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January 27, 1986

NUCLEAR LICENSING & SAFETY DEPARTMENT

U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D. C. 20555

Attention: Mr. Harold R. Denton, Director

Dear Mr. Denton:

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-29
File: 0260/L-860.0
Additional Information related
to FSAR Chapter 13
AECM-86/0024

By letter (AECM-85/0271) dated July 22, 1985, Mississippi Power and Light (MP&L) submitted proposed changes to the Final Safety Analysis Report (FSAR) Section 13.2 "Training Program". By letter (AECM-85/0296) dated September 11, 1985, MP&L submitted the Grand Gulf Nuclear Station (GGNS) License Operator Requalification Training Procedure. Consistent with MP&L's intent stated in our July 22, 1985 letter, the proposed changes to Section 13.2 were incorporated into the Updated FSAR.

By letter (MAEC-85/0403) dated November 27, 1985 the NRC requested additional information in order to complete its review of both the FSAR Chapter 13.2 and the GGNS Licensed Operator Requalification Training Procedure.

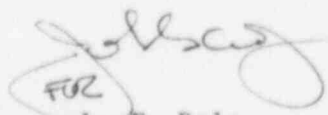
Attachment I to this letter provides an item by item response to the request for additional information in the referenced NRC letter.

Attachment II provides proposed changes to Section 13.2 of the Updated FSAR incorporating the MP&L response to noted requests and suggestions.

If you require additional information, please advise.

Yours truly,

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L. F. Dale
Director

JOE/MLC/JGC:dmm
Attachment

cc: (See next page)

J14NTRAEC CHANGES TO FSAR - 1
Member Middle South Utilities System

A001
3/40

cc: Mr. O. D. Kingsley, Jr. (w/a)
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RESPONSE TO EVALUATION

NOTE: The changes discussed in the following response are suggested changes and are reflected in the markup of the Updated FSAR Sections 13.2 and 9B (Attachment II)

II. General Comments

1. Course duration

NRC Concern:

In the revised FSAR, MP&L has omitted individual segment duration and provided only an estimate of the total course duration. The MP&L position is that utilizing a systematic approach to training, currently advocated by the NRC, the course duration is not important if the course material has been covered and satisfactory performance demonstrated.

In general, the staff agrees with this premise; however until 10 CFR 55 is revised licensed applicants must abide by requirements in the current version of 10 CFR 55 and must submit NRC Form 398, Personal Qualifications Statement-License, which requires the number of weeks enrolled and other requirements, in each segment of the training program. As more experience is gained by successful completion of current and future training programs, the course duration may be modified. The staff recommends that facility certification for each licensing class contain the segment course projected duration and the actual course duration in the individual's application. Please refer to specific comments for additional information.

Response:

Approximate course durations for the licensed operator training have been incorporated in Attachment II. As more experience is gained by successful completion of current and future training programs, the course duration may be modified.

2. Evaluation and Criteria

NRC Concern:

The revised licensed program omits methods of evaluation and passing criteria for written examinations. The simulator and in-plant training segments needs some method of evaluating student's progress and completion of each segment. Current and future programs that receive accreditation require a method of evaluation as indicated in the essential elements of acceptable training programs in the Policy Statement.

Licensed training should reference passing criteria for written examinations. Reference to NRC criteria contained in revised Section 13.2.2.1.4 is adequate.

Response:

Evaluation criteria as well as passing criteria have been added to the various segments as indicated in Attachment II.

3. Commitments for Specialized Training

NRC Concern:

The revised FSAR does not contain the details for specialized training on Emergency Diesel Generators (EDG). These commitments were incorporated in Amendment 50 of the FSAR. Although the revised FSAR references EDG training in the licensed and nonlicensed programs, the specific details remain a MP&L commitment. We request that MP&L provide some suitable reference in order to track these commitments or restate the EDG training in the revised FSAR.

Response:

The commitment for specialized Emergency Diesel Generator Training has been restated in Sections 13.2.1.1.16.1 and 13.2.1.1.16.2 (Attachment II).

III. Specific Comments

A. Licensed Operator Training

(1) 13.2.1.1.1 Licensed Operator Training Programs

NRC Concern:

GGNS has the option to license personnel as:

- ° Operators
- ° Senior Operators
- ° "Upgrade" Senior Operators (licensed operators at GGNS or a similar BWR)

MP&L estimate of a 42 week course for replacement operators and senior operators appears to reflect current industry practice. MP&L should evaluate the addition of an "upgrade" program for senior operators and include a course outline and estimate of course duration in the FSAR. In addition, as nonlicensed programs are upgraded to include more basic theory and systems training, GGNS may be able to reduce the course durations for licensed operator training.

Response:

Sections describing the direct SRO Training (13.2.1.1.8) and Upgrade SRO Training (13.2.1.1.7) have been added.

(2) 13.2.1.1.3

NRC Concern:

Several commitments contained in Amendment 47 should be included in the proposed revision. The commitments include:

- ° "Classroom presentations for each of the GGNS systems over which the licensed control room operator has control or cognizance."
- ° "Topics" a-j for each of the plant systems."

The reason for retaining these features in this segment is that it contains a more appropriate description of systems training for licensed personnel and that the "topics" can be compared to generic learning objectives. When GGNS is accredited and incorporates the "topics" into the training program, future FSAR revisions may delete the topics.

Response:

The commitments have been reincorporated in a slightly modified form, to wit: "...systems important to safety over which the control room operator has control or cognizance.", and "...topics as appropriate to each system."

The reason for these slight modifications is to clarify the intent of the commitment. MP&L believes that presentation of relatively minor systems not important to safety during the 8 weeks of committed training only serves to detract the student from more important training on systems important to safety. Similarly, MP&L does not believe it is the NRC's intent to require the student to learn relatively trivial matters, such as the power supply to a sampling pump or non-vital ventilation fan or an alternate dirty lube oil tank draining flow path to the detriment of learning power supplies for safety related equipment or alternate flow paths for systems such as Reactor Water Clean-up. Although training will be provided on some systems not important to safety, it need not be to the detail of covering all such systems and topics.

(3) 13.2.1.1.4 Simulator Training

NRC Concern:

At the time Amendment 47 revised the GGNS FSAR, Regulatory Guide 1.149 "Nuclear Power Plant Simulators for use in Operator Training" was not referred to in Section 13.2 of the FSAR. Since GGNS now has a plant referenced simulator, MP&L should follow current rulemaking which involves operator training and simulators and update future revisions of the FSAR when the rule becomes effective.

Response:

The attached revision contains a commitment to ANSI/ANS 3.5-1985, the most recent standard covering use of simulators in training. MP&L will follow rule making which involves operator training and simulators. We will update future revisions of the FSAR as necessary.

(4) 13.2.1.1.5 Plant Training

We interpret the duration of this phase of the program to be a total of three months for licensed operator and senior operator candidates. Licensed candidates who are in this phase of the program should have no additional concurrent duties. The training need not be consecutive but may be distributed over the training cycle. This phase of the program should include reactivity manipulations as required in 55.10. Refer to general comments for evaluation of in-plant training.

Response:

This section has been revised to reflect that candidates have no other concurrent duties. The suggestions from Section 2, Evaluation and Criteria, have also been incorporated.

(5) 13.2.1.1.6 License Examination Preparation

NRC Concern:

Attachment 2 refers to current GCNS practice for hot license candidates which has been approved by Region II. As requested by Generic Letter 84-14, include the reference correspondence in your response.

The current revision lacks provisions for retraining and the certification by the Plant Manager and Assistant Vice President-Nuclear Production. These features contained in Amendment 47 should be included in the revised program.

Response:

The reference in Attachment 2 was to the approach used to screen candidates for the NRC examination. This approach involved the screening of records and candidates by the Operator Training Evaluation Committee prior to the administration of the NRC examinations. This approach was a component of the corrective action plan presented to NRC Region II officials at a meeting on November 18, 1983 and documented by letter (MAEC-83/0369) from R. C. Lewis to J. B. Richard dated November 23, 1983. On November 21, 1983, MP&L filed with Region II a schedule for completion of the corrective action plan. A subsequent confirmation of action letter (MAEC-83/0376) was issued by NRC Region II on December 9, 1983. This approach was referenced only to indicate the process had proven acceptable and did not mean to imply approval by Region II of any ongoing training program or process.

The provisions for certification by the Plant Manager and Vice President, Nuclear Operations have been added in Attachment II with titles revised to reflect titles currently in use. Candidates for retraining must meet all requirements prior to being allowed to take the examination.

(6) 13.2.1.1.7 Supervisory Training for Senior Operators

NRC Concern:

Although the program description has been deleted, we believe the topics in Amendment 47 are appropriate. We also recommend this segment of the program be completed prior to or during the three months on shift so the candidate may have the opportunity to apply this knowledge. In addition, describe how this segment is evaluated.

Response:

MP&L does not concur that all the topics listed in Amendment 47 are appropriate for Shift Supervisors. The basis for performance based training is to provide training in those skills and abilities required to perform the respective job function. As defined in 10CFR50.54(1) these are "...directing the licensed activities of licensed operators," and (m)(1)(ii), "...responsibility for overall plant operation at all times..."

The recommendation to incorporate the supervisory training prior to the three months on shift has not been incorporated since the candidate does not assume supervisory responsibilities while on shift. The supervisory topics generally are not taught as continuous segments but are placed appropriately in other related segments such as simulator training.

MP&L has included in Attachment II, supervisory topics more appropriate to the job function. These topics are taken from ANSI/ANS 3.1-1981. Also included in Attachment II are descriptions of how training on these topics is evaluated.

(7) 13.2.1.1.9 BWR Refueling Training

NRC Concern:

This segment of the program should also include training for senior operators who will direct refueling activities as described in 10 CFR 50.54(m)(2)(iv).

Response:

The term "operators" as used in this paragraph was used in the generic sense meaning senior, licensed, and non-licensed operators. However, the term "senior operators" has been added for clarity.

(8) 13.2.1.11,13-16 Preoperational Testing

NRC Concern:

We concur that the phases of preoperational and low power testing may be deleted from the FSAR. In FSAR Section 18.1.12, Procedures for Feedback of Operating Experience to the Plant Staff (I.C.5), MP&L developed a program to ensure operating experience would be incorporated into training and retraining programs in a timely manner. Has MP&L incorporated the operating experiences obtained during low power testing and current operations in the replacement training program? If the answer is affirmative, please provide examples.

Response:

MP&L is presently incorporating operating experiences obtained during low power testing and current operations into the training program. This is currently being accomplished by modifying simulator response to more accurately reflect plant response. The mechanism for incorporating the lessons learned into lesson plans for future replacement training is not functioning effectively as indicated by INPO findings during their recent accreditation visit. MP&L has taken action to improve the process and a more effective program is being placed into effect. This is expected to be completed by April 1, 1986.

(9) 13.2.1.1.12 Previous Nuclear Experience

NRC Concern:

We concur that previous nuclear training and experience at other facilities may satisfy the intent of portions of the programs outlined in the FSAR. The staff recommends that MP&L review Section 5.2.1.7, "Testing in Lieu of Training" of ANSI/ANS 3.1-1981 as an alternative method to evaluate past experience thereby excusing individuals from segments in the program. Past experience and training of individuals are required information in license applications which will be reviewed by the Region II staff. Experience criteria is contained in NUREG-1021, Rev. 1, "Operator Licensing Examination Standards."

Response:

The term "experience or" has been deleted thereby insuring credit is only given for previous training or education and not experience only.

B. Nonlicensed Training

(1) 13.2.1.2 Training Programs for Nonlicensed Personnel

NRC Concern:

In this proposed section, MP&L does not include method(s) to be used to evaluate student performance, evaluation criteria or feedback into the training program. The NRC Policy Statement on Training and Qualifications indicates that trainee and program evaluation are essential element of an acceptable training program; therefore, they should be contained in the preamble to nonlicensed training and apply to all segments of nonlicensed training.

Response:

The commitment to evaluate both trainees and programs has been added to this section.

(2) 13.2.1.2.1 GGNS Management Training

NRC Concern:

We recommend the following addition: If not obtained by previous experience at GGNS, training should also include the GGNS Technical Specifications, past operating experience at GGNS and a suitable supervisory training program for this level of management.

Response:

The suggested commitments have been added to this section.

(3) 13.2.1.2.2 Nonlicensed Operator Training Program

NRC Concern:

This segment presents course outline and duration for the second level of non-licensed operators (NOB) although course and time for entry level operators (AON) is included, the segment lacks course duration for the AON position. In addition, MP&L should evaluate course content for nonlicensed personnel to determine if those members who are assigned to the fire brigade have sufficient training to fulfill their role in assessment of plant safety-related systems as described in Section 9B.7.1 of Appendix 9B.

Please refer to General Comments regarding EDG training.

Response:

This segment has been revised to more clearly reflect the AON and NOB programs, including the duration of each.

The content of the nonlicensed operator training program has not been reduced or changed significantly. Therefore, MP&L believes it's commitments with regard to section 9B.7.1 of Appendix 9B are still being met.

Please refer to general comments for response regarding EDG Training.

(4) 13.2.1.2.1-13.2.1.2.9 Amendment 47

NRC Concern:

With regard to deleting these paragraphs in Amendment 47:

- a) Why was the Station Nuclear Engineering Course deleted?
- b) The revised FSAR does not include technician training in Technical Specifications, facility procedures or the emergency plan. There is no explanation why these subject areas were deleted from the FSAR.

Response:

- a) Station Nuclear Engineering was deleted since it is described in the STA Training Section. Although prescribed for STA's other selected personnel may attend.
- b) Several of these items have been included in the respective program descriptions. Emergency plan training is not included since MP&L commitments concerning emergency plan training are incorporated into the GGNS Emergency Plan itself (Chapter 13.3 maintained separately from the FSAR).

(5) 13.2.1.2.3-5 Revised FSAR

NRC Concern:

With regard to the revised sections:

- ° There is no reference to training in Mitigating Core Damage commensurate with responsibility (Refer to Item II.B.4 of NUREG-0737 and paragraph 18.1.2.2, Amendment 49 of the GGNS FSAR).
- ° Please refer to specialized training for EDGs.

Response:

The reference to training in Mitigating Core Damage commensurate with responsibilities has been included in the respective descriptions.

Please refer to the general comments response regarding EDG (Section II.3 of this attachment).

(6) 13.2.1.2.6 Shift Technical Advisor (STA) Training Program

NRC Concern:

Comparing the STA program in Amendment 47, MP&L should explain:

- a) Why the original course duration of about 22 weeks has been decreased to 16 weeks.
- b) Why training in Mitigating Core Damage is not included in STA training.
- c) Future plans to use STAs as described in the last paragraph of 13.2.1.2.10 in Amendment 49
- d) Although Section 13.2.2.2.2 includes STA participation in an annual requalification program, there is no provision for evaluating STA performance in the program.

The staff recommends that STA retraining, particularly simulator exercises, be conducted with shift personnel.

Response:

- a) Experience gained in the Administrative Training segment demonstrated that 4 weeks was much too long. Therefore, the duration of this segment was reduced to about 1 week. This a 3 week reduction. In addition, the Station Nuclear Engineers course, now taught by MP&L instructors, has been made more site-specific thus reducing the length by one week. The cumulative effect was a 4 week reduction in the original commitment of "approximately 2 weeks", as stated in FSAR Paragraph 13.2.1.2.10, Amendment 47.

However, experience has also shown that six weeks of systems training as indicated in Amendment 47 is not enough time and that about 8 weeks is more appropriate. Thus in reflecting our present program and in placing durations in each segment, a new total of approximately 20 weeks has been reached. The revision reflects these changes.

- b) Training in mitigating core damage has been included in paragraph (f), Transient and Accident Analysis and Emergency Procedures.
- c) Future plans have now been added.
- d) Evaluations have been added to section 13.2.2.2.2. MP&L is currently having STA's retrain with shift personnel during simulator sessions.

(7) 13.2.1.3 General Employee Training

NRC Concern:

We recommend the paragraph in Amendment 47 requiring additional H. P. training for entry into radiation areas as required by 10 CFR 20 be included in the revised FSAR.

Response:

The paragraph in amendment 47 has been inserted into the revision.

(8) 13.2.2 Retraining and Requalification Program

NRC Concern:

The staff has not reviewed the revised retraining and requalification programs. However, in Section D of the RAI, we have provided comments to the September 11, 1985 letter which contained GGNS Licensed Operator Requalification Program.

Response:

As recommended in the NRC letter to Mr. Richard, dated November 27, 1985, MP&L will respond to these comments following INPO accreditation.

C. Appendix 9B - Fire Protection Program

(1) 9B.2.2.2 Plant Fire Chief

NRC Concern:

We are unable to determine the qualifications of the Plant Fire Chief. Since the Plant Fire Chief is responsible for developing training and qualifying members of the Plant Fire Brigade, the plan should include the Chief's qualification (refer to Section I.1.b of Appendix R).

Response:

The referenced Section of Appendix R requires that the personnel providing instruction be suitably trained, knowledgeable, experienced, etc. The revised FSAR makes this commitment in the second paragraph of 9B.3 as well as in 9B.8 which says training and drills meet the requirements of Section II.1 of Appendix R. However, the second paragraph of 9B.3 has been modified to clarify the commitment.

(2) 9B.2.2.4.1 Fire Brigade Leader

NRC Concern:

The second sentence should state an operator's license in lieu of an operating license.

Response:

This typographical error has been corrected in the proposed revisions.

(3) 9B.3 Qualifications of Personnel

NRC Concern:

Please reference the administrative procedure or similar document that establishes the training and qualification requirements for personnel responsible for maintenance and testing of the fire protection systems.

Response:

Several procedures establish the training and qualification requirements for personnel who perform maintenance and testing of fire protection equipment. These procedures are:

- | | |
|-------------|---|
| 01-S-04-2, | Nonlicense Operator Training and Qualification Program. |
| 01-S-04-17, | Mechanical Maintenance Retraining and Replacement Training Program. |
| 01-S-04-18, | Electrical Maintenance Retraining and Replacement Training Program. |
| 01-S-04-19, | Instrument and Control Section Retraining and Replacement Training Program. |

Although these procedures do not provide training on specific fire protection equipment, they do provide training on generic subjects pertaining to fire protection equipment, i.e. valves, detectors, etc.

(4) 9B.7.1 Fire Brigade Personnel

NRC Concern:

- ° Regarding the minimum number of operating shift personnel who are not fire brigade members, it appears that the number of licensed personnel does not comply with the table in 10 CFR 50.54(m)(2)(i).
- ° The two fire brigade members who have been trained and are knowledgeable of safety systems should also be identified in 9B.2.2.4.2. Since these members are probably nonlicensed operators, MP&L should reference the qualified operators by title as stated in FSAR 13.2.2.

Response:

GGNS Technical Specification 6.22.e implicitly allows the use of certain shift personnel to meet the fire brigade contingency provided the following personnel are available:

- 1) the Shift Superintendent
- 2) the STA
- 3) the two other members required for safe shutdown (Shift Supervisor and control room operator) and
- 4) at least one Auxiliary Operator to respond to non fire fighting commands from the control room.

The minimum number of personnel who are not fire brigade members meets this requirement.

The two members who have been trained and are knowledgeable of safety systems are Nuclear Operators' B (highest non-licensed operator position). This section has been revised to incorporate the comment.

D. Requalification Training

NRC Concern:

In response to a staff request, MP&L in a letter dated September 11, 1985, submitted the GGNS Licensed Operator Requalification Program (01-S-04-2, Rev. 4 of November 5, 1984). This submittal is in response to Generic Letter 84-14. At the time of submittal, the requalification program was undergoing revision in preparation for INPO accreditation. DHFS and Region II have reviewed the Requalification Program and find, with several exceptions, the program meets the current criteria contained in Appendix A of 10 CFR Part 55 and NUREG-0737. In this RAI, the staff also requests clarification of some parts of the program and provides several recommendations. The recommendations were developed from observations of other licensee's programs and does not constitute a regulatory requirement.

When the INPO accreditation review is complete, MP&L should respond to this section of the RAI and submit the revised program.

Response:

This will be addressed in separate correspondence following completion of the INPO accreditation review.

Proposed Changes to Section 13.2 and
APPENDIX 9B of the Update FSAR

13.2 TRAINING

13.2.1 Grand Gulf Nuclear Station (GGNS) Staff Training Program

The GGNS Staff Training Program has been developed and implemented to:

- a. Ensure that personnel are effectively trained and qualified to safely operate and maintain the plant throughout its design life
- b. Meet or exceed all regulatory requirements
- c. Meet or exceed current industry standards and practices

Current guidance for the development of the training programs, outlined in this section, was obtained using American National Standards Institute Standard ANSI N18.1-1971, 10 CFR 50, 10 CFR 55, NUREG-0737, Clarification of TMI Action Plan Requirements, and Institute of Nuclear Power Operations (INPO) training guidelines. The content of the training programs outlined in this section was developed using the standards and references stated above.

The Plant Training Superintendent is responsible for the overall program. He designates qualified individuals to prepare learning objectives, instructor guides, lectures, tests, examinations, and to provide performance evaluations and documents for various aspects of the training program. The detailed program description which follows is divided into three sections relating to the categories of personnel being trained: (1) Licensed Personnel, (2) Non-Licensed Technical Personnel, and (3) General Employee Training Programs.

The program outlined below is specifically written for GGNS Unit 1. Some personnel originally assigned to Unit 1 may be later reassigned to Unit 2. Since the two units are expected to be identical in design, the Unit 1 training program will be directly applicable to Unit 2 systems. Because of this similarity, personnel reassigned to Unit 2 will not repeat the portions of the training program they have previously completed. They will, however, participate in a training program designed to cover any differences between Unit 1 and Unit 2 and familiarize operators of both units with two-unit operation and operation of shared systems. MP&L intends to request a waiver for the examination and test requirements of Unit 2 personnel meeting the requirements of 10 CFR 55 for Unit 1.

ANSI/ANS 3.5-1985,

13.2.1.1 Training Program Description

13.2.1.1.1 Licensed Operator Training Program

The Licensed Operator Training Program has been developed to ensure that the individuals who operate the controls of the Grand Gulf Nuclear Station are competent to do so. The Licensed Operator Training Program is taught at the Senior Reactor Operator level and provides approximately 42 weeks of training in job-related knowledge requirements and skills and includes the following areas:

- a. Understanding the basic principles in the various engineering disciplines which relate to plant operations.
- b. Knowledge of plant systems and components.
- c. Knowledge of the procedures established for controlling the plant.
- d. Skill in manipulating plant controls.

The Senior Licensed Operator Training Program has been developed to ensure that the individual who directs the activities of the licensed operators possesses an understanding of principles and knowledge of plant systems and components and analytical ability beyond that required of the licensed control room operator.

License candidates receive training in the following areas:

- a. Nuclear Power Plant Fundamentals Training
- b. Systems Operation Training
- c. Simulator Training
- d. Operating Practices Training
- e. License Examination Preparation

Candidates for Senior Reactor Operator receive additional training in the following areas:

- f. Procedures and Bases
- g. Plant Operation and Casualty Response
- h. Supervisory Skills

Written and/or oral examinations are periodically given to students during the completion of the Licensed Operator Training Program. These examinations are given to evaluate student performance and to assess the level of comprehension of the course material.

13.2.1.1.2 Nuclear Fundamentals Training

about 8 weeks of

License candidates will receive classroom training in the science and engineering subjects listed below. The duration of the Nuclear Fundamentals Training is consistent with ANSI N18.1-1971, NUREG-0737, and accepted industry practice when the training begins. Once GGNS achieves accreditation of the Licensed Operator Training Program, course content and duration will be determined by learning objectives derived from job analysis.

- a. Mathematics
- b. Classical Physics
- c. Atomic and Nuclear Physics
- d. Reactor Theory
- e. Chemistry
- f. Heat Transfer, Thermodynamics, and Fluid Flow
- g. Plant Materials
- h. Radiation Detection
- i. Radiation Protection
- j. Basic Electronics and Electricity
- k. Instrumentation and Controls

Written examinations are given during the fundamentals training phase to evaluate student progress and to assess the level of comprehension of course material. *An overall average of 80% is required to successfully complete this module of training.*

13.2.1.1.3 Systems Operation Training

will be about 8 weeks of

License candidates receive classroom instruction on Nuclear Steam Supply Systems (NSSS) and selected Balance of Plant (BOP) Systems. The content and duration of the systems training is consistent with the guidance of ANSI N18.1-1971, NUREG-0737, and accepted industry practice at the time the training begins. Once GGNS achieves accreditation of the Licensed Operator Training Program, course content and duration will be determined by learning objectives derived from job analysis. *Insert A*

important to safety over which the license control room operator has control or cognizance.

This training is designed such that upon completion the student should be able to discuss the following topics as appropriate to each system:

- a. Purpose of the system including design bases
- b. System components including locations
- c. Normal and alternate system lineups
- d. Normal and alternate power supplies
- e. Associated limits and alarms
- f. Interrrelationships with other systems
- g. Automatic features of system operation
- h. Associated instrumentation, indications and controls
- i. Failure modes of controls and instruments
- j. Normal values for significant parameters

Written examinations are given during the Systems Operation Training phase to evaluate student progress and to assess the level of comprehension of course material. An overall average of 80% is required for successful completion of this module.

13.2.1.1.4 Simulator Training

of about 160 hours

License candidates participate in a Simulator Training Program which prepares the individual to proficiently conduct routine evolutions and carry out abnormal/emergency actions from the control room. The simulator utilized in this program will have operating characteristics and control room design similar to those of the Grand Gulf Nuclear Station. The content and duration of the Simulator Training Program is consistent with ANSI N18.1-1971, NUREG-0737, and accepted industry practice at the time the training begins.

The simulator training program prepares the student to operate GGNS under normal conditions as well as provide extensive training in transients and casualty response. The evolutions listed below are typically included in the simulator curriculum. Once GGNS achieves accreditation of the Licensed Operator Training Program, the specific elements of the simulator training phase will be determined by learning objectives derived from job analyses.

- a. Normal Startup
- b. Normal Shutdown
- c. Reactor scram
- d. Turbine or generator trip
- e. Loss of coolant, including large and small leaks located inside and outside of primary containment
- f. Loss of coolant flow/natural circulation
- g. Loss of feedwater
- h. Nuclear instrumentation failure(s)
- i. Mispositioned control rod(s) (or rod drops)
- j. Inability to drive control rods
- k. Conditions requiring use of standby liquid control system
- l. High activity in reactor coolant or offgas
- m. Malfunction of automatic control system(s) which affect reactivity

and will meet the standards of ANSI/ANS 3.5-1985.

- n. Malfunction of reactor coolant pressure/level control system
- o. Loss of instrument air
- p. Loss of electrical power and/or degraded power sources
- q. Loss of condenser vacuum
- r. Loss of standby service water
- s. Loss of shutdown cooling
- t. Loss of component cooling water system or cooling to an individual component
- u. Steam line break (inside & outside containment)

Exercises involving multiple failures and/or operator error are also included. Utilization of applicable plant procedures and Technical Specifications during training exercises is emphasized.

HP *Insert A*

13.2.1.1.5 Operating Practices Training

License candidates gain experience in plant operation and casualty response through a combination of in-plant, on-shift training and classroom presentations/discussions. This training includes Administrative Requirements Training, Plant Operation and Casualty Response Training, and in-plant watchstanding. Once GGNS achieves accreditation for the licensed operator training program, specific elements of the Operating Practices Training will be determined by learning objectives derived from job analyses. *An overall average of 80% will be required on written examinations given during this segment.*

13.2.1.1.5.1 Administrative Requirements Training

of about 1 week

License candidates receive training in the plant administrative procedures, policies and practices which affect the licensed control room operator. This training covers such topics as:

- a. Shift Turnover
- b. Operator Logs
- c. Verification of Plant System Status
- d. Quality Assurance
- e. Tagout Procedure
- f. Reports and Notification
- g. Shift Duties and Responsibilities

This training is typically provided prior to on-shift training.

Students are evaluated on a periodic basis and provided feedback in order to improve their performance. A final operating examination will be given as described in Section 13.2.1.1.6.2. Standards for this examination will be those in current use by the NRC at the time of the examinations.

- h. Use of Procedures
- i. Health Physics Procedures
- j. Radioactive Material Control Procedures
- k. Nonradioactive Liquid Effluent Release Limits and Bases

Written examinations are given during the Administrative Requirements Training to evaluate student progress and to assess the level of comprehension of course material.

13.2.1.1.5.2 Plant Operation and Casualty Response Training

License candidates receive classroom training on the following subjects:

- a. Normal, abnormal, and emergency operating procedures
- b. Plant transients and trend analysis
- c. Recognition and mitigation of the consequences of core damage
- d. Site Emergency Plan including calculation of release rates
- e. Technical Specifications

Written examinations are given during the Plant Operations and Casualty Response Training to evaluate student progress and to assess the level of comprehension of course material.

13.2.1.1.5.3 In-Plant Training

License candidates spend a minimum of 13 weeks ~~period of time~~ on shift in a training status, under the supervision and guidance of a licensed reactor operator or senior reactor operator, as appropriate. The duration of this "under-instruction" period is consistent with ANSI N18.1-1971, NUREG-0737, and accepted industry practice. The objective of this training period is for each candidate to gain experience in the routine operation of the nuclear power plant. During this period, the candidate ~~should~~ will perform duties of the licensed reactor operator or senior reactor operator, as appropriate, including reactivity manipulations. Insert A

13.2.1.1.6 License Examination Preparation

Prior to the proposed NRC examination date, each license candidate's progress in the training program is evaluated to assess the candidate's ability to safely and competently operate the plant. This evaluation is normally performed in

with no concurrent duties

These duties will be performed under the supervision of a licensed operator or senior operator and will be evaluated by the licensed operator or senior operator to ensure the duties are performed correctly and in accordance with approved procedures and in other standards which may be promulgated. A checksheet will be used to verify progress and correct performance of the duties.

two phases. However, if the license candidate has not participated in simulator training in the previous 6 months, a simulator refresher period is provided prior to the license candidate's examination evaluation. The license examination preparation ~~phases~~ includes a simulator refresher period (when required), a practice NRC-style examination, and an Operator Training Evaluation Committee review.

period
of about
4 weeks

13.2.1.1.6.1 Simulator Refresher (If Required)

If the NRC license candidate has not participated in simulator training within the previous 6 months, then a simulator refresher course is presented. This training emphasizes overall plant operation, including casualty response.

13.2.1.1.6.2 Practice NRC Examination

Insert A

License candidates are administered NRC-style, comprehensive written, oral, and performance examinations. The objective of these examinations is to determine the individual's ability to operate the plant in a safe and competent manner. If the candidate's performance is unsatisfactory, the candidate's weaknesses are evaluated, and a remedial training program may be developed to correct those weaknesses. Alternatively, the candidate will not be allowed to take the NRC license examination.

13.2.1.1.6.3 Operator Training Evaluation Committee Review

Prior to the actual NRC license examination, the candidate's overall performance in the Licensed Operator Training Program is reviewed by an Operator Training Evaluation Committee. The Operator Training Evaluation Committee verifies that the NRC examination prerequisites are satisfied, that the operator training program has been completed, and that the candidate can safely operate the plant and obtain the required license. If the Operator Training Evaluation Committee determines that the candidate's performance is satisfactory and that the candidate meets all prerequisites, the candidate will be ~~allowed to take the NRC License Examination~~ recommended for the NRC License Examination to the GCNS General Manager who is responsible for certifying to the Vice President, Nuclear Operations, the competency of each license candidate.

13.2.1.1.7 Supervisory Training for Senior Licensed Operators

Senior license candidates receive training in the supervisory skills necessary to carry out the administrative responsibilities of the senior control room operator. The content and duration of this course will be consistent with accepted industry practice when the training begins.

INSERT C

13.2.1.1.8 Licensed Operator Training Program Instructors

Instructors for the Licensed Operator Training Program will be permanent MP&L employees assigned to the Grand Gulf Training Section or be consultants to MP&L. Instructors who teach

Insert B

Insert D

INSERT A, Page 13.2-7

The standards for these examinations are those in current use by the NRC at the time of the examination.

13.2.1.1.7 Upgrade Senior Operators.

Candidates for Senior Operator who currently hold an operators license on GGNS will complete an abbreviated training program to upgrade their knowledge and skills to those required to Senior Operators. The duration of this program is approximately 22 weeks.

13.2.1.1.7.1 Self Study Review

A period of self-study review of about 4 weeks with no concurrent duties will be provided for the candidates to upgrade and refresh their knowledge in fundamentals and systems.

13.2.1.1.7.2 Operating Practices Training

This segment is provided to allow the candidate to gain experience in plant operation from the supervisory aspect. It includes in-plant training as described in section 13.2.1.1.5.3, and Plant Operation and Casualty Response Training as described in 13.2.1.1.5.2.

13.2.1.1.7.3 Simulator Training

This training of about 2 weeks is provided to prepare the candidates to conduct normal and abnormal evolutions from the prospective of the Shift Supervisor. The program is similar in content to that described in 13.2.1.1.4.

13.2.1.1.7.4 License Examination and Preparation

The candidates will complete this segment as described in section 13.2.1.1.6.

Typical topics of supervisor skills include

- a. Leadership
- b. Interpersonnel Communications
- c. Command responsibilities and limits
- d. Motivation of personnel
- e. Problem analysis
- f. Decision making
- g. Administrative requirements for the particular supervisory position

Performance is evaluated by assessing performance during role playing exercises, scenario performance and responses to given situations.

INSERT D, Page 13.2-7

13.2.1.1.8 Direct Senior Operator Training
Program

Direct Senior Operators (those who have not previously held an operators license) will complete a program as described in sections 13.2.1.1.2 through 13.2.1.1.6 and supervisory training as outlined in 13.2.1.1.7.5.

systems, integrated plant response, transients, and simulator courses to license candidates or NRC-licensed personnel shall either demonstrate or have previously demonstrated their competence to the NRC by successful completion of a senior operator examination for GGNS or a similar type plant and will participate in an appropriate requalification program.

13.2.1.1.9 BWR Refueling Training

and Senior operators

Those operators who will be involved in refueling operations will participate in a fuel-handling training program which will be designed to acquaint each operator with the procedures, skills, and equipment required for fuel handling evolutions.

13.2.1.1.10 Deleted

13.2.1.1.11 Deleted

13.2.1.1.12 Previous Nuclear Training

this or

Participation in nuclear training programs at other facilities or having previous ~~experience or~~ education that satisfied the intent of the program outlined in subsection 13.2.1.1 may be substituted for portions of the training outlined for reactor operator and senior reactor operator candidates. The individual's successful completion of these other training programs will be verified prior to excusing the individual from segments of the program described in subsection 13.2.1.1. In cases where objective evidence is not available to document completion of other training programs, procedures have been established to verify the individual's knowledge through written or oral examinations.

Substitutions of previous training will not be authorized for special GGNS equipment operations training (e.g., Emergency Diesel Generator Operations Training) unless such training is on identical equipment.

13.2.1.1.13 Deleted

13.2.1.1.14 Deleted

13.2.1.1.15 Deleted

13.2.1.1.16 ~~Deleted~~ *Insert A*

13.2.1.2 Training Programs for Non-Licensed Personnel

Training programs for management, supervisory, professional, and technical personnel not requiring NRC licenses are provided. The content and duration of these programs is consistent with ANSI N18.1-1971. In addition, INPO guidelines for maintenance training and non-licensed operator training have been used

13.2.1.1.16 Diesel Engine Training for
Licensed and Non-Licensed Personnel

13.2.1.1.16.1 All licensed and non-licensed
operators responsible for the safe
operation of the emergency diesel
generators shall successfully
complete a course which includes as
a minimum the areas listed below:

- a. Engine construction
- b. Auxiliary systems associated
with the engine
- c. Normal and abnormal operating
characteristics
- d. Diesel engine startup and
loading procedure
- e. Diesel engine protective
features and overload
conditions
- f. Diesel engine control
systems
- g. Importance of Diesel Engine
Prelube System
- h. Basic troubleshooting
- i. Importance of trends in
operating logs
- j. Hazard of no-load or low-load
operation

Completion of this training
requires a 80% on a written
examination given at the conclusion
of the training.

13.2.1.1.16.2 All maintenance personnel
responsible for the performance of
maintenance on the emergency diesel
generator shall successfully
complete a course similar to that
above. These personnel will be
instructed as a minimum on items a,
b, e, f, g and h above.

Insert A

extensively in the development of these training programs. Training for individuals in these categories is based upon the individual's background, experience, ability, and the position duties and responsibilities. Training for these individuals is accomplished through a combination of vendor-supplied courses and courses taught by the GGNS Training Staff. These programs are described in the sections below.

13.2.1.2.1 GGNS General Manager and Managers of Plant Operations, Maintenance, and Support

The GGNS General Manager and Managers of Plant Operations, Maintenance, and Support will attend a training program similar to that provided to licensed operator candidates. This training will be completed prior to their assignment to the position or as soon thereafter as practicable. The training will be completed prior to their assignment to duties of "Emergency Director" in the GGNS Emergency Organization. The training consists of the following:

- a. Systems
- b. Simulator (certification not required)
- c. Administrative Requirements
- d. Plant Operation and Casualty Response
- e. Mitigating Core Damage

13.2.1.2.2 Non-Licensed Operator Training Program

of about
10 weeks

The Non-Licensed Operator Training Program contains training programs for Auxiliary Operators - Nuclear (AON) and Nuclear Operator - B (NOB). The initial training program is an entry level program and is designed to train individuals to become Auxiliary Operators - Nuclear. The training typically consists of classroom presentations on power plant fundamentals, power plant theory, and GGNS systems. The program also includes on-shift training in the plant. The NOB training program is designed to train experienced AONs to become Nuclear Operators - B. The training consists of classroom presentations and in-plant, on-shift training. The classroom training typically contains lectures on such subjects as nuclear power plant fundamentals and theory, an introduction to nuclear theory, and an introduction to reactor safety. The NOB program provides a basis for subsequent license training. The Non-Licensed Operator Training Program consists of approximately 18 weeks of additional training for a NOB.

Both AON and NOB candidates are evaluated by written and/or oral examinations periodically during the training. These evaluations as well as student feed back and on-the-job performance are factored into future training.

INSERT A, Page 13.2-9

Trainee performance in these programs will be evaluated to insure the trainees have obtained an adequate knowledge of the subject matter. In addition, the individual programs are evaluated to insure they are providing the training necessary for the personnel to fulfill their job functions.

INSERT B, Page 13.2-9

If not obtained by previous experience at GGNS, training will also be provided on GGNS technical specifications and past operating experience at GGNS. Also, if not previously trained, a suitable supervisory training program will be provided.

In addition, the AON and NOB training programs are supplemented, when necessary, with equipment- and/or system-specific operations training (e.g., emergency diesel generator operations training) presented by vendors or the MP&L Training Staff. Once GGNS achieves accreditation for the Non-Licensed Operator Training Program, specific content of the Non-Licensed Operator Training Program will be determined from learning objectives derived from job analyses, as well as feedback concerning on-the-job performance.

13.2.1.2.3 Chemistry Training Program

procedures, applicable technical specifications,

The Chemistry Training Program consists of classroom lectures and on-the-job training. The classroom training typically includes theory, practical application, and selected GGNS systems training. The Chemistry Training Program is supplemented, when required, by courses presented by equipment vendors. Once GGNS achieves accreditation for the Chemistry Training Program, specific content of the Chemistry Training Program will be determined from learning objectives derived from job analysis. Training in mitigation of core damage commensurate with the responsibility of these personnel will be provided.

13.2.1.2.4 Health Physics Training Program

procedures, applicable technical specifications,

The Health Physics Training Program provides classroom and on-the-job training for GGNS plant staff health physicists. The classroom training typically includes health physics technology, basic chemistry, introduction to GGNS systems, and concepts of ALARA. The health physics training program is supplemented, when required, by courses presented by equipment vendors. Once GGNS achieves accreditation in the Health Physics Training Program, specific content of the Health Physics Training Program will be determined from learning objectives derived from job analysis. Training in the mitigation of core damage commensurate with the responsibility of these personnel will be provided.

13.2.1.2.5 Maintenance Training Program

discussion of technical specifications,

Training programs for Maintenance Technicians (Mechanical, Electrical, and Instrumentation/Controls) are provided to ensure that these technicians have or acquire appropriate job-related knowledge and skills. Each training program (Mechanical, Electrical, and Instrumentation/Controls) consists of classroom presentations and on-the-job training. The classroom presentations include fundamentals relevant to the discipline, maintenance procedures training, and an introduction to GGNS systems. The Maintenance Training Programs are supplemented, when required, by special maintenance courses (e.g., emergency diesel generator maintenance, control rod drive maintenance, process instrumentation, and control, etc.) presented by equipment vendors and/or the MP&L Training Staff. Once GGNS achieves accreditation for the Maintenance Training Programs, specific content of the Maintenance Training Programs will be determined by learning objectives derived from job analysis. In addition, training will be provided in mitigating core damage commensurate with the responsibility of these personnel.

13.2.1.2.6 Shift Technical Advisor (STA) Training Program

The STA Training Program is designed to ensure that individuals assigned as STAs are prepared to make evaluations concerning plant safety and provide technical assistance to the operating shift. The STA training program consists of approximately ~~16~~ 20 weeks of training and contains the elements listed below. Once GGNS achieves accreditation for the STA Training Program, specific elements of the STA Training Program will be determined by learning objectives derived from job analysis.

a. GGNS Systems

about 8 weeks of

The STA Systems training provides classroom presentations on those systems which may affect accident or transient response. This training typically includes system purpose, basic system operation, and locations of major components and their respective operating or control stations.

b. Nuclear Engineering

of about 5 weeks

This course provides training that relates to STA nuclear engineering functions during power operation and outages. The course ~~is typically taught by a vendor at the plant site and consists of lectures and studies covering the process computer, reactor behavior, thermal hydraulics, technical specifications, core thermal limit calculations, and core reactivity.~~ This course may be taught by the training staff when sufficient expertise is available.

c. Management/Supervisory Training

of about 1 week

It is similar to the course described in 13.2.1.1.7.5.

This course provides training in the supervisory skills necessary to carry out the administrative responsibilities of the shift technical advisor. The content and duration of this course will be consistent with accepted industry practice when the training begins.

d. Administrative Controls

about 1 week of

This ~~segment~~ of the STA program consists of ~~a~~ presentation of the GGNS Administrative Procedures that pertain to station operation. Such topics as technical specifications, maintenance work orders, control of limiting conditions for operation, protective tagging, etc., are covered.

e. General Operating Procedures

about one week of

The general operating procedures segment contains presentations of the GGNS Integrated Operating Instructions, Selected System Operating Instructions, and Selected Alarm Response Instructions.

f. Transient and Accident Analysis and Emergency Procedures

of about 3 weeks,

In this segment, STA candidates receive a detailed presentation of the transient and accident analysis section of the GGNS Final Safety Analysis Report. The Emergency Procedures are taught concurrently with transient and accident analyses to ensure that an integrated understanding of accidents and accident response is gained by each candidate. In addition, candidates receive training in methods used to access and interpret information from the process computer. assess and mitigate core damage.

g. STA Simulator Training

The final element in the STA program has been designed to familiarize the STAs with system and plant operation in a control room environment. The training is divided between actual control room operation and classroom presentations. This segment would be about 2 weeks duration

13.2.1.3 General Employee Training

Each employee who enters the protected area of the Grand Gulf Nuclear Station is required to attend the General Employee Training Program or be accompanied by someone who has completed this training. The program provides a general plant physical and safety orientation to ensure safe execution of their duties. In addition, the program includes a description of the site emergency program, Quality Assurance Program training, and basic radiation training. This training also includes indoctrination on evacuation procedures and procedures for reporting fires as discussed in Appendix 9B, Section 9B.8.3.

At the conclusion of these ⁵ ~~this~~ course, written examinations are given to evaluate the student's retention of the material presented.

13.2.1.3.1 Temporary Plant Personnel Training

Temporary maintenance and service personnel, i.e., those who are not permanently assigned to the GGNS, will be trained in the areas described in subsection 13.2.1.3 to the extent necessary to ensure safe execution of their duties.

INSERT A, Page 13.2-12

The STA training program is intended to be an interim plan which ensures that technical expertise is available to the Shift Supervisor dealing with accident/transient response of the GGNS plants. The long term plan is to certify the Shift Superintendents to the level of STA at which time there will no longer be a need for a separate STA position.

INSERT B, Page 13.2-12

Any employee who will enter radiation areas and who has not received more intensive training will attend a radiation protection course covering basic radiation theory, NRC and company radiation limits, exposure and contamination control, respiratory protection and safe radiological practices or will be accompanied by a person who has passed the radiation protection course.

13.2.1.3.2 Consultant and Vendor Personnel

Consultant and vendor personnel will receive indoctrination training in those areas described in subsection 13.2.1.3 to the extent necessary to safely execute their normal duties.

13.2.1.4 Fire Brigade Training

A Fire Brigade Training Program has been developed to ensure that personnel assigned to the fire brigade are capable to fight potential fires at GGNS. The Fire Brigade Training Program provides for classroom instruction and fire fighting practice sessions. The specific content of the Fire Brigade Training Program is consistent with the requirements of 10 CFR 50, Appendix R and is described in the FSAR Appendix 9B.

13.2.2 Retraining and Regualification Programs

13.2.2.1 Licensed Operator Regualification Training Program

A continuing regualification training program for licensed operators and senior operators has been implemented in accordance with 10 CFR 55, Appendix A. Licensed operators and senior operators are required to participate in the regualification program as described in this section.

Licensed plant staff members who are actively engaged in the regualification program and licensed training instructors may be excused from participation in those portions of the regualification program to the extent that they perform duties required by their staff position.

The Licensed Operator Regualification Program consists of regularly scheduled lectures, on-the-job training, simulator training, examinations, and accelerated regualification (when necessary). Each of these elements is discussed in the paragraphs below.

13.2.2.1.1 Regularly Scheduled Lectures

The Regualification Program includes preplanned lectures given throughout the regualification period. Emphasis shall be placed on those areas where annual Operator and Senior Operator written examinations indicate that an increase in scope and depth of coverage is needed. The subjects covered are consistent with 10 CFR 55, Appendix A, ANSI N18.1-1971, and accepted industry practice. Typical subjects for a regualification period might include some of the following:

- a. Theory and Principles of Operation
- b. General and Specific Plant Operating Characteristics

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- c. Plant Instrumentation and Control Systems
- d. Plant Protection Systems
- e. Engineered Safety Systems
- f. Normal, Abnormal, and Special Operating Procedures
- g. General safety, first aid, and fire fighting
- h. Radiation Control and Protection
- i. Technical Specifications
- j. Changes in equipment and operating procedures
- k. Applicable portions of Title 10 CFR
- l. Quality Assurance for operation, including applicable portions of Administrative and Quality Control Procedures
- m. Facility design and license changes
- n. Emergency Plan and Procedures
- o. Fuel handling equipment and techniques
- p. Contingency lectures as required for outages or major evolutions
- q. Heat transfer and fluid mechanics
- r. Operating experience from plants similar to GCNS
- s. Thermodynamics
- t. Mitigation of accidents involving a degraded core

13.2.2.1.2 On-The-Job Training

The on-the-job training segment of the licensed operator requalification training program provides for required reading, individual study assignments, procedure review, and control manipulations.

- a. Reading and/or individual study assignments may be given to licensed operators during the requalification program to supplement the formal lecture and simulator programs.
- b. Licensed operators must annually review the Emergency Plan Procedures, Emergency Procedures, and Off-Normal Event Procedures.

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c. Licensed operators shall perform or direct the performance of control manipulations involving reactivity changes to maintain and demonstrate their skill and familiarity with reactivity control systems. These manipulations may be performed in the plant. Manipulations not performed on the plant will be performed on the simulator. The evolutions listed below are acceptable control manipulations. The asterisked (*) items are performed annually; the remainder are performed on a biennial basis.

- (* 1) Plant or reactor startups from cold shutdown to the point of adding heat and establishing a heatup rate
- (* 2) Plant shutdown
- (* 3) Manual feedwater control during startup and shutdown
- (4) SBLC injection
- (* 5) Any significant (greater than 10 percent) power changes due to manual changes in control rod position or recirculation flow
- (* 6) Loss of vessel inventory including a loss of inventory inside and outside containment, as well as large and small leaks
- (7) Loss of instrument air
- (8) Loss of electrical power (and/or degraded power sources)
- (* 9) Loss of core coolant flow/natural circulation
- (10) Loss of condenser vacuum
- (11) Loss of standby service water
- (12) Loss of RHR shutdown cooling
- (13) Loss of component cooling water system or cooling to an individual component
- (*14) Loss of feedwater or any normal feedwater system failure
- (15) Loss of RPS channel
- (16) Control rod drop or mispositioned control rod

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- (17) Inability to drive control rods
- (18) Fuel cladding failure or high activity in the reactor coolant or offgas system
- (19) Turbine or main generator trip
- (20) Malfunction of an automatic control system which affects reactivity
- (21) Level controller malfunctions
- (22) Reactor scrams
- (23) Main steam line breaks
- (24) Nuclear instrumentation malfunctions

13.2.2.1.3 Simulator Training

Licensed Operators and Senior Operators will participate in a preplanned Simulator Training Program during the period of the Regualification Program. The simulator program may include performance of the control manipulations listed in Section 13.2.2.1.2.c.

13.2.2.1.4 Examinations and Evaluations

Annual regualification examinations, with format and content consistent with then current NRC examinations, are given to each licensed operator and senior operator. The written examination results will be determined using NRC criteria prevailing at the time the examination is given. Individuals whose test results are found to be unsatisfactory are placed in an accelerated regualification program (subsection 13.2.2.1.5). Similarly, oral and simulator performance evaluations are given annually. These examinations are also evaluated using NRC performance criteria prevailing at the time the examination is given. Individuals whose test results are found to be unsatisfactory are placed in an accelerated regualification program.

13.2.2.1.5 Accelerated Regualification

Individuals requiring accelerated regualification as a result of unsatisfactory performance on annual written/oral examinations or simulator demonstrations will not be allowed to perform licensed duties until successful completion of the accelerated regualification program. Accelerated regualification training is given in the area(s) noted to be deficient. The scope of an individual's accelerated regualification program is determined

by the Training Superintendent or his designated alternate. The individual's accelerated regualification program is developed to place emphasis where required and may consist of any or all of the following:

- a. Individual reading/study assignments
- b. Additional on-shift evolutions
- c. Individual review with members of the operating or training staff
- d. Attendance at formal lectures
- e. Simulator training

Successful completion of the Accelerated Regualification Program is measured by assessing the student's performance on an examination/evaluation in those areas noted to be deficient. The criteria used to evaluate the results of this examination/evaluation will be consistent with NRC criteria prevailing at the time examination/evaluation is given.

13.2.2.1.6 Regualification of Inactive Operators and Senior Operators

Any Licensed Operator or Licensed Senior Operator who, for any reason, has not been actively performing the functions of an Operator or Senior Operator for a period of 4 months or longer will, prior to resuming activities for which he is licensed, demonstrate his knowledge of facility operation. This demonstration will be accomplished by completion of an examination (written or oral) conducted by a qualified member of station management.

13.2.2.2 Retraining for Non-Licensed Personnel

13.2.2.2.1 General

Retraining programs have been established to ensure that non-licensed personnel remain proficient in the tasks required by their position. These programs are implemented by the appropriate supervision if weaknesses are identified during a biennial evaluation conducted by the supervisor.

13.2.2.2.2 Shift Technical Advisor Retraining Program

Shift Technical Advisors will participate in an annual regualification program which is designed to maintain proficiency in recognizing and responding to transients and accidents. The training will be accomplished through classroom presentation

and simulator training. In addition, to ensure that STAs are kept aware of significant industry events, they will participate in the required reading program.

13.2.2.2.3 General Employee Retraining

General employee refresher training on the subjects described in subsection 13.2.1.3 is provided for permanent GGNS Staff members, who have not received more extensive training, on a biennial basis.

13.2.2.2.4 Fire Brigade Retraining

Refresher training will be provided to the Fire Brigade members as discussed in Appendix 9B, Section 9B.8.1.

13.2.3 Training Program Administration

13.2.3.1 Training Records

Records of plant personnel qualifications will be maintained on each member of the plant staff. Training records contain records of training programs, training courses completed, and lectures attended.

In addition, these records will contain, for licensed personnel and license candidates, results of written or oral examinations or both, results of retraining examinations administered in areas of noted deficiencies, and documentation acknowledging facility license changes and changes to safety-related administrative procedures which affect plant operation.

All records and evaluations listed above will be used to judge the effectiveness of the training and retraining programs. Periodically the overall training program will be reviewed to determine how well the program is supplying and maintaining qualified personnel to operate the plant.

13.2.4 References

GGNS will follow the references listed in Regulatory Guide 1.70 with the exceptions of Regulatory Guides 1.8 and 8.8 regarding the Radiation Protection Manager. See Sections 12.1, 12.5, and Appendix 3A for further details.

APPENDIX 9B

FIRE PROTECTION PROGRAM

9B.1 SCOPE AND APPLICABILITY

The purpose of the Fire Protection Program is to extend the concept of defense-in-depth to fire protection in fire areas important to safety with the following objectives:

- o To prevent fires from starting
- o To detect rapidly, control, and extinguish promptly those fires that do occur
- o To provide protection for structures, systems, and components important to safety so that a fire that is not promptly extinguished by fire suppression activities will not compromise the ability to achieve the safe shutdown of the plant

The Fire Protection Program also delineates the responsibilities and the methods to be used to accomplish the objectives stated above. This Fire Protection Program will interface with other GGNS manuals, plans, and procedures to provide an effective and coordinated Fire Protection Program that encompasses all phases of operation, administration, maintenance, and emergency activities. These interfaces will, as a minimum, include the Emergency Plan and implementing document, the Security Plan and security instructions, plant administrative procedures, operating and emergency operating instructions, the surveillance programs, and the quality assurance program and training program.

9B.2 ORGANIZATIONS AND RESPONSIBILITIES

The personnel and/or organizations responsible for the formulation, implementation, and assessment of the effectiveness of the GGNS Fire Protection Program are detailed in the following sections and shown on Figure 13.1-2 and Figure 9B-1.

9B.2.1 Offsite Organizations and Responsibilities

9B.2.1.1 Corporate Management

The Vice President, Nuclear Operations, has the overall responsibility for the formulation, implementation, and assessment of the effectiveness of the GGNS Fire Protection Program.

9B.2.1.2 Middle South Services, Inc. (MSS)

The Middle South Services (MSS) Risk Management and Risk Control section will periodically assess the effectiveness of this program and its implementation by performing a periodic review of the fire protection system equipment, procedures, and training of the GGNS personnel. Middle South Services, Inc., shall recommend corrections/improvements to the GGNS General Manager and to the Vice President, Nuclear Operations.

9B.2.1.3 Director, Nuclear Licensing and Safety

The Director, Nuclear Licensing and Safety, is responsible for the formulation and assessment of the Fire Protection Program in accordance with the appropriate requirements for obtaining and maintaining the Operating License.

9B.2.1.4 Manager, Nuclear Plant Engineering

The Manager, Nuclear Plant Engineering, is responsible for implementing the engineering aspects of the Fire Protection Program. He has on his staff, or as consultants, a qualified Fire Protection Engineer and personnel trained and experienced in Nuclear Plant Safety. His responsibilities include:

- a. Coordination of building layout and systems design with fire area requirements, including consideration of potential hazards associated with postulated design basis fires.
- b. Design of fire detection, suppression, and extinguishing systems.
- c. Maintenance of the Fire Hazards Analysis Report.

9B.2.1.5 Manager, Nuclear Site Quality Assurance

The Manager, Nuclear Site Quality Assurance, has the responsibility for ensuring compliance with the Fire Protection Program through the GGNS Operational Quality Assurance Program as described in MPL-TOP 1A and Table 9.5-11, Position C.2.

9B.2.1.6 Fire Departments

The Claiborne County Volunteer Fire Department will provide backup support for the onsite Fire Brigade when requested and will be invited to participate in annual drills (see agreement in Appendix D of the Grand Gulf Nuclear Station Emergency Plan, Section 13.3).

9B.2.2 Onsite Organizations and Responsibilities

9B.2.2.1 GGNS General Manager

The GGNS General Manager has the overall responsibility for the administration of the Fire Protection Program.

9B.2.2.2 Plant Fire Chief (Fire Protection Coordinator)

The Plant Fire Chief reports to the Operations Superintendent and is responsible for coordinating the Fire Protection Program. He implements portions of the program and assures, through appropriate methods, that other portions of the program are being adequately implemented. He is responsible for the following:

- a. Periodically conducting inspections to:
 1. Ensure the proper storage/use and control of combustible materials.
 2. Ensure effectiveness of housekeeping to eliminate fire hazards.
 3. Determine the availability of fire protection equipment and systems. This includes periodically evaluating the results of tests of the systems and equipment.
- b. Training and qualifying the Plant Fire Brigade personnel.
- c. Maintaining familiarity with building layouts and changes with respect to fire protection.
- d. Investigating fire reports.
- e. Developing, conducting, and critiquing fire drills to determine the effectiveness of the training objectives.

9B.2.2.3 Shift Fire Chief (Shift Superintendent)

The Shift Fire Chief has the responsibility for:

- a. Ensuring a full fire brigade is maintained during the shift.
- b. Evaluating fire-fighting equipment.
- c. Ensuring that prompt and effective corrective actions are taken to correct conditions adverse to the Fire Protection Program.

- d. Reviewing and evaluating proposed work activities for potential fire possibilities and transient fire loads.

9B.2.2.4 Fire Brigade

The Shift Fire Brigade is composed of five personnel on the shift.

9B.2.2.4.1 Fire Brigade Leader

The Fire Brigade Leader shall be a person who is competent to assess and advise control room personnel of potential safety consequences associated with the fire. Such competence may be evidenced by possession of an operating license or equivalent knowledge of plant safety-related systems. The Fire Brigade Leader reports to the Shift Fire Chief (Shift Superintendent).

9B.2.2.4.2 Fire Brigade Members

The fire brigade members are composed of at least four other persons on-shift who are not required for the safe shutdown of the plant. At the fire scene, fire brigade members report to the Fire Brigade Leader.

9B.2.2.5 Training Superintendent

The Training Superintendent is responsible for implementing a program that indoctrinates plant personnel with unescorted access to the plant in evacuation procedures and procedures for reporting fires. In addition, he is responsible for maintaining the Fire Brigade training and drill records for a minimum of 3 years.

9B.2.2.6 Manager, Plant Maintenance

The Manager, Plant Maintenance, is responsible for the development of preventive and corrective maintenance procedures for the plant fire protection systems, structures, and components.

9B.2.2.7 Maintenance Discipline Superintendents

The Maintenance Discipline Superintendents are responsible for the implementation of preventive and corrective maintenance programs for equipment, structures, and components associated with the fire protection system. The Maintenance Discipline Superintendents, in conjunction with the Operations Superintendent, are jointly responsible for testing of fire protection equipment.

9B.3 QUALIFICATIONS OF PERSONNEL

The fire brigade members' qualifications shall include satisfactory completion of an annual physical examination for

performing strenuous activity. The personnel responsible for the maintenance and testing of the fire protection systems shall be qualified by training and experience for such work.

HP The personnel responsible for the training of the fire brigade shall be qualified by training and experience for such work. The Fire Protection Engineer shall meet the eligibility requirements for membership in the Society of Fire Protection Engineers.

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9B.4 FIRE PROTECTION EVALUATION

In accordance with the Nuclear Regulatory Commission's request by letter dated September 30, 1976 (MAEC-76/49), a re-evaluation of the Grand Gulf Nuclear Station Fire Protection Program was performed. The evaluation entailed a point-by-point comparison of the GGNS Fire Protection Program and systems design to the positions as outlined in Appendix A to Branch Technical Position APCSB 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants Docketed Prior to July 1, 1976." The methods for and results of the evaluation are presented in the Fire Hazards Analysis Report and Table 9.5-11, respectively. A detailed tabulation of the potential fire hazards is presented in the Fire Hazards Analysis Report, which is maintained as a separate document at the GGNS site and includes a detailed analysis of the consequences of a fire in each area.

On October 27, 1980, the Nuclear Regulatory Commission approved a rule concerning fire protection. The rule and its Appendix R were developed to establish the minimum acceptable fire protection requirements necessary to resolve certain areas of concern in contrast between the NRC staff and licensees of plants operating prior to January 1, 1979.

This fire protection rule does not apply to the Grand Gulf Nuclear Station; however, as a result of a meeting held with the NRC staff on June 30, 1981 and at the NRC staff's request, a comparison of the Grand Gulf Nuclear Station Fire Protection Program to the requirements outlined by 10 CFR 50, Appendix R, Sections II and III, was performed. The results of this comparison are presented in Table 9.5-12.

9B.5 PROGRAM IMPLEMENTATION

The fire protection program for GGNS is fully operational.

Plant administrative procedures describe the details and provide for additional instructions to implement the requirements of the Fire Protection Program stated herein.

Responsibilities of those persons or organizations needed to implement the Fire Protection Program are provided in Section 9B.2.

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He will be knowledgeable on the topics and experienced in fighting the types of fires that could occur in the plant.

The Shift Superintendent shall have the lead responsibility for site fire protection while Unit 1 is operating and Unit 2 is under construction.

9B.6 ADMINISTRATIVE CONTROLS

Administrative controls have been established to minimize fire hazards in areas containing structures, systems, and components important to safety and to maintain the performance of the fire protection systems and personnel. The below listed administrative controls, as implemented, meet the requirements of "Nuclear Power Plant Fire Protection Functional Responsibilities, Administrative Controls, and Quality Assurance," Attachments 3, 4, and 5, and establish procedures to:

- a. Govern the handling and limit the use of ordinary combustible materials, combustible and flammable gases and liquids, and other combustible supplies in safety-related areas.
- b. Prohibit the storage of combustibles in safety-related areas and establish designated storage areas with appropriate fire protection.
- c. Govern the handling of and limit transient fire loads in buildings containing safety-related systems or equipment during all phases of operation and especially during maintenance, modification, or refueling operations.
- d. Provide for the in-plant fire protection review of proposed work activities to identify potential transient fire hazards and specify additional fire protection requirements, if any, in the work activity procedure.
- e. Govern the use of ignition sources by use of a fire control permit system to control welding, grinding, flame cutting, brazing, or soldering operations. A separate permit shall be used for each area where work is to be done. If work is to continue for more than one shift, the permit shall be valid for not more than 24 hours when the plant is operating or for the duration of the particular job when the plant is shut down. Also, no hot work will be allowed in the concealed space above the control room unless the plant is in cold shutdown.
- f. Control the removal of all waste, debris, scrap, oil spills, or other combustibles resulting from a work activity immediately following the completion of work or at the end of each shift, whichever comes first.

- g. Provide for periodic housekeeping inspections to ensure continued compliance with administrative controls.
- h. Control the use of specific combustibles in safety-related areas. All wood (such as lay-down blocks or scaffolding) used in safety-related areas during maintenance, modification, or refueling operations shall be treated with a flame retardant, unless specifically authorized and technically justified by the station fire chief. Equipment or supplies (such as new fuel) shipped in untreated combustible packing or containers may be unpacked in safety-related areas if required for valid operating reasons. However, all combustible materials shall be removed from the area immediately following the unpacking.
- i. Delineate the actions to be taken by the individual discovering a fire.
- j. Delineate the actions to be taken by the control room operator to determine the need for brigade assistance upon the report of a fire or receipt of a fire alarm in the control room.
- k. Describe the actions to be taken by the fire brigade after notification by the control room operator of a fire.
- l. Describe the fire fighting strategies for fighting fires in all safety-related areas and areas presenting a hazard to safety-related equipment.
- m. Govern leak testing such that open flames or combustion-generated smoke shall not be permitted.
- n. Provide for the disarming of fire detection or fire suppression systems and delineate the requirements for fire protection during periods when the fire protection system is impaired.
- o. Provide for the testing and maintenance of the fire protection systems and equipment.

9B.7 FIRE BRIGADE

9B.7.1 Fire Brigade Personnel

A site fire brigade trained and equipped for fire fighting shall be established to ensure adequate manual fire fighting capability for all areas of the plant containing structures, systems, or components important to safety. The fire brigade shall be composed of at least five members on each shift. The

fire brigade leader and at least two fire brigade members shall have sufficient training in or knowledge of plant safety-related systems to understand the effects of fire and fire suppressants on the safe shutdown capability. *These operators will be qualified Nuclear Operator B.*

The fire brigade shall not include:

- a. The shift superintendent (SRO).
- b. One SRO stationed in the control room (if required by Technical Specifications).
- c. One RO stationed in the control room.
- d. The STA.
- e. One operator (non-licensed) capable of responding to control room commands related to non-fire-fighting emergencies.

The fire brigade leader shall be competent to assess and advise control room personnel of the potential safety consequences of the fire. He shall advise the shift fire chief of the possible need to notify the offsite fire department for assistance.

The fire brigade leader is responsible for taking charge of the fire fighting operation. This includes the safety of the fire brigade members at the scene of the fire; organizing the fire brigade for fire fighting; evaluating the conditions at the fire scene; identifying the tactics to use in confinement and extinguishment; directing the attack and extinguishment; directing the overhaul by searching and extinguishing hidden fires; preserving evidence that would yield to the fire origin; and assisting the shift fire chief in completion of any fire reports.

The fire brigade members are plant personnel who have been properly trained in the methods of fire fighting in accordance with this appendix and meet the physical requirements for the strenuous activities associated with fire fighting. The fire brigade members at the fire scene carry out the directives of the fire brigade leader.

A health physicist will respond, in addition to the fire brigade, to the fire scene. He is responsible for bringing radiation survey equipment to monitor the fire area for potential radiation exposure hazards.

The fire brigade organization is provided on Figure 9B-1.

9B.7.2 Fire Brigade Equipment

The minimum equipment provided for the fire brigade shall consist of personal protective equipment such as turnout coats, boots, gloves, hard hats, portable lights, two-way radios, portable ventilation equipment, and portable extinguishers. Self-contained breathing apparatus shall be provided. At least 10 masks shall be available for fire brigade use. At least a 1-hour supply of air in extra bottles shall be available at the plant site for each self-contained breathing apparatus designated to the fire brigade's use. In addition, an onsite 6-hour supply of reserve air shall be provided and arranged to permit quick and complete replenishment of exhausted air supply bottles as they are returned.

The fire fighting equipment is periodically tested and checked in accordance with plant procedures to ensure the operability of the equipment for fire fighting emergencies.

9B.8 TRAINING

The fire brigade training program ensures that the capability to fight potential fires is established and maintained. The fire training program consists of classroom instruction, actual fire fighting practice, and fire drills. Training and drills meet all the requirements of 10 CFR 50, Appendix R, Section III.I, Fire Brigade Training.

9B.8.1 Instruction for Members of the Fire Brigade

Prior to assignment to a fire brigade, personnel shall receive instruction in the following topics:

- a. Identification of fire hazards (and their location) and associated types of fires that occur in the plant.
- b. Identification and location of installed and portable fire fighting equipment in the plant.
- c. Familiarization with plant layout including access and egress routes for each area.
- d. Proper use of installed and portable fire fighting equipment.
- e. Correct methods of fighting various types of fires.
- f. Indoctrination in the Fire Protection Plan. This shall include individual and fire brigade responsibilities.

- g. Proper use of breathing, communication, lighting, and portable ventilation equipment.
- h. Detailed review of the fire fighting strategies.
- i. Review of modifications, changes, etc., to the physical plant, procedures, fire fighting equipment, or Fire Protection Plan.
- j. Methods of fighting fires inside buildings and confined spaces.
- k. The toxic and corrosive characteristics of expected products of combustion.

In addition to the above topics, fire brigade leaders shall receive training in directing and coordinating fire fighting activities.

Refresher training in the above topics will be conducted annually. The refresher training will be scheduled for each fire brigade member. The sessions will be conducted quarterly as a minimum and will be repeated every year.

9B.8.2 Practice for Fire Brigades

Practice sessions are held for each shift fire brigade on the proper methods of fighting the various types of fires that could occur in a nuclear power plant. The practice sessions provide brigade members with experience in actual fire extinguishment and the use of emergency breathing apparatus under strenuous conditions encountered in fire fighting. Practice sessions are provided at least once per year for each fire brigade member.

9B.8.3 Instruction for All Station Employees

All plant personnel with unescorted access to the plant shall receive an indoctrination on evacuation procedures and procedures for reporting fires.

In addition, security personnel shall receive instruction that addresses entry procedures for offsite fire departments, crowd control for persons exiting the station, and procedures for reporting fires during their tours of the station.

Temporary personnel should be instructed in evacuation signals, evacuation procedures, and fire reporting procedures.

9B.8.4 Special Fire Protection Training

The Plant Fire Chief and his assistants shall receive training in:

- a. Design and operation of fire detection, suppression, and extinguishing systems.
- b. Fire prevention techniques and procedures.

Training for construction personnel shall include reporting instructions, alarm responses, and evacuation. Training for offsite fire departments will be in accordance with Section 13.3.

9B.8.5 Program Administration

Instruction in the above topics will be coordinated by the Plant Fire Chief. The instructor assigned will be knowledgeable on the topics and experienced in fighting the types of fires that could occur in the plant. He shall also be qualified to operate the fire protection equipment installed at GGNS.

9B.9 FIRE BRIGADE DRILLS AND PRACTICES

9B.9.1 Types of Fire Brigade Drills and Practices

Fire brigade drills are performed to promote effective teamwork on the fire brigade. Various types of drills include, but are not limited to, the following:

- a. Simulated use of equipment for various situations and types of fires which could reasonably occur in various areas of the plant. The simulations shall stress conformance to proper procedures and established fire fighting plans.
- b. Actual operation of the fire protection equipment where practical. This includes breathing, communication, portable lighting, and ventilation equipment.

9B.9.2 Guidelines for Fire Brigade Drills and Practices

Fire brigade drills are conducted using the following guidelines:

- a. Each fire brigade shall be drilled at least once per quarter.
- b. Each fire brigade member should participate in each drill. Each fire brigade member shall participate in two drills per year, as a minimum.

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- c. At least one drill per year for each fire brigade shall be unannounced. Each unannounced drill shall be separated by a minimum of 4 weeks.
- d. At least one drill per year will be conducted on a backshift for each fire brigade.
- e. All drills will be pre-planned to meet established training objectives and shall be critiqued to determine the effectiveness in meeting these objectives.
- f. Unannounced drills shall be pre-planned and critiqued by members of the management staff responsible for plant safety and fire protection.
- g. Performance deficiencies of fire brigades or individual fire brigade members will be corrected by providing additional training for noted weak areas.
- h. An unsatisfactory drill performance by a fire brigade will be corrected by providing additional training for noted weak areas. A repeat drill will be held within 30 days of the critique.
- i. At least once every 3 years, a randomly selected unannounced drill shall be monitored and critiqued by a group of qualified individuals who are independent of the GGNS staff as provided in subsection 9B.2.1.2.
- j. Each fire brigade drill shall be evaluated on the following, as a minimum:
 - 1. Assessment of fire alarm effectiveness.
 - 2. The time required to notify and assemble the fire brigade.
 - 3. The selection, placement, and use of equipment and fire fighting strategies.
 - 4. An assessment of each fire brigade member's knowledge in the fire fighting strategy and techniques for the fire area.
 - 5. An assessment of the brigade's conformance to established plant fire fighting procedures and use of the fire fighting equipment, including self-contained breathing equipment, communication equipment, and ventilation equipment when applicable.
 - 6. Assessment of the fire brigade leader's effectiveness in directing the brigade's activities.

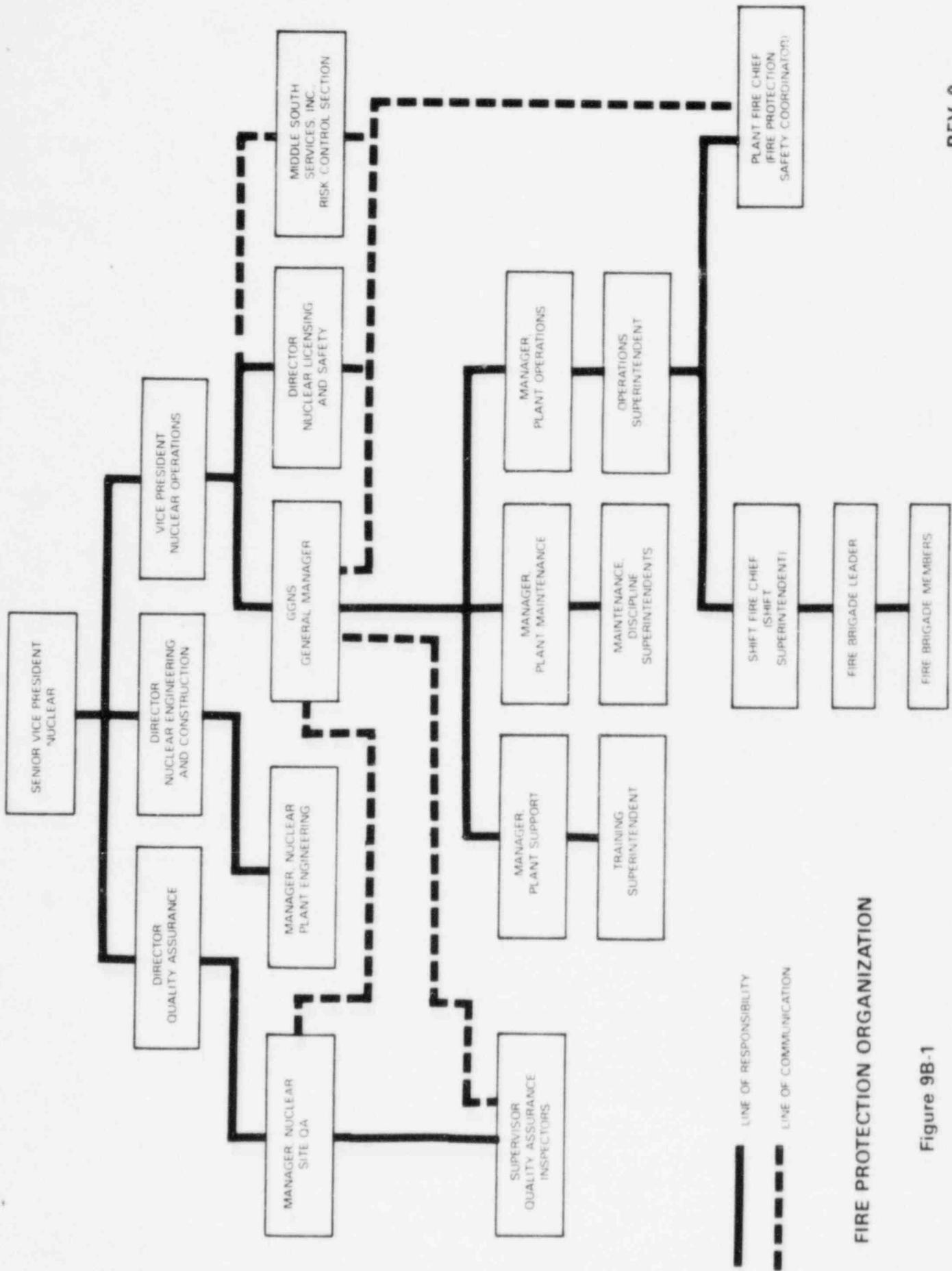
9B.10 QUALITY ASSURANCE

The GGNS fire protection system goes through two major phases from design to operational status. These phases are: (1) design, procurement, and construction; and (2) startup testing and operation. Appropriate quality assurance programs and requirements are applied to the fire protection system during each phase.

The QA program applied to each phase addresses the 10-point QA criteria presented in Section C of Appendix A to Branch Technical Position APCSB 9.5-1. Furthermore, in each phase, the QA activities are under the management control of the appropriate QA organization. Management control, as used here, is defined as the authority and responsibility for establishing, controlling, and verifying the implementation and adequacy of the fire protection QA program.

During the design, procurement, and construction phases of the fire protection system, the fire protection QA program is under the management control of the Bechtel Grand Gulf QA organization. This program has been developed to ensure that the GGNS design is of sufficient quality to meet its design function. Table 9.5-11, Section C, has been revised to provide the QA program scope and description. During this phase, the MP&L Director of Quality Assurance has the responsibility for verifying the implementation and adequacy of the Bechtel fire protection QA program chiefly through a documented audit program.

During the operational phase (startup, preoperational testing, and operations), the fire protection QA program is under the management control of the MP&L QA organization. The specific organizations which exercise this control are: Quality Assurance, Nuclear Plant Engineering, Plant Technical Support (Engineering), Maintenance, and Operations. Section C of Table 9.5-11 provides the scope and description of the QA Fire Protection Program applicable during the startup and operational phases.



FIRE PROTECTION ORGANIZATION

Figure 9B-1