



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

July 31, 1991

Docket No. 50-302

Mr. Percy M. Beard, Jr.
Senior Vice President,
Nuclear Operations
Florida Power Corporation
ATTN: Manager, Nuclear Operations
Licensing
P. O. Box 219-NA-21
Crystal River, Florida 32629

Dear Mr. Beard:

SUBJECT: CRYSTAL RIVER, UNIT 3 RE: AUTHORIZATION OF USE OF ALLOY 690 AS
ALTERNATIVE TO USE OF ALLOY 600 FOR STEAM GENERATOR TUBE PLUGS PER
10 CFR 50.55a(a)(3) (TAC NO. 80657)

By letter dated March 14, 1991, you requested authorization for the use of steam generator tube plugs and mechanical sleeves manufactured with SB-166 (Inconel 690) material as an alternative to the Alloy 600 material previously used.

Code Case N-474-1 of the ASME Boiler and Pressure Vessel Code (approval date March 5, 1990) addresses Alloy 690 material and authorizes its use in other forms for the construction of Section III, Division I, Class 1 components. The material is specified in ASME Code, Section II, material specifications SB-163, SB-166, SB-167 and SB-168. Also, Alloy 690, in tubing form (SB-163), was previously authorized for construction of Class 1 components.

The staff has determined that the use of Alloy 690 for tube plugs as a proposed alternative to the use of Alloy 600, in accordance with the requirements of the ASME Boiler and Pressure Vessel Code, will provide an acceptable level of quality and safety. The use of Alloy 690 material for the fabrication of mechanical plugs for steam generator tubes was endorsed by the NRC in NRC Bulletin No. 89-01, "Failure of Westinghouse Steam Generator Tube Mechanical Plugs," dated May 15, 1989. Alloy 690 has superior anti-corrosion properties and similar mechanical properties to the Alloy 600 material previously used for tube plugs. The design stress intensity stipulated by the Code Case and used in the design and qualification of the tube plugs is the same for Alloy 690 material as for Alloy 600 material of the same form. Therefore, this material is being used in the fabrication of tube plugs which may be utilized in the steam generators at Crystal River, Unit 3.

Footnote 6 of 10 CFR 50.55a provides for the use of alternate Code Case materials in accordance with 10 CFR 50.55a(a)(3) for reactor coolant pressure boundaries as specified in 10 CFR 50.55a(c)(3). It is the responsibility of the user to make certain that no regulatory requirements are violated and that there are no conflicts with other recommended limitations resulting from Code Case usage. Based on the above, we have reviewed your request and conclude that the use of

9108050339 910731
PDR ADDCK 05000302
P PDR

NRC FILE CENTER COPY

DF01
110

Mr. P.M. Beard, Jr.

- 2 -

July 31, 1991

Alloy 690 as a proposed alternative to the use of Alloy 600 will provide an acceptable level of quality and safety and, therefore, its use for plugs to plug tubes in steam generators is authorized under the provisions of 10 CFR 50.55a(a)(3).

By letter dated April 6, 1990, as supplemented May 2, 1991, you requested a change to the Technical Specifications for Crystal River Unit 3. Specifically, the requested change would allow the use of mechanical sleeves as an alternative to plugging defective steam generator tubes. That amendment request is under review by the staff. The staff will consider use of sleeves manufactured with Alloy 690 in its review of that proposal.

This completes our efforts on TAC No. 80657.

Sincerely,

(Original Signed By)

Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

cc: See next page

cc: See next page

DISTRIBUTION

Docket File

- NRC & LPDRs
- PD22 Rdg File
- TMurley/FMiraglia 12/G/18
- JPartlow 12/G/18
- CRossi 11/E/4
- SVarga
- GLainas
- DMiller
- DDorman
- HSilver
- OGC
- EJordan MNBB-3701
- GHill (4)
- ACRS(10)
- GPA/PA
- JWechselberger 17/G/21
- MSinkule RII
- CYCheng

LA: PDII-2
DMiller
7/14/91

PE: PDII-2
DDorman/jkd
7/16/91

PM: PDII-2
HSilver
7/16/91

EMCB
C/Cheng
7/17/91

D: PDII-2
HBerkow
7/18/91

OGC
J Hill
7/24/91

Mr. Percy M. Beard, Jr.
Florida Power Corporation

Crystal River Unit No. 3 Nuclear
Generating Plant

cc:

Mr. A. H. Stephens
General Counsel
Florida Power Corporation
MAC - A5D
P. O. Box 14042
St. Petersburg, Florida 33733

State Planning and Development
Clearinghouse
Office of Planning and Budget
Executive Office of the Governor
The Capitol Building
Tallahassee, Florida 32301

Mr. P. F. McKee, Director
Nuclear Plant Operations
Florida Power Corporation
P. O. Box 219-NA-2C
Crystal River, Florida 32629

Chairman
Board of County Commissioners
Citrus County
110 North Apopka Avenue
Inverness, Florida 32650

Mr. Robert B. Borsum
B&W Nuclear Technologies
1700 Rockville Pike, Suite 525
Rockville, Maryland 20852

Mr. Rolf C. Widell, Director
Nuclear Operations Site Support
Florida Power Corporation
P.O. Box 219-NA-2I
Crystal River, Florida 32629

Senior Resident Inspector
Crystal River Unit 3
U.S. Nuclear Regulatory Commission
6745 N. Tallahassee Road
Crystal River, Florida 32629

Mr. Gary L. Boldt
Vice President, Nuclear Production
Florida Power Corporation
P. O. Box 219-SA-2C
Crystal River, Florida 32629

Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
101 Marietta Street N.W., Suite 2900
Atlanta, Georgia 30323

Mr. Jacob Daniel Nash
Office of Radiation Control
Department of Health and
Rehabilitative Services
1317 Winewood Blvd.
Tallahassee, Florida 32399-0700

Administrator
Department of Environmental Regulation
Power Plant Siting Section
State of Florida
2600 Blair Stone Road
Tallahassee, Florida 32301

Attorney General
Department of Legal Affairs
The Capitol
Tallahassee, Florida 32304