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July 22, 1985

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
Revised FSAR Section 13.2, GGNS
Staff Training Program
AECM-85/0217

Mississippi Power & Light Company (MP&L) is currently evaluating and processing changes for the initial Grand Gulf Nuclear Station (GGNS) Unit 1 FSAR Update. The updated FSAR will be submitted on December 1, 1985. However, in accordance with Generic Letter 84-14 and in response to requests from members of your staff, MP&L is submitting the attached proposed revision to FSAR Section 13.2, GGNS Staff Training Program, for early NRC review and approval.

Attachment 1 is the revised Section 13.2. Attachment 2 provides a summary description and an evaluation of the safety significance of the changes by FSAR subsection. Attachment 3 provides changes to the training requirements in FSAR Appendix 9B, Fire Protection Program, as well as other changes to be consistent with organization and title changes. Attachment 4 provides a summary description and an evaluation of the safety significance of the changes to Appendix 9B.

Although there have been a number of changes to Section 13.2, most changes were made to provide a clearer and more accurate description of the actual GGNS Staff Training Program, with little or no change in the program. Many changes have been made in order to be consistent with training considered appropriate for an operating plant as opposed to a training program during construction prior to initial criticality. Some of the changes have been made to provide additional flexibility in implementing future changes to the training program, as required, due to changing regulatory and industry guidelines as well as plant operating and industry experience. All of the changes have been thoroughly reviewed by MP&L and found to have no safety significance. In addition, any changes in the actual program or implementing procedures from the training program of record have been evaluated in accordance with 10 CFR 50.59.

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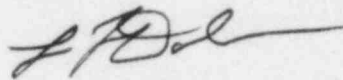
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There are some changes which require additional discussion. In Supplement 5 to the GCNS SER, the NRC's position in response to a 1982 MP&L request was that individual course durations for STA training must be maintained in the FSAR. MP&L proposes to replace individual course durations with the total course duration. It is our position that the overall duration and individual course descriptions are sufficient to assure MP&L is currently implementing an adequate training program. In accordance with the 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. This systematic approach is currently being adopted by our own Training Section in order to meet our commitment to INPO accreditation. Therefore, where appropriate, we have revised the FSAR to reflect the course description and overall course duration.

Currently, MP&L is planning to have all FSAR changes for the initial update processed and approved within MP&L by September 1, 1985. This provides sufficient time for the final typing, proofing, and printing of the FSAR Update. Therefore, we request your review and approval of the revised FSAR section attached to this letter by August 23, 1985. MP&L personnel are available for a meeting with your Staff to discuss the changes if this would assist you in your review. Please contact this office if you require further information or if we can assist your review in any way. In accordance with 10 CFR 170, an application fee of \$150.00 is enclosed.

Yours truly,



L. F. Dale
Director

JRF/JGC:dmm
Attachment

cc: (See Next Page)

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MSS Nuclear Activities (w/a)
File (LCTS) (w/2)
File (NS) (w/a)
File (Central) (w/a) [49]

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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, and
- 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.

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

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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 plant operations.
- 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

License candidates will receive classroom training in the science and engineering subjects listed below. The duration of the Nuclear Fundamentals

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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.

13.2.1.1.3 SYSTEMS OPERATION TRAINING

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.

Written examinations are given during the Systems Operation Training phase to evaluate student progress and to assess the level of comprehension of course material.

13.2.1.1.4 SIMULATOR TRAINING

License candidates participate in a Simulator Training Program which prepares the individual to proficiently conduct routine evolutions and carry out

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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 18.1-1971, 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 primary containment
- f. Loss of coolant flow/natural circulation
- g. Loss of feedwater
- h. Nuclear instrumentation failure(s)
- j. Mispositioned control rod(s) (or rod drops)
- k. Inability to drive control rods
- l. Conditions requiring use of standby liquid control system
- m. High activity in reactor coolant or off-gas
- n. Malfunction of automatic control system(s) which affect reactivity
- o. Malfunction of reactor coolant pressure/level control system
- p. Loss of instrument air
- q. Loss of electrical power and/or degraded power sources
- r. Loss of condenser vacuum
- s. Loss of standby service water

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- t. Loss of shutdown cooling
- u. Loss of component cooling water system or cooling to an individual component
- v. Steam line break (inside or 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.

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.

13.2.1.1.5.1 ADMINISTRATIVE REQUIREMENTS TRAINING

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

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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 calculations 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 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 perform duties of the licensed reactor operator, or senior reactor operator, as appropriate.

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

13.2.1.1.6.1 SIMULATOR REFRESHER (IF REQUIRED)

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

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13.2.1.1.6.2. PRACTICE NRC EXAMINATION

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 the candidate's performance is satisfactory, and the candidate meets all prerequisites, the candidate will be allowed to take the NRC License Examination.

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.

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 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

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

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13.2.1.1.11 DELETED

13.2.1.1.12 PREVIOUS NUCLEAR TRAINING

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 section 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.

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13.2.1.1.14 DELETED

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13.2.1.1.16 DELETED

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 has been used 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:

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- 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

The Non-Licensed Operator Training Program contains training programs for Auxiliary Operators-Nuclear (AON) and Nuclear Operators-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 additional training for a NOB.

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.

13.2.1.2.3 CHEMISTRY TRAINING PROGRAM

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.

13.2.1.2.4 HEALTH PHYSICS TRAINING PROGRAM

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

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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.

13.2.1.2.5 MAINTENANCE TRAINING PROGRAM

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 & 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.

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 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

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

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.

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c. Management/Supervisory Training

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

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

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

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 concurrent with transient and accident analyses to assure 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.

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.

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 assure 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.

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At the conclusion of 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 section 13.2.1.3 to the extent necessary to assure safe execution of their duties.

13.2.1.3.2 CONSULTANT AND VENDOR PERSONNEL

Consultant and vendor personnel will receive indoctrination training in those areas described in Section 13.2.1.3 to the extent necessary to safely execute their 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 REQUALIFICATION PROGRAMS

13.2.2.1 LICENSED OPERATOR REQUALIFICATION TRAINING PROGRAM

A continuing requalification 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 requalification program as described in this section.

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

The licensed operator requalification program consists of regularly scheduled lectures, on-the-job training, simulator training, examinations and accelerated requalification (when necessary). Each of these elements is discussed in the paragraphs below.

13.2.2.1.1 REGULARLY SCHEDULED LECTURES

The Requalification Program includes preplanned lectures given throughout the requalification period. Emphasis shall be placed on those areas where annual Operator and Senior Operator written examinations indicate that an increase in

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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 requalification period might include some of the following:

- a. Theory and Principles of Operation
- b. General and Specific Plant Operating Characteristics
- 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, to include 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 GGNS
- s. Thermodynamics
- t. Mitigation of accidents involving a degraded core

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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.
- 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%) 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

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- (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
- (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 Requalification 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 requalification 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 found to be unsatisfactory are placed in an accelerated requalification program (Section 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 found to be unsatisfactory are placed in an accelerated requalification program.

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13.2.2.1.5 ACCELERATED REQUALIFICATION

Individuals requiring accelerated requalification 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 requalification program. Accelerated requalification training is given in the area(s) noted to be deficient. The scope of an individual's accelerated requalification program is determined by the Training Superintendent or his designated alternate. The individual's accelerated requalification 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 Requalification Program is measured by assessing the students 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 REQUALIFICATION 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 four 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.

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13.2.2.2.2 SHIFT TECHNICAL ADVISOR RETRAINING PROGRAM

Shift Technical Advisors will participate in an annual requalification 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 STA's 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 Section 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 Guide 1.8 and 8.8 regarding the Radiation Protection Manager. See Sections 12.1, 12.5 and Appendix 3A for further details.

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DESCRIPTION AND EVALUATIONS OF
CHANGES TO 13.2

1. Paragraph 13.2.1

Description Of Changes: Several editorial changes were made to make titles consistent with the plant organization and to more accurately describe the purpose of the training organization.

Safety Significance: None. The editorial changes have no safety significance as the reporting relationships and responsibilities are not changed; only titles have changes.

2. Paragraph 13.2.1.1.1

Description Of Changes: Clarification has been provided to indicate that the entire Licensed Operator Training Program is taught at the SRO level and the program consists of approximately 42 weeks of training.

Safety Significance: None. No commitments affecting the content or quality of the training program were deleted or changed.

3. Paragraph 13.2.1.1.2

Description of Changes: The previous commitment to conduct "approximately 12 weeks of classroom training . . ." was changed to "the content and duration of the fundamentals training is consistent with ANSI N18.1-1971, NUREG 0737, and accepted industry practice when the training begins". This was revised to ensure that the training at GGNS will always meet current industry standards. Further, a commitment has been made to implement an accredited training program which, by definition, is periodically reviewed and revised to assure current learning objectives are accomplished. The paragraph pertaining to written examinations was revised to indicate that written examinations are given to evaluate student progress.

Safety Significance: None. The "12 weeks of classroom training" is included in the total program duration specified in paragraph 13.2.1.1.1 above. The paragraph pertaining to examinations and acceptance criteria has been revised to delete specific acceptance criteria; however, the commitment to conduct and evaluate examinations in accordance with current industry practice will ensure quality in the GGNS training program. Finally, the commitment to an accredited program assures continued quality in the GGNS training program.

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4. Paragraph 13.2.1.1.3

Description of Changes: The requirement for approximately eight weeks of training was changed to ensure that the content and duration of the systems training is consistent with ANSI N18.1-1971 and accepted industry practice. Specific examination acceptance criteria was changed to indicate that examinations are given and evaluated in accordance with current industry criteria.

Safety Significance: None. The changes made to course length and examination criteria will permit use of current industry criteria throughout the program. This criteria periodically changes as more data on training program effectiveness is gathered. Once accreditation is achieved, course content is periodically reviewed to assure consistency with learning objectives based on job task analyses. It is MP&L's intent to maintain the GGNS program "up-to-date" with current criteria.

5. Paragraph 13.2.1.1.4

Description of Changes: Several editorial changes have been made. The list of normal operations, faults, and casualties was modified to be consistent with the capabilities of the GGNS simulator.

Safety Significance: None. The changes made were editorial and had no degrading effect on the quality or quantity of simulator training provided to the operators.

6. Paragraph 13.2.1.1.5

Description of Changes: The deletion of the specifications pertaining to course duration for administrative training, and Plant Operation and Casualty Response Training ensures consistency with other portions of the FSAR pertaining to course durations. The list of required subject areas ensures that the quantity of training is sufficient. The list of topics for Plant Operation and Casualty Response Training was revised to be consistent with the GGNS approved training program. Examination acceptance criteria was revised to ensure consistency with accepted industry practice. A commitment to ensure the duration of "in-plant" training is consistent with ANSI N18.1-1971 and accepted industry practice was added. The discussion of precriticality "in-plant" training was deleted and replaced with commitments structured to meet hot license requirements.

Safety Significance: None. The duration, content and/or evaluation criteria of all revised training programs meets or exceeds current industry standards. Changes which have been made to this section reflect the transition from "cold-license" requirements to "hot-license" requirements. The precriticality requirements for cold licenses are no longer applicable for GGNS licensed personnel.

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7. Paragraph 13.2.1.1.6

Description of Changes: The entire section has been revised to reflect current practice at GGNS. The revised section contains provisions for simulator refresher training, practice examinations, and review by an evaluation committee.

Safety Significance: None. The revised section contains all of the elements of the section prior to revision. The revision reflects current GGNS practice in a post-criticality (hot license) environment. The approach currently in use has been approved by USNRC, Region II.

8. Paragraph 13.2.1.1.7

Description of Changes: The essential information in paragraph 13.2.1.1.7.1 pertaining to Plant Operation and Casualty Response Training for senior licensed operators has been included in the discussion on the Licensed Operator Training Program. It has, therefore, been deleted from Paragraph 13.2.1.1.7. The discussion on supervisor training has been revised to indicate that this training is conducted for licensed senior operators and that the content and duration is consistent with current industry standards.

Safety Significance: None. The commitment to conduct Plant Operation and Casualty Response Training has simply been moved to Section 13.2.1.1. Supervisory training is conducted in accordance with accepted industry practice at the time the training begins.

9. Paragraph 13.2.1.1.8

Description of Changes: The first paragraph, pertaining to on-site training for license candidates, has been deleted because it was part of the precritical or "cold-license" training program. The second paragraph, pertaining to instructor qualifications, has been revised to reflect current criteria and requirements. The reference to a simulator refresher training course has been deleted due to the fact that this course was more applicable to precritical or "cold-license" training and such training is included as part of the overall licensed operator training program. The discussion which indicates that the training program is "keyed" to the fuel load schedule has been deleted as this no longer pertains to GGNS.

Safety Significance: None. Criteria revised to reflect the fact that "cold-license" requirements were not applicable to GGNS.

10. Paragraph 13.2.1.1.9

Description of Changes: Editorial changes were made to indicate that persons receiving refueling training are now operators rather than candidates.

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Safety Significance: None. Changes were editorial in nature.

11. Paragraph 13.2.1.1.10

Description of Changes: Paragraph was deleted.

Safety Significance: None. The paragraph specified requirements which were part of the precritical training program. This program has been completed at GGNS.

12. Paragraph 13.2.1.1.11

Description of Changes: Paragraph was deleted.

Significance: None. The paragraph specified requirements which were part of the precritical training program. This program has been completed at GGNS.

13. Paragraph 13.2.1.1.12

Description of Changes: The changes described acceptable previous nuclear training in general terms.

Safety Significance: None. The changes were general in nature and the commitment to verify previous training still exists. Therefore, the qualification and experience level of license candidates has not changed.

14. Paragraph 13.2.1.1.13

Description of Changes: Paragraph was deleted.

Safety Significance: None. The preparation of operating procedures is essentially complete, and from a training standpoint, is complete. Future operating procedure development will be in response to plant physical changes and will not generally be performed by operators for training. However, all operators will be trained on significant procedure changes.

15. Paragraph 13.2.1.1.14

Description of Changes: Paragraph was deleted.

Safety Significance: None. The preoperational test program is complete. This commitment was made as part of the precritical training program which has been completed at GGNS.

16. Paragraph 13.2.1.1.15

Description of Changes: Paragraph was deleted.

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Safety Significance: None. Training was part of the precritical or "cold-license" training program which has been completed at GGNS. The program was intended for the original operations crew only. This group has completed the specified training and therefore, the deletion of the requirement has no degrading effect on the qualification of future operators at GGNS.

17. Paragraph 13.2.1.1.16

Description of Changes: Paragraph was deleted.

Safety Significance: None. Licensed and non-licensed personnel received the specified training as part of the overall operator training program. Therefore, the quality of quantity of the operator training is not degraded by the deletion of this paragraph. Paragraph 13.2.1.2.2 contains a commitment to provide supplemental training, on an as required basis, for those systems and equipment requiring specialized training.

18. Paragraph 13.2.1.2

Description of Changes: The changes described non-licensed personnel training in general terms for the plant staff.

Safety Significance: None. The non-licensed training programs provide assurance that managers, supervisors, professional and technical personnel not requiring an NRC license are trained to current industry criteria.

19. Paragraphs 13.2.1.2.1 through 13.2.1.2.9

Description of Changes: The above paragraphs have been deleted and replaced with new paragraphs 13.2.1.2.1 through 13.2.1.2.5 which describe the nonlicensed personnel training programs.

Safety Significance: None. The new descriptive paragraphs contain a more complete description of the overall non-licensed personnel training programs. The revised sections now describe the training provided to individuals according to their position instead of describing courses which may be provided. This provides a better description for assessing the training provided relative to the training which should be provided for a specific position. Therefore, the quality of the training programs is not degraded.

20. Paragraph 13.2.1.2.6 (Old paragraph 13.2.1.2.10)

Description of Changes: Several editorial changes have been made to make the discussion more readable. Specific course durations have been deleted and replaced with a commitment to provide approximately 16 weeks training for the overall program. References to specific vendors have been deleted to allow flexibility in acquiring vendors to provide training.

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Safety Significance: None. All essential elements of the STA training program remain as previously written. Changes made were not material to the performance of the STA function and therefore the quality of the STA training program has not been degraded.

21. Paragraph 13.2.1.2.12

Description of Changes: Paragraph was deleted.

Safety Significance: None. Commitments in this paragraph are contained in the non-licensed personnel training description of paragraphs 13.2.1.2.1 through 13.2.1.2.5.

22. Paragraph 13.2.1.2.13

Description of Changes: Paragraph was deleted.

Safety Significance: None. Although the requirements which specifically state that maintenance personnel successfully complete the vendors school have been deleted, it is reasonable to assume that the quality of maintenance training will not be degraded. In Section 13.2.1.2.5 MP&L has committed to using vendor-supplied schools when required such as emergency diesel generator maintenance. In addition, the MP&L Maintenance Training Program has been developed to include several maintenance programs provided by vendors. The specific vendor training requirements are likely to change with time as MP&L technicians gain experience and as new equipment is installed. It is, therefore, preferable not to restrict the use of vendors' schools to a select group.

23. Paragraph 13.2.1.3

Description Of Changes: Several editorial changes were made. "Secured area" was changed to "protected area". The discussion pertaining to requalification was moved to FSAR Section 13.2.2, Requalification and Retraining Programs.

Safety Significance: None. The training requirements remain unchanged.

24. Paragraph 13.2.2.1 through 13.2.2.2.5

Description Of Changes: The above paragraphs have been deleted and replaced with new paragraphs 13.2.2.1 through 13.2.2.1.6 which describes the GGNS Licensed Operator Requalification Training Program. The program, which has been reviewed by USNRC Region II, meets or exceeds the requirements of 10 CFR 55, ANSI N18.1-1971, and accepted industry practice. The new paragraphs describe the program as it is implemented at GGNS.

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Safety Significance: None. The program for requalification of licensed operators at GGNS is consistent with current industry criteria as well as 10 CFR 55. The revised program description includes all elements of the previous program description.

25. Paragraph 13.2.2.3

Description Of Changes: This paragraph has been moved and renumbered as 13.2.2.2.2.

Safety Significance: None. The paragraph was simply relocated.

26. Paragraph 13.2.2.3

Description Of Changes: The description of the retraining records program has been relocated to Section 13.2.3.1.

Safety Significance: None. The program description has been relocated. No changes were made to the requirements as specified in 10 CFR 55.

27. Paragraph 13.2.3

Description Of Changes: This paragraph has been deleted and "Training Program Administration" renumbered to 13.2.3. The requirements contained in the replacement training discussion have been included in FSAR Section 13.2.1.1., Training Program Description.

Safety Significance: None. The GGNS Training Program contains the requirements specified in ANSI N18.1-1971, NUREG-0737, 10 CFR 50, and 10 CFR 55. Personnel experience and training requirements meet or exceed those established in these standards. MP&L has completed an integrated approach to ensure sufficient personnel are appropriately trained to operate and maintain GGNS. This overall training program is based on current industry standards. Given that the program descriptions contain all required elements, it is reasonable to state that the inclusion of the replacement training with the training program description will not degrade the overall training program effectiveness.

28. Paragraph 13.2.4

Description Of Changes: The description of the Fire Brigade Training Program has been relocated to Section 13.2.1.4. In addition, the specificity in the discussion included in the Chapter 13 description has been moved to Appendix 9B and a statement added that the fire brigade and fire protection training programs meet or exceed the requirements of 10 CFR 50, Appendix R. The details of the Fire Brigade Training Program are specified in Appendix 9B and in plant administrative procedures. Section 13.2.3 has been changed to the "References" Section which was previously Section 13.2.7.

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Safety Significance: None. The description of the fire protection training program has been relocated to Appendix 9B. Renumbering the "References" section is only editorial.

29. Paragraphs 13.2.5 and 13.2.6

Description Of Changes: Section 13.2.5 "Training Records" has been renumbered to 13.2.3.1. The information in Section 13.2.6 is found in other sections and it has been deleted.

Safety Significance: None. Editorial changes.

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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 in 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.

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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.

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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. Maintain familiarity with building layouts and changes with respect to Fire Protection.
- d. Investigate fire reports.
- e. Develop, conduct and critique 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. Review and evaluate 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.

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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 three 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.

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 APCSB9.5-1, "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 Table 9.5-11. 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.

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:

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- 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 shutdown. 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.

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- 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 knowledgeable of plant safety-related systems to understand the effects of fire and fire suppressants on the safe shutdown capability.

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.

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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 in 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 one-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.

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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 members.

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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:

1. Design and operation of fire detection, suppression and extinguishing systems
2. 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.

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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.
- c. One drill per year for each fire brigade shall be unannounced. Each unannounced drill shall be separated by a minimum of four weeks.
- d. 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 three 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.

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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.

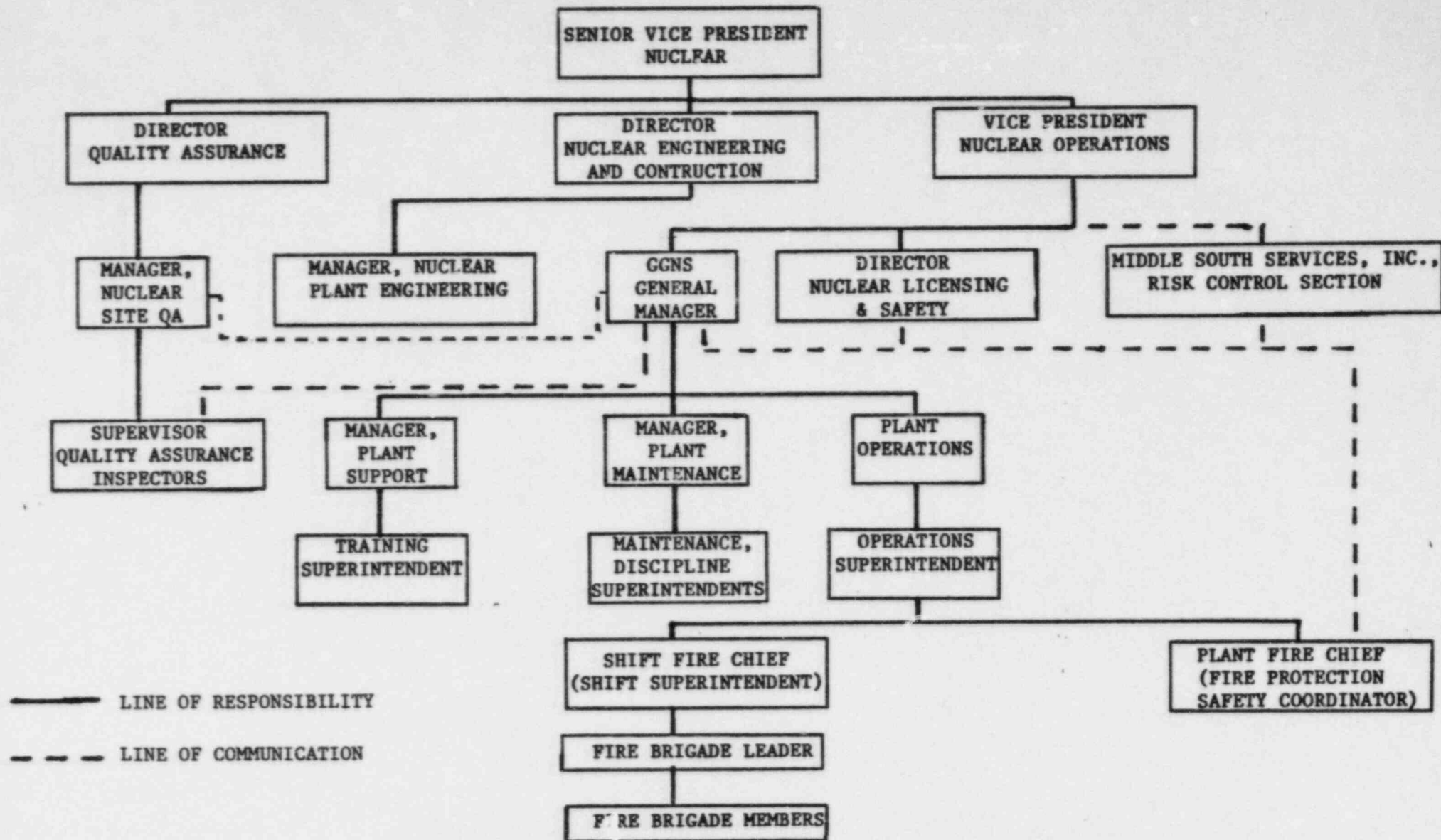
9B.10 QUALITY ASSURANCE

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

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DESCRIPTION AND EVALUATION
OF CHANGES TO APPENDIX 9B

1. Table of Contents, Section 9B

Description of Changes: Revised section numbering and titles to be consistent with changes in text.

Safety Significance: None, editorial changes for consistency.

2. Paragraphs 9B.2.1.1, 9B.2.1.2, 9B2.1.3, 9B2.2.1, and 9B.10

Description of Changes: Revised titles to reflect current organizational structure.

Safety Significance: The revision to titles did not change any functional responsibilities and therefore has no safety significance.

3. Paragraphs 9B2.1.4, 9B2.1.5

Description of Changes: Added fire protection responsibilities of Manager, Nuclear Plant Engineering and Manager, Nuclear Site Quality Assurance.

Safety Significance: None. New paragraphs discuss the fire protection responsibilities for additional positions that support the overall implementation of the fire protection program.

4. Paragraph 9B.2.2.2

Description of Changes: Deleted the implication that the Operations Superintendent was directly responsible for implementation of the Fire Protection Program. Added Plant Fire Chief Responsibility to ensure training and qualifications of plant fire brigade are maintained.

Safety Significance: Since the FSAR had previously provided for delegation of the direct responsibility for the implementation of the Fire Protection Program to the Plant Fire Chief and the fact that the Plant Fire Chief still reports to the Operations Superintendent, there is no safety significance. Since the FSAR was previously not clear on this responsibility, there is no safety significance to adding it where it belongs, the Plant Fire Chief.

5. Paragraph 9B.2.2.3

Description of Changes: Deleted the old paragraph and replaced with revision to Paragraph 9B.2.2.2 as discussed in Item 3 above.

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Safety Significance: There is no safety significance since the requirements contained in the old paragraph are now contained in Paragraph 9B.2.2.2 and the renumbering of the following paragraph does not change the requirements.

6. Paragraphs 9B.2.2.4, 9B.2.2.5, 9B.2.2.6, 9B.2.2.7, and 9B.2.2.8

Description of Changes: These paragraphs were renumbered due to Item 4 above. Additional changes were made to reflect the current organization. The prime responsibility for conducting the Fire Brigade Training Program was changed from the Training Superintendent to the Plant Fire Chief. Also, the joint responsibility of the Operations Superintendent and Maintenance Superintendent for testing fire protection equipment was incorporated.

Safety Significance: Since the Plant Fire Chief is the most knowledgeable person on site in the area of fire protection, there is no safety significance involved in giving him the responsibility for conducting this training program.

The other changes to these paragraphs were to make them reflect the current MP&L organization and did not change any functional responsibilities and therefore these changes do not have any safety significance.

7. Paragraph 9B.5, 9B.6, 9B.7, 9B.8, 9B.9, 9B.10, 9B.11, 9B.12 and Fig. 9B-1

Description of Changes: Sections 9B.5 and 9B.6 were deleted since they provided no additional information. Detailed information on these subjects was previously located in Appendix 9A, which has been converted to a separate Final Hazards Analysis Report maintained at the plant site separate from the FSAR. Sections 9B.7 through 9B.12 were changed to 9B.5 through 9B.10.

Safety Significance: None. The information deleted was superfluous as it was described in detail elsewhere. The requirement to install isolation devices between the Control Room and Remote Shutdown panel is a license condition.

8. Paragraph 9B.5 (Previously 9B.7)

Description of Changes: The commitment to have the program fully operational prior to initial fuel load was deleted.

Safety Significance: None. The plant is operational and the program is fully operational.

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9. Paragraph 9B.7.1 (Previously 9B.9.1)

Description of Changes: This section was changed to clarify the wording and to make this section consistent with other sections of the FSAR.

Safety Significance: Since no requirements were changed there is no safety significance to the changes made in this section.

10. Paragraph 9B.8 (Previously 9B.10)

Description of Changes: This section was revised to provide a complete description of the Fire Brigade Training Program. The program description previously contained in Section 13.2 of the FSAR was also incorporated into this section. Additionally, this section was reworded for clarity and to reflect the current methodology for conducting the Fire Brigade Training Program.

Safety Significance: Since the actual commitments previously contained in Section 13.2 have essentially been unchanged the changes made have no safety significance.

11. Paragraph 9B.9 (Previously 9B.11)

Description of Changes: Subparagraphs were renumbered to provide separation and clarity to the individual sections.

Safety Significance: Since the addition of subparagraph numbers were the only change there is no safety significance.

12. Figure 9B-1

Description of Changes: Figure was revised to reflect the current MP&L organization.

Safety Significance: Since the change does not affect functional responsibilities there is no safety significance.