

July 15, 1991

Docket No. 50-395

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See attached page

Mr. John L. Skolds  
Vice President, Nuclear Operations  
South Carolina Electric & Gas Company  
Virgil C. Summer Nuclear Station  
P.O. Box 88  
Jenkinsville, South Carolina 29065

Dear Mr. Skolds:

SUBJECT: ISSUANCE OF AMENDMENT NO. 103 TO FACILITY OPERATING LICENSE  
NO. NPF-12 REGARDING SNUBBER SURVEILLANCE REQUIREMENTS  
- VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1,  
(TAC NO. 79686)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 103 to Facility Operating License No. NPF-12 for the Virgil C. Summer Nuclear Station, Unit No. 1. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated February 4, 1991, as supplemented June 11, 1991.

The amendment changes the TS to remove the snubber visual examination schedule in the existing TS and replaces it with a refueling outage based visual examination schedule as shown in Table 4.7-2, "Snubber Visual Inspection Interval," of Enclosure B to Generic Letter 90-09.

A copy of the related Safety Evaluation is enclosed. Notice of Issuance will be included in the Commission's Bi-weekly Federal Register notice.

Sincerely,

Original signed by:

George F. Wunder, Project Manager  
Project Directorate II-1  
Division of Reactor Projects I/II  
Office of Nuclear Reactor Regulation

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P PDR

Enclosures:

- 1. Amendment No. 103 to NPF-12
  - 2. Safety Evaluation
- cc w/enclosures:  
See next page  
\*See previous concurrence sheet

NRC FILE (mirrored stamp)

OFC	:LA:AD21:DRPE:PM:PD21:DRPE:EMEB	:OGC	:D:PD21:DRPE	:
NAME	:PAnderson	:GWunder	:JNorberg	:PAJ*
DATE	:7/15/91	:07-03	:7/13/91	:06/13/1991

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Mr. John L. Skolds  
South Carolina Electric & Gas Company

Virgil C. Summer Nuclear Station

cc:

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Nuclear Coordinator  
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Bureau of Radiological Health  
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South Carolina Electric & Gas Company  
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AMENDMENT NO. 103 TO FACILITY OPERATING LICENSE NO. NPF-12 - SUMMER, UNIT No. 1

Docket File

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SOUTH CAROLINA ELECTRIC & GAS COMPANY

SOUTH CAROLINA PUBLIC SERVICE AUTHORITY

DOCKET NO. 50-395

VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 103  
License No. NPF-12

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by South Carolina Electric & Gas Company (the licensee), dated April 23, 1991, as supplemented June 11, 1991, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public;  
and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Facility Operating License No. NPF-12 is hereby amended to read as follows:

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(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 103 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. South Carolina Electric & Gas Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Anthony J. Mendiola, Acting Director  
Project Directorate II-1  
Division of Reactor Projects I/II  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: July 15, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 103  
TO FACILITY OPERATING LICENSE NO. NPF-12  
DOCKET NO. 50-395

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised pages are indicated by marginal lines.

<u>Remove Pages</u>	<u>Insert Pages</u>
3/4 7-16	3/4 7-16
3/4 7-17	3/4 7-17
3/4 7-18	3/4 7-18
3/4 7-20	3/4 7-20
3/4 7-21	3/4 7-21
B3/4 7-4	B3/4 7-4
B3/4 7-5	B3/4 7-5

## PLANT SYSTEMS

### 3/4.7.7 SNUBBERS

#### LIMITING CONDITION FOR OPERATION

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3.7.7 All snubbers on systems required for safe shutdown/accident mitigation shall be OPERABLE. This includes safety and non-safety related snubbers on systems used to protect the code boundary and to ensure the structural integrity of these systems under dynamic loads.

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 4.7.7.g on the attached component or declare the attached system inoperable and follow the appropriate ACTION statement for that system.

#### SURVEILLANCE REQUIREMENTS

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

a. Inspection Types

As used in this specification, type of snubber shall mean snubbers of the same design and manufacturer, irrespective of capacity.

b. Visual Inspections

Snubbers are categorized as accessible or inaccessible during power operation. Each of these categories may be inspected independently according to the schedule determined by Table 4.7-2. The visual inspection interval for each category of snubber shall be determined based on the criteria provided in Table 4.7-2, and the first inspection interval determined using this criteria shall be based upon the previous inspection interval as established by the requirements in effect before Amendment No. 103.

c. Refueling Outage Inspections

Each refueling outage an inspection shall be performed of all the snubbers defined in Section 3.7.7 attached to sections of safety systems piping that have experienced unexpected, potentially damaging transients as determined from a review of operational data and a visual inspection of the systems. In addition to satisfying the visual inspection acceptance criteria, freedom of motion of mechanical snubbers shall be verified using at least one of the following:

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

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(i) manually induced snubber movement; (ii) evaluation of in-place snubber piston setting; or (iii) stroking the mechanical snubber through its full range of travel.

#### d. Visual Inspection Acceptance Criteria

Visual inspections shall verify (1) that there are no visible indications of damage or impaired OPERABILITY and (2) attachments to the foundation or supporting structure are functional, and (3) fasteners for the attachment of the snubbers to the component and to the snubber anchorage are functional. Snubbers which appear inoperable as a result of visual inspections shall be classified as unacceptable and may be reclassified acceptable for the purpose of establishing the next visual inspection interval, provided that (i) the cause for being classified as unacceptable is clearly established and remedied for that particular snubber and for other snubbers irrespective of type that may be generically susceptible; and (ii) the affected snubber is functionally tested in the as found condition and determined OPERABLE per Specifications 4.7.7.f. When a fluid port of a hydraulic snubber is found to be uncovered the snubber shall be declared inoperable and shall not be determined OPERABLE via functional testing unless the test is started with the piston in the as found setting, extending the piston rod in the tension mode direction. All snubbers found connected to an inoperable common hydraulic fluid reservoir shall be counted as unacceptable and may be reclassified as acceptable for determining the next inspection interval provided that criterion (i) and (ii) above are met. A review and evaluation shall be performed and documented to justify continued operation with an unacceptable snubber. If continued operation cannot be justified, the snubber shall be declared inoperable and the ACTION requirements of 3.7.7 shall be met.

#### e. Functional Tests

During the first refueling shutdown and at least once per 18 months thereafter during shutdown, a representative sample of either:  
(1) At least 10% of the total of each type of snubber in use in the plant shall be functionally tested either in place or in a bench test. For each snubber of a type that does not meet the functional test acceptance criteria of Specification 4.7.7.f, an additional 10% of that type of snubber shall be functionally tested until no more failures are found or until all snubbers of that type have been functionally tested, or (2) A representative sample of each type of snubber shall be functionally tested in accordance with Figure 4.7-1, "C" is the total number of snubbers of a type found not meeting the acceptance requirements of Specification 4.7.7.f. The cumulative number of snubbers of a type tested is denoted by "N." At the end of each day's testing, the new values of "N" and "C" (previous day's total plus current day's increments) shall be plotted on Figure 4.7-1. If at any time the point plotted falls in the "Accept" region testing of that type of snubber may be terminated.

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

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#### e. Functional Tests (Continued)

When the point plotted lies in the "Continue Testing" region, additional snubbers of that type shall be tested until the point falls in the "Accept" region or all the snubbers of that type have been tested.

The representative sample selected for functional testing shall include the various configurations, operating environments, and the range of size and capacity of snubbers of each type. The representative sample shall be weighted to include more snubbers from severe service areas such as near heavy equipment. Snubbers placed in the same location as snubbers which failed the previous functional test shall be included in the next test lot if the failure analysis shows that failure was due to location.

#### f. Functional Test Acceptance Criteria

The snubber functional test shall verify that:

1. Activation (restraining action) is achieved within the specified range in both tension and compression, except that inertia dependent, acceleration limiting mechanical snubbers, may be tested to verify only that activation takes place in both directions of travel.
2. Snubber bleed, or release rate where required, is present in both tension and compression, within the specified range.
3. Where required, the force required to initiate or maintain motion of the snubber is within the specified range in both direction of travel.
4. For snubbers specifically required not to displace under continuous load, the ability of the snubber to withstand load without displacement.
5. Fasteners for attachment of the snubber to the component and to the snubber anchorage are secure.

Testing methods may be used to measure parameters indirectly or parameters other than those specified if those results can be correlated to the specified parameters through established methods.

#### g. Functional Test Failure Analysis

An engineering evaluation shall be made of each failure to meet the functional test acceptance criteria to determine the cause of the failure. The results of this evaluation shall be used, if applicable, in selecting snubbers to be tested in an effort to determine the OPERABILITY of other snubbers irrespective of type which may be subject to the same failure mode.

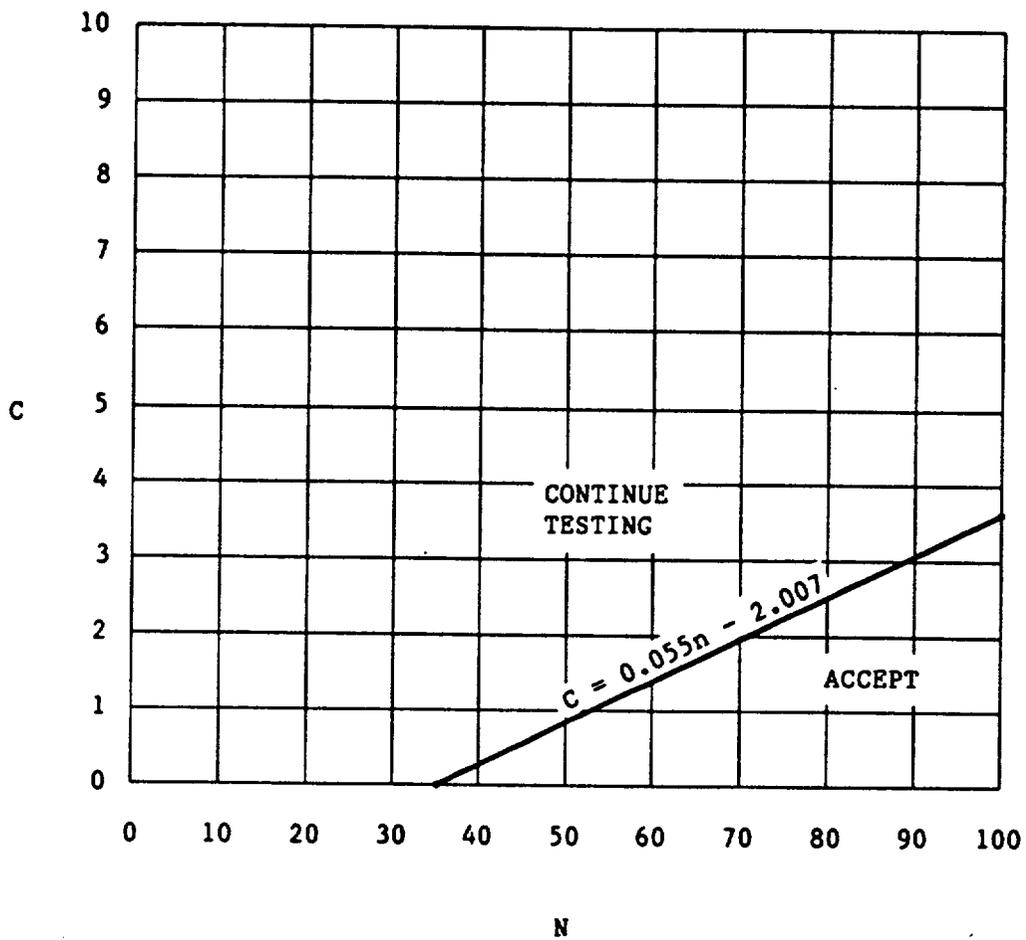


FIGURE 4.7-1 SAMPLING PLAN FOR SNUBBER FUNCTIONAL TEST

**TABLE 4.7-2**  
**SNUBBER VISUAL INSPECTION INTERVAL**

Population or Category (Notes 1 and 2)	NUMBER OF UNACCEPTABLE SNUBBERS		
	Column A Extend Interval (Notes 3 and 6)	Column B Repeat Interval (Notes 4 and 6)	Column C Reduce Interval (Notes 5 and 6)
1	0	0	1
80	0	0	2
100	0	1	4
150	0	3	8
200	2	5	13
300	5	12	25
400	8	18	36
500	12	24	48
750	20	40	78
1000 or greater	29	56	109

**TABLE NOTATION**

- (1) The next visual inspection interval for a snubber population or category size shall be determined based upon the previous inspection interval and the number of unacceptable snubbers found during that interval. Snubbers may be categorized, based upon their accessibility during power operation, as accessible or inaccessible. These categories may be examined separately or jointly. However, the licensee must make and document that decision before any inspection and shall use that decision as the basis upon which to determine the next inspection interval for that category.
- (2) Interpolation between population or category sizes and the number of unacceptable snubbers is permissible. Use next lower integer for the value of the limit for Columns A, B, or C if that includes a fractional value of unacceptable snubbers as determined by interpolation.
- (3) If the number of unacceptable snubbers is equal to or less than the number in Column A, the next inspection interval may be twice the previous interval but not greater than 48 months.
- (4) If the number of unacceptable snubbers is equal to or less than the number in Column B but greater than the number in Column A, the next inspection interval shall be the same as the previous interval.
- (5) If the number of unacceptable snubbers is equal to or greater than the number in Column C, the next inspection interval shall be two-thirds of the previous interval. However, if the number of unacceptable snubbers is less than the number in Column C but greater than the number in Column B, the next interval shall be reduced proportionally by interpolation, that is, the previous interval shall be reduced by a factor that is one-third of the ration of the difference between the number of unacceptable snubbers found during the previous interval and the number in Column B to the difference in the numbers in Columns B and C.
- (6) The provisions of Specification 4.0.2 are applicable for all inspection intervals up to and including 48 months.

## PLANT SYSTEMS

### BASES

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#### ULTIMATE HEAT SINK (Continued)

The limitations on minimum water level and maximum temperature are based on providing a 30 day cooling water supply to safety related equipment without exceeding their design basis temperature and is consistent with the recommendations of Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Plants", March 1974.

#### 3/4.7.6 CONTROL ROOM NORMAL AND EMERGENCY AIR HANDLING SYSTEM

The OPERABILITY of the control room ventilation system ensures that 1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system and 2) the control room will remain habitable for operations personnel during and 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.

#### 3/4.7.7 SNUBBERS

All snubbers on systems required for safe shutdown/accident mitigation shall be OPERABLE. This includes safety and non-safety related snubbers on systems used to protect the code boundary and to ensure the structural integrity of these systems under dynamic loads.

Snubbers are classified and grouped by design and manufacturer but not by size. For example, mechanical snubbers utilizing the same design features of the 2 kip, 10 kip and 100 kip capacity manufactured by company "A" are of the same type. The same design mechanical snubber manufactured by company "B" for the purposes of this specification would be of a different type, as would hydraulic snubbers from either manufacturer.

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. Table 4.7-2 establishes three limits for determining the next visual inspection interval. Inspections performed before that interval has elapsed may be used as a new reference point to determine the next inspection. Any inspection whose results require a shorter inspection interval will override the previous schedule.

## PLANT SYSTEMS

### BASES

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#### SNUBBERS (Continued)

To provide assurance of snubber functional reliability one of two sampling and acceptance criteria methods are used:

- 1) functionally test 10 percent of a type of snubber with an additional 10 percent tested for each functional testing failure, or
- 2) functionally test a sample size and determine sample acceptance using Figure 4.7-1.

Figure 4.7-1 was developed using "Wald's Sequential Probability Ratio Plan" as described in "Quality Control and Industrial Statistics" by Acheson J. Duncan.

The service life of a snubber is established 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.

Permanent or other exemptions from the surveillance program for individual snubbers may be granted by the Commission if a justifiable basis for exemption is presented and, if applicable, snubber life destructive testing was performed to qualify the snubber for the applicable design conditions at either the completion of their fabrication or at a subsequent date. Snubbers so exempted shall be listed in Section 3.7.7 with footnotes indicating the extent of the exemptions.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO.103 TO FACILITY OPERATING LICENSE NO. NPF-12

SOUTH CAROLINA ELECTRIC & GAS COMPANY

SOUTH CAROLINA PUBLIC SERVICE AUTHORITY

VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-395

1.0 INTRODUCTION

By letter dated February 4, 1991, as supplemented June 11, 1991, South Carolina Electric & Gas Company (the licensee) proposed changes to the Technical Specifications (TS) for the V. C. Summer Nuclear Station, Unit No. 1 (Summer Station). The amendment proposes removing the snubber visual examination schedule in the existing TS and replacing it with a refueling outage based visual examination schedule as shown in Table 4.7-2, "Snubber Visual Inspection Interval," of Enclosure B to Generic Letter 90-09. The June 11, 1991, supplement did not affect the staff's finding of no significant hazards considerations.

2.0 EVALUATION

The snubber visual examination schedule in the existing TS is based on the permissible number of inoperable snubbers found during the visual examination. Because the existing snubber visual examination schedule is based only on the absolute number of inoperable snubbers found during the visual examinations irrespective of the total population of snubbers, a large snubber population results in a visual examination schedule that is excessively restrictive. The purpose of the alternative visual examination schedule is to allow the licensee to perform visual examinations and corrective actions during plant outages without reducing the confidence level provided by the existing visual examination schedule. The new visual examination schedule specifies the permissible number of inoperable snubbers for various snubber populations. The basic examination interval is the normal fuel cycle up to 24 months. This interval may be extended to as long as twice the fuel cycle or reduced to as small as two-thirds of the fuel cycle depending on the number of unacceptable snubbers found during the visual examination.

In the event one or more snubbers are found inoperable during a visual examination, the Limiting Conditions for Operation (LCO) in the present TS require the licensee to repair or replace the inoperable snubber(s)

within 72 hours or declare the attached system inoperable and follow the appropriate action statement for the system. This LCO will remain in the TS; however, the permissible number of inoperable snubber(s) and the subsequent visual examination interval will now be determined in accordance with the new visual examination schedule in TS Table 4.7-2 (consistent with Table 4.7-2 of Enclosure B to Generic Letter 90-09, dated December 11, 1990). As noted in the guidance for this line item TS improvement, certain corrective actions may have to be performed depending on the number of inoperable snubbers found. All requirements for corrective actions and evaluations associated with the use of the visual examination schedule, as stated in footnotes 1 through 6 of Table 4.7-2 of Enclosure B to Generic Letter 90-09, were added to the TS.

The licensee has proposed changes to TS 4.7.9 for the replacement of the snubber visual examination schedule that are consistent with the guidance provided in Generic Letter 90-09. On the basis of the staff's review, the proposed changes to the TS for V. C. Summer Nuclear Station, Unit 1, are acceptable.

### 3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the South Carolina State official was notified of the proposed issuance of the amendment. The State official had no comments.

### 4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (56 FR 9387). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

### 5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: J. Rajan

Date: July 15, 1991