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 RECIP. NAME RECIPIENT AFFILIATION
 SCHWENCER, A. Licensing Branch 2

SUBJECT: Provides rationale for changing discharge port design from
 18-inch circular pipe to 8-inch by 32-inch slot, noted in DES
 Section 4.2.2.4. Design results in greater mixing by
 providing greater jet entrainment surface. Related info encl.

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Washington Public Power Supply System

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December 23, 1981
G02-81-544
SS-L-02-CDT-81-112

Docket No. 50-397

Mr. A. Schwencer, Director
Licensing Branch No. 2
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555



Dear Mr. Schwencer:

Subject: NUCLEAR PROJECT NO. 2
WNP-2 BLOWDOWN DISCHARGE PORT CONFIGURATION

Reference: WNP-2 DES (NUREG-0812), Section 4.2.2.4

Per telecon between JP Chasse and RM Nelson of the Supply System and Raj Auluck of NRC, the following explains the rationale for changing the discharge port design from an 18" circular pipe to an 8" X 32" slot (noted in the referenced document).

The Supply System applied for a Corps of Engineers (COE) Section 10 permit in early 1974 for installation of the intake and discharge facilities. Among the agencies which had de facto approval authority, the National Marine Fisheries Service (NMFS) and Washington Department of Fisheries (DOF) objected to the permit on several points. A principal contention of NMFS was that a diffuser would have less impact on the aquatic resource, by virtue of its enhanced mixing, than would a single port discharge. After several meetings, it was agreed that the port would be of a rectangular configuration with an area equivalent to an 18" pipe (see attached letter). The rationale was that this design would result in greater mixing by providing a greater jet entrainment surface. The NRC (FES, p. 5-3) has made the same intuitive observation. The slot design was subsequently incorporated in the COE permit and recognized in the NPDES permit proceedings. The same design is used on WNP-1/4.

Very truly yours,

G. D. Bouchey
Deputy Director, Safety and Security

CDT/jca
Attachment

cc: R Auluck - NRC
WS Chin - BPA
R Feil - NRC Site

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Washington Public Power Supply System

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

October 18, 1974
APCO-74-2

Mr. Donald R. Johnson
Regional Director
National Marine Fisheries Service
United States Department of Commerce
1700 Westlake Avenue North
Seattle, Washington 98109

Subject: WPPSS NUCLEAR PROJECTS NOS. 1, 2 AND 4
INTAKE AND DISCHARGE FACILITIES

Dear Mr. Johnson:

The Supply System understands that the following points will form the basis for withdrawal of your objections to the issuance of a permit by the Corps of Engineers for work on the WNP-2 Intake and Discharge Facilities:

1. The Supply System will use divers to visually inspect the perforated pipe sections of the intake at least once per month from March through November for the first year of intake operation. However, this visual inspection is impractical and dangerous when the Columbia River flow rate at the plant exceeds 200,000 cfs. and will not be performed unless the flow rate is below 200,000 cfs. and no unusual safety hazard exists. For successive years, the seasonal effort and frequency for these inspections will be adjusted in accordance with the first year results as supplemented by subsequent findings.
2. The Supply System will monitor, in the vicinity of the intake in the river, the river velocity and flow patterns and the fish distribution and fish loss, and the fish loss within the intake structure pump well. The estimates of fish losses in the intake structure pump well are to be based on a monitoring program designed by the Supply System, in consultation with NMFS and other fishery agencies, to meet a mutually agreed upon set of goals. Alternative monitoring systems will be used in the intake structure as necessary to attain the required goals. It is expected that this monitoring program will continue for one year. For successive years, the seasonal effort and frequency will be adjusted in accordance with the first year results as supplemented by subsequent findings.

3. The Supply System shall install a diffuser on the WNP-2 discharge line that consists of a transition from a nominal 18" diameter pipe to a nominal 8" by 32" rectangular outlet which shall discharge from the bed of the river such that the 8" dimension is measured vertically.
4. The Supply System emphasizes that Item IV.D, of the State Site Certification provides as follows:
 - "1. The Supply System agrees to provide a replacement and/or compensation for any wildlife, fish and other aquatic like and ecosystem damage or loss caused by project construction and operation when such damage or loss is substantiated by the Council."

As further clarification, it is the policy of the Supply System to undertake any necessary modifications to the intake, such as, but not limited to, reduction of hole size to 0.14 inches, or installation of an alternate structure, as a first choice prior to compensation for any excessive fishery losses.

5. The Supply System shall develop a maintenance program to clean the intake screens, including methods and schedule of work, which assure that no increased impact on fish from partially plugged intake conditions would be permitted to continue.
6. The Supply System shall monitor, in the river in the vicinity of the discharge, the hydraulics, water quality, and fish distribution. The monitoring results shall be provided to the National Marine Fisheries Service on a timely basis. It is expected that this program will continue for one year. For successive years the seasonal effort and the frequency will be adjusted in accordance with the first year results as supplemented by subsequent findings.

The Supply System further understands that the National Marine Fisheries Service is presently in the process of determining whether to continue to seek status as a party-intervenor in the Atomic Energy Commission's proceedings relating to its WNP-1 and WNP-4 projects. In order to assist you in making that determination, the Supply System hereby represents that at the present time it plans to design and construct the water intake and discharge systems for WNP-1 and WNP-4 in substantially the same manner as for WNP-2, unless monitoring and study activities on WNP-2 indicate a need for an alternate design.

bcc: JB Knotts - Corner, Hadlock & Knotts
JJ Verderber - Burns & Roe, Inc.
M Hroncich - Burns & Roe, Inc.

Very truly yours,

Original signed by NO Strand
for
L. L. HUMPHREYS
Deputy Managing Director

LLH:WWW:v1m

cc: Dr. Fred Cleaver - National Marine Fisheries Service, Portland
Joseph Lightfoot - Thermal Power Plant Site Evaluation Council
DM Downing - Corps of Engineers

