TABLE 3.7-2 (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

FPL LOCATION NO.	MARK NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
033	MS 649-319	MS, Reactor Bldg., Elev. 82'	A	No	No
034	MS 548-5	MS, Reactor Bldg., Elev. 82'	A	No	No
036	MS 649-314	MS, Reactor Bldg., Elev. 55'	I	No	No
037	MS 649-314	MS, Reactor Bldg., Elev. 55'	I	No	No
038	MS 649-310	MS, Reactor Bldg., Elev. 50'	I	No	No
039	MS 649-304A	MS, Reactor Bldg., Elev. 30'	A	No	Yes
040	MS 548-9	MS, Reactor Bldg., Elev. 50'	I	No	Yes
041	NS 548-9	MS, Reactor Bldg., Elev. 50'	I	No	Yes
042	BF 549-7	BF, Reactor Bldg., Elev. 40'	I	No	No
043	BF 549-7	BF, Reactor Bldg., Elev. 40'	I	No	No
044	BF 549-8	BF, Reactor Bldg., Elev. 40'	I	No	Yes
047	BF 549-17	BF, Reactor Bldg., Elev. 36'	A	No	Yes

TABLE 3.7-2 (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

FPL LOCATION NO.	MARK NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
052	BF 549-17	BF, Reactor Bldg., Elev. 36'	A	No	No
053	SI 968-210	SI, Reactor Bldg., Elev. 16'	I	No	No
058	SI 969-1216	SI, Reactor Bldg., Elev. 18'	A	No	No

TABLE 3.7-2 (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

FPL LOCATION NO.	MARK NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
081	SI 676-67	SI, RAB, Elev. 4'	A	No	No
082	SI 676-67	SI, RAB, Elev. 4'	A	No	No
083	SI 676-105	SI, RAB, Elev. 4'	A	No	No

TABLE 3.7-2 (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

FPL LOCATION NO.	MARK NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
084	SI 676-105	SI, RAB, Elev. 4'	A	No	No
112	SI 676-4505	SI, RAB, Elev. 7'	A	No	No

TABLE 3.7-2 (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

FPL LOCATION NO.	MARK NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
102	MS-649-313	CC, RAB, Elev. 26'	A	No	No

SAFETY EVALUATION

Re: St. Lucie Unit 1

Docket No. 50-335

Snubbers

I. Introduction

This evaluation supports a proposed change to Table 3.7-2 (SAFETY RELATED HYDRAULIC SNUBBERS). Several snubbers on the list are deleted because they are scheduled to be replaced by mechanical snubbers during the next refueling outage (Spring 1980). Only smaller snubbers of the 3 kip (3000 inch-pounds) and 10 kip size will be affected by the changeover (see attached list).

II. Evaluation

The snubbers in question are designed and installed for seismic considerations. That is, their design function is to accommodate pipe movement caused by slow thermal expansion, but to "lock-up" to prevent potentially damaging transient movement during a postulated seismic event of sufficient magnitude. The Pacific Scientific (PSA) mechanical snubbers which we propose to use operate on an "acceleration limiting" basis. PSA snubbers permit thermal movement since the acceleration associated with thermal movement is very low, but they limit seismic induced acceleration to 0.02g. Mechanical snubbers would actually allow less movement than hydraulic snubbers under seismic conditions because

of hydraulic snubber lockup delays associated with achieving the lockup velocity, activation of the lockup mechanism, and compression of the hydraulic fluid. Therefore, based on seismic functional requirements, the planned replacement of hydraulic snubbers with mechanical snubbers would be an improvement.

Pacific Scientific performed extensive testing in developing the PSA 3 (3 kip) and PSA 10 mechanical snubbers. The purpose was to evaluate their operability under the adverse conditions expected in many applications, such as high humidity, high temperature, and vibration. The snubbers operated favorably under all test conditions.

PSA 3 and PSA 10 mechanical snubbers are currently in use at St. Lucie (see Amendment 31 to Facility Operating License DPR-67) and at a large number of other reactor sites. The use of these snubbers has been previously evaluated by the Commission and found to be acceptable.

III. Conclusions

Based on testing and operating experience, the use of PSA mechanical snubbers should improve the operability of the seismic support system. In conclusion, (1) the proposed change does not increase the probability or consequences of accidents or malfunctions of equipment important to safety and does not reduce the margin of safety as defined in the basis for any technical specification, therefore, the change does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by

operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Snubber Changeout (PSL)

The following hydraulic snubbers are scheduled to be replaced by mechanical snubbers during the Spring 1980 refueling outage:

3 Kip Size		10 Kip Size	
Tag No.	Mark No.	Tag No.	Mark No.
035	MS-1076-3164	101	CC-17-1
061	MS-549-11(SI-970-1248)	103	CC-21-5
066	MS-549-11(SI-970-1248)	104	CC-21-1
073	SI-972-6240	105	CC-23-2
074	SI-973-240		
076	SI-973-6224		
077	SI-868-64		
079	SI-868-163		
080	SI-868-410		
086	SI-676-129		
087	SI-676-241(SI-676-250)		
088	CC-1899-48		
089	CC-1852-6241		
090	SPS-27		
091	SPS-417		
092	SPS-467		
093	SPS-777		
096	CC-1865-9		
106	CH-3-40		
107	CH-3-75		
110	SI-676-247(SI-676-2475)		
111	SI-676-2475A		
114	SI-972-6240		