

October 13, 2004

Mr. A. Christopher Bakken, III
President & Chief Nuclear Officer
PSEG Nuclear LLC-X15
Post Office Box 236
Hancocks Bridge, NJ 08038

SUBJECT: HOPE CREEK GENERATING STATION - ISSUANCE OF AMENDMENT
RE: REMOVAL OF SURVEILLANCE REQUIREMENTS RELATED TO
REACTOR PROTECTION SYSTEM AND CONTROL ROD BLOCK
INSTRUMENTATION, SOURCE RANGE MONITORS, AND POWER
DISTRIBUTION LIMITS (TAC NO. MC1155)

Dear Mr. Bakken:

The Commission has issued the enclosed Amendment No. 153 to Facility Operating License No. NPF-57 for the Hope Creek Generating Station. This amendment consists of changes to the Technical Specifications in response to your application dated October 24, 2003, as supplemented by letter dated June 29, 2004. The amendment removes unnecessary surveillance requirements related to reactor protection system and control rod block instrumentation, source range monitors, and power distribution limits.

A copy of our safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

Daniel S. Collins, Sr. Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-354

Enclosures: 1. Amendment No. 153 to
License No. NPF-57
2. Safety Evaluation

cc w/encls: See next page

Hope Creek Generating Station

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DISTRIBUTION

JClifford	OGC	GMatakas, RGN-I	DLPM DPR
PUBLIC	DCollins	ACRS	CRaynor
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GHill (2)	TBoyce	GMiller	
EMarinos	SRhow	AAttard	

ADAMS ACCESSION NUMBER: ML042030412

OFFICE	PDI-2/PE	PDI-2/PM	PDI-2/LA	SRXB-A/SC	EEIB-A/SC
NAME	GMiller	DCollins	CRaynor	FAkstulewicz	EMarinos
DATE	10/08/04	10/08/04	10/12/04	8/12/04	9/9/04

OFFICE	IROB-A/SC	OGC	PDI-2/SC
NAME	TBoyce	DFruchter	RLaufer for JClifford
DATE	9/16/04	9/23/04	10/13/04

PSEG NUCLEAR LLC

DOCKET NO. 50-354

HOPE CREEK GENERATING STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 153
License No. NPF-57

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by the PSEG Nuclear LLC dated October 24, 2003, as supplemented by letter dated June 29, 2004, 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 set forth in 10 CFR Chapter I;
 - 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-57 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 153, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into the license. PSEG Nuclear LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of its date of issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

RA by Richard J. Laufer for/

James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: October 13, 2004

ATTACHMENT TO LICENSE AMENDMENT NO. 153

FACILITY OPERATING LICENSE NO. NPF-57

DOCKET NO. 50-354

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

3/4 2-1
3/4 2-3
3/4 2-5
3/4 3-7
3/4 3-8
3/4 3-60
3/4 3-61
3/4 3-88
3/4 9-4
B 3/4 3-1
B 3/4 3-4
B 3/4 3-5

Insert

3/4 2-1
3/4 2-3
3/4 2-5
3/4 3-7
3/4 3-8
3/4 3-60
3/4 3-61
3/4 3-88
3/4 9-4
B 3/4 3-1
B 3/4 3-4
B 3/4 3-5

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 153 TO FACILITY OPERATING LICENSE NO. NPF-57

PSEG NUCLEAR LLC

HOPE CREEK GENERATING STATION

DOCKET NO. 50-354

1.0 INTRODUCTION

By letter dated October 24, 2003, as supplemented by letter dated June 29, 2004, PSEG Nuclear LLC (PSEG, or the licensee) requested Nuclear Regulatory Commission (NRC or the Commission) approval of changes to the Hope Creek Generating Station (HCGS) Technical Specifications (TSs). The supplement dated June 29, 2004, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards determination as published in the *Federal Register* on December 9, 2003 (68 FR 68672).

The requested changes would revise surveillance requirements (SRs) contained in Table 4.3.1.1-1, "Reactor Protection System Instrumentation Surveillance Requirements;" Table 4.3.6-1, "Control Rod Block Instrumentation Surveillance Requirements;" TS 3/4.3.7.6, "Source Range Monitors;" TS 3/4.9.2, "Refueling Operations Instrumentation;" TS 3/4.2.1, "Average Planar Linear Heat Generation Rate (APLHGR);" TS 3/4.2.3, "Minimum Critical Power Ratio (MCPR);" and TS 3/4.2.4, "Linear Heat Generation Rate (LHGR)."

2.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.36 sets forth the regulatory requirements for the content of the TSs. This regulation requires, among other categories, that the TSs contain SRs. Section 50.36(c)(3) of 10 CFR, "Surveillance requirements," states:

Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.

SRs that are not required to assure that the necessary quality of systems and components is maintained, that facility operation is within safety limits, or that a limiting condition for operation (LCO) will be met may be removed from the TSs.

3.0 TECHNICAL EVALUATION

3.1 Reactor Protection System Instrumentation SRs

PSEG has proposed to delete from Table 4.3.1.1-1 the requirement to perform the following functional unit SRs prior to reactor start up:

- 1.a Intermediate range monitor (IRM) Neutron Flux - High CHANNEL CHECK and channel functional test (CFT)
- 2.a Average power range monitor (APRM) Neutron Flux - Upscale Setdown CHANNEL CHECK and CFT
- 2.b APRM Flow Biased Simulated Thermal Power-Upscale CFT
- 2.c APRM Fixed Neutron Flux - Upscale CFT

Additionally, the following changes have been proposed:

- Relocate footnote (b) from the requirement at startup to the once-per-12-hours CHANNEL CHECK for the IRM Neutron Flux - High and APRM Neutron Flux - Upscale Setdown. Footnote (b) requires verification that there is at least a one-half decade overlap of the IRM and APRM after entry into Operational Condition 2 if the CHANNEL CHECK has not been performed within the last seven days.
- Establish footnote (l) and apply it to the weekly APRM Neutron Flux - Upscale Setdown CFT. The proposed footnote would allow deferral of the CFT until 12 hours after entering Operational Condition 2. The associated bases would be revised to reflect this change
- Delete footnote (c) which is associated with the above CFTs. The footnote currently states "Within 24 hours prior to startup, if not performed within the previous 7 days."

Functional Units 1.a and 2.a CFT

Currently, the licensee is required to perform both the IRM Neutron Flux-High CFT and the APRM Neutron Flux-Upscale Setdown CFT weekly and prior to startup if not performed within the previous seven days. Given that SR 4.0.4 prohibits entry into an Operational Condition for which SRs have not been met, this requirement is redundant. To be in compliance with the SR, the licensee must have performed the test within the previous seven days due to the retained weekly requirement. Therefore, the NRC staff finds the change to be acceptable.

Functional Units 1.a and 2.a CHANNEL CHECK and Footnote (b)

The licensee has proposed to delete the requirement to perform start-up IRM Neutron Flux - High and APRM Neutron Flux - Upscale Setdown CHANNEL CHECKS. Additionally, the proposed change would relocate footnote (b) applicability from the startup SR to the

once-every-12-hours SR requirement (within the same functional unit). The HCGS TSs define a CHANNEL CHECK as a qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrument channels measuring the same parameter. Footnote (b) requires verification of at least one-half decade overlap between the IRM and APRM after entering Operational Condition 2 (i.e., during startup) and during shutdown if this check has not been performed within the previous seven days. Verification of this overlap would involve gathering much of the same information that would be collected during a CHANNEL CHECK. Hence, this verification would likely identify any anomalies that would be found by a CHANNEL CHECK. Therefore, the NRC staff finds the proposed change to be acceptable.

Functional Units 2.b and 2.c CFT

Currently, the licensee is required to perform the APRM flow biased simulated thermal power Upscale CFT and APRM Fixed Neutron Flux Upscale CFT quarterly in Operational Condition 1. Additionally, both of these CFTs must be performed prior to startup if not performed within the previous seven days. The licensee provided a summary of plant operating experience to demonstrate that the periodic quarterly test frequencies provide sufficient assurance that the functional units are operating properly. A review conducted by the licensee of APRM surveillance test results for the last three years identified no case in which a condition discovered during a CFT would have prevented the APRMs from performing their required function. Additionally, conditions that could affect the ability of the system to perform their function are typically self revealing (i.e., by upscale or downscale alarms) or identified during other surveillances such as CHANNEL CHECKS or CHANNEL CALIBRATIONS. Given that the quarterly CFTs will be retained, the historical reliability, and the potential for anomaly detection by other SRs, the NRC staff finds the removal acceptable.

Footnotes (l) and (c)

The licensee has proposed to create footnote (l) and apply it to the APRM Neutron Flux - Upscale Setdown functional unit weekly CFT. The footnote would provide an exception to the requirements of SR 4.0.4 by allowing entry into Operational Condition 2 provided the test is performed within 12 hours of exiting Operational Condition 1. The licensee stated that in a review of CFTs performed within the last three years, no failures were identified. Additionally, the licensee has stated that the APRM Neutron Flux - Upscale Setdown CFT can not be performed without installing jumpers and lifting leads while in Operational Condition 1. Activities that install jumpers and lift leads in the reactor protection system (RPS) while in Operational Condition 1 or 2 can increase the potential for plant transients including a reactor trip. Performance of the test while in Operational Condition 2 does not require the installation of jumpers or lifting leads. Deferral of this SR by no more than 12 hours after transitioning from Operational Condition 1 to 2 would allow for a reduction in the potential for a plant transient while maintaining high confidence that the system is capable of performing its design function. Based on the above discussion, the NRC staff finds the change to be acceptable.

The licensee has proposed to insert text into the bases for RPS instrumentation. The proposed text provides a description of the basis for footnote (l). The description adequately reflects the evaluation described above, and the NRC staff does not object to the proposed bases change.

The licensee has proposed to remove footnote (c) from Table 4.3.1.1-1. Footnote (c) was only applicable to the frequency of the four CFTs required during startup, whose removal was discussed above. Given that all SRs that this footnote was applicable to have been removed, its removal is considered to be administrative in nature and is, therefore, acceptable.

3.2 Control Rod Block Instrumentation SRs

PSEG has proposed to delete the requirement to perform the following Functional Unit SRs from Table 4.3.6-1:

1. Control rod block monitor CFT, required during startup prior to exceeding 30% of rated thermal power (RTP) if not performed within the previous seven days
2. APRM, control rod block CFT, required during start up within 24 hours prior to startup when not performed within the previous seven days
3. Source range monitor (SRM), control rod block CFT, required during startup within 24 hours prior to startup when not performed within the previous seven days
4. IRM, control rod block CFT, required during startup within 24 hours prior to startup when not performed within the previous seven days
6. Reactor coolant system (RCS) recirculation flow, control rod block CFT, required during startup within 24 hours prior to startup when not performed within the previous seven days

Footnotes (b) and (d) would be deleted. These footnotes required performance of the surveillance within 24 hours of exceeding selected criteria if it has not been performed within the previous seven days.

Additionally, footnote (e) would be created and applied to the reactor mode switch shutdown position, control rod block CFT required once per 18 months. Footnote (e) would allow delay of the SR requirement until one hour after the reactor mode switch has been placed in the shutdown position.

Functional Unit 1 CFT

Currently, the licensee is required to perform control rod block monitor CFTs quarterly while in Operational Condition 1. In addition, the tests are required during startup, prior to exceeding 30% of RTP, if they have not been performed within the previous seven days. The licensee has proposed to delete the startup CFT requirements. In support of this, the licensee reviewed the CFTs for the system performed over the last three years and provided a summary of the results. This review identified a CFT performed in February 2000, in which the rod block monitor would not reset because of a failing multiplexer card. This card was replaced and the remainder of the test was completed satisfactorily. While this condition was identified during the CFT, left uncorrected it would not have prevented the system from fulfilling its design function. This summary shows that the control rod block monitors are sufficiently reliable such that the quarterly CFT frequencies would provide high confidence that the system is operable.

Similar to the discussion in Section 3.1, conditions that could affect the ability of the system to perform its function are typically self revealing or identified by other surveillances. This is evidenced by a failing power supply that was identified during a December 2003, CHANNEL CALIBRATION. The CHANNEL CALIBRATION was being performed in response to unexplained differences in local flux level channels, which were observed during normal plant operation. Given that the quarterly CFTs will be retained, the historical reliability, and the potential for anomaly detection by other methods, the NRC staff finds the removal acceptable.

Functional Units 2 and 6 CFTs

Currently, the licensee is required to perform a quarterly CFT on all functional units within the APRM and RCS recirculation flow, control rod block units. Additionally, the CFTs are required prior to startup, if not performed within the previous seven days. In support of deleting the startup CFT, the licensee reviewed the CFTs for the functional units performed over the last three years and provided a summary of the results. This review identified an RCS recirculation flow, control rod block CFT performed in July 2001, that identified a defective test card pushbutton switch. The test card was replaced and the CFT completed satisfactorily. While this condition was identified during the CFT, left uncorrected it would not have prevented the system from fulfilling its design function due to the other operable channels. This summary shows that the APRM and RCS recirculation flow, control rod block units are sufficiently reliable such that the quarterly CFT frequency would provide high confidence that the functional units are operable. Similar to previous discussions, conditions that could affect the ability of the system to perform its function are typically self revealing or identifiable by other surveillances. Given that the quarterly CFT will be retained, the successful operating experience, and the potential for anomaly detection by other methods, the NRC staff finds the removal acceptable.

Functional Units 3 and 4 CFTs

Currently, the licensee is required to perform the SRM and the IRM CFTs weekly. Additionally, both of these CFTs must be performed prior to startup if not performed within the previous seven days. SR 4.0.4 prohibits entry into an Operational Condition for which SRs have not been met. The startup CFT requirement is redundant because to be in compliance with the SR, the licensee must have performed the test within the previous seven days due to the retained weekly CFT. Therefore, the NRC staff finds the change to be acceptable.

Footnote (e)

The licensee has proposed to create footnote (e) and apply it to the reactor mode switch shutdown position, control rod block functional unit CFT which is required to be performed once per 18 months. The condition would provide an exception to the requirements of SR 4.0.4 by allowing entry into Operational Condition 3 provided the test is performed within one hour of exiting Operational Condition 1 or 2. The licensee stated that in a review of CFTs performed within the last three years, no failures were identified. Additionally, the licensee has stated that the reactor mode switch shutdown position, control rod block CFT cannot be performed in Operational Conditions 1 and 2 without installing jumpers and lifting leads. As discussed previously, activities that install jumpers and lift leads in the RPS while in Operational Condition 1 or 2 can increase the potential for plant transients including a reactor trip. Performance of the test while in Operational Condition 3 does not require the lifting of leads or present the same transient potential, because the plant is already shut down. Deferral of this SR by no more than

one hour after transitioning from Operational Condition 1 or 2 would allow for a reduction in the potential for a plant transient while maintaining high confidence that the system is capable of performing its design function. Therefore, the NRC staff concludes that this change is acceptable.

The licensee has proposed to insert text into the bases for control rod block instrumentation. The proposed text provides a description of the basis for footnote (e). The description adequately reflects the evaluation described above; therefore, the NRC staff does not object to the proposed bases change.

Footnote (b) and (d)

The licensee has proposed to remove footnote (b) and (d) from Table 4.3.1.1-1. Footnotes (b) and (d) were only applicable to the frequencies of the CFTs required during startup, whose removal was discussed above. Given that all SRs that the footnotes were applicable to have been removed, their removal is considered to be administrative in nature and is, therefore, acceptable.

3.3 SRM SRs

PSEG has proposed to delete the requirement to perform the following SR from TS 3/4.3.7.6:

SR 4.3.7.6.b.1 CFT, required 24 hours prior to moving the reactor mode switch from the shutdown position if not performed within the previous 7 days.

Additionally, PSEG has proposed to delete the requirement to perform the following SR from TS 3/4.9.2:

SR 4.9.2.b.1 SRM CFT, required 24 hours prior to the start of CORE ALTERATIONS.

SR 4.3.7.6.b.1

Currently, the licensee is required to perform a SRM CFT monthly (while in Operational Conditions 2, 3, or 4) and within 24 hours prior to moving the reactor mode switch from the shutdown position. The licensee has proposed to remove the requirement to perform the CFT prior to moving the reactor mode switch from the shutdown position. In support of this, the licensee reviewed the CFTs for the functional units performed over the last three years and provided a summary of the results. This review identified a CFT performed in March 2003, that found a single SRM channel with the indicator fully downscale. To resolve this issue, the SRM discriminator was recalibrated and the channel restored to operable status. While this condition was identified during the CFT, left uncorrected it would not have prevented the system from fulfilling its design function due to the other operable channels. This summary shows that the SRMs are sufficiently reliable such that the monthly CFT frequency would provide high confidence that the system is operable. Similar to previous discussions, conditions that could affect the ability of the system to perform its function are typically self-revealing. Given that the monthly CFT will be retained, the historical reliability, and the potential for anomaly detection by other methods, the NRC staff finds the removal acceptable.

SR 4.9.2.b.1

Currently, SR 4.9.2.b.2 requires performance of a SRM CFT weekly. Additionally, SR 4.9.2.b.1 requires performance of a CFT within 24 hours prior to the start of CORE ALTERATIONS. The licensee has proposed to delete SR 4.9.2.b.1. The licensee reviewed CFTs for the functional units performed over the last three years and provided a summary of the results. As discussed above, the review identified a CFT performed in March 2003, that found a single SRM channel with the indicator fully downscale. To resolve this issue, the SRM discriminator was recalibrated and the channel restored to operable status. This condition was identified during the CFT; however, left uncorrected it would not have prevented the system from fulfilling its design function due to the other operable channels. This summary shows that the SRMs are sufficiently reliable such that the monthly CFT frequency would provide high confidence that the system is operable. While in refueling operations, TS 3.9.2.a requires annunciation and continuous visual indication in the control room. Similar to previous discussions, conditions that could affect the ability of the system to perform its function are typically self-revealing; however, during refueling operations this ability to detect anomalies is augmented by the increased monitoring and count annunciation of the SRMs. Given that the weekly CFT will be retained, the historical reliability, and the potential for anomaly detection by other methods, the NRC staff finds the removal acceptable.

3.4 Power Distribution Limits SRs

Currently, TS 3/4.2.1, and TS 3/4.2.4 require that the APLHGR, MCPR, and LHGR are within the values specified in the Core Operating Limits Report (COLR). These TSs are applicable during Operational Condition 1 when thermal power is at or above 25% of RTP. While the TSs are applicable, compliance with the limits specified in the COLR is required to be verified at least daily, within 12 hours after completion of a thermal power increase greater than or equal to 15% of RTP, and at least once-per-12-hours when the reactor is operating with a LIMITING CONTROL ROD PATTEN.

PSEG proposed the following changes to the power distribution limit TSs:

- Delete the requirements to verify that the APLHGR, MCPR, and LHGR are within the limits specified in the COLR once per 24 hours and within 12 hours after completion of a thermal power increase greater than or equal to 15% of RTP.
- Delete the exception from the provisions of SR 4.0.4 for all three power distribution limits.
- Insert requirements to verify that the APLHGR, MCPR, and LHGR are within the limits specified in the COLR within 12 hours after thermal power is greater than or equal to 25% of RTP and at least once per 24 hours thereafter.

SRs 4.2.1, 4.2.3, and 4.2.4

The licensee has proposed to delete the requirement for verification after a thermal power increase. Plant startup and ascent to RTP is a slow and controlled process that rarely takes less than 24 hours. With the proposed revision, the verification of these power distribution limits would likely occur twice or more during startup power ascent. The first would occur within

12 hours of reaching 25% of RTP, while the second (and potentially more dependent on the length of the startup) would be performed before reaching full power. Additionally, during a power ascent, parameters such as reactor power, RCS pressure, and RCS temperature are closely monitored. Conditions indicative of a gross deviation from the power distribution limits would likely be identified by monitoring these parameters. These verifications and monitoring provide the requisite confidence to assure that the facility operation is within safety limits and the LCOs are met. Therefore, the NRC staff finds the proposed change acceptable.

Currently, SRs 4.2.1.d, 4.2.3.d, and 4.2.4.d except their respective LCO from the provisions of SR 4.0.4. Combined with SRs 4.2.1.a, 4.2.3.a, and 4.2.4.a which require verification of compliance with the power distribution limits at least once per 24 hours, this allows the first verification to take place up to 24 hours after reaching 25% or RTP. The purpose of this exception is to allow flexibility in scheduling surveillances during a power ascent. The new SR would require verification of the particular power distribution limit within 12 hours after thermal power is greater than or equal to 25% of RTP and every 24 hours thereafter. The NRC staff finds this change to be more conservative because the initial verification of compliance with the limits would occur within 12 hours as opposed to 24 hours, while maintaining the subsequent 24-hour interval. Therefore, the proposed change is acceptable.

3.5 Technical Evaluation Conclusion

The above technical evaluation shows that the proposed revisions to the TSs will continue to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits and the applicable LCOs will be met. The NRC staff finds that the provisions of 10 CFR 50.36(c)(3) will continue to be met, thus the proposed changes are acceptable.

4.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the performance of SRs. 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 (68 FR 68672). 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.

6.0 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 Contributors: M. Langschwager
A. Attard
S. Rhow
G. Miller

Date: October 13, 2004