UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

JAN 22 1980

MEMORANDUM FOR: Chairman Ahearne
Commissioner Gilinsky
Commissioner Kennedy
Commissioner Hendrie
Commissioner Bradford

THRU: Executive Director for Operations

FROM: Harold R. Denton, Director, NRR

SUBJECT: DETERMINATION WHETHER B&W DESIGNED PLANTS PRESENTLY UNDER CONSTRUCTION BE ALLOWED TO CONTINUE

In a memorandum of October 25, 1979, I informed the Commission of an intention to request holders of construction permits with B&W designs under construction for information to allow us to determine whether it is necessary to halt construction of these B&W plants pending completion of our reliability study of B&W plants. Based on preliminary information on the status of plant construction and design changes already made, we had decided that construction of these plants should be permitted to continue pending evaluation of plant-specific information.

Letters were sent to: Washington Public Power Supply System (WNP-1 and WNP-4); Tennessee Valley Authority (BNP-1 and BNP-2); Consumers Power Company (Midland Plant, Units 1 and 2); and Virginia Electric Power Company (North Anna 3 and 4). We have received responses from all of these utilities. However, Virginia Electric Power Company (North Anna 3 and 4) informed us that they would not be responding to the detailed requests of our letter since engineering and construction activities on the site have been stopped. They are undertaking a feasibility study for utilizing the existing equipment in the design and construction of coal units.

A summary of equipment installation status and dates of system completion, together with pertinent remarks are shown in the enclosure. The system and components shown make up the salient features of the nuclear steam supply system external to the reactor vessel. As indicated by the enclosure, the equipment installation for both units of the Bellefonte facility and both units of the Midland facility are essentially complete. For both of these facilities, the large piping systems are installed or well underway with installation of small-diameter piping valves and supports somewhat behind. Some aspects of electrical and instrumentation installation have not yet been completed, and control systems installation varies from 10% to 75% complete. However, components of these systems are readily accessible after installation to changes and additions without major configuration modifications. Therefore, we conclude that halting construction of the

Bellefonte and Midland units would not provide significantly greater flexibility to implement later design changes, if required, to components and systems than if construction were to proceed to completion. The disruption to construction activities, loss of continuity, and loss of skilled work force would impose severe additional penalties to the cost of such design changes (which would be about the same whether changes were made now or after completion of the plant).

For WNP-1 and 4, while design, procurement, and shop fabrication of all equipment is complete, only a few of the items are installed and for most, the system installation has not yet begun or has barely started. For WNP-4, installation of these items will not be initiated until June, 1980 at the earliest. Consequently, continuing construction and installation of the systems for WNP-4 has no effect on the flexibility to implement changes until at least June, 1980. For WNP-1, except for the control system and core flood tank, some of the equipment has already been installed but system installation (piping, valves, hangars, supports, instrumentation, and electrical) has only begun and none will be completed until July 1981. The reactor coolant control system will not be started until September 1981, and the core flood tanks until February, 1980 at the earliest. Major access openings will be maintained for at least another 10 months.

Thus, the status of all these plants is such that only for WNP-1 would continued construction significantly affect the cost of implementing changes in major items of equipment now or after system installation. However, major access openings for WNP-1 will not be closed until September 1980 at the earliest, after which time significantly increased costs to replace such major components will accrue. Therefore, halting construction of WNP-1 at this time depends on the kinds of design changes likely to be required.

All of these plants already incorporate or will incorporate design changes to reduce the sensitivity aspect of B&W designs, such as the addition of anticipatory trips from abnormal conditions in either the feedwater or steam flow paths of the steam generator; improvements in control system hardware; additional safety-grade Class 1E auxiliary feed water control system; initiation of auxiliary feedwater by Class 1E system; and addition of feed only good generator (FOGG) system.

To date we have not identified a requirement for changes in large components that would require removal and replacement. It appears unlikely that such changes will be required. However, it is likely that further changes may be required in some aspects of control systems, instrumentation set-points, level indicators, valve and actuator configurations and line-up, changes in (or additional) small diameter piping and instrument, electrical, and air lines, and other such changes not requiring major component replacement.

We have discussed these plants with the ACRS and are scheduling further discussions with the ACRS in March, 1980. Presently, we are pursuing both the risk assessment study by our Office of Research as indicated by our October 25, 1979 letter and our own evaluation of the once-through-steam generator in conjunction with recommendations from the ACRS. We are projecting our analyses and evaluations to be concluded by April, 1980. For those plants where installation is essentially complete, halting construction achieves no appreciable benefit and for those plants where installation has not begun or barely started, our assessment will be concluded prior to appreciable change in installation status. The nature of the changes likely to be required are such that additional construction will not make these foreseeable changes infeasible nor prejudice any health and safety decisions. With respect to WNP-1, Washington Public Power Supply System has initieted at our request, a risk assessment study since our preliminary Crystal River indications are that these analyses are highly dependent on balance-of-plant designs. The applicant projects that these analyses will take approximately six months. We will monitor the progress of this study and the applicant has committed to submit the results prior to the closure of any major component access to the containment. We conclude that construction of WNP-1 should also be permitted to continue since we can identify no compelling need for major changes and continued construction would not foreclose the feasibility of change which might ultimately be instituted.

Harold R. Denton 1/22/80

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc: SECY
OGC
OPE

4p. for: A. Hosler

ENCLOSURE

System/Component	Preliminary Conditions & Comments						System/Component Completion Date						Remarks					
	VCNP 1	VCNP 2	DNP 1	RHP 2	MP 1	MP 2	VCNP 1	VCNP 2	RHP 1	DNP 2	EP 1	MP 2	VCNP 1	VCNP 2	RHP 1	RHP 2	MP 1	MP 2
High Press. Inj. Sys.	100	0	100	100	100	100	7/84	5/83	11/25/80	9/05/81	4/25/81	1/10/80	70% Total Sys. Complete	Start 8/82	Pipe 68% Valves 90% Supports 20%		Sm. Pipe NA, Lg. Pipe 0% Elec. 0% Instr. 0%	Sm. Pipe NA, Lg. Pipe 7% Elec. 0% Instr. 0%
Low Pressure Sys.	100	0	100	100	100	100	3/83	10/83	8/31/80	7/28/81	8/6/81	2/28/80	0% Total Sys. Complete	Start 6/82	Pipe 0% Valves 83% Supports 10%	Pipe 0% Valves 0% Supports 0%	Sm. Pipe 80%, Lg. Pipe 0% Elec. 0% Instr. 0%	Sm. Pipe 80%, Lg. Pipe 0 Elec. 0 % Instr. 0%
Spray Head Prem. Sys.	100	0	100	100	100	100	11/81	7/83	10/8/80	7/8/81	4/15/80	12/31/79	0% Total Sys. Complete	Start 6/82	Pipe 0% Valves 0% Supports 0%	Pipe 0% Valves 0% Supports 0%	Sm. Pipe 80%, Lg. Pipe 10% Elec. 0% Instr. 0%	Sm. Pipe 80%, Lg. Pipe 0 Elec. 0 % Instr. 0%
Aux Feed Bank Sys.	0	0	100	100	100	100	12/81	7/83	8/3/80	7/14/81	8/8/80	1/30/80	Start 2/82	Start 8/82	Pipe 0% Valves 0% Supports 10%	Pipe 0% Valves 10% Supports 10%	Sm. Pipe NA, Lg. Pipe 0% Elec. 0% Instr. 0%	Sm. Pipe NA, Lg. Pipe 0% Elec. 0% Instr. 0%
C Pres. Cont. Sys (ICS)	0	0	50	50	20	20	10/82	4/83	12/31/80	9/11/81	3/23/80	3/3/80	Start 9/81	Start 2/82	Control Panels 100% Lack 3 pts installation	New Control Panels Installed	Sm. Pipe 0%, Lg. Pipe 40% Elec. 30% Instr. 2%	Sm. Pipe 40%, Lg. Pipe 0% Elec. 33% Instr. 1%
Make-Up/Letdown Sys.	100	0	100	100	100	100	7/81	10/83	11/25/80	9/25/81	4/30/80	12/14/79	10% Total Sys. Complete	Start 8/80	Pipe 80% Valves 0% Supports 0%	Pipe 0% Valves 0% Supports 0%	Sm. Pipe 0%, Lg. Pipe 10% Elec. 20% Instr. 3%	Sm. Pipe 0%, Lg. Pipe 0% Elec. 30% Instr. 3%
O Pres. Cont. Sys.	0	0	50	70	75	75	3/82	10/83	11/31/80	8/11/81	8/21/80	3/3/80	Started	Start 11/81	Most Work is Instr. Tube	New Conduit Panels Installed	Sm. Pipe 80%, Lg. Pipe 75% Elec. 11% Instr. 30%	Sm. Pipe 80%, Lg. Pipe 0% Elec. 50% Instr. 30%
Steam Generator	50	0	100	100	50	50	12/79	5/81	Complete	Complete	7/23/80	5/5/80	Started	Start 3/81				
Absorption	0	0	100	100	50	50	12/79	6/81	Complete	Complete	7/23/80	5/5/80	Started	Start 5/81			Sm. Pipe NA, Lg. Pipe 0% Elec. NA Instr. NA	Sm. Pipe NA, Lg. Pipe 50% Elec. NA Instr. NA
Refuel Tank	100	100	100	100	50	50	Complete	Complete	Complete	Complete	7/23/80	5/5/80					Sm. Pipe NA, Lg. Pipe 10% Elec. NA Instr. NA	Sm. Pipe NA, Lg. Pipe 10% Elec. NA Instr. NA
Control Room Layout	0	0	100	100	75	75	9/81	9/83	Complete	Complete	1/31/81	1/31/81	Started	Started			Sm. 0 Lg. Pipe NA Elec. 30% Instr. 75%	Sm. 0 Lg. Pipe NA Elec. 30% Instr. 75%
C Sys. Piping	0	0	100	50	75	100	10/81	4/83	7/23/80	8/21/81	8/15/80	6/12/80	Started	Start 8/81	Pipe 100%	Pipe is in Place Except for Cavity Canes	Instr. 0%	Instr. 0%
Main Feedwater Sys.	0	0	50	50	100	100	3/82	10/83	7/23/80	4/23/81	6/4/80	2/29/80	Started	Start 11/81	Pipe 80% Valves 82% Supports 60%	Pipe 2% Valves 0% Supports 8%	Sm. Pipe 80%, Lg. Pipe 92% Elec. 30% Instr. 2%	Sm. Pipe 80%, Lg. Pipe 0 Elec. 40% Instr. 1%