

3.12 HYDRAULIC SNUBBERS

Applicability

Applies to the operability of hydraulic snubbers required for protection of safety-related components,

Objective

To define the time during which reactor operation is permitted after detection of inoperable hydraulic snubbers.

Specification

1. During all modes of operation except cold shutdown and refueling, all hydraulic snubbers shall be operable except as noted in Items 2 through 4. Operability is defined as the ability of the snubber to perform the restraint function when required.
2. From and after the time that any hydraulic snubbers are determined to be inoperable, continued reactor operation is permissible only during the succeeding 72 hours unless the snubber is made operable sooner or replaced.
3. If the requirements of Items 1 and 2 cannot be met, an orderly reactor shutdown shall be initiated and the reactor shall be in a cold shutdown condition within 36 hours.
4. If a hydraulic snubber is determined to be inoperable while the reactor is in the cold shutdown or refueling mode, the snubber shall be made operable or replaced prior to bringing the reactor above cold shutdown.

Basis

Snubbers are required 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 snubber is an increase in the probability of structural damage to piping in the event of 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.

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. Specification 4 prohibits startup if snubbers are known to be inoperable,

4.12 HYDRAULIC SNUBBERS

Applicability

Applies to the inspection and testing of hydraulic snubbers installed on safety-related components.

Objective

To verify that hydraulic snubbers will perform their design functions in the event of a seismic or other transient dynamic event.

Specification

1. All hydraulic snubbers whose seal material has been demonstrated by operating experience, or laboratory testing, or analysis to be compatible with the operating environment shall be visually inspected once a year ($\pm 25\%$) to verify their structural integrity and to detect hydraulic fluid leakage.
2. All hydraulic snubbers whose seal materials have not been demonstrated to be compatible with the operating environment shall be visually inspected as in Item 1 every 31 days ($\pm 25\%$).
3. Any snubber which the above inspections disclose to be leaking significantly shall be repaired or replaced.
4. Once each refueling cycle, a representative sample of ten snubbers shall be functionally tested. The functions to be tested are freedom of piston movement, lockup within required velocity range, and bleed (gradual piston movement under load after lockup). For each unit found inoperable, an additional

- ten snubbers shall be so tested until no more failures are found or all units have been tested,
5. Once each refueling cycle, at least two representative snubbers from a relatively severe environment shall be completely disassembled and examined for damage and abnormal seal degradation. The results of these examinations shall be reported in all cases.
 6. All snubbers to be installed or to be used as replacements shall first be tested as required by Item 4.

Basis

To provide assurance against possible undetected reduction in seismic protection, periodic visual inspection of snubbers is specified, including inspection of hydraulic fluid supply and structural integrity.

The inspection program is based upon maintaining a constant level of snubber protection. Thus, any snubber found inoperable or leaking significantly is repaired or replaced, thereby assuring that all snubbers are operable and without potential defects after each inspection. To further increase the assurance of snubber reliability, functional tests are performed once each refueling cycle. Snubbers in high radiation areas or those especially difficult to remove need not be selected for functional tests provided operability was previously verified. To complement these inspections and tests, disassembly and internal examination are performed on two selected units each refueling cycle.

Any observed wear, breakdown or deterioration will provide
a basis for additional inspections.

ATTACHMENT B

APPLICATION FOR AMENDMENT TO
OPERATING LICENSE

Consolidated Edison Company of New York, Inc.

Indian Point Unit No. 2

Docket No. 50-247

Facility Operating License No. DPR-26

August 1975

Safety Evaluation

The purpose of the proposed change to the Technical Specifications is to provide assurance that hydraulic snubbers used on safety-related components are operable during reactor operation. Because of the low-probability nature of the postulated events for which hydraulic snubber operation is needed, reactor operation is permitted for 72 hours following detection of an inoperable snubber, with an additional 36 hours allowed for cold shutdown if necessary.

The specified frequency of visual inspections is based upon the predicted incidence of leakage and the observed average leakage rate of hydraulic snubbers containing ethylene-propylene seals. The predictions were obtained by statistical analysis of the results of snubber inspections conducted at Indian Point Unit No. 2 from July 1974 through March 1975. The analyzed data included 1358 snubber-months of operating time, with a total of six leaking snubbers identified. Of the six leaking units, four appear to have started leaking at the time of installation and would therefore have been identified by increased inspections and tests prior to installation. The results of the analysis indicate that, with yearly snubber inspection and identification of initially defective units prior to installation, the expected incidence of snubber inoperability is approximately one percent of the 300 snubbers inside containment. At the 95% confidence

level, the incidence of inoperability would be four percent. With the highly conservative seismic restraint location criteria employed in the design of Indian Point Unit No. 2, the predicted incidence of snubber failure is sufficiently low to justify the specified maximum inspection interval of one year. The requirement that snubbers be inspected and tested prior to installation assures the validity of the assumptions of the statistical study. The proposed changes have been reviewed by the Station Nuclear Safety Committee and the Consolidated Edison Nuclear Facilities Safety Committee and both committees concur that these changes do not represent a significant hazards consideration and will not cause any change in the types or increase in the amounts of effluents.