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AUTH.NAME AUTHOR AFFILIATION
UHRIG,R.E. Florida Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
VARGA,S.A. Operating Reactors Branch 1

SUBJECT: Forwards addl info re steam generator decontamination alternatives & weld strength for sealing of steam generator lower assemblies after removal,per 801110 telcon.Info re doses resulting from postulated drop of lower assembly encl.

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FLORIDA POWER & LIGHT COMPANY

November 21, 1980
L-80-386

Office of Nuclear Reactor Regulation
Attention: Mr. Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Varga:

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Steam Generator Repairs

Pursuant to our telephone conversation on November 10, 1980, attached you will find supplementary information on steam generator decontamination alternatives, and on the strength of the welds to be used for sealing the steam generator lower assemblies after removal. We also include information on doses resulting from postulated drop of a steam generator lower assembly.

We are pleased to be of assistance in this matter.

Very truly yours,

Robert E. Uhrig
Vice President
Advanced Systems & Technology

REU/LFR/ah

Attachments

cc: Norman A. Coll, Esquire
Neil Chonin, Esquire
Henry H. Harnage, Esquire
Mark P. Oncavage
Harold F. Reis, Esquire
Burt L. Saunders, Esquire

The following is an addendum to FPL's response to Question 4, Request for Additional Information for Accident Evaluation (Enclosure 3), NRC Letter from Steven A. Varga to Dr. Robert E. Uhrig, September 29, 1980:

The method of decontamination preferred by FPL at present involves high pressure spraying of a grit and water slurry to mechanically remove the film of corrosion products. The grit proposed to be used would be either magnetite or alumina. The system as presently designed supplies about 20 gpm of slurry at 3000 p.s.i. nominal. The high pressure pump would discharge to the nozzles within the steam generator channel head through high pressure hose with capacity of 5000 p.s.i. and that is contained within plastic fire hose.

After spraying from the nozzles, the slurry and removed corrosion products are transferred via a low pressure pump to a transfer tank and then to centrifugal separators where the grit and the corrosion products are separated from the water. The grit and corrosion products would then be suitably packaged for disposal at a low-level radioactive waste storage ground, while the water is recirculated to the high pressure pump.

The system which would be used would be similar to that used to decontaminate the channel heads of the steam generators at the San Onofre station. FPL representatives have witnessed the decontamination activities at San Onofre, and assessment is ongoing of the method and of resolution of problems encountered there. It should be recognized that FPL's assessment may disclose at a later time that a different method of decontamination should be preferred.

The following is an addendum to Question 4, Request for Additional Information on Disposal Alternatives, NRC Letter from Steven A. Varga to Dr. Robert E. Uhrig, October 21, 1980:

FPL plans to seal the steam generator lower assemblies using 1½ inch thick fillet welds. Although the weld design and specific procedures have not yet been finalized, the following statements may be made about the weld:

The steam generator channel head weld material will be E701B ACC welding electrodes. The welding will be done in accordance with ASME Section IX procedures and standards. The weld will be a 1½ inch thick fillet weld, one inch thick at the throat. The ultimate strength of the weld will be 72,000 PSI, and the design allowable strength will be 21,000 PSI. Little weld preparation is expected to be necessary; we currently anticipate only some minor polishing of rust or other surface imperfections (if any) to be necessary.

A weld with the above characteristics would not be breached in a 12 foot drop in certain drop modes while it might be breached in certain others. In order to obtain assurance under all modes that the channel head weld would not be breached, the proposed 1½ inch thick fillet weld could be increased to a considerably larger fillet weld. In order to make this larger fillet weld, the number of man hours required would increase by approximately an order of magnitude, thus significantly increasing the occupational exposure required, as well as the cost. FPL does not believe it is consistent with the ALARA concept to incur a substantial and certain increase in occupational exposure in order to prevent releases which would only occur in the case of a very low probability accident, and which are calculated to be low.

ATTACHED IS A REVISED PAGE 5 FOR FPL'S RESPONSE TO QUESTION 3 OF THE REQUEST FOR ADDITIONAL INFORMATION ON DISPOSAL ALTERNATIVES. NRC LETTER, STEVEN A. VARGA TO ROBERT E. UHRIG, OCTOBER 21, 1980.

program, as well as other administrative controls, will help ensure that occupational exposures will be maintained as low as reasonably achievable.

3.3 Radiological Impacts from Postulated Accidents

3.3.1 Introduction

Shipment of new steam generators and other heavy equipment by barge is not a novel or unusual task. Numerous steam generators have previously been shipped by barge, including six original and six replacement steam generators for both Turkey Point and Virginia Electric and Power Company's Surry Plant. Additionally, one contaminated steam generator lower assembly has been shipped by barge from Surry, Virginia, through the Panama Canal, to Hanford, Washington. Experience indicates that the occurrence of an accident during shipment is extremely unlikely. The most probable accidents are analyzed below.

3.3.2 Drop of a Steam Generator Lower Assembly during Loading or Offloading

During loading and offloading of the shipping cask, it will be necessary to lift the lower assemblies a maximum of twelve feet off the ground. It has been calculated that the probability of dropping a lower assembly during such a lift is of the order of 10^{-6}. Thus, it can be seen that the occurrence of a drop accident is extremely improbable. If it is assumed that a lower assembly does drop during lifting, the welds sealing the end caps may be breached under certain drop configurations. Such a drop can only occur within the Turkey Point or Barnwell sites, since lifts will not be performed elsewhere. The dimensions of any breaches which might result from a 12 foot drop would be small. Nevertheless, if it is assumed that 1% of the radioisotopes on the lower assembly become airborne, the resulting critical organ (lung) doses at the site boundaries would be 45 millirem at Turkey Point and 1800 millirem at Barnwell, well below accidental release limits applicable to power reactor sites.