08" East 8,065.28 feet to the TRUE

POINT OF BEGINNING; thence West 11,153.57 feet; thence South 01°01'23" East, 3000.48 feet; thence South 88°53'54" West 5,200.96 feet; thence North 0°31'41" West 3690.15 feet; thence East 1,430.00 feet; thence North 1,865.69 feet; thence North 87°46'08" East 3,703.83 feet; thence South 01°01'23" East 1,600.25 feet; thence East 11,189.29 feet; thence North 01°01'23" East 1,800.29 feet; thence North 89°07'55" East, 3,300.38 feet to the line of Navigation of the West bank of the Columbia River; thence southerly along said line of Navigation to a point that bears North 89°15'21" East from the TRUE POINT OF BEGINNING: thence South 89°15'21" West 3,850.32 feet more or less to the TRUE POINT OF BEGINNING. Further; Beginning at the southwest corner of Section 11, Township 11 North, Range 28 East, W.M., said corner having Washington State Coordinates, South zone, of North 408,335.30 and East 2,307,653.50; thence North 0°41'08" East 8,065.28 feet; thence North 89°15'21" East, 3,850.32 feet to a point on the line of Navigation of the West bank of the Columbia River and the TRUE POINT OF BEGINNING of this description: thence continuing North 89°15'21" East, 600.00 feet; thence North 10°07'14" West 2845.56 feet; thence South 89°07'55" West 600.00 feet to a point on said line of Navigation; thence southerly along said line of Navigation to the TRUE POINT OF BEGINNING of this description.

The above description is based upon Washington State Coordinate System, South zone.

B. Site Certification

1. The nuclear electric generating facility authorized to be sited by this Certification Agreement as presently defined is to include the following elements, hereinafter called the "PROJECT": a boiling water reactor with a rated output of approximately 3,323 megawatts (thermal), a turbine-generator, a mechanical draft evaporative cooling tower system, a control and re-cycle facility, pumphouses, transmission lines, associated service lines and other

associated facilities required for the generation and transmission of electric power which are reasonably necessary and economically practicable for achieving electric generation capacity of approximately 1100 megawatts.

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 intended to be in lieu of any permit, certificate or similar document required by any department, agency, division, bureau, commission or board of this State except those processed through the Council. 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 this Project.

2. As determined in the Council's Findings of Fact, Conclusions of Law and Order entered on March 27, 1972, this Certification Agreement constitutes the State of Washington "certification" for purposes of the Federal Water Quality Act, 33 U.S.C.A., Sec. 1171 (b (b) (1), that reasonable assurance exists that applicable state water quality standards will not be violated.

3. The applicant and the State of Washington, including any of its departments, agencies, division, bureaus, commissions, or

boards are bound by this Certification Agreement and subject to all the terms and conditions set forth herein.

4. 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 pertinent federal agencies.

B. Enforcement of Compliance

1. This Certification Agreement is subject to all the penalties and remedies available at law, or in equity, to any person.

2. This Certification Agreement may be revoked or suspended for failure to comply with the terms and conditions herein, for violations of chapter 80.50 RCW, regulations issued thereunder, and any order of the Council including emergency action by the Council taken pursuant to chapter 34.04 RCW.

C. Agreement Limitations

1. This Certification Agreement, together with those commitments made by the applicant expressed in its application, as amended, constitute the whole and complete agreement between the parties and supersedes any other negotiations, representations, or agreements, either written or oral.

D. Notices and Filings

1. Filing of any document or notice with the Thermal Power Plant Site Evaluation Council ("Council") shall be deemed to have been duly made when delivered to the Council at the offices of the Council in Olympia, Washington. Notices 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.

E. Right of Inspection

1. The Supply System shall provide access to designated representatives of the Council to the Project and all of its environs herein described in the performance of official duties.

III. CONSTRUCTION OF THE PROJECT

A. Construction Schedule

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

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 of all "Notices to Proceed" which are issued to contractors with respect to contracts requiring work at or in the Columbia River on the Council when issued to such contractors.

B. Access Roads

1. All permanent primary access roads constructed by the Supply System or its contractors for servicing the plant's central facilities will be constructed so as to meet or exceed Washington State and Atomic Energy Commission design standards for such roads.

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 vegetation insofar as practicable.

D. Surface Runoff and Erosion Control

1. During all construction work, the Supply System agrees to require its contractors to employ all reasonable and accepted industry standards in order to avoid soil erosion. The Supply System agrees to set forth such conditions in its bidding documents and agrees to base related conditions and standards on accepted industry publications, including but not limited to Department of the Army, Corps of Engineers, Military and Civil Works Specification, CE-203.

2. Should any unforeseen surface water runoff problem arise during construction of the Project, the Supply System agrees to comply with the pertinent industry standards for such control during construction and further agrees to take whatever actions are necessary to correct and avoid runoff which detrimentally affects water quality.

E. Transmission Lines

1. All transmission and service lines constructed by the Supply System will be constructed so as to comply with the February 1970 "Environmental Criteria for Electrical Transmission Systems," published by the U. S. Department of the Interior and Department of Agriculture.

2. Transmission and service lines will be located essentially according to routings indicated in TPPSEC Application No. 71-1, as amended and as supplemented; provided that the Supply System may adapt such lines to terrain where conditions indicate that change or variance in location is reasonable or necessary. The Supply System agrees to report to the Council and obtain approval for any substantial change in proposed routing or construction of any associated Project transmission lines constructed by the Supply System.

F. Temporary Barge Offloading Facility

1. The Supply System will be permitted to construct temporary barge offloading facilities as required in the course

of construction of the Project subject to the related conditions in this Agreement.

2. The Supply System agrees to consult with the Council, and state agencies designated by the Council, in development of plans and bid documents for construction of any barge offloading facilities which the Supply System proposes to construct.

3. The Supply System further agrees to submit specific location plans, drawings and construction contracts for installation of any temporary barge offloading facility to the Council for timely review and study of, and concurrence in, such proposals by the Council. The Council agrees to respond with any adverse comments to such proposals of the Supply System within twenty days of receipt of the proposal.

4. The Supply System agrees, during construction of any such temporary barge offloading facilities:

(a) To establish and maintain grading and sloping on the bed and bank of the Columbia River construction areas so as not to create fish traps;

(b) To, insofar as possible, construct the barge slip in the dry during periods of low river flow;

(c) To submit plans and obtain comments on the proposed procedures from the Council prior to the commencement of underwater excavation reasonable or necessary to construct such facilities. The Council agrees to furnish comments on a timely basis not to exceed twenty days from receipt thereof;

(d) To engage in dredging or other work directly in the stream bed of the Columbia River after October 15 and prior to July 31 only with the specific prior approval of the Council; and

(e) After the temporary barge facilities have served their intended purpose, to return the disturbed area to its pre-construction condition to the extent that such is possible.

5. The Council agrees to provide a suitable waiver of the turbidity criteria of the applicable water quality standards of the State of Washington, if necessary, during construction and restoration of the temporary barge facility.

6. The Supply System agrees to exert its best efforts to arrange for arrival of the reactor pressure vessel barge to coincide with high water in the Columbia River so that barge facilities can be constructed in the dry.

G. Intake System

1. The Supply System shall be permitted to construct and maintain an intake system on the shoreline of, and in the bed of, the Columbia River as required for construction and operation of the Project subject to related conditions in this Agreement. The Supply System agrees to obtain the necessary lease from the Department of Natural Resources for its use of the Columbia River bed.

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

and bid documents for construction of the intake system on the shoreline of, and in the bed of, the Columbia River.

3. The Supply System further agrees to submit specific location plans, drawings and construction contracts for installation of the intake system to the Council for timely review and study of, and concurrence in, such proposals by the Council. The Council agrees to respond with any adverse comments to such proposal of the Supply System within twenty days of receipt of the proposal.

4. The Supply System further agrees that construction of the water intake system will be subject to the following terms:

(a) The intake system channel shall be isolated from the flowing stream by dikes, where necessary, and by earth plugs left in place or constructed at the upstream and downstream ends of the intake channel. The earth plugs or dikes will be of sufficient height to prevent inundation. The Supply System agrees to remove such plugs or dikes at the completion of such work and smooth over the area leaving no fish traps;

(b) The Supply System shall schedule the construction of the intake structure in portions of the river bed during low water periods. Accordingly, construction will be in the dry except that the Supply System may operate equipment in the flowing stream if necessary during the removal of the downstream and upstream plugs, in that order, and dike from the intake system channel provided that turbidity is kept to the minimum;

(c) The Supply System will utilize a settling pond, as necessary, during dewatering operations to preclude excess turbidity; and

(d) The Supply System further agrees 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.

5. The Council agrees to provide a suitable waiver of the turbidity criteria of the water quality standards of the State of Washington, if necessary, during construction of the water intake system.

6. The Supply System agrees that the intake system channel shall have a gradient downstream so that water flow shall be free with a minimum of one foot depth throughout the channel.

7. The Supply System agrees to install the permanent power supply to the river water pumphouse by means of an underground circuit from the generating plant.

H. Discharge System

1. The Supply System shall be permitted to construct and maintain a discharge system on the shoreline of, and on the bed of, the Columbia River within the site as required for operation of the Project subject to the related conditions in this Agreement. The Supply System agrees to obtain the necessary lease from the Department of Natural Resources for its use of the Columbia River bed.

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

3. The Supply System further agrees to submit specific location plans, drawings and construction contracts for installation of the discharge system to the Council for timely review and study of, and concurrence in, such proposals by the Council. The Council agrees to respond with any adverse comments to such proposal of the Supply System within twenty days of receipt of the proposal.

4. Any work directly in the stream bed of the Columbia River after October 15 and prior to July 31 will require specific approval of the Council. The pipe shall 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 will not be placed, held or stockpiled in the river while being retained for later replacement over the pipe without approval of the Council. If the outlet structure is to be composed of concrete, it shall be isolated from the river during any placing and initial curing.

5. The Council agrees to provide a suitable waiver of the turbidity criteria of the water quality standards of the State of Washington, if necessary, during construction of the water discharge system.

I. Construction Clean-Up

1. The Supply System agrees upon completion of construction to dispose of all temporary structures not required for future use or used timber, brush, refuse or inflamable material resulting from the cleaning of lands or from the construction of the Project.

J. As-Built Drawings

1. The Supply System agrees to prepare, and to maintain on file, a complete set of as-built drawings for the following:

(a) temporary barge offloading facility;

(b) water intake system;

(c) water discharge system;

(d) sanitary waste disposal system;

(e) cooling towers and condenser coolant loop;

(f) demineralizer system;

(g) radwaste system;

(h) electrical transmission and service lines;

(i) offgas stack and associated systems;

(j) environmental monitoring installations; and

(k) such other Project features as have direct relationship to the Project's impact on the environment.

K. Archeological Site Protection

1. The Supply System agrees to retain the services of a competent archeologist to inspect the construction site in the

course of the construction excavation of the Project to determine whether archeological or historical sites are being invaded or disturbed and to preserve and provide for interpretation of any historical or archeological artifacts which may be discovered in the course of excavation and/or construction.

2. The Supply System agrees to report to the Council all archeological findings made during the course of excavation and construction of the Project and the associated transmission lines constructed by the Supply System.

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

L. Surface Mining

1. If the construction activities of the Supply System fall within the jurisdiction of the Surface Mining Reclamation Act, the System agrees to comply with the policies and requirements of the Act and to submit a reclamation plan to the Council for its approval prior to initiating construction.

IV. OPERATION OF THE PROJECT

A. Water Consumption

1. Authority for the appropriation of surface and ground waters is required prior to the withdrawal of any such waters by the Supply System. The Council, on behalf of the Supply System, has initiated the legally required steps to obtain such authority. There is no information presently available which would indicate that the

proposed appropriations will impair existing rights or be detrimental to the public welfare. Authority in the form of permits or certificates to appropriate surface or groundwaters of the State of Washington for use in Hanford No. 2 shall become a part of this certification agreement when perfected and are, by this reference, incorporated herein.

B. Water Discharge

1. The Supply System is hereby authorized to discharge waste water in an amount not to exceed 10,000,000 gallons per day, nor average more than 7,200,000 gallons per day, to the Columbia River at a location between river miles 351 and 352, subject to the following conditions:

(a) The words "waste water" in the above statement refer to the total volume of discharge effluents resulting from the more or less continuous blowdown of cooling tower water, the intermittent regeneration of raw water demineralizers and the intermittent release of surplus condensate;

(b) No other wastes shall be discharged to the river without prior approval of the Council

(c) Solid wastes from the Supply System's operations including settled silts and sludges in the cooling tower basins or other waste retention basins shall be disposed of in such manner as to prevent their entry into state waters; and

(d) All sanitary wastes shall be disposed of in such manner as to prevent their entry into state waters.

2. The Supply System shall continuously and efficiently maintain and operate the cooling tower and all other waste recovery and pollution abatement facilities under its control through the duration of this certification.

3. The Supply System's waste water shall not cause a violation of the water quality standards which are in chapter 372-11 WAC and are incorporated into and made a part of this Agreement as they exist now and are hereafter amended. Such standards shall apply immediately outside the dilution zone boundaries described below:

(a) The boundaries in the vertical plane shall extend from the receiving water surface to one foot above the river bed;

(b) The upstream and downstream boundaries shall be 50-feet and 300-feet respectively from the center line of the diffuser;

(c) The lateral boundaries shall be separated by the length of the diffuser plus 100-feet or 15% of the width of the stream, whichever is less;

(d) The entire dilution zone shall be contained in waters not less than 5-feet deep at a river flow of 36,000 CFS; and

(e) The dilution zone shall not encompass more than 15% of the stream cross-section as computed for a river flow of 36,000 CFS.

4. The effluent quality of the waste water shall be limited as follows:

(a) Treatment additives for the cooling tower water shall be limited to chlorine and sulphuric acid. The total waste

water shall contain only that which occurs in "waste water" as defined in paragraph B.1(a) above, naturally occurring dissolved river salts, the dissolved products resulting from the addition of chlorine, sulphuric acid and caustic and the suspended particulate matter which may be washed from the atmosphere by the cooling towers;

(b) No untreated cleansers or spillages shall be discharged to the river;

(c) The combined effluent shall have a pH within the range of 6.5 to 8.5;

(d) The chlorine content of the effluent shall not exceed 0.1 parts per million;

(e) The temperature of the effluent shall not exceed 90°F; and

(f) The limits on the radioactivity of the effluent shall be at least as stringent as the applicable federal standards.

5. Waste discharge facilities provisions shall include the following:

(a) The outfall shall include features as required to achieve dilution within the limits prescribed in Section IV B. 3. (a through e) herein;

(b) The waste water from the raw water demineralizers shall not be released directly to the blowdown line, but shall be introduced into the cooling water system so as to achieve thorough mixing with the cooling water before reaching the blowdown line;

(c) Surplus condensate shall be provided with holding facilities capable of a minimum of 24-hours detention and may be discharged only after sampling and analysis demonstrate that all applicable state and federal water quality standards are satisfied; and

(d) Emergency operating facilities shall include provisions for immediate shutoff of all waste water to the river and for continued operation for not less than 24-hours under conditions of no waste water discharge to the river.

6. In the event that a material change in the conditions of the state waters utilized creates a dangerous degree of pollution or the water quality standards are modified in the future, the Council, with respect to waste water discharges, may specify additional conditions or modifications to this Agreement. In any case, the terms and conditions for water discharge shall be reviewed and re-examined by the Council at five-year intervals starting at the date of this Certification Agreement.

7. In the event the Supply System is temporarily unable to comply with any of the above conditions of this Agreement, due to breakdown of equipment or other cause, the Supply System shall immediately notify the Department of Ecology, as designee of the Council, by telephone and written report. These reports are to include pertinent information as to the cause and what steps have been and are being taken to correct the problem and prevent is recurrence.

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/10^6BTU;

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

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

2. The Supply System agrees to exert its best efforts in the operation of the cooling tower to minimize fogging and icing effects on the surrounding areas.

3. The limits on the radioactivity of discharges to the atmosphere shall be at least as stringent as the applicable federal standards.

D. Eco-System Replacement

1. The Supply System agrees to provide replacement and/or compensation for any wildlife, fish and other aquatic life and ecosystem damage or loss caused by Project construction and operation when such damage or loss is substantiated by the Council.

E. Additional Protective Measures

1. The Supply System agrees to provide such additional measures for the protection of wildlife, fish and other aquatic life and the ecology of the area environs, based upon analysis and results of the Monitoring Program, as found to be necessary by the Council.

V. PUBLIC AND ENVIRONMENT PROTECTION

A. Emergency Plan

1. The Supply System agrees, in developing its Emergency Plan for construction and operation of the Project, to:

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

(b) Include detailed provisions in the Emergency Plan for the health and safety of people, emergency treatment, special training programs and prevention of property damage.

(c) Comply with obligations which are applicable and as set forth in the Washington State Department of Civil Defense operation plans for natural disasters.

2. The Supply System shall periodically contact the Council to insure the Council's familiarity with the Emergency Plan and to insure that lists of responsible individuals, communication channels and procedures are adequate and up-to-date

3. The Supply System agrees to develop and implement the Emergency Plan as outlined in Section 015(2), pages 4 through 17, Supp. Filing of 9/27/71 of the application subject to applicable laws, rules and regulations and conditions as applicable to the Project and site.

4. Should any portion of the Supply System's Emergency Plan be dependent upon any program which is currently conducted by the United States Atomic Energy Commission and/or another nuclear operator in the Hanford Operations Area and such other program is

terminated, then the Supply System agrees to re-activate such portion of the program as is appropriate and necessary.

B. Monitoring Program

1. The Supply System agrees to initiate and maintain environmental monitoring programs as described in Attachment I. The programs shall be developed and implemented in close consultation with the Council, and reasonable modifications shall be made, with concurrence of the Council, when these are necessary to achieve the purposes of the programs. The Supply System agrees to begin the meteorological and environmental surveillance programs no later than March 1975.

2. The radiological monitoring program shall be designed and maintained to provide for detection of all possible radioactivity releases from the facility and to provide for a reliable assessment and record of their distribution and retention in the environment within the area as described in Attachment I.

3. The Supply System may retain or employ a qualified firm of consultants to carry out all or any portion of the environmental monitoring programs described in Attachment I. The Supply System agrees to submit the requirements for the consultant's qualifications to the Council for comment prior to solicitation of proposals from any such consultant.

4. The Supply System agrees to provide the Council full access to information and data recorded by the Supply System's Monitoring Program for the purpose of assuring the Supply System's continued compliance with the conditions of this Certification Agreement.

5. In carrying out the Monitoring Programs described in Attachment I, the Supply System will establish sampling locations on the Project site and within present or future regions of high population density located within a ten-mile radius of the Project's reactor building so as to provide a representative sampling of environmental effects in the surrounding area.

6. Should any element of the Supply System's Monitoring Program which is being performed by, or in conjunction with, any federal, state or local governmental body or any other nuclear operator in the Hanford Operations Area be terminated, the Supply System agrees to re-activate so much of any such program as is appropriate and necessary.

7. The Supply System agrees to submit to the Council a copy or copies of reports and data from the Environmental Monitoring Programs required to be filed by the Atomic Energy Commission's construction permit, operating license or other regulations to the Council at the same time as when submitted to the Atomic Energy Commission.

VI. MISCELLANEOUS PROVISIONS

A. Project Visitation and Recreation

1. The Supply System agrees to provide visitor information facilities at the Project site subject to security regulations, and such limitations as the Supply System deems reasonably necessary for the health, safety and welfare of the public and for protection of the facility.

2. The Supply System agrees to provide replacement of recreational opportunities which are shown to be adversely affected as a direct consequence of Project activity when such adverse effects are substantiated by the Council.

B. Multi-Purpose Use of Coolant Water

1. In the event that a state agency of the State of Washington develops, implements or sponsors plans for the multi-use of the coolant water from the Project, the Supply System agrees to supply at no cost to the State warm water to the maximum practical extent, but not less than 4,000 gallons per minute at its source of diversion at an agreed-upon source; provided, that it is understood that at times plant operation may preclude delivery of such effluent water either in a warmed state or in the quantity mentioned above. In the event of that circumstance and to enable the early commencement or continuance of the multi-use project with unwarmed water, the Supply System agrees to provide a valved outlet on the cooling water supply system capable of deliverying such water at a rate of at least 4,000 gallons per minute.

C. Modification of Agreement

1. This Certification Agreement may be amended by initiation of either the Council or the applicant. Such amendatory activity shall be accomplished pursuant to Council rules and procedures then in effect in a like manner upon formal Council

order 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 certain circumstances where a dangerous 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 any said emergency situation. The Administrative Procedures Act in RCW 34.04.170(2) contains authority for the Council to find that the public health, safety or welfare may imperatively require such emergency action.

Dated at Richland, Washington, this 17th day of May, 1972.

FOR THE STATE OF WASHINGTON

Daniel J. Evans, Governor

FOR THE WASHINGTON PUBLIC POWER SUPPLY SYSTEM

Edwin W. Taylor, President

Ed Fischer, Chairman
Executive Committee

J. J. Stein, Managing Director

Approved ~~as to~~ form this 16th day of May, 1972.

Assistant Attorney General
Charles F. Murphy

ATTACHMENT I

HANFORD NO. 2 SITE CERTIFICATION AGREEMENT

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 operation on the environment. The monitored items will include land and its terrestrial life, adjacent waters and their aquatic life, air, and other eco-systems as are appropriate. The program will provide an environmental measurement history for evaluation by the Supply System and the Council. Such a program will use reasonable and available methods and techniques; and be maintained throughout the life of the Project.

The Hanford No. 2 Environmental Monitoring Program will be flexible and may be modified with concurrence 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 by others of nuclear or other facilities in areas surrounding the site, (d) technological developments in the field of environmental monitoring, (e) changes in type and abundance of natural vegetation, and (f) changes in conditions which relate to the pathways which lead to human radiation exposure.

A copy of the preoperational and operational Environmental Monitoring Program, and any supplements or revisions thereto, will be submitted to the Council for its review and concurrence.

II. ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM

A. Program Elements

1. Air sampling locations will be established on site and within present or future regions of high population density within a ten-mile radius of Hanford No. 2. Special attention will be given to location of air samplers within five miles from the plant. The zone from five to ten miles of the site is emphasized where populations are more concentrated, especially areas downwind of prevailing winds. The ten-mile radius zone includes parts of Franklin and Benton Counties.

2. In the terrestrial monitoring part of this program (vegetation, soil, farm products), the area within a ten-mile radius of Hanford No. 2 will be of primary concern. The predominant use of this area is for agriculture in the Franklin County area. The major crops are wheat, alfalfa hay, sugar beets, and potatoes. The major livestock forms are beef cattle, hogs and sheep.

Particular emphasis will be placed on the collection of those primary foodchain components which lead to man. Soil samples, native and cultivated vegetation, and dairy

and poultry products (milk and eggs) will be sampled. Also sampled will be domestic animals normally consumed by man, such as chickens, beef cattle, and hogs, and wildlife such as deer and pheasants (if available).

3. In the aquatic program, sampling will include groundwater samples and surfacewater samples from the Columbia River. The municipal water supply for the City of Richland is the Columbia River; the intake for its supply, approximately eleven miles downstream from the Hanford No. 2 site, will be one of the Columbia River sample stations.

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

Sampling frequencies will depend upon weather, growing season, animal and fish activity and other considerations deemed appropriate in each case.

B. Surveillance Levels

The radiological monitoring program outlined in Table 1 represents the level of surveillance during the pre-operational phase (two years) and for one year of the operational phase. The surveillance program is to be based upon the "gradient concept" which is a degree of off-site monitoring commensurate

with the level of radioactive discharges during the operation of the Project.

Radiochemical analyses will be performed using analytical procedures equal to or better than those recommended by the U. S. Department of Health, Education and Welfare, Public Health Service, in "Radioassay Procedures for Environmental Samples," January, 1967.

TABLE 1 - Continued

6. Vegetation & Livestock			
a. Natural Vegetation	10	3 Samples Annually (During Growing Season)	(Gross Beta, ^{90}Sr, ^{137}Cs, ^{131}I, Gamma Scan
b. Food & Feed Crops	10	"	
c. Food Animals	5	"	
7. Soil	5	Quarterly	(Gross Alpha, Gross Beta, ^{90}Sr, ^{137}Cs, Gamma Scan
8. Sediment	5	Quarterly	(Gross Alpha, Gross Beta, ^{90}Sr, Gamma Scan
9. Milk	3	Monthly	(^{131}I, ^{90}Sr, ^{137}Cs, Elemental Calcium
10. Aquatic Biota			
a. Aquatic Life	3	Semiannually	(Gross Beta, ^{40}K, ^{90}Sr, Gamma Scan
b. Rooted Aquatic Plants and Slime	3	Semiannually	
11. Wildlife			
a. Rabbits	5	Annually	(Thyroid - ^{131}I, Femur - ^{90}Sr, Gamma Scan, Muscle ^{32}P, ^{65}Sr
B. Waterfowl	5	Annually	

6.

TABLE 1

RADIOLOGICAL SAMPLING AND ANALYSIS PROGRAM

Sample Type	No. of Stations	Sampling Frequency	Analysis
1. Background			
a. Gamma Sensitive Detector	3	Continuous Recording	(Background Gamma
b. TLD Dosimeters	10	Monthly - Annually	(Readout and Record at Noted Frequency
2. Air (Particulates & Gas)	10	Weekly	(Gross Alpha, Gross Beta, Gamma Scan + Radioiodine
3. Cooling Water (After Plant Startup)	1	Continuously	(Gamma Activity
	1	Weekly	(Suspended Gross Alpha, Gross Beta, Dissolved Gross Alpha, Gross Beta, Gamma Scan + Tritium
4. River Water	5	Quarterly	(Suspended Gross Alpha, Gross Beta, Dissolved Gross Alpha, Gross Beta, Gamma Scan + Tritium
5. Ground Water and Rain Water (As Available)	6	Semiannually	(Gross Alpha, Gross Beta, Gamma Scan + Tritium
	3	Monthly	

5.

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

Sample stations are described in the following discussion of sample types and are located approximately in Figure 1.

1. Atmosphere

   a. Gamma Detectors: (△ in Figure 1).

      The atmosphere is continuously monitored for gamma radiation using a gamma strip chart recorder. These stations are at three positions on the site boundary.

   b. TLD Dosimeters: (△, ○ in Figure 1).

      Background levels of external radiation are established by exposing thermoluminescent dosimeters (TLD) for various periods of time at ten locations within a ten-mile radius of the site. Four dosimeters are maintained at each station. One dosimeter is changed and read monthly. The other dosimeters are changed and read annually. The dosimeters will be located at each air sampling station.

2. Airborne Particulates: (△, ○ in Figure 1).

   Airborne particulates are collected on a weekly basis at ten sampling stations. The filters, charcoal and particulate will be changed weekly. The filter housings are located 6-8 feet above ground level to reduce dust loadings of the filters and minimize the influence on sample activity of radon and its daughters emanating from the soil.

3. Cooling Water:

   Cooling water blowdown 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: (⬡ in Figure 1).

   Sampling of the Columbia River is performed on a quarterly basis from five locations extending from about five miles above the plant intake to fifteen miles below the station.

5. Groundwater and Rainwater:

   a. Groundwater: (o in Figure 1).

      Sampling of groundwater is performed semiannually from wells near the station. The wells are identified by the following numbers: 15-15, 27-8, 24-1, 20-E12, 10-E12, and S6-E14.

   b. Rainwater: (△ in figure 1).

      Sampling of rainwater is performed monthly or as possible at these locations. These stations are located on the site boundaries, and are common to the continuous gamma monitors and records as well as air samplers.

6. Vegetation and Livestock Sampling

   a. Natural Vegetation at Air Sampling Stations

      Samples of the leafy portions of natural vegetation available at each of ten air sampling stations are collected annually. Samples will be taken throughout the growing season with the predominate vegetation at the station being the sample collected.

   b. Food and Feed Crops

      Edible portions of food and feed crops are sampled at ten locations within a ten-mile radius of the station. Four of the air sampling locations will be used along with the milk stations. Three other samples will be collected at random within the ten-mile radius. These samples should be collected throughout the growing season.

   c. Food Animal Samples

      Food animal samples will be collected near five air sampling stations. These food samples need only be a small portion of a large animal and can be obtained from farmers and ranchers as incidental to their personal or commercial butchering.

7. Soil

Soil samples are collected quarterly at the air sampling locations 4, 5, 9, 10 and milk station M-2 (0 in Figure 1).

8. Sediment Samples

Samples of the Columbia River bottom sediment are collected quarterly at or near the five Columbia River water collection stations, and at other such plant locations as may be required by plant design.

9. Milk Samples (M-1, M-2, M-3 in Figure 1)

Milk is sampled monthly from the bulk cooling tanks of three milk producers within ten miles of the plant. In the selection of milk sample locations, an attempt will be made to select established milk producers who are likely to remain in the business of milk production during succeeding years of plant operation. Information regarding source of food must be included with milk sample results.

10. Aquatic Biota

a. Animals

Aquatic animals are collected semiannually from the Columbia River at three locations, river water sampling stations (⬡) 1, 2, and 5 and at such plant effluent locations as may be required by plant design.

b. Vegetation

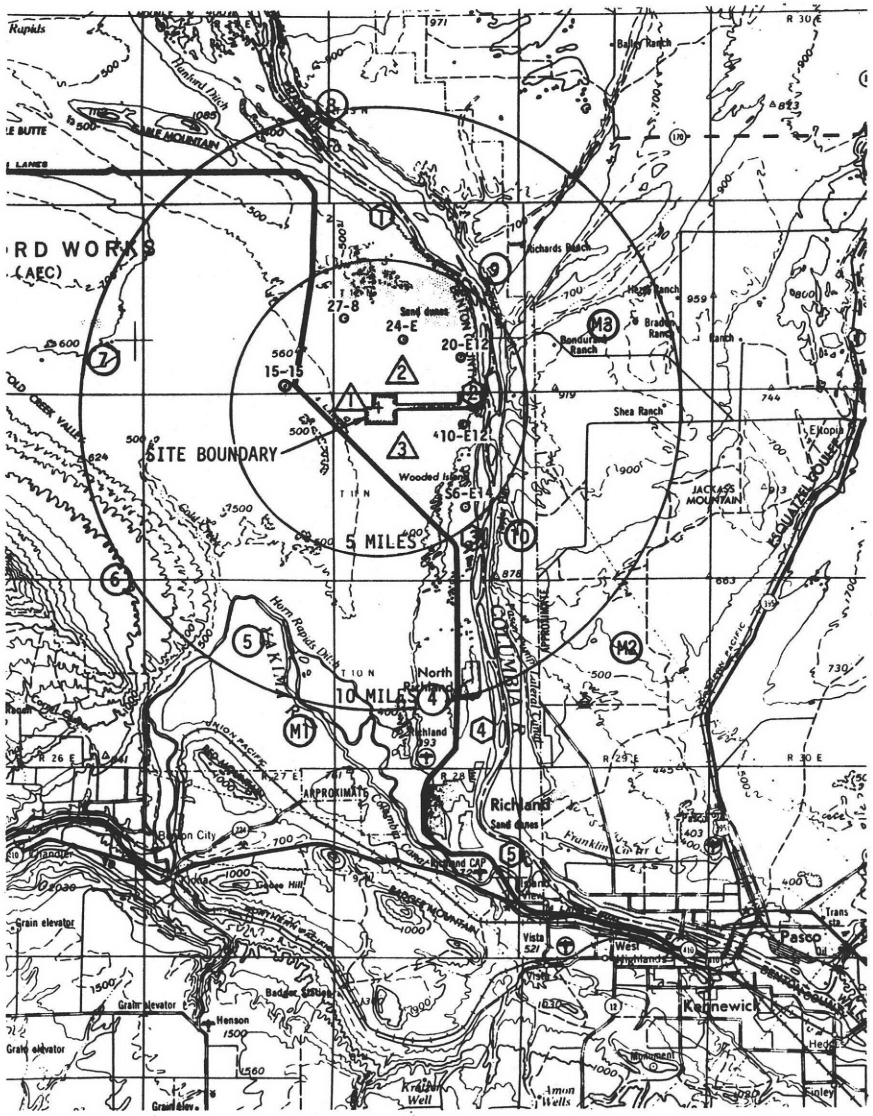
Rooted aquatic plants and slime growths on submerged surfaces in littoral locations will be collected semiannually.

11. Wildlife

a. Five rabbits will be collected annually from land adjacent to the site. An effort will be made to take these animals from different locations.

b. Five waterfowl will be collected annually near the site. It is desirable to obtain resident birds, so the collection should be made when migrations are not underway.

FIGURE 1



SAMPLE STATIONS FOR RADIATION MONITORING
(See text for meaning of symbols)

III. METEOROLOGICAL PROGRAM

In support of the Atomic Energy Commission's nuclear generating plant licensing requirements, the Supply System will install a meteorological tower to establish meteorological characteristics of the Hanford No. 2 site over a period of at least two years prior to startup. This data is in addition to the vast accumulation of meteorological data available for the Hanford Reservation. Detailed measurements of wind speed, direction, low level stability and humidity will be gathered. Following this intensive two-year data collection period, the Supply System will maintain wind speed and direction instrumentation, but no detailed evaluation of the data need be made.

IV. AQUATIC LIFE PROGRAM

The aquatic life environmental monitoring program consists of three phases:

1. A literature review and a preliminary pre-operational sampling phase;
2. A pre-operational survey; and
3. An operational monitoring program.

Any changes in the scope or details of this program will be based upon the "gradient concept."

A. The Literature Review and Preliminary Pre-Operational Sampling Phase

The literature survey will consist of a summary of past and current published studies on the aquatic environment of

the stretch of the Columbia River from the City of Richland, through the Hanford Reservation, up to and including Priest Rapids Dam, as particularly related to the Project. This literature compilation will be kept up-to-date as publications are issued throughout the history of the Project. This literature survey along with limited preliminary pre-operational sampling will be used as a base for designing the pre-operational survey. To the extent that acceptable base points may be established by this work for the Project's area, subsequent elements in this program may be deleted.

B. Preliminary Description of the Pre-Operational Survey

1. A bioassay program utilizing simulated temperatures and concentrations of river salts in the anticipated discharge shall be required. The bioassay should simulate temperatures ranging from 85°F downward, incorporating the different concentrations of river salts that may be found in the blowdown. The bioassay will be performed on fish and invertebrate fauna.

2. The two-year pre-operational survey will be of a qualitative and semi-quantitative nature and will include the aquatic organisms listed below. The semi-quantitative measurements will include:

a. Catch per unit of effort.

b. The mean and variance of numbers or organisms obtained in compatible samples. The organisms will

include, but not necessarily be limited to:

1) juvenile salmon - coho and chinook (sampled by gill net and beach seine);

2) juvenile steelhead trout (gill net and beach seine);

3) whitefish (gill net, beach seine, and hook and line);

4) squawfish (gill net and beach seine);

5) an omniverous-feeding form, such as carp, or possibly sturgeon;

6) benthic organisms (manual removal by grab and dredge) would receive particular attention as they may be the best indicator organisms; and

7) plankton (metered plankton net).

c. The sampling would be performed at three sites:

1) in an area above the intake;

2) at the discharge location outside the dilution zone; and

3) in an area downstream of the plume.

d. Pertinent information such as river flow, dam discharges, counts of up- and down-stream migrants from other data-gathering sources would be incorporated as is appropriate.

3. Thermographs will be available at the intake and discharge locations to record fluctuations in temperature. These thermographs will remain for an indeterminate period of time as a part of the post-operational monitoring.

4. Seasonal SCUBA observations, if possible, on typical discharge situations will be taken to record any unusual concentration or dispersion of fishes in the area anticipated to be affected by the discharge plume. Similarly, botton observations might be recorded by photograph, if necessary.

5. Sampling will be performed initially at each location approximately eight times a year, or as may be required by application of the "gradient concept."

C. Operational Monitoring Program

1. An operational monitoring program will be developed based on the results from the pre-operational monitoring program. This program will be developed by the Supply System and concurred in by the Council.

V. WATER QUALITY MONITORING PROGRAM

That portion of the Environmental Monitoring Program associated with water quality will consist of sampling and analysis of water being discharged through the discharge system, sampling and analysis of river water upstream of and at the boundary of the diffusion zone, and analysis of groundwater withdrawals.

This sampling may be modified with the concurrence of the Council.

A. Pre-Operational Monitoring Phase

No sampling is required for this phase.

B. Operational Monitoring Sampling

1. Samples to be taken of the discharge in the blowdown line include:

a. Quantity, continuous recording;

b. Temperature, continuous recording;

c. Dissolved oxygen, once per day;

d. pH, continuous recording;

e. Turbidity, continuous recording;

f. Chlorine sample, continuous recording;

g. Coliform, once per week; and

h. Dissolved solids, once per week.

2. Samples taken at the diffusion zone boundary and upstream include:

a. Temperature, once per month;

b. Dissolved oxygen, once per month;

c. pH, once per month;

d. Turbidity, once per month;

e. Chlorine, once per month;

f. Coliform, once per month; and

g. Dissolved solids, once per month.

Data will be correlated with river flow and blowdown conditions.

3. Groundwater sampling is to be made of well waters annually and includes measurements of:

a. Temperature;

b. pH;

c. Coliform; and

d. Water table elevation.

4. Results of operational water quality monitoring shall be reported at the following frequencies:

a. Blowdown line discharge, monthly;

b. Diffusion zone boundary, quarterly;

c. Upstream, quarterly; and

d. Groundwater, annually.

VI. AIR QUALITY MONITORING PROGRAM

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

ATTACHMENT II

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 Amendment of 1972,
Public Law 92-500

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

Plant Location:

Section 5, T.11N, R28E W.M.
North of Richland
Benton County, Washington

Receiving Water:

Columbia River

Discharge Location:

Outfall 001
Latitude: 46°28'17"
Longitude: 119°15'45"

Industry Type: Nuclear Steam Electric Generating Plant (Hanford No. 2)

Water Segment No.: 26-03-00

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

Approved: April 28, 1975

Amended: July 14, 1975

Thomas C. Pierce

Acting Chairman
Thermal Power Plant Site
Evaluation Council

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:

A. LOW VOLUME WASTE SOURCES PORTION OF DISCHARGE SERIAL NUMBER 001

PARAMETER	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
	Daily Maximum	Daily Average	Minimum Frequency	Sample Type
Total Suspended Solids (lb/day)	34	5	3 times per week	Grab
pH	Between 6.5 and 8.5 at all times		3 times per week	Grab
Oil and Grease (lb/day)	7	2.5	Weekly	Grab
Flow (GPD)(1)	40,000	20,000	Each Discharge	Log tank contents prior to discharge.

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) : Permittee is allowed on an intermittent basis to discharge subject to the provisions of G.5 herein to a maximum of 285,000 GPD additional flow originating from the liquid radwaste treatment system.

B. RECIRCULATED COOLING WATER BLOWDOWN PORTION OF OUTFALL DISCHARGE SERIAL NUMBER 001

PARAMETER	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
	Daily Maximum	Daily Average	Minimum Frequency	Sample Type
Temperature	Note (3)		Continuous	Instantaneous
Total Residual Chlorine (mg/l)	0.1 mg/l(1)		Continuous(4)	Grab
pH	Between 6.5 and 8.5 at all times		Continuous(2)	Instantaneous
Flow (GPD)	9.4×10^6	9.4×10^6	Continuous	Instantaneous

Note (1) Upon initiating chlorination, permittee shall terminate all discharges from the recirculating water system to the receiving water until the total residual chlorine concentration has been at or below 0.1 mg/l for 15 minutes. For compliance chlorine will be measured at and will be characteristic of the unit being chlorinated.

Note (2) Permittee shall include an alarm system for the pH control to provide an indication of any variance from established limits.

Note (3) 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 (4) Continuous recording of total residual chlorine during periods of active chlorination and for 2 hours after recommencing discharge or until chlorine residual reaches an undetectable level.

GENERAL CONDITIONS

G1. No discharge of polychlorianted biphenyl, such as transformer fluid, 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 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 outfall 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 whose boundaries 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 outfall; 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 has 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; liquids may be discharged only after sampling and analysis demonstrate that all applicable regulations are complied with at the holding facilities. No other liquid radwaste shall be discharged.

G6. The permittee shall provide an adequate operating staff which is qualified and shall carry out the operation, maintenance, and testing activities required to insure compliance with the conditions of this permit.

G7. Permittee shall handle and dispose of all solid waste material from any waste retention basins or any other source in such a manner as to prevent their pollution of any ground or surface water body. Further, permittee shall not permit leachate from such solid waste material to cause adverse effect on ground or surface water quality.

G8. Whenever a facility expansion, 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 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.

G9. If the toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established 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 than 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.

G10. If, for any reason, the permittee does not comply with or will not be able to comply with, any daily maximum effluent limitation specified in this permit, the permittee shall provide the Council with the following information, in writing, within five (5) days of becoming aware of such condition:

a. A description of the discharge and cause of noncompliance; and

b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue and steps being taken to reduce, eliminate and prevent recurrence of the non-complying discharge.

G11. 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.

G12. The diversion from or bypass of any discharge from 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 drainage or runoff would damage any facilities necessary for compliance with the terms and conditions of this permit. The permittee shall promptly notify the Council in writing of each such diversion or bypass in accordance with the procedure specified in condition G-13.

G13. In the event the permittee is unable to comply with any of the conditions of this permit because of a breakdown of waste treatment, equipment or facilities, an accident caused by human error or negligence, electrical power failure, or any other cause, including acts of nature, the permittee shall:

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

b. As soon as reasonably practicable, notify the Council so that an investigation can be made to evaluate the impact and the corrective actions taken and determine additional action that must be taken.

c. Promptly submit a detailed written report to the Council describing the breakdown, the actual quantity and quality of resulting waste discharges, corrective action taken, steps taken to prevent recurrence, and any other pertinent information.

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.

G14. 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.

Monitoring

G15. 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 and the Council at the following addresses:

U.S. EPA Region X
1200 6th Avenue
Seattle, WA 98101
Attention:
Permits Branch M/S 521

TPPSEC
Attention:
Executive Secretary
820 East 5th Avenue
Olympia, WA 98504

G16. 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. All samples and measurements made under said program shall be representative of the volume and nature of the monitored discharge.

G17. The permittee shall record each 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.

G18. 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.

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 samplings 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.

G19. All sampling and analytical methods used to meet the monitoring requirements specified in this permit shall conform to regulations published pursuant to Section 304g of the Federal Act, or if there is no applicable procedure, shall conform to the latest edition of the following references:

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

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

3) 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 the permittee. The Council shall be notified of each such alternative method approved for use.

G20. Except for data determined confidential under Section 308 of the 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 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 Act.

Other Provisions

G21. 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 any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

G22. 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 purpose 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.

G23. Nothing in this permit shall be construed as excusing the permittee from compliance with any applicable Federal, State or local statutes, ordinances, or regulations.

G24. 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.

G25. Permittee shall study the use of chlorine in cooling tower operation for one year to determine the minimum daily discharge duration of free available and total residual chlorine which will allow the plant to operate efficiently. The results of this study will be evaluated for possible inclusion in this permit.

Mitigation Book

Contract No. R006-86PR10972.000

PERMIT

The UNITED STATES OF AMERICA, acting by and through the DEPARTMENT OF ENERGY, hereby grants a Permit to WASHINGTON STATE DEPARTMENT OF GAME, for use of the following described property, hereinafter called the "Premises":

A well and appurtenances located in the NW quarter of the NW quarter of Section 11, Township 10 North, Range 26 East, Willamette Meridian.

1. a. The term "DOE" means the Department of Energy or any duly authorized representative thereof, including without limitation, the Manager, Richland Operations Office, Department of Energy.

   b. The term "Game" means Washington State Department of Game, the permittee herein.

2. Game's use of the Premises shall be for the sole purpose of utilizing the water from this well for water and habitat increase for game birds and animals.

   Water shall be piped away from the well, in a southerly direction, and shall not be made available to livestock or game at any point within one fourth mile from the well head. The water shall not be used to irrigate any farm crops.

   The well and its appurtenant facilities shall be maintained in good condition, at no expense to DOE. At no time shall efforts be made to deepen the well in an attempt to increase the flow of water.

   Electricity necessary for the operation of the well will be obtained from the Benton County Public Utility District, through a metered line, at no expense to DOE.

3. Game and its authorized representatives shall have the right of ingress and egress to and from the Premises over the existing government-owned road which enters the Hanford Site in the NW quarter of the NW quarter of Section 9, Township 10 North, Range 27 East, W.M. Such access is for the operation, maintenance, and repair of the well and associated appurtenances, and for no other purposes. Game shall supply DOE with the names of all persons authorized by Game to enter the Premises for said purposes, and shall notify DOE when such authorization for any person has been terminated.

4. This Permit is for temporary use of Government property and is revocable at the will of DOE. This Permit will be in effect until terminated by either party.

   Upon termination of this Permit, Game shall, if requested by DOE, remove all of its properties from the well and its vicinity, and restore the affected area to the condition that existed when this Permit was issued.

5. Game shall not assign or transfer this Permit or any of the rights and privileges pertaining thereto without prior written permission of DOE.

6. Game shall indemnify and hold harmless the United States of America and DOE for any loss or damage of any nature whatsoever arising from or incident to use of the well or the exercise of any rights granted herein.

7. Game shall procure all necessary permits and licenses and abide by all applicable laws, regulations, and ordinances of the United States of America and of the state, territory and political subdivision in which the well is located.

8. No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this Permit, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this Permit if made with a corporation for its general benefit.

9. Game warrants that no person or selling agency has been employed or retained to solicit or secure this Permit upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by Game for the purpose of securing business.

10. By affixing the signature of its authorized representative at the location indicated below, Game hereby agrees to the terms and conditions of the Permit.

IN WITNESS WHEREOF, DOE has caused this Permit to be executed by its duly authorized representative on the 26 day of Aug, 1986.

UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY

By: _____
J. J. Sutey, Director
Site and Laboratory Management Div.

APPROVED AND AGREED:

WASHINGTON STATE DEPARTMENT OF GAME

By: _____

Title: _____

Date: 7/9/87

STATE OF WASHINGTON)
)
COUNTY OF BENTON)

On this 26 day of AUGUST, 1986, before me personally appeared J. J. SUTEY, to me known to be the authorized representative of the Department of Energy that has executed the within and foregoing instrument, and acknowledged said instrument to be a free and voluntary act and deed of the United States of America, acting through the Department of Energy, for the uses and purposes therein mentioned.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

LS

John R Murphy

Notary Public in and for the State of Washington, residing at RICHLAND, Benton County.