

SNUPPS

Standardized Nuclear Unit  
Power Plant System

5 Choke Cherry Road  
Rockville, Maryland 20850  
(301) 869-8010

Nicholas A. Petrick  
Executive Director

May 14, 1982

SLNRC 82-025 FILE: 0278  
SUBJ Long Term Operability of  
Deep Draft Pumps

Mr. Harold R. Denton  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D. C. 20555


Docket Nos. STN 50-482 and STN 50-483

Reference: SLNRC 82-019, dated April 2, 1982: Same subject

Dear Mr. Denton:

The referenced letter provided information requested by the NRC on the Callaway and Wolf Creek Essential Service Water System pumps. An error has been discovered in the reference. In paragraph II.b of the enclosure, a sentence should read: "These frequencies are nearly 1.5 times the pump operating frequency." This error does not affect the conclusions of the reference. The changed page is attached.

Very truly yours,

  
Nicholas A. Petrick

RLS/mtk

Attachment

cc: G. L. Koester KGE  
D. T. McPhee KCPL  
D. F. Schnell UE  
T. E. Vandel NRC/UE  
J. H. Neisler NRC/CAL

8205180384 A

B001  
5  
1/1

- b. A major concern addressed in the "Guidelines" is that the primary mode natural frequency of the pump shaft may be near the frequency of pump operation. For the SNUPPS plants the natural frequencies have been calculated to be 21.73 and 21.76 cps for Wolf Creek and Callaway, respectively. These frequencies are nearly ~~100~~ times ~~higher than~~ the pump operating frequency. 1.5

The pumps were factory tested with specified 8 ft. minimum submergence. Due to test facility limitations, only three sections of column (15 ft.) were utilized during performance testing. The seismic restraints were not used, resulting in a free, suspended test length of 20 ft. 10 in. Vibration measurements taken indicate no pump natural frequencies near operating speed, even without supports below the mounting flange.

- c. Inlet conditions were considered in the design of the sump, bellmouth and their relationship to each other. Refer to Section IV below.
- d. Installation of the pumps is addressed in Section III below.

### III. PUMP INSTALLATION

Installation of the pump will receive as much attention to detail as has the design of the pumps and sump. The Byron Jackson Instruction Manual includes detailed step-by-step procedures for pump and driver installation. The following comparison to the subitems of the "Guidelines" Section 1.1 is provided.

- a. The shafts are determined to be straight at the factory. The pump is demonstrated to turn by hand both at the factory and in the field.
- b. The coupling design is provided by the manufacturer and is high precision. The shaft segments are keyed together in a sleeved coupling.
- c. The column flanges and spiders are perpendicular to the shaft centerline, and the spiders are welded into place.
- d. Column straightness and concentricity is ensured by the rigid design.
- e. The instruction manual contains detailed procedures which ensure that the driver and pump are properly connected. Predetermined tolerances are provided for concentricity and trueness of the mounting surface. The driver shaft runout is also verified to be within tolerance.
- f. The torquing sequences will be followed as required by procedure.

### IV. SUMP INSTALLATION

The following discussions address the subitems of Section 1.2 of the "Guidelines".