3/4.7.10 SNUBBERS

LIMITING CONDITION FOR OPERATION

3.7.10 All snubbers listed in Tables 3.7-4a and 3.7-4b shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4. (MODES 5 and 6 for snubbers located on systems required OPERABLE in those MODES).

ACTION:

With one or more snubbers inoperable, within 72 hours replace or restore the inoperable snubber(s) to OPERABLE status and perform an engineering evaluation per Specification 4.7.10.c on the supported component or declare the supported system inoperable and follow the appropriate ACTION statement for that system.

SURVEILLANCE REQUIREMENTS

4.7.10 Each snubber shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program and the requirements of Specification 4.0.5.

a. Visual Inspections

The first inservice visual inspection of snubbers shall be performed after four months but within 10 months of commencing POWER OPERATION and shall include all snubbers listed in Tables 3.7-4a and 3.7-4b. If less than two (2) snubbers are found inoperable during the first inservice visual inspection, the second inservice visual inspection shall be performed 12 months ± 25% from the date of the first inspection. Otherwise, subsequent visual inspections shall be performed in accordance with the following schedule:

No. Inoperable Snubbers per Inspection Period	Subsequent Visual Inspection Period*#
0	18 months ± 25%
1	12 months ± 25%
2	6 months ± 25%
3,4	124 days ± 25%
5,6,7	62 days ± 25%
8 or more	31 days ± 25%

The snubbers may be categorized into two groups: Those accessible and those inaccessible during reactor operation. Each group may be inspected independently in accordance with the above schedule.

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* The inspection interval shall not be lenthened more than one step at a time.
\# The provisions of Specification 4.0.2 are not applicable.

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b. Visual Inspection Acceptance Criteria

Visual inspections shall verify (1) that there are no visual indications of damage or impaired OPERABILITY, (2) attachments to the foundation or supporting structure are secure, and (3) in those locations where snubber movement can be manually induced without disconnecting the snubber, that the snubber has freedom of movement and is not frozen up. Snubbers which appear inoperable as a result of visual inspections may be determined OPERABLE for the purpose of establishing the next visual inspection interval, providing that (1) the cause of the rejection is clearly established and remedied for that particular snubber and for other snubbers that may be generically susceptible; and (2) the affected snubber is functionally tested in the as found condition and determined OPERABLE per Specifications 4.7.10.d and 4.7.10.e. However, when the fluid port of a hydraulic snubber is found to be uncovered, the snubber shall be determined inoperable and cannot be determined OPERABLE via functional testing for the purpose of establishing the next visual inspection interval. All snubbers connected to an inoperable common hydraulic fluid reservior shall be counted as inoperable snubbers.

c. Functional Tests

At least once per 18 months during shutdown, a representative sample of that number of snubbers which follows the expression $35\ [1 + \frac{c}{2}]$, where c=7 is the allowable number of snubbers not meeting the acceptance criteria selected by the operator, shall be functionally tested either in-place or in a bench test. For each number of snubbers above c which does not meet the functional test acceptance criteria of Specification 4.7.10.d or 4.7.10.e, and additional sample selected according to the expression $35\ (1 + \frac{c}{2})\ (\frac{2}{c+1})^2\ (a - c)$ shall be functionally tested, where a is the total number of snubbers found inoperable during the functional testing of the representative sample.

Functional testing shall continue according to the expression $b\ [35(1 + \frac{c}{2})^2]$ where b is the number of snubbers found inoperable in the previous re-sample, until no additional inoperable snubbers are found within a sample or until all snubbers in Table 3.7-4a and 3.7-4b have been functionally tested.

The representative sample selected for functional testing shall include the various configurations, operating environments and the range of size and capacity of snubbers. At least 25% of the snubbers in the representative sample shall include snubbers from the following three categories:

1. The first snubber away from each reactor vessel nozzle

2. Snubbers within 5 feet of heavy equipment (valve, pump, turbine, motor, etc.).

3. Snubbers within 10 feet of the discharge from a safety relief valve.

Snubbers identified in Tables 3.7-4a and 3.7-4b as "Especially Difficult to Remove" or in "High Radiation Zones During Shutdown" shall also be included in the representative sample.* Tables 3.7-4a and 3.7-4b may be used jointly or separately as the basis for the sampling plan.

In addition to the regular sample, snubbers which failed the previous functional test shall be retested during the next test period. If a spare snubber has been installed in place of a failed snubber, then both the failed snubber (if it is repaired and installed in another position) and the spare snubber shall be retested. Test results of these snubbers may not be included for the re-sampling.

If any snubber selected for functional testing either fails to lockup or fails to move, i.e., frozen in place, the cause will be evaluated and if caused by manufacturer or design deficiency all snubbers of the same design subject to the same defect shall be functionally tested. This testing requirement shall be independent of the requirements stated above for snubbers not meeting the functional test acceptance criteria.

For the snubber(s) found inoperable, an engineering evaluation shall be performed on the components which are supported by the snubber(s). The purpose of this engineering evaluation shall be to determine if the components supported by the snubber(s) were adversely affected by the inoperability of the snubber(s) in order to ensure that the supported component remains capable of meeting the design service.

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*Permanent or other exemptions from functional testing for individual snubbers in these categories may be granted by the Commission only if a justifiable basis for exemption is presented and/or snubber life destructive testing was performed to qualify snubber operability for all design conditions at either the completion of their fabrication or at a subsequent date.

SURVEILLANCE REQUIREMENTS (Continued)

d. Hydraulic Snubbers Functional Test Acceptance Criteria

The hydraulic snubber functional test shall verify that:

1. Activation (restraining action) is achieved within the specified range of velocity or acceleration in both tension and compression.

2. Snubber bleed, or release rate, where required, is within the specified range in compression or tension. For snubbers specifically required to not displace under continuous load, the ability of the snubber to withstand load without displacement shall be verified.

e. Mechanical Snubbers Functional Test Acceptance Criteria

The mechanical snubber functional test shall verify that:

1. The force that initiates free movement of the snubber rod in either tension or compression is less than the specified maximum drag force. Drag force shall not have increased more than 50% since the last functional test.

2. Activation (restraining action) is achieved within the specified range of velocity or acceleration in both tension and compression.

3. Snubber release rate, where required, is within the specified range in compression or tension. For snubbers specifically required not to displace under continuous load, the ability of the snubber to withstand load without displacement shall be verified.

f. Snubber Service Life Monitoring

A record of the service life of each snubber, the date at which the designated service life commences and the installation and maintenance records on which the designated service life is based shall be maintained as required by Specification 6.10.2.

Concurrent with the first inservice visual inspection and at least once per 18 months thereafter, the installation and maintenance records for each snubber listed in Tables 3.7-4a and 3.7-4b shall be reviewed to verify that the indicated service life has not been exceeded or will not be exceeded prior to the next scheduled snubber

SURVEILLANCE REQUIREMENTS (Continued)

service life review. If the indicated service life will be exceeded prior to the next scheduled snubber service life review, the snubber service life shall be reevaluated or the snubber shall be replaced or reconditioned so as to extend its service life beyond the date of the next scheduled service life review. This reevaluation, replacement or reconditioning shall be indicated in the records.

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
804	CH-225-A	I	Yes	No
805	CH-225-A	I	Yes	No
807	CH-238-1	I	Yes	Yes
808	CH-238-1	I	Yes	Yes
803	CH-232-6	I	No	Yes
811	CH-251-12	I	Yes	No
800	CH-262-A	I	Yes	No
801	CH-262-A	I	Yes	No
810	CH-263-12	I	Yes	Yes
809	CH-236-12	I	Yes	Yes
812	CH-236-8	I	Yes	Yes
813	CH-236-8	I	Yes	Yes

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
814	CH-251-C	I	Yes	No
802	CH-262-C	I	Yes	Yes
815	CH-235-C	I	Yes	Yes
859	CH-226-10	A	No	No
860	CH-222-11	A	No	No
187	CH-244-12	I	Yes	No
186	CH-244-12	I	Yes	No
185	CH-251-12	I	Yes	Yes
842	CH-251-6	A	No	No
189	CH-244-Pent	A	No	No
190	CH-244-Pent	A	No	Yes
191	CH-244-Pent	A	No	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
188	CH-244-Pent	A	No	No
806	CH-251-A	I	Yes	No
203A	QS-338-11½	I	No	Yes
203B	QS-338-11½	I	No	Yes
207	QS-267-11½	A	No	No
209A	QS-338-2	I	No	Yes
209B	QS-338-2	I	No	Yes
600	QS-256-11½	I	Yes	Yes
800	QS-274-QSH	A	No	No
801	QS-274-QSH	A	No	No
802	QS-272-QSH	A	No	No
803	QS-270-QSH	A	No	No
804	QS-270-QSH	A	No	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
100	RC-247-A	I	Yes	No
101	RC-246-A	I	Yes	No
102	RC-234-18	I	No	Yes
104	RC-278-P	I	Yes	Yes
105	RC-278-P	I	Yes	Yes
106	RC-308-P	I	Yes	No
107	RC-308-P	I	Yes	No
108	RC-232-9 3/4	I	No	Yes
109	RC-235-6	I	Yes	Yes
110	RC-234-6	I	Yes	Yes
111	RC-247-C	I	Yes	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
112	RC-247-C	I	Yes	No
113	RC-259-P	I	Yes	Yes
114A	RC-260-B	I	Yes	Yes
114B	RC-258-P	I	Yes	Yes
115A	RC-308-P	I	Yes	Yes
115B	RC-308-P	I	Yes	Yes
116A	RC-308-P	I	Yes	Yes
116B	RC-308-P	I	Yes	Yes
117	RC-308-P	I	Yes	No
118	RC-308-P	I	Yes	No
119A	RC-306-P	I	Yes	No
119B	RC-306-P	I	Yes	No

Table 3.7-4d (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
120	RC-310-P	I	Yes	No
121	RC-302-P	I	Yes	Yes
122	RC-303-P	I	Yes	Yes
123	RC-303-P	I	Yes	Yes
124A	RC-306-P	I	Yes	No
124B	RC-306-P	I	Yes	No
125	RC-306-P	I	Yes	Yes
126	RC-307-P	I	Yes	No
127	RC-307-P	I	Yes	No
128	RC-302-P	I	Yes	Yes
129	RC-301-P	I	Yes	No
130	RC-302-P	I	Yes	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
131A	RC-306-P	I	Yes	No
131B	RC-306-P	I	Yes	No
132	RC-307-P	I	Yes	No
133	RC-302-P	I	Yes	Yes
134	RC-304-P	I	Yes	Yes
135	RC-304-P	I	Yes	Yes
136A	RC-306-P	I	Yes	Yes
136B	RC-306-P	I	Yes	No
136C	RC-306-P	I	Yes	Yes
137	RC-306-P	I	Yes	No
450	CC-229-RCB	I	Yes	Yes
853	RC-256-A	I	Yes	Yes
856	RC-256-A	I	Yes	Yes

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
847	RC-256-A	I	Yes	Yes
848	RC-256-B	I	Yes	Yes
849	RC-256-C	I	Yes	Yes
852	RC-256-C	I	Yes	Yes
855	RC-256-C	I	Yes	Yes
854	RC-256-B	I	Yes	Yes
851	RC-256-B	I	Yes	Yes
858	RC-256-C	I	Yes	Yes
857	RC-256-B	I	Yes	Yes
850	RC-235-A	I	Yes	Yes
817	RC-235-6	I	Yes	Yes
818	RC-236-6	I	Yes	Yes

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
821	RC-238-18½	I	Yes	Yes
822	RC-236-1	I	Yes	Yes
833	RC-243-B	I	Yes	Yes
826	RC-243-C	I	Yes	No
827	RC-243-C	I	Yes	No
834	RC	I	Yes	No
837	RC-244-A	I	Yes	No
838	RC-244-A	I	Yes	No
842	RC-246-A	I	Yes	Yes
843	RC-247-A	I	Yes	No
835	RC-243-B	I	Yes	No
839	RC-243-B	I	Yes	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
840	RC-254-A	I	Yes	No
841	RC-243-A	I	Yes	Yes
819	RC-236-A	I	Yes	Yes
832	RC-243-B	I	Yes	No
820	RC-236-17	I	Yes	Yes
831	RC-243-B	I	Yes	No
823	RC-243-C	I	Yes	No
824	RC-243-C	I	Yes	No
860	RC-261-B	I	Yes	Yes
862	RC-261-B	I	Yes	Yes
864	RC-258-B	I	Yes	Yes
865	RC-258-B	I	Yes	Yes

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
863	RC-260-B	I	Yes	Yes
868	RC-258-B	I	Yes	Yes
828	RC-244-A	I	Yes	Yes
829	RC-244-A	I	Yes	Yes
830	RC-244-A	I	Yes	No
861	RC-261-B	I	Yes	No
869	RC-258-C	I	Yes	Yes
880	RC-261-C	I	Yes	Yes
871	RC-261-C	I	Yes	Yes
879	RC-258-C	I	Yes	Yes
859	RC-256-B	I	Yes	Yes
866	RC-257-B	I	Yes	Yes

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
870	RC-258-C	I	Yes	Yes
877	RC-263-C	I	Yes	Yes
876	RC-258-C	I	Yes	Yes
890	RC-258-A	I	Yes	Yes
878	RC-258-C	I	Yes	Yes
882	RC-260-A	I	Yes	Yes
884	RC-261-A	I	Yes	Yes
889	RC-258-A	I	Yes	Yes
872	RC-261-C	I	Yes	Yes
887	RC-258-A	I	Yes	Yes
886	RC-258-A	I	Yes	Yes
888	RC-258-A	I	Yes	Yes

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
883	RC-260-A	I	Yes	Yes
885	RC-260-A	I	Yes	Yes
873	RC-262-C	I	Yes	Yes
875	RC-256-C	I	Yes	Yes
893	RC-268-9½	I	Yes	No
889A	RC-268-9½	I	Yes	No
891	RC-260-C	I	Yes	Yes
890A	RC-298-9½	I	Yes	Yes
111A	RC-298-9½	I	Yes	No
892	RC-261-C	I	Yes	Yes
867	RC-258-B	I	Yes	Yes
881	RC-258-A	I	Yes	Yes

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
100A	RC-265-P	I	Yes	No
101A	RC-265-P	I	Yes	No
102A	RC-265-P	I	Yes	No
103A	RC-265-P	I	Yes	No
104A	RC-264-A	I	Yes	Yes
105A	RC-264-A	I	Yes	Yes
106A	RC-264-B	I	Yes	Yes
107A	RC-264-B	I	Yes	Yes
108A	RC-264-C	I	Yes	Yes
109A	RC-264-C	I	Yes	Yes
138	RC-238-9 3/4	I	No	Yes
139	RC-252-11	I	Yes	Yes

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
140	RC-245-11	I	Yes	No
53-46	RC-249-A	I	Yes	No
53-46A	RC-249-A	I	Yes	No
217-4	RC-243-B	I	Yes	Yes
223-4	RC-303-P	I	Yes	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
100A	RH-228-8	A	No	No
100B	RH-228-8	A	No	No
100C	RH-228-8	A	No	No
100D	RH-228-8	A	No	No
100E	RH-228-8	A	No	No
101A	RH-228-5	A	No	No
102A	RH-228-5	A	No	Yes
102B	RH-228-5	A	No	Yes
103A	RH-228-3	A	No	Yes
103B	RH-228-3	A	No	Yes
103C	RH-228-3	A	No	Yes
104A	RH-233-4	I	Yes	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
105A	RH-225-A	I	No	Yes
106A	RH-244-4	I	Yes	Yes
107A	RH-229-3	A	No	Yes
107B	RH-229-3	A	No	Yes
107C	RH-229-3	A	No	Yes
108A	RH-237-2	A	No	Yes
108B	RH-237-2	I	Yes	Yes
109A	RH-245-3	I	Yes	Yes
109B	RH-245-3	I	Yes	Yes
109C	RH-245-3	I	Yes	Yes
109D	RH-245-3	I	Yes	Yes
110A	RH-240-5½	I	Yes	No
110B	RH-240-5½	I	Yes	No

Table 3.7-4a (Continued)

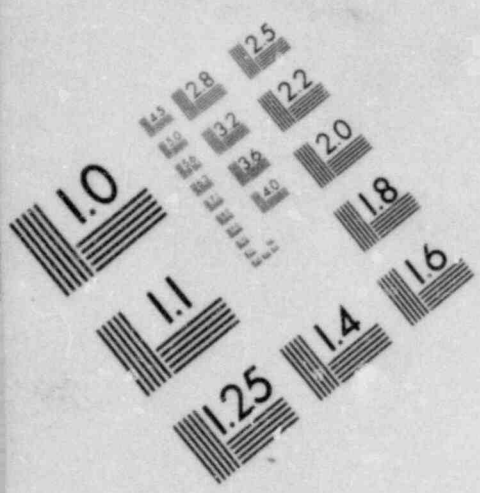
SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
110C	RH-240-5½	I	Yes	No
110D	RH-240-5½	I	Yes	No
111A	RH-227-4	I	Yes	Yes
111B	RH-227-4	I	Yes	Yes
112A	RH-224-4	I	Yes	Yes
113A	RH-224-4	I	Yes	Yes
113B	RH-224-4	I	Yes	Yes
114A	RH-224-4	I	Yes	No
115A	RH-234-4	I	Yes	Yes
116A	RH-229-4	I	Yes	Yes
117A	RH-224-4	I	Yes	No
118	RH-224-6	I	Yes	Yes
119	RH-240-5	I	Yes	Yes
452	RH-234-7	I	Yes	Yes

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
202	RS-267-16	I	No	Yes
204A	RS-338-9	I	No	Yes
204B	RS-338-9	I	No	Yes
205A	RS-338-10	I	No	Yes
205B	RS-338-10	I	No	Yes
206A	RS-338-2	I	No	Yes
206B	RS-338-2	I	No	Yes
208-A	RS-338-2	I	No	Yes
208-B	RS-338-2	I	No	Yes
136A	RS-305-P	A	No	No



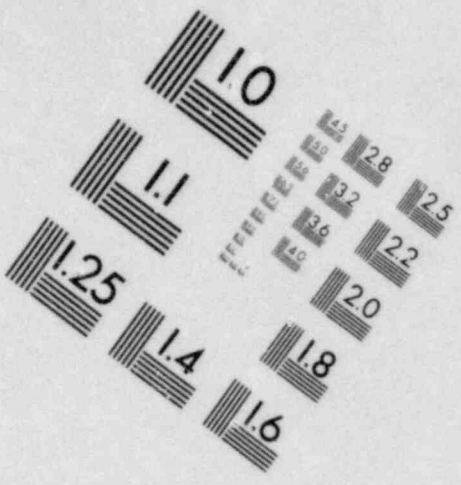
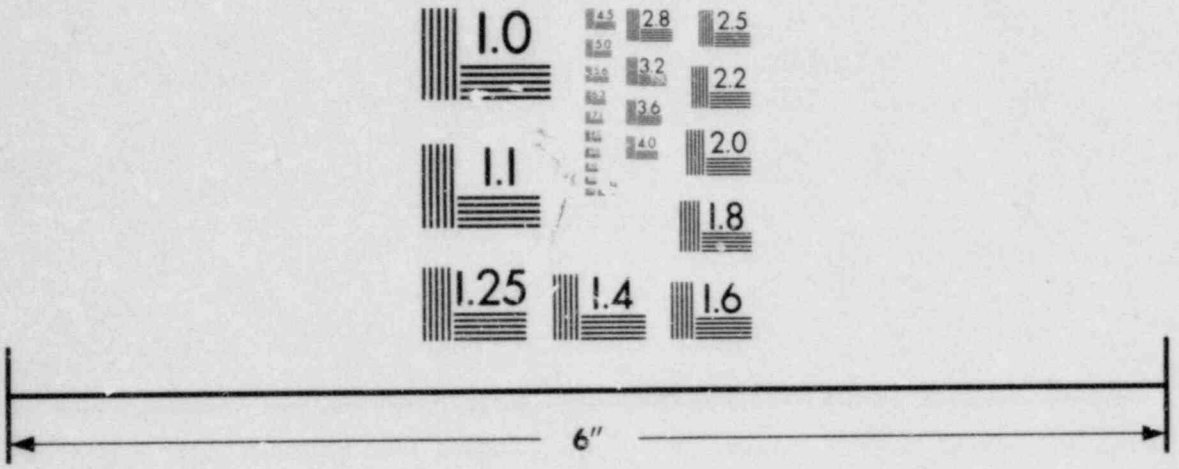
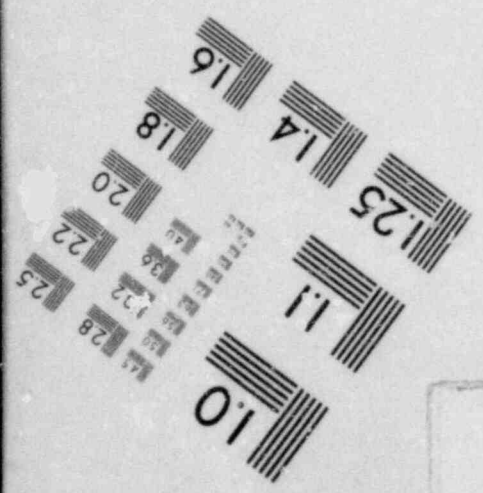
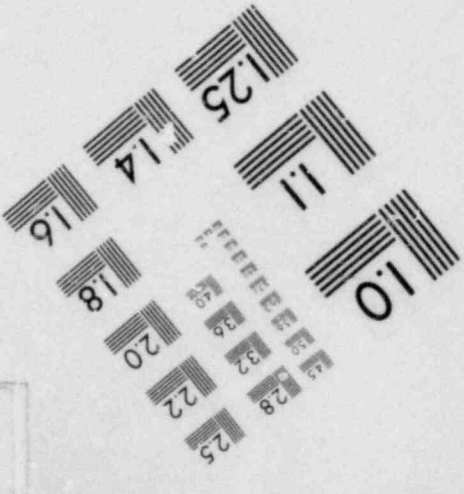
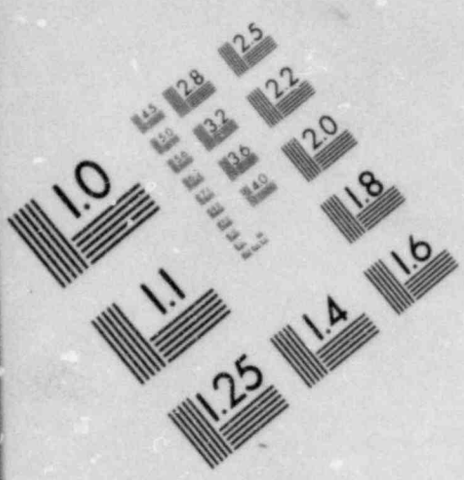


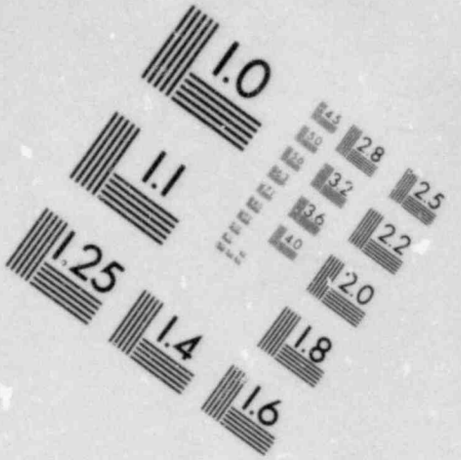
IMAGE EVALUATION
TEST TARGET (MT-3)











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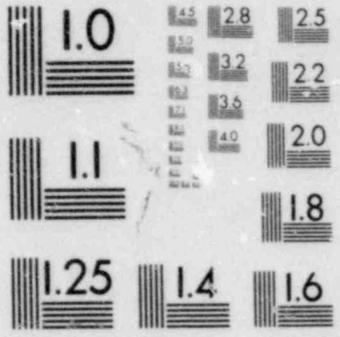
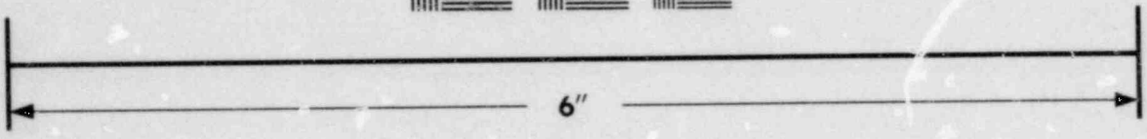

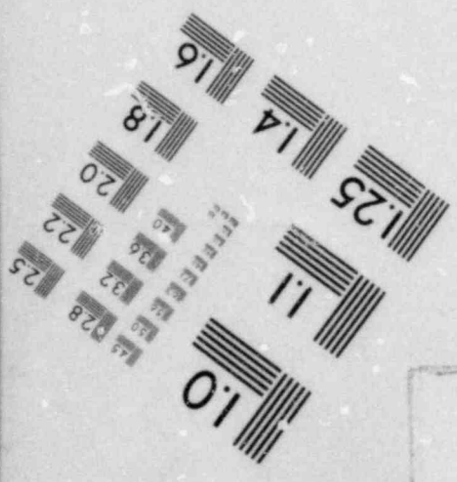

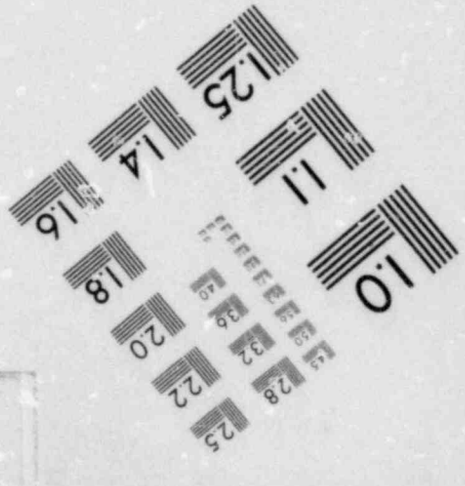

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
200	SHP-291-RCA	I	No	Yes
201A	SHP-291-RCA	I	No	Yes
201B	SHP-291-RCA	I	No	Yes
202A	SHP-291-RCA	I	No	Yes
202B	SHP-291-RCA	I	No	Yes
210	SHP-291-RCA	I	No	Yes
211A	SHP-297-MSVH	A	No	Yes
211B	SHP-297-MSVH	A	No	Yes
212A	SHP-297-MSVH	A	No	Yes
212B	SHP-297-MSVH	A	No	Yes
213A	SHP-297-MSVH	A	No	Yes
213B	SHP-297-MSVH	A	No	Yes
230	SHP-297-MSVH	A	No	No
231	SHP-297-MSVH	A	No	No
232	SHP-297-MSVH	A	No	No
261	SHP-277-MSVH	A	No	Yes
262	SHP-282-MSVH	A	No	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA)	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
263	SHP-307-MSVH	A	No	No
264	SHP-307-MSVH	A	No	No
265	SHP-307-MSVH	A	No	No
266	SHP-282-MSVH	A	No	No
267	SHP-307-MSVH	A	No	No
268	SHP-307-MSVH	A	No	No
269	SHP-282-MSVH	A	No	No
233	SHP-282-MSVH	A	No	No
234	SHP-282-MSVH	A	No	No
236	SHP-282-MSVH	A	No	No
235	SHP-297-MSVH	A	No	No
237	SHP-297-MSVH	A	No	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
238	SHP-282-MSVH	A	No	No
462	SHP-297-MSVH	A	No	No
452	SHP-297-MSVH	A	No	No
472	SHP-297-MSVH	A	No	No
270	SHP-307-MSVH	A	No	No
246	SHP-291-TBM	A	No	Yes
247	SHP-288-TBM	A	No	Yes
248	SHP-288-TBM	A	No	Yes
249	SHP-273-TBM	A	No	No
250	SHP-268-TBB	A	No	Yes
251	SHP-287-TBM	A	No	Yes
252	SHP-267-TBB	A	No	Yes

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
253	SHP-267-TBB	I	No	Yes
254	SHP-267-TBB	I	No	Yes
255	SHP-277-TBM	A	No	Yes
256	SHP-274-TBB	A	No	Yes
257	SHP-294-TBM	A	No	Yes
258	SHP-294-TBM	A	No	Yes
259	SHP-294-TBM	A	No	Yes
260A	SHP-277-MSH	A	No	No
260B	SHP-277-MSH	A	No	No
220A	SHP-300-SB	A	No	Yes
220B	SHP-300-SB	A	No	No
221A	SHP-300-SB	A	No	Yes

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
221B	SHP-300-SB	A	No	No
222A	SHP-300-SB	A	No	Yes
222B	SHP-300-SB	A	No	No
224A	SHP-300-SB	A	No	Yes
224B	SHP-300-SB	A	No	Yes
225A	SHP-300-SB	A	No	No
225B	SHP-300-SB	A	No	No
226	SHP-300-SB	A	No	No
227A	SHP-300-SB	A	No	No
227B	SHP-300-SB	A	No	Yes
228A	SHP-300-SB	A	No	No
228B	SHP-300-SB	A	No	No
229	SHP-300-SB	A	No	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
217A	SHP-297-MSVH	A	No	Yes
217B	SHP-297-MSVH	A	No	Yes
218A	SHP-297-MSVH	A	No	Yes
218B	SHP-297-MSVH	A	No	Yes
219A	SHP-297-MSVH	A	No	Yes
219B	SHP-297-MSVH	A	No	Yes
209A	SHP-291-RCA	I	Yes	Yes
209B	SHP-291-RCS	I	Yes	Yes
223A	SHP-291-RCA	I	Yes	Yes
223B	SHP-291-RCA	I	Yes	Yes
23A	SHP-290-MSVH	A	No	No
23B	SHP-290-MSVH	A	No	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
30A	SHP-290-MSVH	A	No	No
30B	SHP-290-MSVH	A	No	No
38A	SHP-290-MSVH	A	No	No
38B	SHP-290-MSVH	A	No	No
203	SHP-291-RCA	I	Yes	Yes
204	SHP-291-RCA	I	Yes	Yes
205	SHP-291-RCA	I	Yes	Yes
206	SHP-291-RCA	I	Yes	Yes
207	SHP-291-RCA	I	Yes	Yes
208	SHP-291-RCA	I	Yes	Yes

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
400A	SI-258-13	I	No	Yes
400B	SI-258-13	I	No	Yes
400C	SI-258-13	I	No	Yes
400D	SI-258-13	I	No	Yes
101A	SI-256-SG	A	No	No
101B	SI-256-SG	A	No	No
102A	SI-256-SG	A	No	No
102B	SI-256-SG	A	No	No
104A	SI-256-SG	A	No	No

Table 3.7-4a (Cont)

SAFETY RELATED HYDRAULI' BERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBL INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
104B	SI-256-SG	A	No	No
105	SI-256-SG	A	No	No
106	SI-256-SG	A	No	No
100	SI-257-B	A	No	Yes
101	SI-257-B	I	No	Yes
101D	SI-257-B	I	No	Yes
101C	SI-257-B	I	No	Yes
102C	SI-221-B	A	No	No
103A	SI-238-C	I	Yes	Yes
103B	SI-238-C	I	Yes	Yes
103C	SI-238-C	I	Yes	Yes
104	SI-221-C	A	No	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
105A	SI-238-A	I	No	Yes
105B	SI-238-A	I	No	Yes
105C	SI-238-A	I	No	Yes
106A	SI-221-A	A	No	No
107	SI-256-SG	A	No	No
108	SI-256-SG	A	No	No
109	SI-250-A	I	Yes	No
110	SI-219-A	A	No	No
111	SI-241-1	A	No	No
112	SI-256-SG	A	No	No
113	SI-256-SG	A	No	No
451	SI-238-9	I	Yes	Yes
700	SI-256-SG	A	No	No
701	SI-256-SG	A	No	No
702	SI-256-SG	A	No	No
703	SI-256-SG	A	No	No

Table 3.7-4a (continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
200	WFPD-291-RCA	A	No	No
201	WFPD-291-RCA	A	No	No
202	WFPD-291-RCA	A	No	No
203	WFPD-291-RCA	A	No	No
204	WFPD-291-RCA	A	No	No
205	WFPD-291-RCA	A	No	Yes
206	WFPD-291-RCA	A	No	No
207	WFPD-291-RCA	A	No	No
208	WFPD-291-RCA	A	No	No
209	WFPD-291-RCA	A	No	No
210	WFPD-291-RCA	A	No	No
211	WFPD-291-RCA	A	No	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
212	WFPD-291-RCA	A	No	No
216	WFPD-282-MSVH	A	No	No
217	WFPD-282-MSVH	A	No	No
218	WFPD-282-MSVH	A	No	No
222	WFPD-272-MSVH	A	No	No
223	WFPD-272-MSVH	A	No	No
224	WFPD-272-MSVH	A	No	No
231A	WFPD-291-RCA	A	No	Yes

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
231B	WFPD-291-RCA	A	No	Yes
231C	WFPD-291-RCA	A	No	Yes
231D	WFPD-291-RCA	A	No	Yes
235	WFPD-291-RCA	A	No	No
600	WFPD-291-3	I	Yes	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
213	FW-300-SB	A	No	No
214	FW-300-SB	A	No	No
215	FW-300-SB	A	No	No
226A	FW-300-SB	A	No	No
226B	FW-300-SB	A	No	No
227A	FW-300-SB	A	No	No
227B	FW-300-SB	A	No	No
228	FW-300-SB	A	No	No
229	FW-300-SB	A	No	No
230	FW-300-SB	A	No	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
245A	FW-295-FWH	A	No	Yes
245B	FW-295-FWH	A	No	Yes
246	FW-295-FWH	A	No	Yes
233	SDHV-307-MSVH	A	No	No
233A	SDHV-307-MSVH	A	No	No
234	SDHV-307-MSVH	A	No	No
235	SDHV-307-MSVH	A	No	Yes
236	SDHV-297-MSVH	A	No	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
200	WS-256-SG	A	No	No
201	WS-256-SG	A	No	No
202	WS-244-ABB	A	No	No
203	WS-244-ABB	A	No	No
204A	WS-244-ABB	A	No	No
204B	WS-244-ABB	A	No	Yes
206	WS-244-ABB	A	No	No
207	WS-244-ABB	A	No	No
208	WS-244-ABB	A	No	No
205A	WS-244-ABB	A	No	No
205B	WS-244-ABB	A	No	Yes

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
405	CC-224-Pent	A	No	Yes
407	CC-224-Pent	A	No	No
411	CC-255-Pent	A	No	No
412	CC-252-Pent	A	No	No
413	CC-256-Pent	A	No	No
202	FC-249-FBB	I	No	No
204	FC-249-FBB	I	No	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
1	WGCB-246-A	I	Yes	Yes
2	WGCB-246-C	I	Yes	Yes
1A	WGCB-244-Pent	I	Yes	No
2A	WGCB-244-Pent	I	Yes	No
103	WGCB-279-TBM	I	No	Yes
104	WGCB-279-TBM	I	No	Yes

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
237	SAE-307-MSVH	A	No	No
238	SAE-307-MSVH	A	No	No
239	SAE-307-MSVH	A	No	No
240	SAE-307-MSVH	A	No	No
241	SAE-307-MSVH	A	No	No
242	SAE-307-MSVH	A	No	No
243	SAE-297-MSVH	A	No	No
244	SAE-297-MSVH	A	No	No
245	SAE-297-MSVH	A	No	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
246	SAE-279-AFW	A	No	No
247	SAE-279-AFW	A	No	No
248	SAE-279-AFW	A	No	No
249	SAE-279-AFW	A	No	No
250	SAE-279-AFW	A	No	No
251	SAE-279-AFW	A	No	No
252	SAE-279-AFW	A	No	No
253	SAE-279-AFW	A	No	No
254	SAE-279-AFW	A	No	No
255	SAE-279-AFW	A	No	No
256	SAE-279-AFW	A	No	No
257	SAE-279-AFW	A	No	No

Table 3.7-4a (Continued)

SAFETY RELATED HYDRAULIC SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
280	SAE-305-MSVH	A	No	Yes
281	SAE-305-MSVH	A	No	Yes
282	SAE-305-MSVH	A	No	Yes

Table 3.7-4b (Continued)

SAFETY RELATED MECHANICAL SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION (ELEVATION-AREA) #	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)
118	CFPD-304-3	I	Yes	No
119	CFPD-304-3	I	Yes	No
221	CFPD-304-13	I	Yes	No
224	CFPD-304-13	I	Yes	No

TABLE NOTATIONS

#LOCATION ABBREVIATIONS

Abbreviations	Area
A	Cubicle A
B	Cubicle B
C	Cubicle C
Pent.	Penetration Area Aux. Bldg.
P	Pressurizer Cubicle
RCA	Reactor Containment Annulus
MSVH	Main Steam Valve House
MSH	Main Steam Header - Turb. Bldg.
TBM	Turbine Bldg. Mezzanine
TBB	Turbine Bldg. Basement
SB	Service Bldg.
SG	Safeguards Bldg.
FWH	Feedwater Header - Turb. Bldg.
ABB	Auxiliary Bldg. Basement
FBB	Fuel Bldg. Basement
AFW	Auxiliary Feedwater Pump House

NOTE: Numbers indicate radial locations in reactor containment.

*Snubbers may be added to and deleted from safety related systems without prior License Amendment to Tables 3.7-4a and 3.7-4b provided that a revision to Tables 3.7-4a and 3.7-4b is included with the next License Amendment request.

**Modifications to this table due to changes in high radiation areas may be made without prior License Amendment provided that a revision to Tables 3.7-4a 3.7-4b is included with the next License Amendment request.

3/4.7.9.1 AND 3/4.7.9.2 RESIDUAL HEAT REMOVAL SYSTEM (RHR)

The OPERABILITY of the RHR system ensures that residual heat removal capability is available below 350°F following plant shutdown. The RHR system is not part of the ECCS system.

3/4.7.10 SNUBBERS

All snubbers are required OPERABLE to ensure that the structural integrity of the reactor coolant system and all other safety related systems is maintained during and following a seismic or other event initiating dynamic loads. Snubbers excluded from this inspection program are those installed on nonsafety-related systems and then only if their failure or failure of the system on which they are installed, would have no adverse effect on any safety-related system.

The visual inspection frequency is based upon maintaining a constant level of snubber protection to systems. Therefore, the required inspection interval varies inversely with the observed snubber failures and is determined by the number of inoperable snubbers found during an 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.

When the cause of the rejection of a snubber is clearly established and remedied for that snubber and for any other snubbers that may be generically susceptible, and verified by inservice functional testing, that snubber may be exempted from being counted as inoperable. Generically susceptible snubbers are those which are of a specific make or model and have the same design features directly related to rejection of the snubber by visual inspection, or are similarly located or exposed to the same environmental conditions such as temperature, radiation, and vibration.

When a snubber is found inoperable, an engineering evaluation is performed, in addition to the determination of the snubber mode of failure, in order to determine if any safety-related component or system has been adversely affected by the inoperability of the snubber. The engineering evaluation shall determine whether or not the snubber mode of failure has imparted a significant effect or degradation on the supported component or system.

To provide assurance of snubber functional reliability, a representative sample of the installed snubbers will be functionally tested during plant shutdowns at 18 months intervals. Observed failures of these sample snubbers shall require functional testing of additional units.

The service life of a snubber is evaluated via manufacturer input and information through consideration of the snubber service conditions and associated installation and maintenance records (newly installed snubber, seal replaced, spring replaced, in high radiation area, in high temperature area, etc...). The requirement to monitor the snubber service life is included to ensure that the snubbers periodically undergo a performance evaluation in view of their age and operating conditions. These records will provide statistical bases for future consideration of snubber service life. The requirements for the maintenance of records and the snubber service life review are not intended to affect plant operation.

3/4 7.11 SEALED SOURCE CONTAMINATION

The limitations on sealed source removable contamination ensure that the total body or individual organ irradiation does not exceed allowable limits in the event of ingestion or inhalation of the source material. The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(c) limits for plutonium. Leakage of sources excluded from the requirements of this specification represent less than one maximum permissible body burden for total body irradiation if the source material is inhaled or ingested. Sealed sources are classified into three groups according to their use, with surveillance requirements commensurate with the probability of damage to a source in that group. Those sources which are frequently handled are required to be tested more often than those which are not. Sealed sources which are continuously enclosed within a shielded mechanism (i.e., sealed sources within radiation monitoring or boron measuring devices) are considered to be stored and need not be tested unless they are removed from the shielded mechanism.

INDEX

ADMINISTRATIVE CONTROLS

SECTION	PAGE
Consultants	6-8
Meeting Frequency	6-8
Review	6-8
Authority	6-9
Records	6-9
6.5.3 QUALITY ASSURANCE DEPARTMENT	
Function	6-10
Authority	6-10
Records	6-11
6.6 REPORTABLE OCCURRENCE ACTION	6-12
6.7 SAFETY LIMIT VIOLATION	6-12
6.8 PROCEDURES AND PROGRAMS	6-13
6.9 REPORTING REQUIREMENTS	
6.9.1 ROUTINE REPORTS AND REPORTABLE OCCURRENCES	6-14
6.9.2 SPECIAL REPORTS	6-18
6.10 RECORD RETENTION	6-20
6.11 RADIATION PROTECTION PROGRAM	6-21
6.12 HIGH RADIATION AREA	6-22
6.13 ENVIRONMENTAL QUALIFICATION	6-23

TABLE 3.3-3 (Continued)

ACTION 17 - With the number of OPERABLE Channels one less than the Total Number of Channels operation may proceed provided the inoperable channel is placed in the tripped condition within 1 hour and the Minimum Channels OPERABLE requirement is met, one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.

ACTION 18 - With the number of OPERABLE Channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ACTION 19 - With the number of OPERABLE Channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 1 hour.

b. The Minimum Channels OPERABLE requirements is met; however, one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.

ACTION 20 - With the number of OPERABLE Channels one less than the Total Number of Channels, be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within the following 6 hours; however, one channel may be bypassed for up to 1 hour for surveillance testing per Specification 4.3.2.1.1 provided the other Channel is OPERABLE.

ACTION 21 - With the number of OPERABLE Channels one less than the Total Number of Channels, restore the inoperable Channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within the following 6 hours.

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
6. AUXILIARY FEEDWATER PUMP START		
a. Manual	N. A.	N. A.
b. Automatic Actuation Logic	N. A.	N. A.
c. Steam Generator Water Level Low-Low	≥ 18% of narrow range instrument span each steam generator	≥ 17% of narrow range instrument span each steam generator
d. S.I.	See 1 above (All S.I. Setpoints)	
e. Station Blackout	≥ 57.5% Transfer Bus Voltage	≥ 52.5% Transfer Bus Voltage
f. Trip of Main Feed Pumps	N. A.	N. A.
7. LOSS OF POWER		
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	2999 ± 60 volts with a 2.2 ± 0.03 second time delay	2912 ± 60 volts with a 3 ± 0.03 second time delay
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	3744 ± 1.4 volts with a 60 ± 3 second time delay	3619 ± 1.4 volts with a 75 ± 3 second time delay

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
5. TURBINE TRIP AND FEEDWATER ISOLATION				
a. Steam Generator Water Level--High-High	S	R	M	1, 2, 3
6. AUXILIARY FEEDWATER PUMPS				
a. Manual	N. A.	N. A.	M(1)	1, 2, 3
b. Automatic Actuation Logic	N. A.	N. A.	M(2)	1, 2, 3
c. Steam Generator Water Level--Low-Low	S	R	M	1, 2, 3, 4
d. S.I.	See 1 above (all S.I. Surveillance Requirements)			
e. Station Blackout	N. A.	R	N. A.	1, 2, 3, 4
f. Main Feedwater Pump Trip	N. A.	N. A.	R	1, 2
7. LOSS OF POWER 4.16 KV Emergency Bus				
a. Loss of Voltage	N. A.	R	M(2)	1, 2, 3
b. Degraded Voltage	N. A.	R	M(2)	1, 2, 3

6.9 REPORTING REQUIREMENTS

ROUTINE REPORTS AND REPORTABLE OCCURRENCES

6.9.1 In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the Director of the Regional Office of Inspection and Enforcement unless otherwise noted.

STARTUP REPORTS

6.9.1.1 A summary report of plant startup and power escalation testing shall be submitted following (a) receipt of an operating license, (2) amendment to the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the plant.

6.9.1.2. The startup report shall address each of the tests identified in the FSAR and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details requested in license conditions based on other commitments shall be included in this report.

6.9.1.3 Startup reports shall be submitted within (1) 90 days following completion of the startup test program, (2) 90 days following resumption or commencement of commercial power operation, or (3) 9 months following initial criticality, whichever is earliest. If the Startup Report does not cover all three events (i.e., initial criticality, completion of startup test program, and resumption or commencement of commercial power operation), supplementary reports shall be submitted at least every three months until all three events have been completed.

PLANT SYSTEMS

3/4.7.10 SNUBBERS

LIMITING CONDITION FOR OPERATION

3.7.10 All snubbers listed in Tables 3.7-4a and 3.7-4b shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4. (MODES 5 and 6 for snubbers located on systems required OPERABLE in those MODES).

ACTION:

With one or more snubbers inoperable, within 72 hours replace or restore the inoperable snubber(s) to OPERABLE status and perform an engineering evaluation per Specification 4.7.10.c on the supported component or declare the supported system inoperable and follow the appropriate ACTION statement for that system.

SURVEILLANCE REQUIREMENTS

4.7.10 Each snubber shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program and the requirements of Specification 4.0.5.

a. Visual Inspections

The first inservice visual inspection of snubbers shall be performed after four months but within 10 months of commencing POWER OPERATION and shall include all snubbers listed in Tables 3.7-4a and 3.7-4b. If less than two (2) snubbers are found inoperable during the first inservice visual inspection, the second inservice visual inspection shall be performed 12 months ± 25% from the date of the first inspection. Otherwise, subsequent visual inspections shall be performed in accordance with the following schedule:

No. Inoperable Snubbers per Inspection Period	Subsequent Visual Inspection Period*#
0	18 months ± 25%
1	12 months ± 25%
2	6 months ± 25%
3,4	124 days ± 25%
5,6,7	62 days ± 25%
8 or more	31 days ± 25%

The snubbers may be categorized into two groups: Those accessible and those inaccessible during reactor operation. Each group may be inspected independently in accordance with the above schedule.

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* The inspection interval shall not be lenthened more than one step at a time.
# The provisions of Specification 4.0.2 are not applicable.

SURVEILLANCE REQUIREMENTS (Continued)

b. Visual Inspection Acceptance Criteria

Visual inspections shall verify (1) that there are no visual indications of damage or impaired OPERABILITY, (2) attachments to the foundation or supporting structure are secure, and (3) in those locations where snubber movement can be manually induced without disconnecting the snubber, that the snubber has freedom of movement and is not frozen up. Snubbers which appear inoperable as a result of visual inspections may be determined OPERABLE for the purpose of establishing the next visual inspection interval, providing that (1) the cause of the rejection is clearly established and remedied for that particular snubber and for other snubbers that may be generically susceptible; and (2) the affected snubber is functionally tested in the as found condition and determined OPERABLE per Specifications 4.7.10.d and 4.7.10.e. However, when the fluid port of a hydraulic snubber is found to be uncovered, the snubber shall be determined inoperable and cannot be determined OPERABLE via functional testing for the purpose of establishing the next visual inspection interval. All snubbers connected to an inoperable common hydraulic fluid reservior shall be counted as inoperable snubbers.

c. Functional Tests

At least once per 18 months during shutdown, a representative sample of that number of snubbers which follows the expression $35\ [1 + \frac{c}{2}]$, where c=7 is the allowable number of snubbers not meeting the acceptance criteria selected by the operator, shall be functionally tested either in-place or in a bench test. For each number of snubbers above c which does not meet the functional test acceptance criteria of Specification 4.7.10.d or 4.7.10.e, and additional sample selected according to the expression $35\ (1 + \frac{c}{2})\ (\frac{2}{c + 1})^2\ (a - c)$ shall be functionally tested, where a is the total number of snubbers found inoperable during the functional testing of the representative sample.

Functional testing shall continue according to the expression $b\ [35(1 + \frac{c}{2})^2]$ where b is the number of snubbers found inoperable in the previous re-sample, until no additional inoperable snubbers are found within a sample or until all snubbers in Table 3.7-4a and 3.7-4b have been functionally tested.

SURVEILLANCE REQUIREMENTS (Continued)

The representative sample selected for functional testing shall include the various configurations, operating environments and the range of size and capacity of snubbers. At least 25% of the snubbers in the representative sample shall include snubbers from the following three categories:

1. The first snubber away from each reactor vessel nozzle

2. Snubbers within 5 feet of heavy equipment (valve, pump, turbine, motor, etc.).

3. Snubbers within 10 feet of the discharge from a safety relief valve.

Snubbers identified in Tables 3.7-4a and 3.7-4b as "Especially Difficult to Remove" or in "High Radiation Zones During Shutdown" shall also be included in the representative sample.* Tables 3.7-4a and 3.7-4b may be used jointly or separately as the basis for the sampling plan.

In addition to the regular sample, snubbers which failed the previous functional test shall be retested during the next test period. If a spare snubber has been installed in place of a failed snubber, then both the failed snubber (if it is repaired and installed in another position) and the spare snubber shall be retested. Test results of these snubbers may not be included for the re-sampling.

If any snubber selected for functional testing either fails to lockup or fails to move, i.e., frozen in place, the cause will be evaluated and if caused by manufacturer or design deficiency all snubbers of the same design subject to the same defect shall be functionally tested. This testing requirement shall be independent of the requirements stated above for snubbers not meeting the functional test acceptance criteria.

For the snubber(s) found inoperable, an engineering evaluation shall be performed on the components which are supported by the snubber(s). The purpose of this engineering evaluation shall be to determine if the components supported by the snubber(s) were adversely affected by the inoperability of the snubber(s) in order to ensure that the supported component remains capable of meeting the design service.

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* Permanent or other exemptions from functional testing for individual snubbers in these categories may be granted by the Commission only if a justifiable basis for exemption is presented and/or snubber life destructive testing was performed to qualify snubber operability for all design conditions at either the completion of their fabrication or at a subsequent date.

d. Hydraulic Snubbers Functional Test Acceptance Criteria

The hydraulic snubber functional test shall verify that:

1. Activation (restraining action) is achieved within the specified range of velocity or acceleration in both tension and compression.

2. Snubber bleed, or release rate, where required, is within the specified range in compression or tension. For snubbers specifically required to not displace under continuous load, the ability of the snubber to withstand load without displacement shall be verified.

e. Mechanical Snubbers Functional Test Acceptance Criteria

The mechanical snubber functional test shall verify that:

1. The force that initiates free movement of the snubber rod in either tension or compression is less than the specified maximum drag force. Drag force shall not have increased more than 50% since the last functional test.

2. Activation (restraining action) is achieved within the specified range of velocity or acceleration in both tension and compression.

3. Snubber release rate, where required, is within the specified range in compression or tension. For snubbers specifically required not to displace under continuous load, the ability of the snubber to withstand load without displacement shall be verified.

f. Snubber Service Life Monitoring

A record of the service life of each snubber, the date at which the designated service life commences and the installation and maintenance records on which the designated service life is based shall be maintained as required by Specification 6.10.2.

Concurrent with the first inservice visual inspection and at least once per 18 months thereafter, the installation and maintenance records for each snubber listed in Tables 3.7-4a and 3.7-4b shall be reviewed to verify that the indicated service life has not been exceeded or will not be exceeded prior to the next scheduled snubber

SURVEILLANCE REQUIREMENTS (Continued)

service life review. If the indicated service life will be exceeded prior to the next scheduled snubber service life review, the snubber service life shall be reevaluated or the snubber shall be replaced or reconditioned so as to extend its service life beyond the date of the next scheduled service life review. This reevaluation, replacement or reconditioning shall be indicated in the records.

TABLE 3.7-4b
SAFETY RELATED MECHANICAL SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION	ACCESSIBLE OR INACCESSIBLE (A or I)	HIGH RADIATION ZONE DURING SHUTDOWN** (Yes or No)	ESPECIALLY DIFFICULT TO REMOVE (Yes or No)

TABLE NOTATIONS

#LOCATION ABBREVIATIONS

Abbreviations	Area
A	Cubicle A
B	Cubicle B
C	Cubicle C
Pent.	Penetration Area Aux. Bldg.
P	Pressurizer Cubicle
RCA	Reactor Containment Annulus
RCB	Reactor Containment Basement
RCP	Reactor Containment Penetration Area
MSVH	Main Steam Valve House
AFPH	Aux. Feedwater Pump House
MSH	Main Steam Header - Turb. Bldg.
TBM	Turbine Bldg. Mezzanine
TBB	Turbine Bldg. Basement
SB	Service Bldg.
SG	Safeguards Bldg.
QS	Quench Spray Area
FWH	Feedwater Header - Turb. Bldg.
ABB	Auxiliary Bldg. Basement
FBB	Fuel Bldg. Basement
RHR	Residual Heat Removal Mezzanine

NOTE: Numbers indicate radial location in reactor containment.

*Snubbers may be added to and deleted from safety related systems without prior License Amendment to Tables 3.7-4a and 3.7-4b provided that a revision to Tables 3.7-4a and 3.7-4b is included with the next License Amendment request.

**Modifications to this table due to changes in high radiation areas may be made without prior License Amendment provided that a revision to Tables 3.7-4a and 3.7-4b is included with the next License Amendment request.

3/4.7.9.1 AND 3/4.7.9.2 RESIDUAL HEAT REMOVAL SYSTEM (RHR)

The OPERABILITY of the RHR system ensures that residual heat removal capability is available below 350°F following plant shutdown. The RHR system is not part of the ECCS system.

3/4.7.10 SNUBBERS

All snubbers are required OPERABLE to ensure that the structural integrity of the reactor coolant system and all other safety related systems is maintained during and following a seismic or other event initiating dynamic loads. Snubbers excluded from this inspection program are those installed on nonsafety-related systems and then only if their failure or failure of the system on which they are installed, would have no adverse effect on any safety-related system.

The visual inspection frequency is based upon maintaining a constant level of snubber protection to systems. Therefore, the required inspection interval varies inversely with the observed snubber failures and is determined by the number of inoperable snubbers found during an 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.

When the cause of the rejection of a snubber is clearly established and remedied for that snubber and for any other snubbers that may be generically susceptible, and verified by inservice functional testing, that snubber may be exempted from being counted as inoperable. Generically susceptible snubbers are those which are of a specific make or model and have the same design features directly related to rejection of the snubber by visual inspection, or are similarly located or exposed to the same environmental conditions such as temperature, radiation, and vibration.

When a snubber is found inoperable, an engineering evaluation is performed, in addition to the determination of the snubber mode of failure, in order to determine if any safety-related component or system has been adversely affected by the inoperability of the snubber. The engineering evaluation shall determine whether or not the snubber mode of failure has imparted a significant effect or degradation on the supported component or system.

To provide assurance of snubber functional reliability, a representative sample of the installed snubbers will be functionally tested during plant shutdowns at 18 months intervals. Observed failures of these sample snubbers shall require functional testing of additional units.

The service life of a snubber is evaluated via manufacturer input and information through consideration of the snubber service conditions and associated installation and maintenance records (newly installed snubber, seal replaced, spring replaced, in high radiation area, in high temperature area, etc...). The requirement to monitor the snubber service life is included to ensure that the snubbers periodically undergo a performance evaluation in view of their age and operating conditions. These records will provide statistical bases for future consideration of snubber service life. The requirements for the maintenance of records and the snubber service life review are not intended to affect plant operation.

DISCUSSION OF PROPOSED TECHNICAL SPECIFICATION CHANGE
NORTH ANNA UNIT NO. 1

By a letter dated November 20, 1980, the NRC Staff requested the submittal of a license amendment application to incorporate applicable portions of the revised inservice surveillance requirements for snubbers in the North Anna Unit No. 1 Technical Specifications. The proposed Technical Specification changes for North Anna Unit 1 are discussed below.

The revisions to the Unit 1 Technical Specifications include revised surveillance requirements for visual inspections and for functional tests for hydraulic snubbers and mechanical snubbers. The existing functional test requirement specifies that a representative sample of 10% of each type of snubber should be functionally tested at least once per 18 months. An optional method offered by the November 20, 1980 letter for defining the size of a functional test representative sample is a formula based upon a variable "c", which is defined by the license and approved by the Staff. The definition of c=7 will result in a representative sample size of approximately 33% of each type of snubber for the functional tests. This representative sample size coincides with our program of rebuilding and functionally testing all snubbers every five years. A program of this magnitude will reduce the failure rate and increase the reliability of all snubbers installed at North Anna Unit 1.

Included in the proposed revisions are functional test acceptance criteria for mechanical snubbers, which are presently not part of the North Anna Unit 1 Technical Specifications. Mechanical snubbers have recently been installed as a result of the Multi-Structure Amplified Response Spectra (ARS) effort for Unit 1; therefore, the requirements for mechanical snubber functional test acceptance criteria are now being included in the North Anna Unit 1 Technical Specifications. All appropriate references associated with mechanical snubber requirements are being included. In addition, a safety-related mechanical snubber table is being added and designated as Table 3.7-4b and the existing Table 3.7-4 is being redesignated as Table 3.7-4a.

The proposed revisions also included a requirement for maintaining records of the service lives of all hydraulic and mechanical snubbers listed in Table 3.7-4a and Table 3.7-4b for the duration of the Operating License. Surveillance requirements relating to monitoring of snubber service life are specified in Specification 4.7.10.f.

In our letters dated March 13, 1981 (Serial No. 119) and March 16, 1981 (Serial No. 119A), we requested changes to the North anna Unit 1 Technical Specifications to delete six hydraulic snubbers and add one hydraulic snubber to Table 3.7-4 of Specification 3/4.7.10. As a result of the ARS reanalysis, additional modifications were made to the supports of the Safety Injection Piping System in the containment and safeguards building, quench spray piping system in the containment, residual heat removal piping system in the containment, component cooling system in the containment and auxiliary building basement, main steam system in the service building, and the chemical feed piping system in the containment. As a result of these modifications, snubber 451 at location SI-238-9, snubber 600 at location QS-256-11½, snubber 452 at

location RH-234-7, snubber 453 at location CC-244-7½, snubbers 700, 701, 702, and 703 at location SI-256-SG, snubbers 224A and 224B at location SHP-300-SB, and snubber 413 at location CC-256-ABB should be added to Table 3.7-4a of the Technical Specifications. Snubbers 118 and 119 at location CFPD-304-3 and snubbers 221 and 224 at location CFPD-304-13 should be added to the proposed Table 3.7-4b. The location-area, accessibility, and determination of high radiation zone should be changed for snubber 600 at location WFPD-291-RCA, which was added in our license amendment request dated March 13, 1981. This snubber was previously located outside the crane wall and was moved inside the crane wall, thus resulting in these changes in classification. The existing Table 3.7-4 lists two snubbers, snubbers 228A and 228A at location SHP-300-SB, of which one of these snubbers was replaced with a larger snubber as a result of the ARS effort. Upon review of Table 3.7-4, the numbering discrepancy was noted; therefore, one of the snubbers 228A at location SHP-300-SB should be redesignated as snubber 228B.

The implementation of the revised inservice surveillance requirements for snubbers will improve overall snubber operability throughout the unit due to improved surveillance and functional test requirements. In addition, the requirement for maintaining records of service lives for hydraulic and mechanical snubbers for the duration of the Operating License will assist in identifying ongoing problems with snubber service lives and thereby improve snubber operability.

DISCUSSION OF PROPOSED TECHNICAL SPECIFICATION CHANGE
NORTH ANNA UNIT NO. 2

By a letter dated November 20, 1980, the NRC Staff requested the submittal of a license amendment application to incorporate applicable portions of the revised inservice surveillance requirements for snubbers in the North Anna Unit No. 2 Technical Specifications. The proposed Technical Specification changes for North Anna Unit 2 are discussed below.

The revisions to the Unit 2 Technical Specifications include revised surveillance requirements for visual inspections and for functional tests for hydraulic snubbers and mechanical snubbers. The existing functional test requirement specifies that a representative sample of 10% of each type of snubber should be functionally tested at least once per 18 months. An optional method offered by the November 20, 1980 letter for defining the size of a functional test representative sample is a formula based upon a variable "c", which is defined by the license and approved by the Staff. The definition of c=7 will result in a representative sample size of approximately 33% of each type of snubber for the functional tests. This representative sample size coincides with our program of rebuilding and functionally testing all snubbers every five years. A program of this magnitude will reduce the failure rate and increase the reliability of all snubbers installed at North Anna Unit 2.

Included in the proposed revisions are functional test acceptance criteria for mechanical snubbers, which are presently not part of the North Anna Unit 2 Technical Specifications. Mechanical snubbers are not presently installed in North Anna Unit 2; however, to facilitate the revision of the Unit 2 Technical Specifications as a result of any future installation of mechanical snubbers, the requirements for mechanical snubber functional test acceptance criteria are now being included in the North Anna Unit 2 Technical Specifications. All appropriate references associated with mechanical snubber requirements are also being included.

In addition, the proposed revisions include a requirement for maintaining records of the service lives of all hydraulic and mechanical snubber listed in Tables 3.7-4a and 3.7-4b for the duration of the Operating License. Surveillance requirements relating to monitoring of snubber service life are specified in Specification 4.7.10.f.

The implementation of the revised inservice surveillance requirements for snubbers will improve overall snubber operability throughout the unit due to improved surveillance and functional test requirements. In addition, the requirement for maintaining records of service lives for hydraulic and mechanical snubbers for the duration of the Operating License will assist in identifying ongoing problems with snubber service lives and thereby improve snubber operability.