TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401 400 Chestnut Street Tower II

December 17, 1981

Director of Licensing Attention: Mr. Thomas A. Ippolito, Chief Operating Reactors Branch No. 2 U.S. Nuclear Regulatory Commission Washington, DC 20555

Dear Mr. Ippolito:

In the Matter of the Tennessee Valley Authority Docket Nos. 50-259 50-260 50-296

In a telephone conversation with your staff on June 12, 1981 we discussed our plans regarding feedwater sparger replacement and nozzle inspection work at Browns Ferry Nuclear Plant unit 1 during the cycle 4 refueling outage. It was agreed that TVA would submit the results of the inspection work to the NRC for the staff's information. Enclosed is a summary of the Browns Ferry unit 1 feedwater sparger replacement and inspection work. With the installation of the new spargers on unit 1 all invessel modifications required by NUREG-0619 are complete at the Browns Ferry Nuclear Plant units 1, 2, and 3.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager Nuclear Regulation and Safety

1/1

Subscribed and sworn to before day of December 1981. me this ar

Notary Public

My Commission Expires 9-5-84

Enclosure

8112280401 PDR ADOCK (PDR

ENCLOSURE

SUMMARY OF FEEDWATER SPARGER REPLACEMENT AND NOZZLE INSPECTION BROWNS FERRY NUCLEAR PLANT UNIT 1 (DOCKET NO. 50-259)

During the Browns Ferry unit 1, cycle 4 refueling outage the interim feedwater spargers were replaced with the General Electric Company's (GE) triple-sleeve spargers. With the installation of the new spargers all invessel modifications required by NUREG-0619 are complete at Browns Ferry.

Decontamination of the unit 1 reactor vessel began on May 5, 1981 following the completion of the core unloading. Four days of hydrolazing by Cleanco, a contractor, reduced the contamination level on the reactor vessel from $3.0 \times 10^{\circ}$ dpm/100 cm² to $2.0 \times 10^{\circ}$ dpm/100 cm². After the decontamination, installation of the work platform, and installation of the wall shielding, the radiation level in the vessel was 600 mrem/hr. The reactor vessel wall was 1 rem/hr on contact while the feedwater spargers and core spray header were 1-3 rem/hr on contact.

The actual work of replacing the interim sparger with the triple-sleeve spargers was contracted to GE. The work took place in three phases: (1) removal of the interim spargers, (2) preparation of the nozzles for the new spargers, and (3) installation of triple-sleeve spargers. Removal of the interim spargers required five days to complete using a special hydraulic jacking tool designed and supplied by GE.

Preparation of the nozzle for the new triple-sleeve spargers began with the inspection of the previously machined safe end sealing lands for surface conditioning. The inspection revealed that it was necessary to remachine the safe end sealing lands before the new spargers could be installed. GE used five days to machine an average of 0.042 inch off the inside diameter of the nozzles.

Following the machining, the inside nozzle surfaces were prepared for dye-penetrant testing. The safe ends were finished with honing stones, and the nozzle blend radii were finished using flapper wheels to remove scale and rust. The use of flapper wheels and noning stones could not clean the scale out of the nozzle bore because of the depth of the previous machining marks. As discussed in the telephone call on June 10, 1981, between NRC and TVA, it was agreed to grind only patches in the nozzle bores instead of grinding the entire nozzle. This was necessary to reduce unwarranted exposure to personnel. The patches began at the bore-blend radius junction and continued nine inches into the bore. The seven-inch wide patches were ground from the 3 o'clock to the 5 o'clock position on two nozzles, from 5 o'clock to 7 o'clock on two other nozzles, and from 7 o'clock to 9 o'clock on the remaining two nozzles. On June 15, 1981 the final PT was made on the feedwater nozzles. No indications were found. All NDE examinations performed on the feedwater nozzles during the subject modification revealed no indications. The previous dye-penetrant test was performed in 1977 while the previous UT was performed in 1980. Fifty-six of the 133 startup/shutdown cycles experienced by unit 1 in its lifetime have occurred since the 1977 dye-penetrant examination. There have been 19 startup/shutdown cycles since the 1980 UT.

A total of 166 men was used by GE on the feedwater sparger modification while TVA used approximately 60 employees to support the GE work. A total exposure of 152.7 man-rem was attributed to the feedwater sparger modification.

Our current schedule for implementing the various other NUREG-0619 modifications, including the online leakage detection system, is identified in an October 28, 1981 letter from L. M. Mills to H. R. Denton.