

CONTROL NO: 9111

FILE: \_\_\_\_\_

FROM: Carolina Power & Light Co. Raleigh, N. C. E.E. Utley		DATE OF DOC 8-25-75	DATE REC'D 8-27-75	LTR XXX	TWX	RPT	OTHER
TO: Robert W. Reid		ORIG 3 Signed	CC	OTHER	SENT NRC PDR <u>XXX</u> SENT LOCAL PDR <u>XXX</u>		
CLASS	UNCLASS XX <sup>X</sup>	PROP INFO	INPUT	NO CYS REC'D 1	DOCKET NO: 50-261		

DESCRIPTION:  
  
Ltr. notarized 8-25-75...Ltr. re our ltr. of 7-8-75....Submitting Tech. Specs. for Hydraulic Snubbers....W/table 3.13-1, Safety Related Hydraulic Shock Suppressors.....

ENCLOSURES:

**ACKNOWLEDGED**  
**DO NOT REMOVE**

PLANT NAME: H.B. Robinson # 2

**FOR ACTION/INFORMATION**

VCR 8-29-75

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Carolina Power & Light Company

August 25, 1975

Regulatory Docket File

File: NG-3514 (R)

Mr. Robert W. Reid, Chief  
Operating Reactors Branch #4  
Division of Reactor Licensing  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

50-261

Dear Mr. Reid:

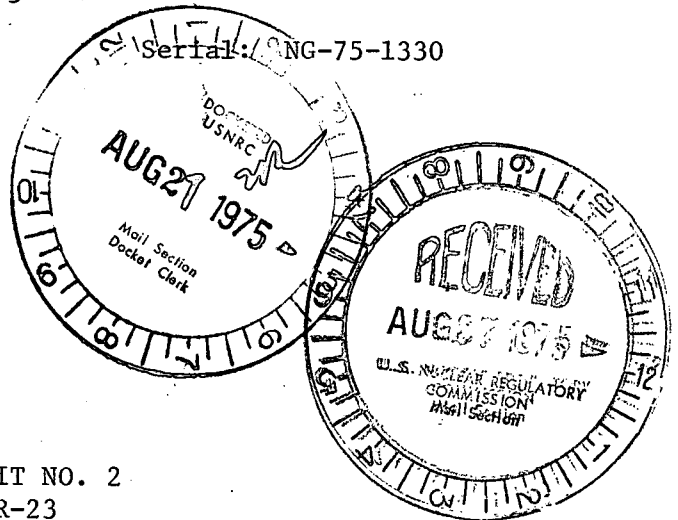
H. B. ROBINSON UNIT NO. 2  
LICENSE NO. DPR-23

TECHNICAL SPECIFICATIONS FOR HYDRAULIC SNUBBERS

On July 8, 1975, Mr. Lear of the NRC forwarded to us model Technical Specifications and bases regarding requirements for operability and surveillance of hydraulic shock suppressors (snubbers) associated with safety-related systems. He requested that we provide these specifications in a form suitable for inclusion in the H. B. Robinson Unit No. 2 Technical Specifications. We have studied the specifications and have prepared the attached set of specifications and bases which we propose to satisfy the requirements for hydraulic snubber operability and surveillance. We have made several editorial changes to clarify the intent of the specifications and to make them conform to the manner in which Technical Specifications are normally written. We also take exception to some of the requirements of the model specifications, since we feel that they are not justifiable in light of the effect on plant operations. The changes and justification for the changes are outlined below.

The Limiting Condition for Operation Section has been designated as a separate Section 3.13 in the H. B. Robinson Technical Specifications. Changes have been made to the LCO's to more carefully define the actions to be taken following the determination of an inoperable hydraulic snubber during reactor operation and during periods of hot shutdown and hot standby. The table of hydraulic snubbers has been changed to identify those snubbers subject to LCO's and surveillance requirements, consistent with Technical Specification requirements on other plant equipment.

The Surveillance Requirement Section has been designated as a separate Section 4.13 and rewritten. The first specification applies to inspection of snubbers which are accessible during reactor operation. The second specification applies to those snubbers which are classified as inaccessible during reactor operation. The third specification requires that, where practicable, replacement seal material be compatible with the operating environment. Our experience at the Robinson Plant has demonstrated the seal material in use on the safety-related snubbers to be compatible with the



operating environment or of a type that will not deteriorate during service. The specification does provide for the unlikely case where incompatible or different seal material must be used due to vendor supply problems that would affect plant operability.

We have deleted the specification for initial inspection of snubbers for two reasons. First, we feel that this commitment is more proper in the context of a letter rather than being incorporated in the Technical Specifications. Second, we are required by Periodic Test CPL-PT-31.0 to perform an inspection of hydraulic snubbers during each refueling outage. The next outage begins in November 1975, and we propose that the results of that inspection establish entry into the schedule of Specification 4.13.1. Our inspections, since identification of the snubber problem in 1973, have not revealed abnormal degradation of snubber seals, providing confidence that the seals are properly installed and compatible with the environment under which the snubbers have been operating for the past five years.

Carolina Power & Light Company takes strong exception to the specification calling for functional testing of the snubbers. We do not feel that such testing is warranted for the following reasons: 1) the loss in capability of the snubber to perform its functions can be adequately determined by visual inspection for leaks of oil levels, of condition of the piston, of anchor points, etc.; 2) concern over hydraulic snubbers has been centered around seal materials and loss of fluid due to faulty seals, with no demonstration that operability of the snubbers are otherwise affected; 3) the impact of such testing on plant outage time and radiation exposure of plant maintenance personnel.

To elaborate on the third point, field test equipment is not available in some cases to perform functional testing on the snubbers under consideration. If such equipment is not available, we would be required to remove the snubbers, decontaminate them and ship them back to the manufacturer for shop testing, all of which takes additional time and expense. In the case of the twelve Anker Holth snubbers, located on the steam generators, the vendor has informed us that the snubbers could only be shop tested due to their size, and that removal and reinstallation of the snubbers would be a major undertaking because of their location in the plant and the tight clearances and size of the snubbers. This would certainly impact the radiation burden on plant or outside maintenance personnel. In addition, decontamination of the snubbers could limit the availability to ship to a test site of some snubbers. For these reasons, we do not feel that such testing will significantly add to the assurance of safety in the plant.

We similarly have deleted the specification requiring snubber disassembly and examination of representative snubbers. We feel that no damage mechanism has been proposed outside of scoring or deflection of the piston shaft, which can be established by external visual examination. In

Mr. Robert W. Reid

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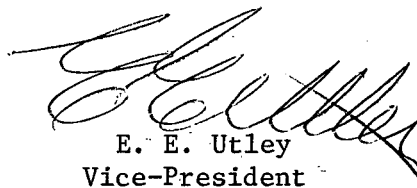
August 25, 1975

Serial: NG-75-1330

addition, tearing down good snubbers to look at them is a waste of time, manpower and radiation exposure. In the case of the Anker Holth snubbers, again, this is a totally unrealistic requirement. We have provided in CPL-PT-31.0 for replacement of O-ring seals and hydraulic medium in all twelve Anker Holth snubbers every fifteen years, which is adequate to assure proper operation in the radiation environment.

This proposal has been reviewed and determined not to be an un-reviewed safety question. As required by Commission Regulation, this submittal is signed under oath by a duly authorized officer of the Company.

Yours very truly,

  
E. E. Utley  
Vice-President  
Bulk Power Supply

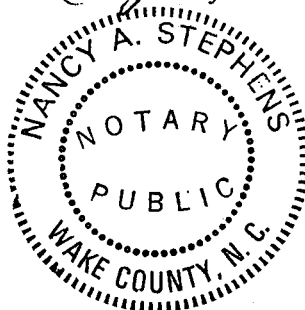
DBW:mc

cc: Messrs. N. B. Bessac  
P. W. Howe  
J. A. Jones  
R. E. Jones  
W. B. Kincaid  
J. B. McGirt  
D. B. Waters

Sworn to and subscribed before me this 25th day of August

My commission expires Nancy A. Stephens (Yancey)  
Notary Public

June 29, 1976



### 3.13 HYDRAULIC SNUBBERS

#### Applicability

Applies to hydraulic shock suppressors (snubbers) required for safe operation of the plant.

#### Objectives

To provide for limiting conditions for operation which ensure the operability of hydraulic snubbers during plant operation, such that normal operation or plant transients requiring operation of the snubbers will not result in consequences more severe than those previously analyzed.

#### Specification

3.13.1 During all modes of operation except cold shutdown and refueling, all hydraulic snubbers specified in Table 3.13-1 shall be capable of performing their intended function in the required manner (operable) except as described below:

- a. Reactor operation is permissible only during the succeeding 72 hours after the time a hydraulic snubber is determined to be inoperable unless the snubber is sooner made operable. If the snubber cannot be made operable, an orderly shutdown shall be initiated and the reactor shall be in a cold shutdown condition within the next 36 hours.
- b. With the reactor in a hot standby or hot shutdown condition, maintenance of this condition is permissible only during the succeeding 72 hours after the time a hydraulic snubber is determined to be inoperable unless the snubber is sooner made operable. If the snubber cannot be made operable, the reactor shall be placed in a cold shutdown condition utilizing normal procedures within the next 36 hours.
- c. If a hydraulic snubber is determined to be inoperable while the reactor is in the cold shutdown or refueling modes, the snubber shall be made operable prior to reactor heatup.

#### Basis

Snubbers are designed to prevent unrestrained pipe motion under dynamic loads such as might occur during an earthquake or severe transient, while allowing normal thermal motion during startup and shutdown. The consequence of an inoperable snubber is an increase in the probability of structural damage to piping as a result of a seismic or other event initiating dynamic loads. It is, therefore, required that all hydraulic snubbers required to protect the primary coolant system or any other safety system or component be operable during reactor operation or other periods when severe transients might cause damaging dynamic loads.

Because the snubber protection is required only during relatively low probability events, a period of 72 hours is allowed for repairs or replacements. In case a shutdown is required, the allowance of 36 hours to reach a cold shutdown condition will permit an orderly shutdown consistent with standard operating procedures. Since plant startup should not commence with knowingly defective safety-related equipment, the specification prohibits startup with inoperable snubbers.

TABLE 3.13-1SAFETY-RELATED HYDRAULIC SHOCK SUPPRESSORS

<u>Inaccessible</u>		
<u>Identification</u>	<u>No. of</u>	<u>Location</u>
Anker Holth, #21.12620.008	12	Four on each steam generator
Blaw Knox, Style SH-9B	2	B RC Pump Bay, floor level on Valve 387
Basic Engineers, Figure No. BE-411	2	On Pressurizer Relief Line Inside Pressurizer Cubicle
<u>Accessible</u>		
Grinnell, Serial No. 3058	1	A RHR Pump Suction Line at floor level
Grinnell, Serial No. 3061	1	B RHR Pump Suction Line at floor level
Grinnell, Serial No. 3059	1	Upstream of Valve 752B in RHR Pit
Grinnell, Serial No. 3060	1	Upstream of Valve 752B in RHR Pit
Grinnell, Serial No. 3062	1	Upstream of Valve 862A in RHR Pit
Grinnell, Serial No. 3065	1	Upstream of Valve 862A in RHR Pit
Grinnell, Serial No. 2393	1	Outside Polar Crane Wall, Ground level overhead, on Charging Line Loop 2 Cold Leg
Grinnell, Serial No. 3398	1	Outside Polar Crane Wall, Ground level overhead, on Charging Line Loop 2 Cold Leg
Grinnell, Serial No. 3390	1	Outside Polar Crane Wall, Ground level overhead, Auxiliary Spray Line
Blaw Knox, Style SH-9B	1	Letdown Line to Non-regenerative Heat Exchanger
Blaw Knox, Style SH-9B	1	Overhead at Entrance to Charging Pump Room

#### 4.13 HYDRAULIC SNUBBERS

##### Applicability

Applies to hydraulic shock suppressors (snubbers) required for safe operation of the plant.

##### Objectives

To ensure the continued operability of hydraulic snubbers by periodic surveillance.

##### Specification

4.13.1 All accessible hydraulic snubbers listed in Table 3.13-1 shall be visually inspected to verify their operability in accordance with the following schedule:

<u>Number of Snubbers Found Inoperable During Periodic Inspection or Inspection Interval</u>	<u>Next Required Inspection Interval</u>
0	18 months
1	12 months
2	6 months
3, 4	124 days
5-7	62 days
>8	31 days

The next required inspection interval shall not be lengthened more than one step at a time. The results of the inspection shall be recorded.

4.13.2 Inaccessible hydraulic snubbers listed in Table 3.13-1 shall be visually inspected to verify their operability each refueling outage. The results of the inspection shall be recorded.

4.13.3 Where practicable, replacement seal material will have been demonstrated by operating experience, lab testing or analysis to be compatible with the operating environment. If seal material is used which has not been demonstrated to be compatible with the operating environment, the snubber shall be visually inspected for operability every 31 days until compatibility can be suitably demonstrated.

##### Basis

All safety-related hydraulic snubbers are visually inspected for overall integrity and operability. The inspection will include verification of proper orientation, adequate hydraulic fluid level, proper attachment of snubber to piping and structures, cleanliness and lack of evidence of scoring and wear on the operating shaft.



The inspection frequency is based upon maintaining a constant level of snubber protection. Thus the required inspection interval varies inversely with the observed snubber failures. The number of inoperable snubbers found during a required inspection determines the time interval for the next required inspection. Inspections performed before that interval has elapsed may be used as a new reference point to determine the next inspection. However, the results of such early inspections performed before the original required time interval has elapsed (nominal time less 25%) may not be used to lengthen the required inspection interval. Any inspection whose results require a shorter inspection interval will override the previous schedule.

Experience at operating facilities has shown that the required surveillance program should assure an acceptable level of snubber performance provided that the seal materials are compatible with the operating environment.

Snubbers containing seal material which has not been demonstrated by operating experience, lab tests or analysis to be compatible with the operating environment should be inspected more frequently (every month) until material compatibility is confirmed or an appropriate changeout is completed.

Examination of defective snubbers at reactor facilities and material tests performed at several laboratories (Reference 1) has shown that millable gum polyurethane deteriorates rapidly under the temperature and moisture conditions present in many snubber locations. Although molded polyurethane exhibits greater resistance to these conditions, it also may be unsuitable for application in the higher temperature environments. Data are not currently available to precisely define an upper temperature limit for the molded polyurethane. Lab tests and in-plant experience indicate that seal materials are available, primarily ethylene propylene compounds, which should give satisfactory performance under the most severe conditions expected in reactor installations.

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(1) Report H. R. Erickson, Bergen Paterson to K. R. Goller, NRC, October 7, 1974. Subject: Hydraulic Shock Sway Arrestors.