Docket Nos.: 50-269, 50-270
and 50-287

JUL 17 1987

Mr. H. B. Tucker, Vice President
Nuclear Production Department
Duke Power Company
422 South Church Street
Charlotte, North Carolina 28242

Dear Mr. Tucker:

Reference: Oconee Nuclear Station Units 1, 2, and 3

As a result of the Surry pipe erosion/corrosion incident in December of 1986, the NRC is preparing a report that will reference existing research information available and describe the actions being taken by utilities regarding erosion/corrosion in feedwater pipes in nuclear power plants. Central to an understanding of erosion/corrosion in pipes is an accurate assessment of erosion/corrosion experience, piping design, feedwater and condensate chemistry and piping materials.

To ensure that both the NRC and the nuclear industry have available a comprehensive collection of data regarding erosion/corrosion in feedwater pipes, the NRC will assemble a summary of utility information related to ongoing water chemistry actions in pressurized water reactors. To accomplish this task we ask that you complete the enclosed questionnaire.

The information being requested is quite extensive and will require a diligent effort on your part and ours to assure accurate and timely completion. Also, we realize that parts of the information may already be available to the NRC, but not in a convenient format which is readily accessible. Therefore, we request that you assist us by returning for each unit a single completed copy of the enclosed questionnaire to the Project Manager, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, within 60 days of receipt of this letter. We believe the questionnaire is self explanatory; however, if questions arise or clarification is required, please contact me.

This request is covered by Office of Management and Budget Clearance Number 3150-0011 which expires December 31, 1989. Comments on burden and duplication may be directed to the Office of Management and Budget, Room 3208, New Executive Office Building, Washington, D.C. 20503.

Sincerely,

/s/

Helen N. Pastis, Project Manager
Project Directorate II-3
Division of Reactor Projects I/II

Enclosure: Erosion/Corrosion
Questionnaire

cc: See next page

DISTRIBUTION:

Docket File	NRC PDR	Local PDR	JPartlow
PDII-3 Reading	BJYoungblood Reading	SVarga/GLainas	EJordan
MDuncan	HPastis	OGC-Bethesda	ACRS(10)
PDII-3/DRPI/II	PDII-3/DRPI/II	PDII-3/DRPI/II	
HPastis/rad	MDuncan	BJYoungblood	
07/16/87	07/16/87	07/ /87	

ENCLOSURE

PWR EROSION-CORROSION QUESTIONNAIRE
(Check or Circle All Applicable)

Utility Company:_____ Unit Name:_____ MWe _____

Filled by:_____ Date:_____ Phone No._____

In service: 19 .... Water Treatment: AVT with ammonia, morpholine, hydrazine.

Condensate polishers: none, cation, powdex, mixed bed; .....% of feedwater flow; installed 19 ....; operated in: H-OH, NH4-OH form.
Cooling water: fresh, salt, brackish, cooling tower.
Copper alloy condenser tubing: yes, no. Copper alloy FW heater tubes: LP, HP, none.
Boric acid used since: 19 ...; during: operation, layup, low load soaks, other.....

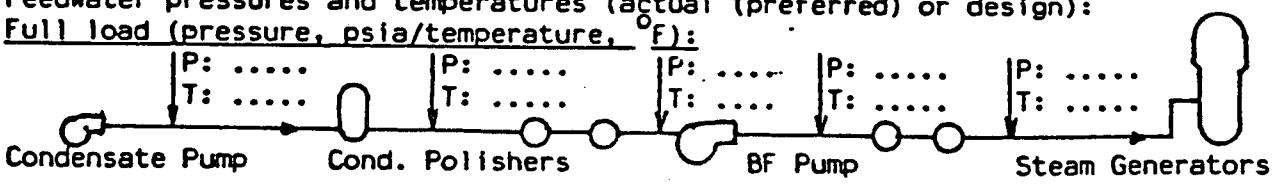
A. EROSION-CORROSION EXPERIENCE

1. Erosion-Corrosion identified in wet steam piping: yes, no.
2. Erosion-Corrosion of MSR Chevrons or mesh: yes, no.
   Chevron material: stainless steel, carbon steel, other .....
3. Erosion-Corrosion of feedwater piping: yes, no. Date found .....
   Feedwater piping materials: .....
4. Erosion-Corrosion of: ...,. elbows, ... Ts, ... diffusers, ...: reducers, ... valves, ... orifices, ... other components (specify).....
5. Erosion-Corrosion of J-Tubes: yes, no.
6. Erosion-Corrosion of feedwater distribution ring: yes, no.
7. Erosion-Corrosion of turbine: HP, LP; identify components: .....
8. Erosion-Corrosion of other cycle components (identify) .....
9. Feedwater temperature range where erosion-corrosion found: from .... to .....°F
10. Inspection frequency for feedwater piping ..... years. Steam lines ..... years.
11. Inspection methods used: ultrasonic thickness, radiography, visual, other.....

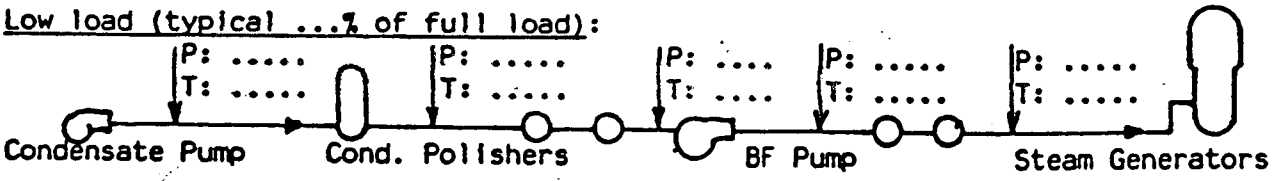
B. PIPING DESIGN

1. Maximum feedwater flow velocity ..... feet/second.
2. No. of feed pumps operating at 100% load ....., second pump On at .....% load.
3. Maximum flow velocity when only 1 pump is operating ..... feet/second.
4. No. of feedwater piping components: ..... elbows, ... Ts, ... diffusers, ... reducers, ... valves, ... orifices, ... other components (specify) .....
5. Maximum flow velocity in wet steam piping ..... feet/second.
6. Feedwater pressures and temperatures (actual (preferred) or design):

Full load (pressure, psia/temperature, °F):



Low load (typical ...% of full load):



Please attach copies of the heat balance diagrams for your actual full load and typical low load.

C. FEEDWATER AND CONDENSATE CHEMISTRY

1. Please complete the attached Table.
2. Feedwater chemistry history (average or typical values, final feedwater):

Year of oper.:	1st	1974	1976	1978	1980	1982	1983	1985	1986	1987
pH of FW maximum										
minimum										
average										
pH of condensate										
maximum										
minimum										
average										
DO, ppb maximum										
minimum										
average										
Cat. Cond. uS/cm										
Spec. Cond. uS/cm										
NH_3, ppb										
N_2H_4, ppb										
Boron, ppb										
Air Inleakage, SCFM										

Please send any water chemistry summary reports and data.

3. Chemical additions

3.1 Ammonia: typical concentration in feedwater .... ppb; added at .....
3.2 Hydrazine: typical concentration in feedwater .... ppb; added at .....
3.3 Boric acid: typical concentration in feedwater .... ppb as B; added at .....

D. MATERIALS

1. Feedwater piping - list ASTM or other specification numbers .....
2. Wet steam piping: .....
3. Attach results of chemical analysis by you or pipe vendors.

ENCLOSURE

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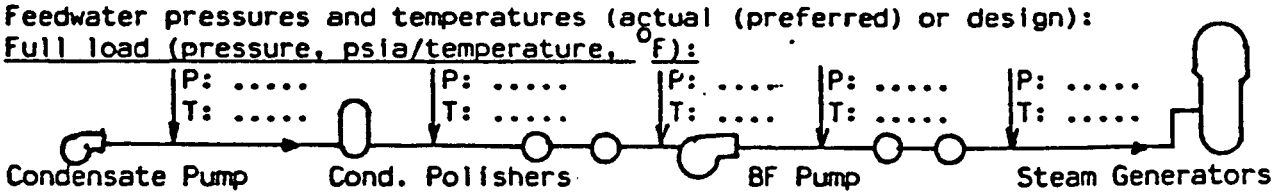
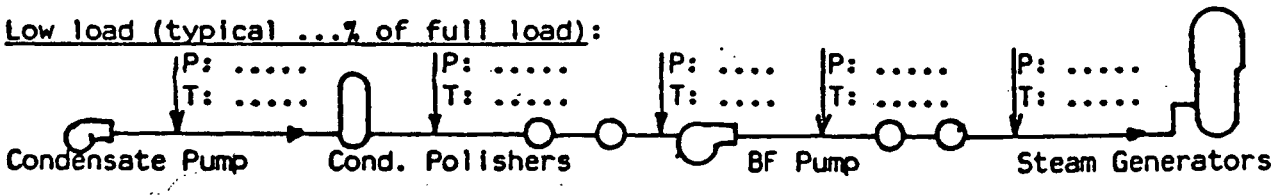


Low load (typical ...% of full load):



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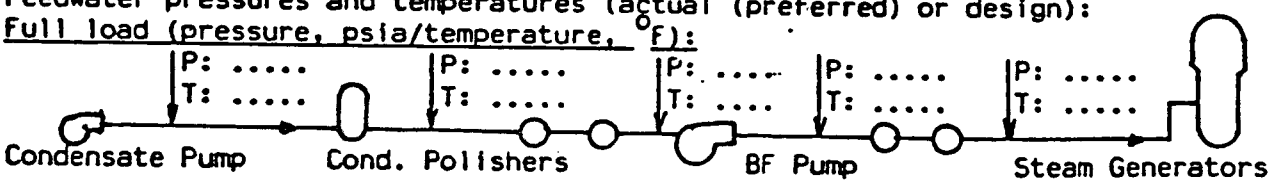

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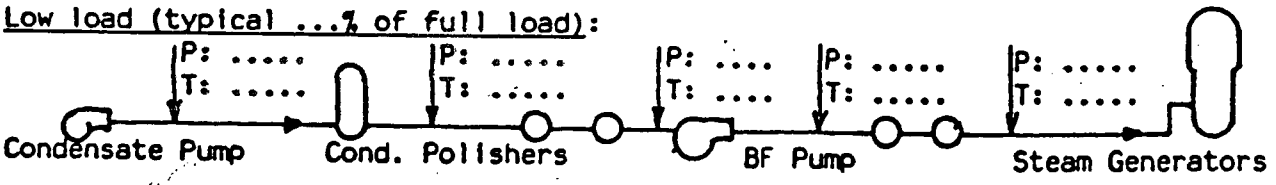

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Mr. H. B. Tucker
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Units Nos. 1, 2 and 3

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