AN0-1

SNUBBER TECH SPEC

REVISION

ATTACHMENT 1 TO ØCANØ68315

3.16 Shock Suppressors (Snubbers)

Applicability

Applies to all shock suppressors (snubbers) listed in Table 3.16-1 and Table 3.16-2.

Objective

To assure adequate shock suppression protection for primary coolant system piping and any other safety related system or component under dynamic loads as might occur during an earthquake or severe transient, while allowing normal thermal motion during startup and shutdown. This is done by assuring the operability of those shock suppressors installed for that purpose.

Specification

- 3.16.1 The reactor shall not be heated above 200F if any shock suppressor listed in Table 3.16-1 or Table 3.16-2 is known to be inoperable.
- 3.16.2 If any shock suppressor listed in Table 3.16-1 or Table 3.16-2 is determined to be inoperable during power operation, that shock suppressor shall be made operable or replaced within 72 hours or the reactor shall be placed in the cold shutdown condition within an additional 36 hours.
- 3.16.3 Shock suppressors may be added to safety related systems without prior License Amendment to Table 3.16-1 or Table 3.16-2 provided that a revision to Table 3.16-1 or Table 3.16-2 is included with the next License Amendment request.

Bases

Shock suppressors are designed to prevent unrestrained pipe motion under dynamic loads as might occur during an earthquake or severe transient, while allowing normal thermal motion during startup and shutdown. The consequence of an inoperable shock suppressor 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 shock suppressors required to protect the primary coolant system or any other safety system or component be operable during reactor operation.

Because the shock suppressor protection is required only during 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, Specification 3.16.1 prohibits startup with inoperable shock suppressors.

Table 3.16-1
SAFETY RELATED HYDRAULIC SHOCK SUPPRESSORS (SNUBBERS)

Snubber No.	Location	E	levation	Snubber in High Radiation Area During Shutdown*	Snubbers Especially Difficult to Remove	Snubbers Inaccessible During Normal Operation	Snubbers Accessible During Norma Operation
HS-1	Decay Heat Line B	3291	1"	X			X
HS-2	Decay Heat Line A	322'	11-3/8"	X			X
HS-49	Decay Heat Line A	329'	1"	X			X
HS-50	Decay Heat Line A	3221	11-3/8"	Χ			Χ
HS-8	Pressurizer Spray Line	4081	7-11/16"	X		X	
HS-9	Pressurizer Spray Line	4081	7-11/16"	X		X	
HS-51	Pressurizer Spray Line	373'	0"	X	X	X	
HS-52	Pressurizer Spray Line	373'	0"	X	X	X	
HS-53	Pressurizer Spray Line	3821	0"	X		X	
HS-54	Pressurizer Spray Line	381'	6"	X	X	X	
HS-55	Pressurizer Spray Line	3981	6"	X	X	X	
HS-56	Pressurizer Spray Line	398'	0"	X	X	X	
HS-57	Pressurizer Spray Line	406'	10"	X		X	
HS-58	Pressurizer Spray Line	408'	7-11/16"	X		X	
HS-59	Pressurizer Spray Line	408'	7-11/16"	X		X	
HS-60	Pressurizer Spray Line	408'	7-11/16"	X		X	
HS-61	Pressurizer Spray Line	408'	7-11/16"	X		X	
HS-62	Pressurizer Spray Line	4081	7-11/16"	X		X	
HS-63	Pressurizer Spray Line		7-11/16"	X		X	

^{*}Modifications to this Table due to changes in high radiation areas should be submitted to the NRC as part of the next license amendment.

Table 3.16-1 (Cont.)

SAFETY RELATED HYDRAULIC SHOCK SUPPRESSORS (SNUBBERS)

Snubber No.	Location	EI	evation	Snubber in High Radiation Area During Shutdown*	Snubbers Especially Difficult to Remove	Snubbers Inaccessible During Normal Operation	Snubbers Accessible During Norma Operation
HS-10	Pressurizer Relief Line	4091	2-3/4"	х		Х	
HS-11	Pressurizer Relief Line	410'	2-3/4"			X	
HS-12	Pressurizer Relief Line	410'	2-3/4"			Χ	
HS-13	Pressurizer Relief Line	4001	0"			X	
HS-14	Pressurizer Relief Line	4001	0"			X	
HS-66	Pressurizer Relief Line	410'	2-3/4"			X	
HS-67	Pressurizer Relief Line	410'	2-3/4"			X	
HS-68	Pressurizer Relief Line	410'	2-3/4"	X		X	
HS-69	Pressurizer Relief Line	410'	2-3/4"			X	
HS-70	Pressurizer Relief Line	391'	0"	X		X	
HS-71	Pressurizer Relief Line	3671	6"	X	X	X	
HS-72	Pressurizer Relief Line	357'	0"	X	X	X	
IS-88	Pressurizer Relief Line	370'	0"	X	X	X	
H-A-1	Pressurizer Relief Line	400'	0"	X	X	X	
1-A-2	Pressurizer Relief Line	3991	0"	X	X	X	
I-B-1	Pressurizer Relief Line	400'	0"	X	X	X	
I-B-2	Pressurizer Relief Line	391'	0"	X	X	X	
I-C-1	Pressurizer Relief Line	410'	2-3/4"		X	X	
I-C-2	Pressurizer Relief Line	3941	0"			X	
IS-22	Main Feedwater Header B	376'	4-11/16"		X	X	
IS-23	Main Feedwater Header B	3761	4-11/16"		X	X	

^{*}Modifications to this Table due to changes in high radiation areas should be submitted to the NRC as part of the next license amendment.

Table 3.16-1 (Cont.)

SAFETY RELATED HYDRAULIC SHOCK SUPPRESSORS (SNUBBERS)

Snubber No.	Location	Ε	levation	Snubber in High Radiation Area During Shutdown*	Snubbers Especially Difficult to Remove	Snubbers Inaccessible During Normal Operation	Snubbers Accessible During Norma Operation
HS-24	Main Feedwater Header B	376'	4-11/16"	X	X	X	
HS-25	Main Feedwater Header B	3761	4-11/16"	X	X	X	
HS-26	Main Feedwater Header B	3761	4-11/16"		X	X	
HS-27	Main Feedwater Header B	3761	4-11/16"		X	X	
HS-28	Main Feedwater Header B	376'	4-11/16"	X	X	X	
HS-29	Main Feedwater Header B	376'	4-11/16"	X	X	X	
HS-30	Main Feedwater Line A	361'	0"			X	
HS-31	Main Feedwater Header A	376'	4-11/16"		X	X	
HS-32	Main Feedwater Header A	376'	4-11/16"		X	X	
HS-33	Main Feedwater Header A	376'	4-11/16"		X	X	
HS-34	Main Feedwater Header A	376'	4-11/16"		X	X	
HS-35	Main Feedwater Header A	3761	4-11/16"		X	X	
HS-36	Main Feedwater Header A	3761	4-11/16"	X	X	X	
HS-37	Main Feedwater Header A	376'	4-11/16"		X	X	
4S-38	Main Feedwater Header A	376'	4-11/16"		X	X	
HS-21	Emergency Feedwater Line B	3941	0"	X		X	
LA	Reactor Coolant Pump A	390'	10"		X	X	
2A	Reactor Coolant Pump A	3901	10"		X	X	
LB	Reactor Coolant Pump B	390'	10"		X	X	
2B	Reactor Coolant Pump B	390'	10"		X	X	
C	Reactor Coolant Pump C	3901	10"		X	X	
2C	Reactor Coolant Pump C	390'	10"		X	X	
D	Reactor Coolant Pump D	390'	10"		X	X	
D	Reactor Coolant Pump D	390'	10"		X	X	
IS-101	Pressurizer Surge Line	350'	0"	X	X	x	
IS-102	Pressurizer Surge Line	350'	0"	X	X	x	

^{*}Modifications to this Table due to changes in high radiation areas should be submitted to the NRC as part of the next license amendment.

Table 3.16-2
SAFETY RELATED MECHANICAL SHOCK SUPPRESSORS (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
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A list of safety related mechanical shock suppressors will be provided to NRC pending verification by physical walkdown during the next scheduled refueling outage.

^{*}Modifications to this Table due to changes in high radiation areas should be submitted to the NRC as part of the next license amendment.

Applicability

Applies to all shock suppressors (snubbers) protecting the primary system and any other safety related system or component.

Objective

Verify an acceptable level of operability of the shock suppressors protecting the primary system and any other safety related system or component.

Specification

- 4.16.1 The following surveillance requirements apply to all hydraulic shock suppressors listed in Table 3.16-1 and Table 3.16-2.
- 4.16.1.1 The general surveillance requirements to be followed for the periodic examination and testing of safety related hydraulic and mechanical shock suppressors shall be those inspection intervals, criteria and data requirements contained in ANSI/ASME OM4-1982.
- 4.16.1.2 Shock suppressors in high radiation areas during shutdown or those especially difficult to remove need not be selected for functional testing provided their operability was previously verified.
- 4.16.1.3 Shock suppressors of rated capacity greater than 50,000 lb. need not be functionally tested.

Bases

All safety related hydraulic and mechanical shock suppressors are examined and tested for operability in accordance with the requirements of ANSI/ASME OM4-1982, "Examination and Performance Testing of Nuclear Power Plant Dynamic Restraints (Snubbers)." This standard, which has been approved by the American National Standards Institute, is one of a series of nuclear power plant equipment standards developed as a guide for inservice examination and performance testing under the sponsorship of the American Society of Mechanical Engineers by the Nuclear Codes and Standards and Operation and Maintenance Committees. These committees were chartered to identify, develop, maintain and review Codes and Standards considered necessary for the safe and efficient operation and maintenance of nuclear power plants to ensure structural and functional adequacy.

We have determined that these goals have been satisifed by the OM-4 Standard with regard to the inservice examination and performance testing needs for the safety related hydraulic and mechanical shock suppressors for ANO-1. Therefore, we have elected to incorporate into these Technical Specifications, by reference, those inservice inspection intervals, criteria and data requirements contained in ANSI/ASME OM4-1982 as being the general surveillance requirements to be followed for the periodic examination and testing of the shock suppressors in Table 3.16-1 and Table 3.16-2.

Additionally, we have determined that those shock suppressors in high radiation areas during shutdown or those especially difficult to remove need not be selected for functional testing (provided their operability was previously verified) in order to avoid exposing plant personnel to undue hazards. Also, those shock suppressors of rated capacity greater than 50,000 lb. are exempt from functional testing because of the impracticality of testing such large units.

ANO-2 SNUBBER TECH SPEC REVISIONS

ATTACHMENT 2 TO ØCANØ68315

INDEX

SECTION		PAGE
3/4.7	PLANT SYSTEMS	
3/4.7.1	TURBINE CYCLE	
	Safety Valves	3/4 7-1
	Emergency Feedwater System	3/4 7-5
	Condensate Storage Tank	3/4 7-7
	Activity	3/4 7-8
	Main Steam Isolation Valves	3/4 7-10
3/4.7.2	STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION	3/4 7-14
3/4.7.3	SERVICE WATER SYSTEM	3/4 7-15
3/4.7.4	EMERGENCY COOLING POND	3/4 7-16
3/4.7.5	FLOOD PROTECTION	3/4 7-168
3/4.7.6	CONTROL ROOM EMERGENCY AIR CONDITIONING AND AIR	
	FILTRATION SYSTEM	3/4 7-17
3/4.7.8	SHOCK SUPPRESSORS	3/4 7-22
3/4.7.9	SEALED SOURCE CONTAMINATION	3/4 7-27
3/4.7.10	FIRE SUPPRESSION SYSTEMS	
	Fire Suppression Water System	3/4 7-29
	Spray and/or Sprinkler Systems	3/4 7-33
	Fire Hose Stations	3/4 7-35
74.7.11	PENETRATION FIRE BARRIERS	3/4 7-37
3/4.7.12	SPENT FUEL POOL STRUCTURAL INTEGRITY	3/4 7-38
3/4.8	ELECTRICAL POWER SYSTEMS	
74.8.1	A.C. SOURCES	
	Operating	3/4 8-1
	Shutdown	3/4 8-5

INDEX

BASES				
SECTION			PAG	E
3/4.7	PLANT SYSTEMS		E	
3/4.7.1	TURBINE CYCLE	В	3/4	7-1
3/4.7.2	STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION	В	3/4	7-4
3/4.7.3	SERVICE WATER SYSTEM	В	3/4	7-4
3/4.7.4	EMERGENCY COOLING POND	В	3/4	7-4
3/4.7.5	FLOOD PROTECTION	В	3/4	7-4
3/4.7.6	CONTROL ROOM EMERGENCY AIR CONDITIONING/AIR FILTRA-			
	TION SYSTEM	В	3/4	7-4
3/4.7.8	SHOCK SUPPRESSORS (SNUBBERS)	В	3/4	7-5
3/4.7.9	SEALED SOURCE CONTAMINATION	В	3/4	7-6
3/4.7.10	FIRE SUPPRESSION SYSTEMS	В	3/4	7-6
3/4.7.11	PENETRATION FIRE BARRIERS	В	3/4	7-7
3/4.7.12	SPENT FUEL POOL STRUCTURAL INTEGRITY	В	3/4	7-7
3/4.8	ELECTRICAL POWER SYSTEMS	В	3/4	8-1
3/4.9	REFUELING OPERATIONS			
3/4.9.1	BORON CONCENTRATION	В	3/4	9-1
3/4.9.2	INSTRUMENTATION			
3/4.9.3	DECAY TIME			
3/4.9.4	CONTAINMENT PENETRATIONS	В		9-1

PLANT SYSTEMS

3/4.7.8 SHOCK SUPPRESSORS

LIMITING CONDITION FOR OPERATION

3.7.8.1 All shock suppressors listed in Table 3.7-4 and Table 3.7-4a shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one or more shock suppressors inoperable, replace or restore the inoperable shock suppressor(s) to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

- 4.7.8.1 Shock suppressors shall be demonstrated OPERABLE by implementation of the following surveillance requirements and the requirements of Specification 4.0.5.
 - a. These surveillance requirements apply to all shock suppressors listed in Table 3.7-4 and Table 3.7-4a.
 - b. The general surveillance requirements to be followed for the periodic examination and testing of safety related hydraulic and mechanical shock suppressors shall be those inspection intervals, criteria and data requirements contained in ANSI/ASME OM4-1982.
 - c. Shock suppressors identified as being either "Especially Difficult to Remove" or in "High Radiation Zones" may be exempted from functional testing provided these shock suppressors were demonstrated OPERABLE during previous functional tests.
 - d. Shock suppressors of rated capacity greater than 50,000 lb. may be excluded from functional test requirements.

ARKANSAS .	SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON, LOCATION AND ELEVATION	ACCESSIBLE OR INACCESSIBLE	HIGH RADIATION ZONE DURING SHUTDOWN**	ESPECIALLY DIFFICULT TO REMOVE
_			(A or I)	(Yes or No)	(Yes or No)
UNIT 2	HS-RCPA-E	On Reactor Coolant Pump A (South Secondary Cavity), East Side, Elev. 390' 10"	1	Yes	Yes
	HS-RCPA-W	On Reactor Coolant Pump A (South Secondary Cavity), West Side, Elev. 390' 10"	I	Yes	Yes
	HS-RCPB-E	On Reactor Coolant Pump B (South Secondary Cavity), East Side, Elev. 390' 10"	I	Yes	Yes
3/4 7-24	HS-RCPB-W	On Reactor Coolant Pump B (South Secondary Cavity), West Side, Elev. 390' 10"	I	Yes	Yes
	HS-RCPC-E	On Reactor Coolant Pump C (North Secondary Cavity), East Side, Elev. 390' 10"	I	Yes	Yes
	HS-RCPC-W	On Reactor Coolant Pump C (North Secondary Cavity), West Side, Elev. 390' 10"	I	Yes	Yes
	HS-RCPD-E	On Reactor Coolant Pump D (North Secondary Cavity), East Side, Elev. 390' 10"	I	Yes	Yes

TABLE 3.7-4 (Cont.)

SAFETY RELATED HYDRAULIC SHOCK SUPPRESSORS (SNUBBERS)*

VANICAC I	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)
C TIM	HS-RCPD-W	On Reactor Coolant Pump D (North Secondary Cavity), West Side, Elev. 390' 10"	I	Yes	Yes
	HS-SGA-E	On Steam Generator A (South Secondary Cavity), East Side, Elev. 403' 7"	I	Yes	Yes
4	HS-SGA-W	On Steam Generator A (South Secondary Cavity), West Side, Elev. 403' 7"	I	Yes	Yes
1 1	HS-SGB-E	On Steam Generator B (North Secondary Cavity), East Side, Elev. 403' 7"	I	Yes	Yes
	HS-SGB-W	On Steam Generator B (North Secondary Cavity), West Side, Elev. 403' 7"	I	Yes	Yes

^{*} Snubbers may be added to safety related systems without prior License Amendment to Table 3.7-4 provided that a revision to Table 3.7-4 is included with the next License Amendment request.

^{**} Modifications to this column due to changes in high radiation areas may be made without prior License Amendment provided that a revision to Table 3.7-4 is included with the next License Amendment request.

TABLE 3.7-4a

SAFETY RELATED MECHANICAL SHOCK SUPPRESSORS (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)

A list of safety related mechanical shock suppressors will be provided to NRC pending verification by physical walkdown during the next scheduled refueling outage.

^{*} Snubbers may be added to safety related systems without prior License Amendment to Table 3.7-4a provided that a revision to Table 3.7-4a is included with the next License Amendment request.

^{**} Modifications to this column due to changes in high radiation areas may be made without prior License Amendment provided that a revision to Table 3.7-4a is included with the next Licnese Amendment request.

TABLE 4.7-4

(Deleted)

PLANT SYSTEMS

BASES

following all credible accident conditions. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rem or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criteria 19 of Appendix "A", 10 CFR 50.

3/4.7.8 SHOCK SUPPRESSORS (Snubbers)

All safety related hydraulic and mechanical shock suppressors are examined and tested for operability in accordance with the requirements of ANSI/ASME OM4-1982, "Examination and Performance Testing of Nuclear Power Plant Dynamic Restraints (Snubbers)." This standard, which has been approved by the American National Standards Institute, is one of a series of nuclear power plant equipment standards developed as a guide for inservice examination and performance testing under the sponsorship of the American Society of Mechanical Engineers by the Nuclear Codes and Standards and Operation and Maintenance Committees. These committees were chartered to identify, develop, maintain and review Codes and Standards considered necessary for the safe and efficient operation and maintenance of nuclear power plants to ensure structural and functional adequacy. We have determined that these goals have been satisified by the OM-4 Standard with regard to the inservice examination and performance testing needs for the safety related hydraulic and mechanical shock suppressors for ANO-2. Therefore, we have elected to incorporate into these Technical Specifications, by reference, those inservice inspection intervals, criteria and data requirements contained in ANSI/ASME OM4-1982 as being the general surveillance requirements to be followed for the periodic examination and testing of the shock suppressors in Table 3.7-4 and Table 3.7-4a.

Additionally, we have determined that those shock suppressors in high radiation areas during shutdown or those especially difficult to remove need not be selected for functional testing (provided their operability was previously verified) in order to avoid exposing plant personnel to undue hazards. Also, those shock suppressors of rated capacity greater than 50,000 lb. are exempt from functional testing because of the impracticality of testing such large units.

3/4.7.9 SEALED SOURCE CONTAMINATION

The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(c) limits for plutonium. This limitation will ensure that leakage from byproduct, source, and special nuclear material sources will not exceed allowable intake values.

3/4.7.10 FIRE SUPPRESSION SYSTEMS

The OPERABILITY of the fire suppression systems ensures that adequate fire suppression capability is available to confine and extinguish fires occurring in any portion of the facility where safety related equipment is located. The fire suppression system consists of the water system, spray and/or sprinklers, and fire hose stations. The collective capability of the fire suppression systems is adequate to minimize potential damage to safety related equipment and is a major element in the facility fire protection program.

In the event the portions of the fire suppression systems are inoperable, alternate backup fire fighting equipment is required to be made available in the affected areas until the inoperable equipment is restored to service.

In the event the fire suppression water system becomes inoperable, immediate corrective measures must be taken since this system provides the major fire suppression capability of the plant. The requirement for a twenty-four hour report to the Commission provides for prompt evaluation of the acceptability of the corrective measures to provide adequate fire suppression capability for the continued protection of the nuclear plant.

ANO-1&2

SNUBBER TECH SPEC

REVISION

ATTACHMENT 3 TO ØCANØ68315

SIGNIFICANT HAZARDS DETERMINATION

In response to NRC's generic request for licensees to submit revised Technical Specifications for mechanical shock suppressor (snubber) surveillance, AP&L has previously proposed to NRC an updated snubber surveillance program for ANO-1&2. Part of this proposed program was AP&L's commitment to submit revised Technical Specifications for ANO-1&2 to reference ANSI/ASME OM4-1982, "Examination and Performance Testing of Nuclear Power Plant Dynamic Restraints (Snubbers)" as a means to perform the Technical Specification surveillance requirements for the existing list of safety related hydraulic snubbers and certain additional mechanical snubbers. This newly issued American National Standard (approved by the American National Standards Institute on August 19, 1982) contains inservice inspection intervals, criteria and data requirements for the periodic examination and testing of nuclear power plant snubbers that effect a safety function as described in the Safety Analysis Report. As a result of AP&L's proposed Technical Specification change for ANO-1&2, certain mechanical snubbers would be added to the existing list of safety related hydraulic snubbers to increase the quantity of snubbers requiring surveillance. Consequently, this would constitute a more stringent overall surveillance requirement. Additionally, AP&L has determined that the OM4 inservice inspection intervals, criteria and data requirements are no less restrictive than those snubber surveillance requirements in the existing Technical Specifications.

In consideration of 10CFR50.59 (a)(2), AP&L has determined that this action does not involve an unreviewed safety question because the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously analyzed will not be increased, nor will there be created a possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report. Therefore, the margin of safety as related to the health and safety of public is not reduced.

In summary, AP&L has determined that the incorporation of the examination and performance testing requirements of the OM4 Standard, by reference, into the ANO-1&2 Technical Specifications as being the general snubber surveillance requirements to be followed, would not involve a significant hazards consideration. This was because the proposed Technical Specification change would impose additional controls not presently included in our existing Technical Specifications for ANO-1&2. The addition of safety related mechanical snubbers to our list of snubbers required to be periodically examined and tested for functional operability by AP&L's reference to the OM4 Standard would constitute a more stringent Technical Specification surveillance requirement and, as such, justifies AP&L's determination of no significant hazards consideration per DLOP 228, Federal Register, Vol. 48, p. 14870.