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TABLE 4.2-1 (Cont'd)

Item No.	Examination Category	Components and Parts To Be Examined	Method	Extent of Examination (Percent in 10 Year Interval)	Extent of Examination* (Percent in 5 Year Interval)	Remarks
6.5	C-2	Pressure retaining bolt	Visual and Volumetric	100%	33%	Exception is taken for valves which are not accessible.
6.6	K-1	Integrally-welded supports		Not Applicable	Not Applicable	
6.7	K-2	Supports and Hangers	Visual	100%	33%	Exception is taken for supports and hangers which are not accessible.
7.1		Reactor Coolant Pump Flywheel	MT and UT	100%(2)	In-place at bore and keyway (1)	Inservice inspection shall be performed on each reactor coolant pump flywheel during the refueling or maintenance shutdown coinciding with the In-Service Inspection schedule as required by Section XI of the ASME Boiler and Pressure Vessel Code: (1) An in-place ultrasonic volumetric examination of the area of higher stress concentration at the bore and keyway at approximately 3 year intervals. (2) A surface examination of all exposed surfaces and complete ultrasonic examination at or near the end of each 10 year interval.

REACTOR MATERIAL SURVEILLANCE PROGRAM

4.20.1 The following Irradiation Specimen Schedule shall be followed:

CAPSULE REMOVAL SCHEDULE

Capsule	Unit	Date
V	3	12 years
V	4	24 years
X	3	33 years
X	4	Standby

Capsules U, W, Y, and Z for Units 3 and 4 are held in standby.

4.20.2 The above surveillance shall be conducted using the Tensile and Charpy V Notch Test.

The reactor vessel materials have been tested to determine their initial RT_{NDT}. Adjusted reference temperatures, based upon the fluence and copper content of the material in question, are then determined. The heatup and cooldown limit curves include the shift in RT_{NDT} at the end of the service period shown on the heatup and cooldown curves.

The actual shift in NDTT of the vessel material will be established periodically during operation by removing and evaluating, in accordance with ASTM E185-73, reactor vessel material irradiation surveillance specimens installed near the inside wall of the reactor vessel in the core area. Since the neutron spectra at the irradiation samples has a definite relationship to the spectra at the vessel inside radius, the measured transition shift for a sample can be related with confidence to the adjacent section of the reactor vessel. The heatup and cooldown curves must be recalculated when the ΔRT_{NDT} determined from the surveillance capsule is different from the calculated ΔRT_{NDT} for the equivalent capsule radiation exposure.

The pressure-temperature limit lines shown for reactor criticality and for inservice leak and hydrostatic testing have been provided to assure compliance with the minimum temperature requirements of Appendix G to 10 CFR 50.

The number of reactor vessel irradiation surveillance specimens and the frequencies for removing and testing these specimens are provided in TS 4.20 to assure compliance with the requirements of Appendix H to 10 CFR Part 50.

The limitations imposed on pressurizer heatup and cooldown and spray water temperature differential are provided to assure that the pressurizer is operated within the design criteria assumed for the fatigue analysis performed in accordance with the ASME Code requirements.

Item 6.5 (Category G-2) - Pressure-Retaining Bolting

The bolting subject to this examination will be the bonnet bolting in valves three (3) inches in size or greater. This bolting will be inspected in acordance with Section XI of the Code as shown in Table 4.2-1.

Item 6.6 (Category K-1) - Integrally-Welded Supports

There are no integrally-welded supports on the valves subject to this examination.

Item 6.7 (Category K-2) - Supports and Hangers

The supports and hangers of the valves subject to this examination will be visually examined in accordance with Section XI of the Code as shown in Table 4.2-1.

MISCELLANEOUS INSPECTIONS

Item 7.1 - Reactor Coolant Pump Flywheels

The flywheels shall be visually examined at the first refueling. At the fourth refueling, the outside surfaces shall be examined by ultrasonic methods. These examinations scheduled are shown in Table 4.2-1.

Item 7.2 - Deleted.

Item 7.3 - Steam Generator Tube Inspection

The Surveillance Requirements for inspection of the steam generator tubes ensure that the structural integrity of this portion of the RCS will be maintained. The program for inservice inspection of steam generator tubes is based on a modification of Regulatory Guide 1.83, Revision 1. Inservice inspection of steam generator tubing is essential in order to maintain surveillance of the conditions of the tubes in the event that there is evidence of mechanical damage or progressive degradation due to design, manufacturing errors, or inservice conditions that lead to corrosion. In service inspection of steam generator tubing also provides a means of characterizing the nature and cause of any tube degradation so that corrective measures can be taken.

The plant is expected to be operated in a manner such that the secondary coolant will be maintained within those parameter limits found to result in negligible corrosion of the steam generator tubes. If the secondary coolant chemistry is not maintained within these parameter limits, localized corrosion may likely result in stress corrosion racking. The extent of cracking during plant operation would be limited by the limitation of steam generator tube leakage between the primary coolant system and the secondary coolant system (primary-to-secondary leakage = 1 gallon per minute, total). Cracks having a primary-to-secondary leakage less than this limit during operation will have an adequate margin of safety to withstand the loads imposed during normal operation and by postulated accidents. Operating plants have demonstrated that primary-to-secondary leakage of 1 gallon per minute can readily be detected by radiation monitors of steam generator blowdown. Leakage in excess of this limit will require plant shutdown and an unscheduled inspection, during which the leaking tubes will be located and plugged.

Wastage-type defects are unlikely with the all volatile treatment (AVT) of secondary coolant. However, even if a defect of similar type should develop in service, it will be found during scheduled inservice steam generator tube examinations. Plugging will be required of all tubes with imperfections exceeding the plugging limit which, by the definition of Specification 4.2.5.4.a is 40% of the tube nominal wall thickness. Steam generator tube inspections of operating plants have demonstrated the capability to reliably detect degradation that has penetrated 20% of the original tube wall thickness.

Whenever the results of any steam generator tubing in-service inspection fall into Category C-3, these results will be promptly reported to the Commission pursuant to Specification 6.9.2.a prior to resumption of plant operation. Such cases will be considered by the Commission on a case-by-case basis and may result in a requirement for analysis, laboratory examinations, tests, additional eddy-current inspection, and revision of the Technical Specifications, if necessary.

B4.20 BASES - REACTOR MATERIAL SURVEILLANCE PROGRAM

Each Type I capsule contains 28 Charpy V-notch specimens, ten Charpy specimens machined from each of the two shell forgings. The remaining eight Charpy specimens are machined from correlated monitor material. In addition, each Type I capsule contains four tensile specimens (two specimens from each f the two shell forgings) and six WOL specimens (three specimens from each of the two shelling forgings). Dosimeters of copper, nickel, aluminum-cobolt, and cadmium-shielded aluminum-cobalt wire are secured in holes drilled in spacers at the top, middle, and bottom of each Type 1 capsule.

Each Type II capsule contains 32 Charpy V-notch specimens: eight specimens machined from one of the shell forgings, eight specimens of weld metal and eight specimens of HAZ metal, the remaining eight specimens are correlation monitors. In addition, each Type II capsule contains four tensile specimens and four WOL specimens: two tensile specimens and two WOL specimens from one of the shell forgings and the weld metal. Each Type II capsule contains a dosimeter block at the center of the capsule. Two cadmium-oxide-shielded capsules, containing the two isotopes uranium-238 and neptunium-237, are contained in the dosimeter block. The double containment afforded by the dosimeter assembly prevents loss and contamination by the neptunium-237 and uranium-238 and their activation products. Each dosimeter block contains approximately 20 milligrams of neptunium-237 and 13 milligrams of uranium-238 contained in a 3/8-inch-OD sealed brass tube. Each tube is placed in a 1/2-inch-diameter hole in the dosimeter block (one neptunium-237 and one uranium-238 tube per block), and the space around the tube is filled with cadmium oxide. After placement of this material, each hole is blocked with two 1/16-inch aluminum spacer discs and an outer 1/8-inch-steel cover disc, which is welded in place. Dosimeters of copper, nickel, aluminum-cobalt, and cadmium-shielded aluminum-cobalt are also secured in holes drilled in spacers located at the top, middle, and bottom of each Type II capsule.

Capsule Type	Capsule Identification
I	S
II	V
II	T
I	U
II	X
I	W
I	Y
I	Z

This program combines the Reactor Materials Surveillance Program into a single integrated program which conforms to the requirements of 10CFR50 Appendices G and H.

SAFETY EVALUATION

TURKEY POINT UNITS 3 AND 4

REACTOR SURVEILLANCE MATERIAL PROGRAM

PROPOSED CHANGE TO PLANT TECHNICAL SPECIFICATIONS

Appendix H requires reactors constructed of ferritic materials have their beltline regions monitored by a surveillance program complying with ASTM E185. Appendix G defines beltline materials as shell material including welds and heat affected zones, plates or forgings, that directly surround the effective height of the fuel element assemblies.

The existing Turkey Point 3 and 4 surveillance programs contain two types of surveillance capsules: 5 Type I capsules contain forging samples only; 3 Type II capsules contain forging, weld, and haz samples.

The first Type II capsule removed has defined the most limiting material in the reactor as the girth welds based on fracture toughness requirements.

Attachment 1 is an excerpt from the PTP surveillance program. Attachment 2 shows the number and identification system of Type I and II capsules in each of the Turkey Point Vessels. As can be seen, there are only two Type II capsules remaining in each vessel. Attachment 3 shows the capsule locations.

To obtain the most meaningful results from the existing program and to update the program to current Appendix H requirements, FPL proposes to remove only Type II surveillance capsules for the remainder of plant life. This requires that 3 capsules be available for removal through the end of life. Since there are only 2 capsules available for each unit, we propose to integrate the surveillance programs as permitted by Appendix H, II, C.

The requirements of 10 CFR 50 Appendix H, II, C, are:

1) Degree of Commonality

   a) Design

      PTP 3 and 4 are identical in design, share identical Plant Technical Specifications and have had identical major modifications such as steam generator replacement and TMI backfit modifications. The reactor vessels were fabricated the same way by the same supplier utilizing the same materials.

b) Materials

All reactor materials of fabrication are identical using SA508 C12, SA 302 grade B ferritic steels. The intermediate to lower shell girth welds were made by automatic submerged arc welding using Linde 80 flux (lot No. 8445) and Page copper coated weld wire (heat No. 71249) and identified as SA1101. Since this weld is the material with the highest predicted RT_{NDT} and is identical for both units, it is our opinion that these units are particularly well suited to an integrated surveillance program.

c) Predicted Severity of Irradiation

Both reactor vessels are expected to experience an end of life fluence of a maximum of 1.8×10^{19} n/cm^2 ($E \geq 1$ mev) and have operated using similar fuel loading since startup.

The Turkey Point inner wall vessel fluence predictions are 8.19×10^{18} in April 1985 for Units 3 and 8.4×10^{18} in October 1985 for Unit 4. The difference is due to different service EFPY.

We have installed excore dosimetry around both Turkey Point vessels to benchmark individual cycle fluence, thereby reducing our dependence on incore surveillance capsule foil dosimetry.

2) Data Sharing Between Plants

Both units have common management, and the surveillance programs are managed by the Codes and Inspections section of the Nuclear Energy Department staff.

3) Contingency Plan in the Event of Reduced Power Operations or Extended Outage

Both plants have capsules.

4) Substantial Advantages To Be Gained

The main advantage is obtaining the best data available from each capsule removal. Additional advantage will be realized from fewer capsule removals and both plants operating to identical heat up and cool down pressure temperature curves.

ALARA benefits also exist since fewer capsules will be removed over plant life.

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[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

The proposed schedule for capsule removal is:

Capsule 10	Unit	Removal Date	Wall Fluence (n/cm^2)	1/4T Fluence (n/cm^2)
T	PTP 3	Removed 1974		
T	PTP 4	Removed 1975		
S	PTP 3	Removed 1977		
S	PTP 4	Removed 1977		
V	PTP 3	12 years 1985	8.2×10^{18}	4.5×10^{18}
V	PTP 4	24 years	1.04×10^{19}	5.7×10^{18}
X	PTP 3	33 years	1.25×10^{19}	6.8×10^{18}
X	PTP 4	Standby		
U	PTP 3/4	Standby		
W	PTP 3/4	Standby		
Y	PTP 3/4	Standby		
Z	PTP 3/4	Standby		

The predicted fluences were obtained using an FPL diffusion and transport model which is composed of the PDQ7, SORREL, and DOT4 computer codes. Wall fluence refers to inner wall, critical welds.

[illegible]

[illegible]

[illegible]

ATTACHMENT 1

CAPSULE DESCRIPTIONS

Each Type I capsule contains 28 Charpy V-notch specimens, ten Charpy specimens machined from each of the two shell forgings. The remaining eight Charpy specimens are machined from correlated monitor material. In addition, each Type I capsule contains four tensile specimens (two specimens from each of the two shell forgings) and six WOL specimens (three specimens from each of the two shell forgings). Dosimeters of copper, nickel, aluminum-cobalt, and cadmium-shielded aluminum-cobalt wire are secured in holes drilled in spacers at the top, middle, and bottom of each Type I capsule.

Each Type II capsule contains 32 Charpy V-notch specimens: eight specimens machined from one of the shell forgings, eight specimens of weld metal and eight specimens of HAZ metal, the remaining eight specimens are correlation monitors. In addition, each Type II capsule contains four tensile specimens and four WOL specimens: Two tensile specimens and two WOL specimens from one of the shell forgings and the weld metal. Each Type II capsule contains a dosimeter block at the center of the capsule. Two cadmium-oxide-shielded capsules, containing the two isotopes uranium-238 and neptunium-237, are contained in the dosimeter block. The double containment afforded by the dosimeter assembly prevents loss and contamination by the neptunium-237 and uranium-238 and their activation products. Each dosimeter block contains approximately 20 milligrams of neptunium-237 and 13 milligrams of uranium-238 contained in a 3/8-inch-OD sealed brass tube. Each tube is placed in a 1/2-inch-diameter hole in the dosimeter block (one neptunium-237 and one uranium-238 tube per block), and the space around the tube is filled with cadmium oxide. After placement of this material, each hole is blocked with two 1/16-inch aluminum spacer discs and an outer 1/8-inch-steel cover disc, which is welded in place. Dosimeters of copper, nickel, aluminum-cobalt, and cadmium-shielded aluminum-cobalt are also secured in holes drilled in spacers located at the top, middle,and bottom of each Type II capsule.

The numbering system and location of the Type I and Type II capsules are shown in Attachments 2 and 3, respectively.

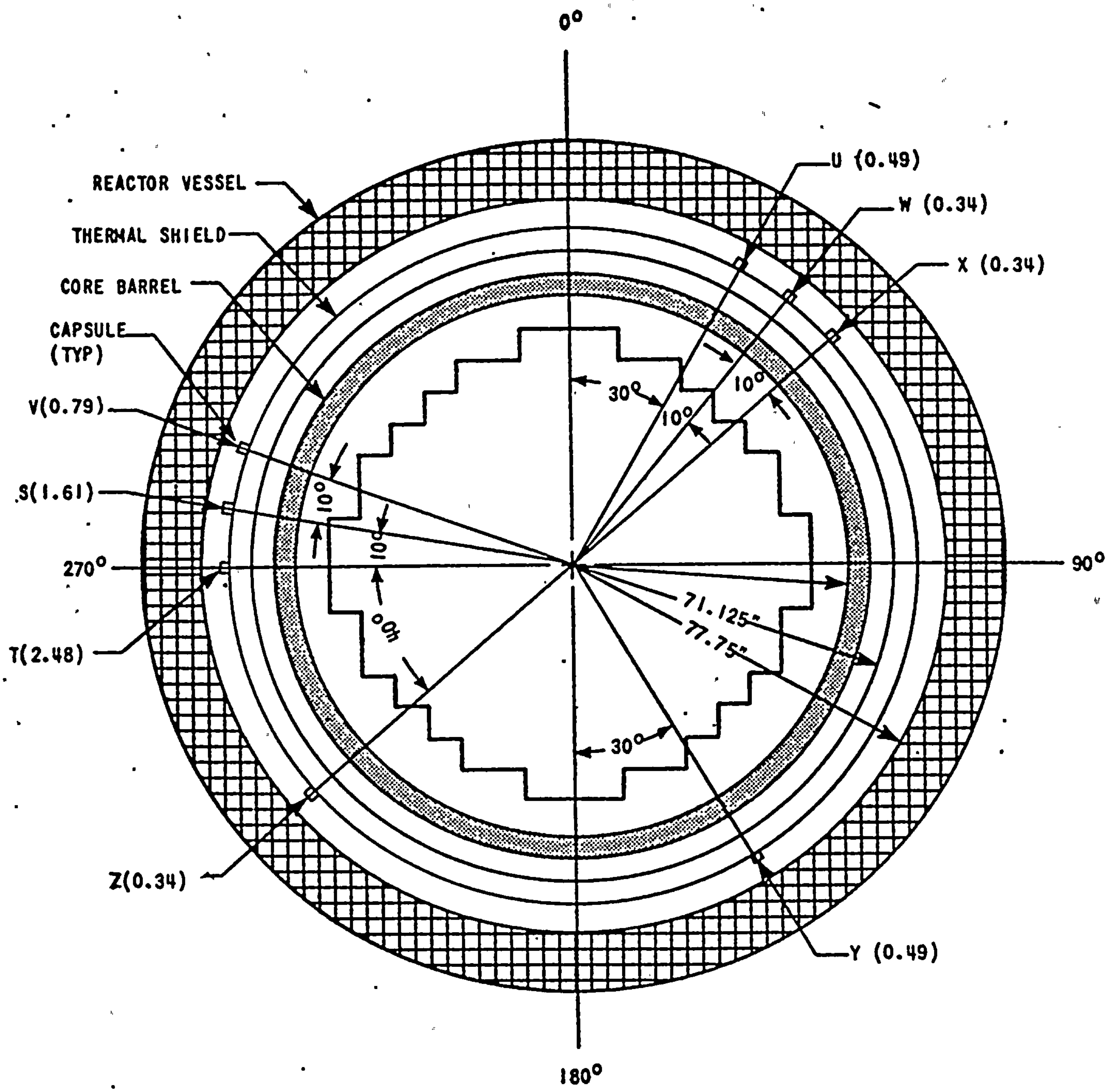
[illegible]

ATTACHMENT 2

Capsule Type	Capsule Identification
I	S
II	V
II	T
I	U
II	X
I	W
I	Y
I	Z

Capsule Type I contains only plate, CRM materials

Capsule Type II contains plate, weld, haz, CRM materials



Arrangement of Surveillance Capsules in the Turkey Point Unit No. 3 Reactor Vessel (Lead Factors for the Capsules are Shown in Parentheses)

NO SIGNIFICANT HAZARDS EVALUATION

The current Technical Specifications include a schedule for removing the surveillance capsules developed prior to receipt of the Operating License. The proposed modification is intended to combine the two units' program into a single integrated program. This is done in an effort to maximize the usage of the only remaining capsules containing weld material. Weld material is the limiting material in the Units 3 and 4 reactor vessel.

The proposed change meets both Example (i) and (vii) of the Examples of Amendments That Are Considered Not Likely to Involve Significant Hazards Considerations as presented in the Federal Register notice of April 6, 1983.

Example (i): "A purely administrative change to the Technical Specifications: For example, a change to achieve consistency throughout the Technical Specifications, correction of an error, or a change in nomenclature."

The current Technical Specifications do not contain nomenclature consistent with the Turkey Point surveillance specimens, nor does the examination schedule provide meaningful results. The proposed change allows FPL to maximize the results of the program, and meets this example.

Example (vii): "A change to make a license conform to change in the regulations, where the license change results in very minor changes to facility operations clearly in keeping with the regulations."

The Pressurized Thermal Shock issue has caused FPL to perform extensive evaluations of reactor vessel material properties and core redesign. The resultant change in flux, in combination with our increased understanding of the vessel materials, have caused us to re-evaluate the program.

The proposed change to the program brings the specimen examination schedule to a position which yields the information most necessary to current regulations. The proposed change, therefore, meets this requirement.

Therefore, since this change is an improvement in the Units 3 and 4 surveillance capsule program, we have concluded, in accordance with 10 CFR 50.92, that the proposed change does not involve a significant hazard in that it does not:

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

(3) Involve a significant reduction in a margin of safety.

STATE OF FLORIDA)
) ss.
COUNTY OF DADE)

C. O. Woody, being first duly sworn, deposes and says:

That he is Vice President Nuclear Operations of Florida Power & Light Company, the licensee herein;

That he has executed the foregoing document; that the statements made in this document are true and correct to the best of his knowledge, information, and belief, and that he is authorized to execute the document on behalf of said Licensee.

C. O. Woody

Subscribed and sworn to before me this

8 day of February, 1985.

NOTARY PUBLIC, in and for the County of Dade, State of Florida.

NOTARY PUBLIC STATE OF FLORIDA
MY COMMISSION EXP. FEB 14,1988
BONDED THRU GENERAL INS. UND.

My commission expires: 2/14/88

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