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FACIL:50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250
50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251
AUTH.NAME AUTHOR AFFILIATION
UHRIG,R.E. Florida Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
NOVAK,T.M. Assistant Director for Operating Reactors

SUBJECT: Updates 800905 ltr re low fracture toughness in response to NRC 800729 questions.Forwards partial response to questions & status of remaining items w/anticipated completion dates.

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TITLE: Component Support Fracture Toughness (USI A-12)

NOTES:

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OCT 9 1980

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FLORIDA POWER & LIGHT COMPANY

October 3, 1980
L-80-332

Office of Nuclear Reactor Regulation
Attention: Mr. Thomas M. Novak, Assistant Director
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Novak:

Re: Turkey Point Units 3 & 4
Docket Nos. 50-250 and 50-251
Low Fracture Toughness

This is an update on our letter (L-80-291) dated September 5, 1980 concerning the above subject. In that letter we stated that we expected information from our Architect-Engineer in late September to enable us to fully respond to the questions in an NRC letter dated July 29, 1980. A portion of this information has been provided to us and is included in an attachment for your review. Also included is a status of the remaining items with their anticipated completion dates.

Very truly yours,

Robert E. Uhrig
Vice President
Advanced Systems & Technology

REU/PLP/md

Attachment

cc: J.P. O'Reilly, Region II
Harold F. Resi, Esquire

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ATTACHMENT

RE: TURKEY POINT UNITS 3 & 4
DOCKET NOS. 50-250 and 50-251
LOW FRACTURE TOUGHNESS

In response to the questions in the NRC letter dated July 29, 1980, the following information is provided.

1(a) A document search of the Architect-Engineer (A-E) files and FP&L files has verified that inspection results for the rebar referenced in the letter were not maintained. No inspections are presently planned for these items.

1(b) No indication of inspections of wear in and around thermal expansion slots are available.

1(c) Mill test reports for rebar are available, and are presently being reviewed for submission. This information will be submitted with our final response, which is presently scheduled for completion by November 15, 1980.

Note: If testing becomes necessary, we oppose the concept of removing testing samples from the rebar in place in the structure. We would rather test specimens of rebar of the same metallurgical composition as that used in the construction.

2(a) The information requested concerning application of A-302 and A-588 steel used in thick members is provided in the tables of Enclosure 1.

2(b) 1. Mill test records for thick members have been found and are being reviewed. These reports will also be sumitted with our final responses if they are applicable to the question.

2(b) 2. Primary stresses for steam generator and reactor coolant pump support components are compressive. The most severe primary plus secondary stress for a steam generator support component (see Item No. 3 in Table 1) is 32.03 ksi in bending. The most severe primary plus secondary stress for a reactor coolant pump support component (see Item No. 3 in Table 3) is 49.74 ksi in bending. Primary plus secondary stresses indicated above are for the load combination of dead loads, live loads, thermal loads, and pipe break loads.

2(c) The fracture toughness evaluations of the identified members could not be conducted until the records search was completed. Our evaluation is presently scheduled for completion by November 15, 1980.

3. Weld specification information has been found in the vendor's files to answer the questions on weld practices. This information is being reviewed and will be submitted with our final response by November 15, 1980.

ENCLOSURE 1

TABLE 1

LOWER STEAM GENERATOR SUPPORT @ EL. 30'-6"

ITEM NO.	MEMBER TYPE (See Note 1)	MATERIAL TYPE	ta ACTUAL THICKNESS	tc (See Note 2)	STEEL USED IN THIN OR THICK SECTIONS (See Note 2)
1	COLUMNS W 10 x 77	A-588 GR. A			
	(i) WEB		.535	1.07	THIN
	(ii) FLANGE		.868	1.07	THIN
2	COLUMN CAP PLATE	SA-302 GR. B	3.5	.74	THICK
3	VERTICAL ℄ BOLTED TO EMBEDDED ℄	SA-302 GR. B	3.0	.74	THICK
4	EMBEDDED SHEAR ASSEMBLY				
	a. WT 10.5 x 56	A-588 GR. A			
	(i) WEB		.527	1.07	THIN
	(ii) FLANGE		.865	1.07	THIN
	b. VERTICAL ℄	SA-302 GR. B	1.00	.74	THICK
5	BRACKET CONNECTING S. G. LUG & COL. CAP				
	(i) VERT. ℄'s	SA-302 GR. B	3.5	.74	THICK
	(ii) HORIZ. ℄	SA-302 GR. B	4.0	.74	THICK
6	℄ BTWN. COL. CAP ℄ & BRACKET CONNECTING S. G. LUG & COL. CAP ℄	SA-302 GR. B	.50	.74	THIN

NOTE 1: For location see Drawing 5610-C-196

NOTE 2: As defined in NRC request

$$tc = 2.5\left(\frac{K_{ID}}{\sigma_{YD}}\right)^2$$

where K_{ID} = Nominal minimum assured fracture toughness of steel per NUREG 0577

σ_{YD} = Dynamic yield strength of steel

when ta < tc - THIN SECTION
ta > tc - THICK SECTION

TABLE 2

UPPER STEAM GENERATOR SUPPORTS @ EL. 58'-0"

ITEM NO.	MEMBER TYPE	MATERIAL TYPE	ta ACTUAL THICKNESS	tc (See Note 1)	STEEL USED IN THIN OR THICK SECTIONS (See Note 1)
1	RING GIRDER (i) FLANGE (ii) WEB (DWG 5610-C-197)	 SA-302 GR. B SA-302 GR. B	 1.75 1.06	 .74 .74	 THICK THICK
2	STOP ASSEMBLY (2 NOS.) (DWG. 5610-C-197, DET. 2 & 3)	SA-302 GR. B	1.375	.74	THICK
3	STOP ASSEMBLY (1 NO.) (DWG. 5610-C-197 DET. 5)	SA-302 GR. B	1.00	.74	THICK

NOTE 1: As defined in NRC request

$$tc = 2.5\left(\frac{K_{ID}}{\sigma_{YD}}\right)^2$$

where K_{ID} = Nominal minimum assured fracture toughness of steel per NUREG 0577

σ_{YD} = Dynamic yield strength of steel

when ta < tc - THIN SECTION
ta > tc - THICK SECTION

TABLE 3

REACTOR COOLANT PUMP SUPPORT

ITEM NO.	MEMBER TYPE (See Note 1)	MATERIAL TYPE	ta ACTUAL THICKNESS	tc (See Note 2)	STEEL USED IN THIN OR THICK SECTIONS (See Note 2)
1	COLUMN CAP PLATE	SA-302 GR. B	5.25	.74	THICK
2	COLUMN W 10 x 112	A-588 GR. A			
	(i) WEB		.755	1.07	THIN
	(ii) FLANGE		1.248	1.07	THICK
3	VERTICAL PLATE BOLTED TO EMBEDDED PLATE @ 25'-6"	SA-302 GR. B	3.	.74	THICK
4	EMBEDDED SHEAR ASSEMBLY				
	(a) VERTICAL ℄	SA-302 GR. B	1.	.74	THICK
	(b) COLUMN W12 x 190	A-588 GR. A			
	(i) WEB		1.06	1.07	THIN
	(ii) FLANGE		1.736	1.07	THICK

NOTE 1: For location see Drawing 5610-C-194

NOTE 2: As defined in NRC request

$$tc = 2.5\left(\frac{K_{ID}}{\sigma_{YD}}\right)^2$$

where K_{ID} = Nominal minimum assured fracture toughness of steel per NUREG 0577

σ_{YD} = Dynamic yield strength of steel

when $ta < tc$ - THIN SECTION
$ta > tc$ - THICK SECTION