

TIC
TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

79 SEP 26 AIG: 40

September 24, 1979

Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II - Suite 3100
101 Marietta Street
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

OFFICE OF INSPECTION AND ENFORCEMENT BULLETIN 79-15 - RII:JPO
50-327, -328 - SEQUOYAH NUCLEAR PLANT

A partial response for the Sequoyah Nuclear Plant was submitted on September 10, 1979, in the initial response to OIE Bulletin 79-15. Enclosed is the final response to the subject bulletin for the Sequoyah Nuclear Plant. If you have any questions regarding this matter, please call Tish Jenkins at FTS 854-2014.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills

L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure

cc (Enclosure):

Mr. Victor Stello, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Director of the Division of Operating Reactors
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission

ENCLOSURE

RESPONSE TO NRC-IE BULLETIN 79-15
DEEP DRAFT PUMP DEFICIENCIES

Item 4. Summary of startup, testing, and routine maintenance for each type pump.

(a) Essential Raw Cooling Water (ERCW) Pumps (New)

Pumps are presently being installed by the Division of Construction and no startup, test, or history information is available.

(b) Essential Raw Cooling Water (ERCW) Screen Wash Pumps (New)

Pumps are presently being installed by the Division of Construction and no startup, test, or history information is available.

(c) Essential Raw Cooling Water Pumps (Old)

Preoperational testing was performed March 20 through May 24, 1978, including vibration, header flow, header pressure, motor current, and bearing temperature. Performance of pumps is presently checked a minimum of each 31 days. Routine maintenance includes annual change of motor bearing oil.

(d) High-Pressure Fire Pumps (HPFP)

First pumps were put into service in April 1974, and the last in February 1977. Performance is checked annually and compared with manufacturers' design performance curve. A routine maintenance schedule has not been established at this time.

(e) Auxiliary Essential Raw Cooling Water (AERCW) Pumps

Preoperational pump tests were performed on May 20, 1978, in which header flow, pump discharge pressure, motor current, bearing temperature, and vibration were measured.

One pump experienced high vibration due to loose iron in the motor. It was retested satisfactorily on February 7, 1979. Pump performance is checked a minimum of every 31 days. The routine maintenance schedule includes annual change of motor bearing oil.

(f) Auxiliary Essential Raw Cooling Water (AERCW) Screen Wash Pumps

Preoperational tests were performed on May 2 and 8, 1978, in which header flow, pump discharge pressure, and vibration were measured. The routine maintenance schedule includes lubrication (grease) of motor bearings.

3/3
1805 34

Item 5. Operational Problems and Major Repair Efforts

(a) ERCW Screen Wash Pumps (New)

No major problems.

(b) ERCW Pumps (New)

No major problems.

(c) ERCW Pumps (Old)

No major problems.

(d) HPFP

Between March 1977 and March 1978, five pump failures were experienced: one each with 1AA (November 1977), 7AA (March 1977), and 2BB (November 1977) and two with 1BB (January and March 1978). In each case, the pumps were dismantled and the impellers found loose on the shaft. The method of impeller attachment to the shaft was with a tapered locking collet which was to accept the thrust load of each impeller; however, investigation of the impeller collet design revealed that a pressure differential across the impeller thrusts the impeller away from the locking collet. After consultation with the Division of Engineering Design and Johnston Pump, the decision was made to attach the impellers to the shaft via a split ring with the retainer bolted to the impeller hub. Refer to Figure 1 (enclosed) for a typical drawing of this thrust ring construction. This modification was made to all four pumps between September 1978 and January 1979. No pump failures have been experienced since this modification.

(e) AERCW Pump

No major repairs have been made to pump A-A. High vibration in pump B-B was found during Preoperational Test TVA-19 May 10, 1978. Several attempts were made in July and August 1978 to balance the pump/motor, but with no success. On July 28, 1978, the pump was dismantled for inspection of possible vibration sources (shaft or impeller runout, etc.); however, no problems were found. The vibration source was traced to loose iron in the motor. The motor was repaired by Johnston Pump under warranty.

(f) AERCW Screen Wash Pumps

No major repairs.

3/4
1805 3/2

Item 6. The following table is a listing of the longest interval that each pump has been available for operation without major maintenance:

<u>Pump</u>	<u>Interval (Months)</u>
HPFP 1AA	43
HPFP 1BB	45
HPFP 2AA	35
HPFP 2BB	9
ERCW A-A*	22
ERCW C-B*	22
ERCW F-B*	22
ERCW H-A*	22
AERCW A-A*	19
AERCW B-B	7
AERCW SW A-A*	19
AERCW SW B-B*	19

*Available since tentative transfer

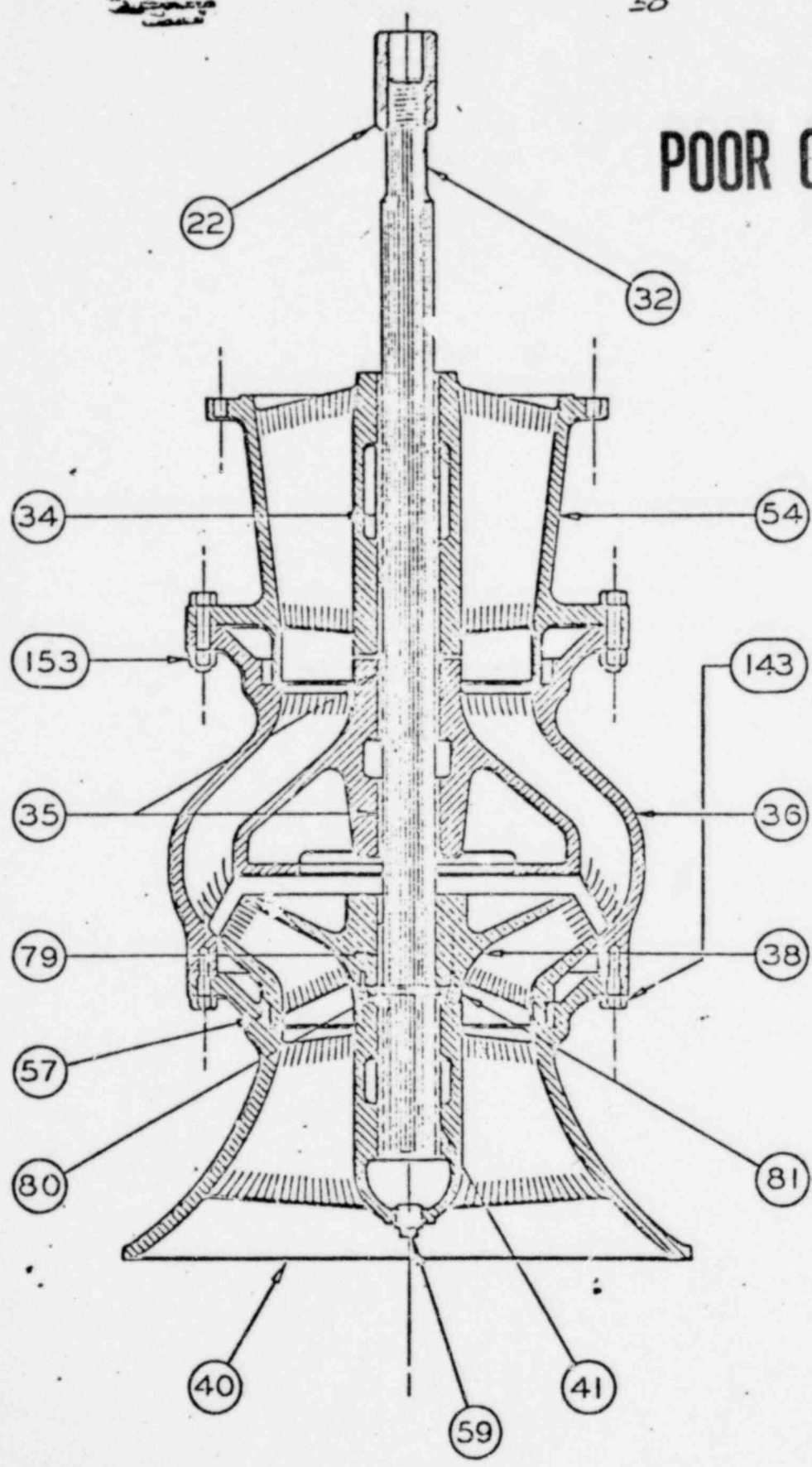
Due to the demands for equipment operation during the tentative transfer phase and preoperational test program at Sequoyah, the number of cycles of operation during the longest available interval, cycle duration and operating modes, and longest continuous operation at rated flow conditions are not available.

1805-35
313



TYPICAL ASSEMBLY FOR 20" THROUGH 30" BOWES

POOR ORIGINAL



VERT. KEY

Trust Ring

FIGURE 1

1805 316 314