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INCIDENT REPORT

TO: Mr Davis

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## DESCRIPTION

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PLANT NAME: St Lucie #1

## ENCLOSURE

Final Report on-a construction incident report  
on 2-13-76 which concerned low level of fluid  
in 6 hydraulic snubbers.....NOTE: IF PERSONNEL EXPOSURE IS INVOLVED  
SEND DIRECTLY TO KREGER/J. COLLINS

## SAFETY

## FOR ACTION/INFORMATION

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## EXTERNAL DISTRIBUTION

## CONTROL NUMBER

LPDR: Ft Pierce, Fla

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March 16, 1976  
L-76-106

# REGULATORY DOCKET FILE COPY

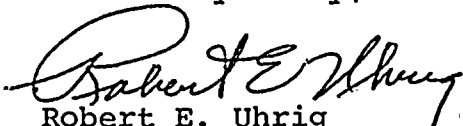
Mr. John G. Davis, Acting Director  
Office of Inspection and Enforcement  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Mr. Davis:

Re: 10 CFR 50.55(e) Final Report  
St. Lucie Unit No. 1 Snubbers  
(Docket No. 50-335)

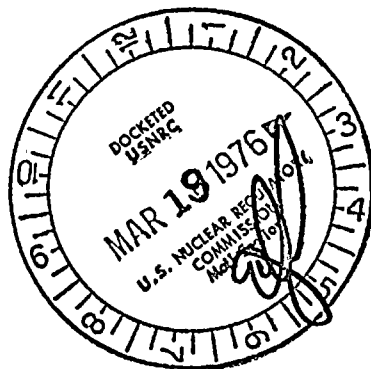
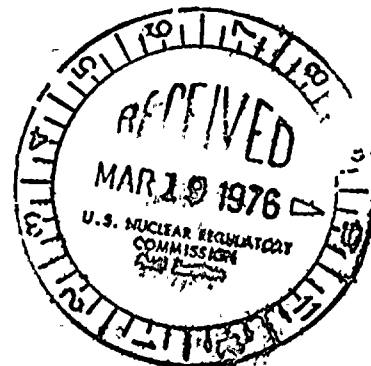
On February 13, 1976, during an inspection of the St. Lucie Plant by FPL maintenance personnel, it was discovered that six hydraulic seismic snubbers had low fluid levels. Corrective action has been taken and a final report is herewith submitted in accordance with 10 CFR 50.55(e).

Yours very truly,

  
Robert E. Uhrig  
Vice President

REU:nch

cc: M. S. Kidd  
N. C. Moseley  
J. R. Newman, Esq.



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Construction Incident Report (10 CFR 50.55(e))

St. Lucie Unit No. 1 Snubbers

March, 1976

I. SUMMARY

On February 13, 1976 an inspection conducted by FPL Power Resources maintenance personnel revealed an apparent low fluid level on six hydraulic seismic snubbers. At the time of discovery, the plant was in pre-core loading, construction inspection phase.

Subsequent testing and inspection at the Bergen-Patterson (B-P) shop demonstrated that in five of the six snubbers, the fluid level appeared low due to calibration plate misalignment. The sixth snubber leaked during static testing through a weep hole due to a damaged accumulator piston seal. In all cases it was determined that the snubber would operate properly under design basis conditions since the low fluid levels (apparent or real) constituted a loss of reserve fluid and not fluid needed for damping action.

During the B-P shop test one of the above snubber units was reported as having a portion of the threaded end of a piston rod partially cut off causing insufficient thread engagement between piston rod and strut connection adaptor.

Four of the six snubber units were retained at the vendor's shop for adjustments to the level calibration system and were replaced at the site with qualified spares. One unit which received minor repair at the vendor's shop was retested and returned to the site for installation. The remaining unit required no repair and was refilled at the vendor's shop, retested and returned to the site for installation.

II. DESCRIPTION OF DEFICIENCY

In accordance with the hydraulic snubber surveillance program outlined in Bergen-Patterson (B-P) Company's "Hydraulic Shock and Sway Arrestor" technical maintenance manual, FPL had begun snubber inspection for establishing base line data. Under the recommended program, inspection and log should include assembly mark no., piston rod extension dimension, fluid level indicator reading, notation on visible condition of unit, notation on condition of strut assembly with particular attention to clamp and bolting tightness.

During this FPL inspection it was noted that six hydraulic seismic snubbers exhibited apparent low fluid level indication. These snubbers were located on the safety injection and component cooling water systems and identified as MK-SI-969-6193, MK-SI-969-6198, MK-SI-969-6195, MK-SI-676-2475, MK-SI-968-565 and MK-BF-549-7. The FPL inspection

was conducted prior to the Ebasco post-installation inspection as outlined in Bergen-Patterson Company's "Installation Instructions for Hydraulic Shock and Sway Arrestor" manual. These six snubbers were subsequently removed and returned to B-P for inspection and repair/retest if necessary.

It should be noted that while at the site, no seal leakage or other visual evidence of loss of integrity was observed. Had the units leaked on-site, it is likely the leakage would have been observed since the fluid is very viscous.

Upon inspection at the B-P shop it was determined that the location of the overfill weep hole on the fluid accumulator was approximately 1/2" off the nominal location. The weep hole determines the wet side capacity of the accumulator and therefore the reserve capacity of the unit, and also locates the accumulator plunger indicator plate which is used to determine fluid level. These circumstances accounted for the apparent low level in five of the six units.

During static pressure testing of all six units, it was noted that four of the six units exhibited leakage from the fluid fill alemite fitting. Investigation of these circumstances revealed that the alemite fittings had been painted over during construction installation and that, upon adding fluid, paint chips could lodge in the seat causing the fitting to leak during pressure testing. Paint chips lodged in the seat of the alemite fittings was determined to be the cause of leakage in 3 out of 4 cases exhibiting fitting leakage during testing. Alemite fitting leakage for the fourth case was attributed to a damaged accumulator wiper.

In addition to the above, the B-P inspection revealed that the threaded end of a piston rod on one snubber had been shortened due to severance of a portion of the threaded end. The shortening caused insufficient thread engagement between piston rod and strut connection adaptor.

### III. SAFETY IMPLICATIONS

In all cases where accumulatory fluid level was indicated as being "low", it was determined that:

1. For all leakage mechanisms indentified, the accumulator fluid level had reached its low point, ie, there was no way for the accumulator to leak dry;
2. Loss of fluid inventory constituted a loss of "reserve" and not a loss of fluid required for operation;

3. The snubbers could perform their safety function suffering no adverse effect from loss of reserve capacity.

For the snubber whose piston rod had been damaged, the snubber was assumed to be inoperative. A detailed analysis would be required to predict the stress increases under design loading conditions assuming an inoperative snubber. Considering the typical design margins that exist, judgment would dictate that only a small increase in pipe stress would have resulted had the pipe experienced the design loading conditions.

#### IV. CORRECTIVE ACTION

As a result of the findings of the shop inspection and testing of the units returned to B-P, representatives of B-P, REXNORD Company (who supplied components to B-P), and Ebasco conducted field investigations of all seismic Class I snubbers both installed or spare. A log was kept of all findings. The investigation was conducted in accordance with the guidance and recommendations of the B-P "Installation Instructions for Hydraulic Shock and Sway Arrestor" manual. The inspection documented the following:

1. assembly unit serial number
2. location number
3. piston rod extension dimension
4. fluid level indicator readings
5. notation as to whether fluid was added to bring unit to nominal fill level
6. notation of physical condition of unit
7. notation on condition of strut assembly and tightness

In addition each unit was also checked to ensure that fill port fittings, weep holes and piston rod shafts were free of paint, and cleaning was initiated where required.

The actual location of the weep holes on the accumulators and the location of the accumulator plunger indicator plate were recorded per REXNORD procedure 706-80165-000. The results were reviewed by the B-P and REXNORD representatives for mislocation of indicator plates and correlation to actual fluid levels. On units which had a more than minor mislocation of the indicator plate, a relocation of the plate and/or a reference calibration system will be adopted which will allow accurate level correlation. This will be accomplished prior to initial criticality.

Units determined to have "low" fluid levels during the site inspection were filled and statically tested for 24 hours under the auspices of REXNORD Company.

It should be noted that aside from the level check procedures recommended in the installation manual and the level check procedures required by the maintenance manual, the facility Technical Specification require periodic fluid level checks. Since one snubber unit returned to B-P shop for inspection exhibited damage to the piston rod, it was jointly decided by B-P, REXNORD, Ebasco and FPL that representative sampling and inspection was to be conducted per MIL STD 105D AQL25. As specified in the standard, with 150 units on site a total of 25 were inspected for piston rod damage. Since none of the samples exhibited any damage, the entire lot was judged acceptable.

