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CLASS	UNCLASS	PROP INFO	INPUT	NO CYS REC'D	DOCKET NO:
	XXXXXXX			40	50-261

DESCRIPTION:
LTR NOTARIZED 1-28-76.....LTR RE.. 12-19-75...REQ FOR ADMT TO OL/DPR-23/TECHS SPEC IN RE TO SAFETY-RELATED HYDRAULIC SNUBBERS.....LTR TRANS THE FOLLOWING.....

ENCLOSURES:
DIAGRAM SHOWING SNUBBERS & REVISED CHANGES.....

DO NOT REMOVE

ACKNOWLEDGED

PLANT NAME: H. B. ROBINSON #2

SAFETY — FOR ACTION/INFORMATION — ENVIRO 2-2-76 RB

ASSIGNED AD _____

BRANCH CHIEF REID (6)

PROJECT MANAGER _____

LIC. ASST. INGRAM W/ 16 CYS ACRS

ASSIGNED BRANCH CHIEF _____

PROJECT MANAGER _____

LIC ASST. _____ W/ ACRS

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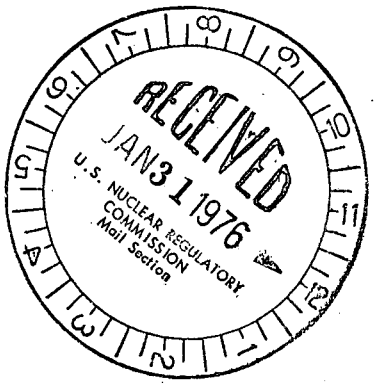
Carolina Power & Light Company

January 28, 1976

FILE: NG-3514 (R) SERIAL: NG-76-100

Regulatory Docket File

Director of Nuclear Reactor Regulation
Attention: Robert W. Reid, Chief
Branch No. 4
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555



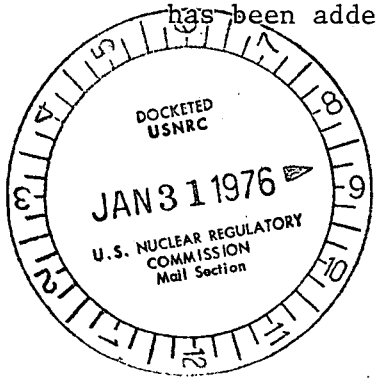
Dear Mr. Reid:

H. B. ROBINSON UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
TECHNICAL SPECIFICATIONS FOR HYDRAULIC SNUBBERS

In response to your letter of December 19, 1975 requesting submittal of a license amendment to incorporate Technical Specifications for safety-related hydraulic snubbers, Carolina Power & Light Company submits the attached proposed change to the Technical Specifications for its H. B. Robinson Unit No. 2 Plant. The form of the specifications has been modified from that provided in the attachment to your letter in order to match the Robinson format. In addition, several changes have been made to clarify the intent and applicability of the specifications and are described and justified below. We believe that these changes do not alter the basic concept of the specifications, which is to provide assurance that hydraulic snubbers retain their capability to perform their intended function.

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 stand-by and thus cover all plant conditions where proper operation of snubbers is critical to plant safety.

The Surveillance Requirement Section has been designated as a separate Section 4.13 and has been rewritten to better differentiate between the requirements for accessible and inaccessible snubbers, and to clearly define the requirements for visual inspections. A requirement has been added that, where practicable, replacement seal material should



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be compatible with the operating environment, or else the surveillance frequency should be increased if incompatible material is used. 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 allows for the unlikely case where incompatible or unproven seal material is employed due to vendor supply problems that would affect plant operability.

The specification pertaining to initial inspection of snubbers has been modified to require its performance during the first scheduled refueling outage following issuance of these specifications. This is justifiable because the next outage is scheduled in the fall of this year, because of the lack of safety-related snubber failures of any kind over the previous five years' operation of the plant, and because the refueling outage periodic Test CPL-PT-31.0 completed during our November, 1975 outage revealed no problems with the safety-related snubbers installed in the plant.

In your letter you requested rationale for our characterization of certain snubbers as "especially difficult to remove" or "inaccessible during normal operation." The following discussion provides this rationale for the sixteen snubbers so designated in Table 3.13-1.

Twelve of the snubbers are designated both as being especially difficult to remove and inaccessible during normal operation. These snubbers are located on the three steam generators, four to each generator, and are manufactured by Anker-Holth with the capability of sustaining a 470,000 pound tension or compression loading without failure. The location of the snubbers in the plant is shown schematically in the attached figure. As may be seen, concrete shield and support walls are located directly above and below the snubber installation, precluding disconnections of the snubbers and a vertical lift for removal. Additionally, the vertical clearance between the snubbers and the upper floor makes removal by lifting one snubber over the others and moving it horizontally extremely difficult considering the approximately 500 pound weight of each snubber. Visual inspection of the snubbers during normal operation is inadvisable because of the high radiation (estimated greater than 500 mr) and heat in the confined area. As may be seen, the fluid reservoirs for each set of four snubbers are located on the operating deck, and can be observed periodically for significant changes in level.

The other four snubbers, two on the excess letdown line and two on the pressurizer relief line, are inaccessible due to the high radiation areas in these locations during plant operation. The snubbers on the excess letdown line are located adjacent to the loop crossover pipe between the "B" steam generator and reactor coolant pump and have radiation levels upwards of 50 R/hr during operation and over 200 mr during shutdown. The snubbers on the pressurizer relief line are located inside the pressurizer cubicle and have radiation levels well above 100 mr during operation.

In summary, Carolina Power & Light Company believes that the attached proposed revision to the H. B. Robinson Technical Specifications will adequately provide for the determination of any developments in snubber performance which would lead to a potential for decreased safety of the plant. We share your concern for the need for all safety-related components of the plant to be capable of performing their required functions when it is necessary to assure the continued health and safety of the public.

Very truly yours,

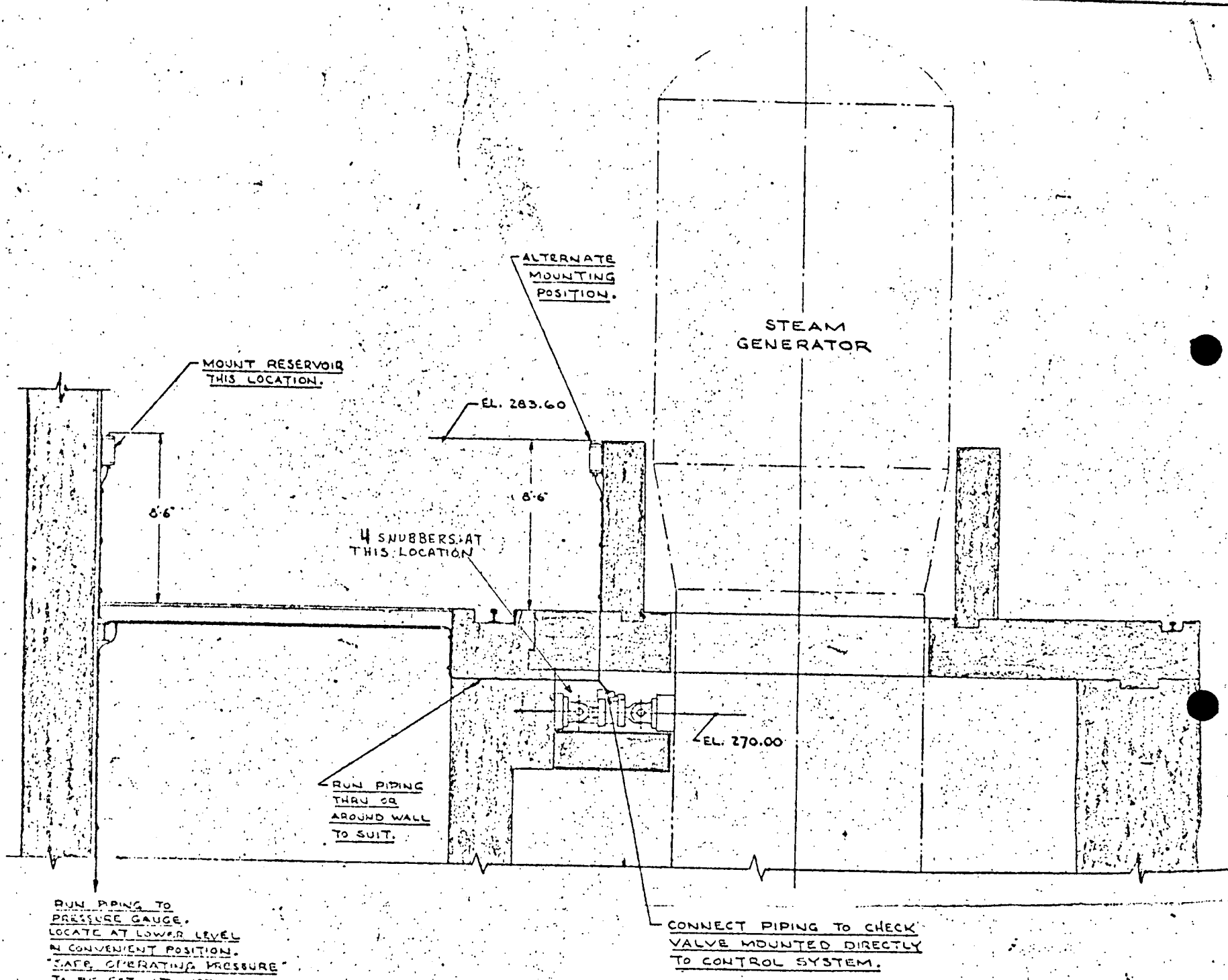
E. E. Utley
Vice President
Bulk Power Supply

DBW:blh
Attachment

Sworn to and subscribed before me this 28th day of January, 1976.

Notary Public

My Commission expires: October 19, 1980


ALTERNATE MOUNTING POSITION.
STEAM GENERATOR
MOUNT RESERVOIR THIS LOCATION.
EL. 283.60
8'-6"
8'-6"
4 SNUBBERS AT THIS LOCATION
EL. 270.00
RUN PIPING THRU OR AROUND WALL TO SUIT.
RUN PIPING TO PRESSURE GAUGE. LOCATE AT LOWER LEVEL IN CONVENIENT POSITION. "SAFE OPERATING PRESSURE" TO BE EST. AT INSTALLATION.
CONNECT PIPING TO CHECK VALVE MOUNTED DIRECTLY TO CONTROL SYSTEM.

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.

d. Snubbers may be added to safety related systems without prior License Amendment to Table 3.13-1 provided that safety evaluations, documentation, and reporting are provided in accordance with 10 CFR 50.59 and that a revision to Table 3.13-1 is included with a subsequent License Amendment request.

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 3.13-1

SAFETY RELATED HYDRAULIC SNUBBERS

Snubber No.	Location	Elevation	Snubber in High Radiation Area During Shutdown	Snubbers Especially Difficult to Remove	Snubbers Inaccessible During Normal Operation	Snubbers Accessible During Normal Operation
1	"A" Steam Generator	270'		X	X	
2	"A" Steam Generator	270'		X	X	
3	"A" Steam Generator	270'		X	X	
4	"A" Steam Generator	270'		X	X	
5	"B" Steam Generator	270'		X	X	
6	"B" Steam Generator	270'		X	X	
7	"B" Steam Generator	270'		X	X	
8	"B" Steam Generator	270'		X	X	
9	"C" Steam Generator	270'		X	X	
10	"C" Steam Generator	270'		X	X	
11	"C" Steam Generator	270'		X	X	
12	"C" Steam Generator	270'		X	X	
13	Excess Letdown Line	232'	X		X	
14	Excess Letdown Line	232'	X		X	
15	Pressurizer Relief Line	275'			X	
16	Pressurizer Relief Line	275'			X	
17	"A" RHR Pump Suction Line	207'	X			X
18	"B" RHR Pump Suction Line	207'	X			X
19	"B" RHR Pump Suction Line	218'				X
20	"B" RHR Pump Suction Line	218'				X
21	RWST To RHR Pumps	222'				X
22	RWST To RHR Pumps	222'				X
23	Charging Line Loop 2 Cold Leg	239'				X
24	Charging Line Loop 2 Cold Leg	239'				X

Table 3.13-1 cont'd

SAFETY RELATED HYDRAULIC SNUBBERS

Snubber No.	Location	Elevation	Snubber in High Radiation Area During Shutdown	Snubbers Especially Difficult to Remove	Snubbers Inaccessible During Normal Operation	Snubbers Accessible During Normal Operation
25	Auxiliary Spray Line	241'				X
26	Letdown to Non-regenerative Heat Exchanger	229'				X
27	Charging Pumps Discharge Line	234'				X

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:

Number of Snubbers Found Inoperable During Periodic Inspection or Inspection Interval	Next Required Inspection Interval
0	18 months ± 25%
1	12 months ± 25%
2	6 months ± 25%
3,4	124 days ± 25%
5-7	62 days ± 25%
≥ 8	31 days ± 25%

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 Visual inspection of snubbers shall include, but not be limited to, inspection of the hydraulic fluid reservoir, fluid connections, and linkage connections to the piping and anchor to verify snubber operability.

4.13.4 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.

4.13.5 The initial inspection shall be performed during the first scheduled refueling outage following issuance of these specifications.

4.13.6 Once each refueling cycle, a representative sample of 10 snubbers or approximately 10% of the snubbers whichever is less shall be functionally tested for operability including verification of proper piston movement, lock up, and bleed. For each unit and subsequent unit found inoperable, an additional 10% or 10 snubbers shall be so tested until no more failures are found or all units have been tested. This specification does not apply to those snubbers designated in Table 3.13-1 as being in high radiation areas or especially difficult to remove.

Basis

All safety-related bydraulic snubbers are visually inspected for overall integrity and operability. The inspection will include verification of proper orientation, adequate hydraulic fluid level, and proper attachment of snubber to piping and structures.

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.

To further increase the assurance of snubber reliability, functional tests should be performed once each refueling cycle. These tests will include stroking of the snubbers to verify proper piston movement, lock-up, and bleed. Ten percent or ten snubbers, whichever is less, represents an adequate sample for such tests. Observed failures on these samples should require testing of additional units. Those snubbers designated in Table 3.13-1 as being in high radiation areas or especially difficult to remove need not be selected for functional tests provided operability was previously verified.

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