POWER AUTHORITY OF THE STATE OF NEW YORK
INDIAN POINT NO. 3 NUCLEAR POWER PLANT
P. O. BOX 215 BUCHANAN, N. Y. 10511
TELEPHONE: 914-739-8200

May 18, 1979
KC-IP-4796

Docket No. 50-286
License No. DPR-64

A. Schwencer, Acting Asst. Director
Systems and Projects
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: Information Requested on Attached Letter

Dear Mr. Schwencer:

On May 10, 1979, we received a telecopy informing us that you had requested Westinghouse to provide responses to questions in the enclosure to this letter. You asked that we cooperate with Westinghouse in supplying them with plant specific information so as to allow completion of this effort in a timely manner. To this end, we are certainly committed. However, when we contacted Westinghouse, we were informed that they would write the response and did not need our assistance.

On Wednesday, May 16, 1979, Mr. Tobin of Westinghouse called to inform us that Westinghouse had been requested by the NRC to supply information only on small break analysis. Apparently, two different cover letters went out saying the other party will provide the response. To resolve this matter, Westinghouse has provided us with guidance in response to non-plant specific items and we have provided the remaining information, all of which is in the enclosure to this letter.

We feel our response has been sent to you in a timely manner considering the confusion generated by the different letters.

Very truly yours,

J. P. Bayne
Resident Manager

KC/rbb
enclosures

A001
SE 1/1

RESPONSES

I. 1) The instrument power source for the pressurizer heaters' control is from a Class 1E power source, which in turn has available to it a non-1E alternate source. The backup heaters are supplied from Class 1E 480 volt switchgear (Buses 2A, 3A and 5A), all of which are tied to emergency (Class 1E) diesel generators.

2-5) Reference Setpoint - 2235 psi

2) Backup heaters on/off (psi)
on: -50
off: -35

3) Variable Heater Transfer Function
Full on: -15
Full off: +15

4) Spray Valve Transfer Function
Start Open: +25
Full Open: +75

5) PORV #1: +100/+85
PORV #2: 2335/2320

Controller Transfer Function $K_1 (1 + 1/T_1 S) + T_2 S$

a) 2 psi/psi
b) 180 seconds
c) 120 seconds

NOTES: 1) Variations in Lead/Long term constants are not meaningful because of the slow heater response.

2) PORV # 1 and 2 have another opening set point which varies and is used for the overpressure protection system. These setpoints and the system operation were submitted to the NRC as part of the overpressure protection system Technical Specification change.

3) An interlock exists in a separate control channel from the one controlling the PORV. Its function is to insure that the PORV is shut whenever pressure decreases to 2185 psi.

II.

We have reviewed our records for the last three years of operation for all events that resulted in a complete loss of main feedwater. It is our understanding that a complete loss of main feedwater would be an incident whereby the system was disabled and could not be returned to service immediately following such an event.

In our plant design, main feedwater will be isolated whenever a Unit trip occurs and T avg. drops below 554° F. This is to prevent an uncontrolled cooldown of the reactor resulting from overfeeding the steam generator. The operator can override this in the manual mode of control. Additionally, main feedwater will also be isolated when any steam generator level reaches the high level trip setpoint of 75%. This is to prevent water being carried over in the steam and damaging the turbine. Since the reactor is tripped at the same time and the water is exceptionally high in the steam generator, there is ample cooling water available. Additionally, the main boiler feedpump can be returned to service once the level in the affected Steam Generator goes below 75%. Lastly, a safety injection signal, either real or inadvertant, will cause the main feedwater regulators to go closed. However, in addition to tripping the Unit, a Safety Injection Signal will also start the auxiliary boiler feed pumps. The operator has the ability to reset a Safety Injection Signal after two minutes and start up the main boiler feedwater pump.

In view of the above, there has been no event when the main feedwater system was completely isolated.

III.

The Westinghouse Model 44 steam generator is a vertical shell and U-tube evaporator, with integral moisture separating equipment. The Westinghouse steam generator is a saturated steam generator with a maximum moisture carryover of 0.25%. The feedwater is injected via a feedring into the downcomer where it mixes with recirculated water and water removed by the moisture separators. This makes up the total feed flow to the steam generator. This model steam generator has 44,430 square feet of heat transfer area. This heat transfer area is made up of 3,260 U-tubes that are 7/8 inches outside diameter with a .050 inch thick wall.

A schematic diagram of the Series 44 steam generator is shown on the following page.

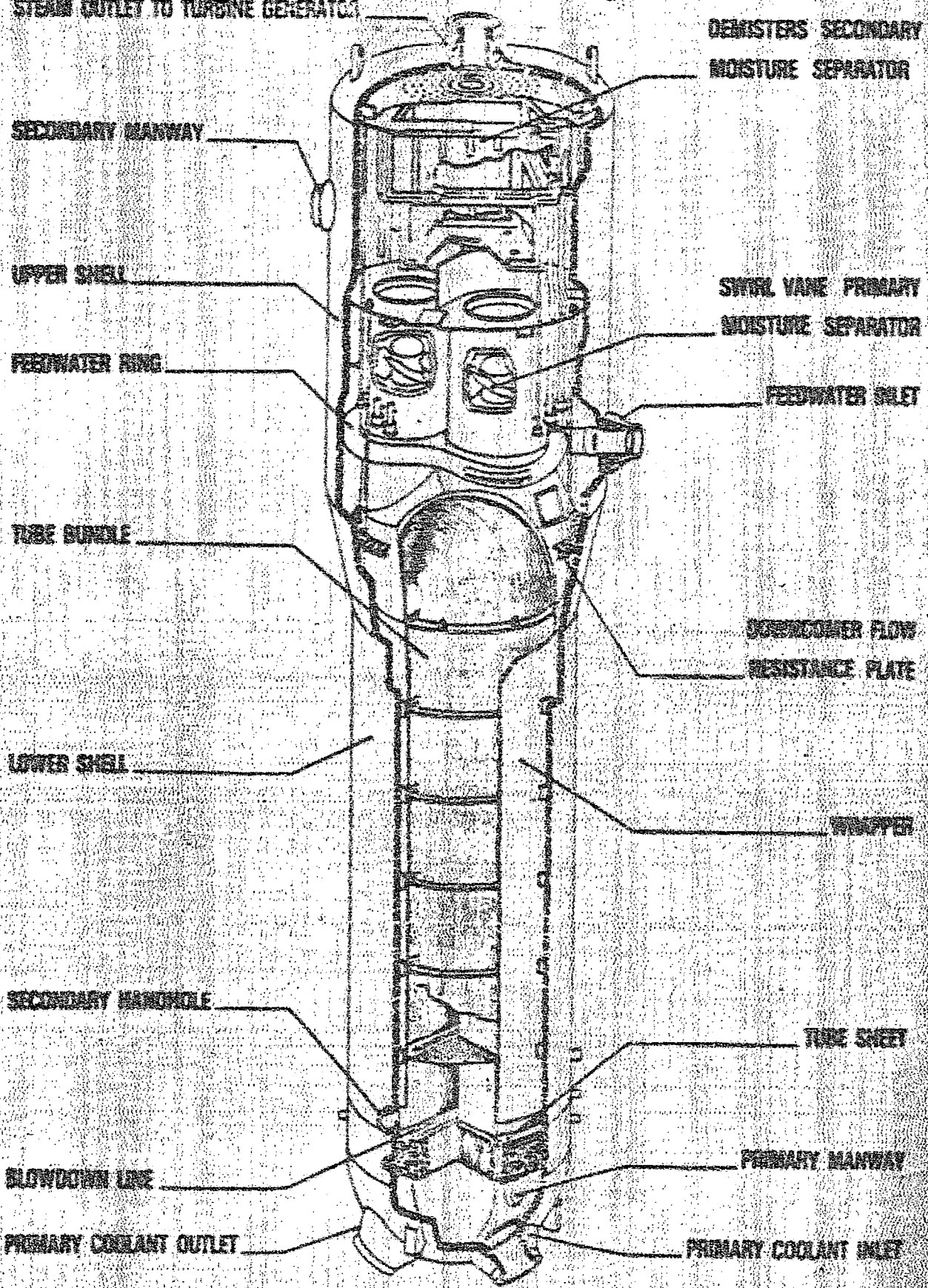
At 52% (normal operating level) in the steam generator, there is 78,500 pounds of water.

At 30% (Low Level MisMatch Trip) in the steam generator, there is 65,200 pounds of water.

Each steam generator is equipped with a feedwater controller which maintains a constant water level of 52% on the narrow range level indication. The feedwater controller regulates the feedwater valve by continuously comparing the feedwater flow signal, the water level signal, and the pressure compensated steam flow signal.

Continued delivery of feedwater to the steam generators is required as a sink for the heat stored and generated in the reactor coolant following a reactor trip and turbine trip. An override signal closes the feedwater valves when the average coolant temperature is below a given temperature.

Following a turbine trip, the feedwater regulating valves are closed at approximately a uniform rate, decreasing flow to a low percent of full flow at about one minute after the trip. This provides an optimum heat sink. Subsequently, the operator remotely controls the valves to maintain steam generator water level. Manual override of the feedwater control system is available at all times.



SERIES 44 STEAM GENERATOR

NOT TO SCALE

ATTACHMENT 3.2