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February 26, 1981

NUCLEAR PRODUCTION DEPARTMENT

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

Attention: Mr. Harold R. Denton, Director

Dear Sir:

SUBJECT: Grand Gulf Nuclear Station
Units 1 and 2
Docket Nos. 50-416 and 50-417
File 0260/0277/L-860.0/0755
TMI Related Training Responses
AECM-81/82

Attached is a preliminary copy of a revised Section 13.2 Training of the Grand Gulf Nuclear Station (GGNS) FSAR which is planned for submittal in a forthcoming amendment. This material is being submitted prior to the amendment to expedite your review of GGNS in TMI related areas.

In particular, the following NUREG-0737 areas are addressed in the attached revised FSAR Section 13.2:

I.A.1.1 Item 2, Shift Technical Advisor
I.A.2.1, Immediate Upgrade of RO & SRO Training & Qualification
I.A.2.3, Administration of Training Programs
I.A.3.1, Revise Scope & Criteria for Licensing Exams
I.G.1 (initial response), Training During Low Power Testing
II.B.4 (initial response), Training for Mitigating Core Damage

In regard to I.G.1, Training During Low Power Testing, an initial response is provided in this revision of Chapter 13.2. On January 26, 1981, MP&L received a letter from Mr. Robert L. Tedesco with new clarification and requirements. A response to this will be provided shortly.

In regard to II.B.4, Training for Mitigating Core Damage, MP&L is working with the BWR Owner's Group on this matter and additional information will be provided at a later date.

Yours truly,

L. F. Dale
Nuclear Project Manager

SHH/JDR:lm
Attachment

cc: (See Next Page)

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cc: Mr. N. L. Stampley
Mr. G. B. Taylor
Mr. R. B. McGehee
Mr. T. B. Conner

Mr. Victor Stello, Jr., Director
Division of Inspection & Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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 ensure that sufficient personnel are trained and qualified to safely operate and maintain the plant throughout its design life. Guidance for the development of the training program was obtained using the American National Standards Institute Standard N18.1-1971, 10 CFR 55, and NUREG-0737, Clarification of TMI Action Plan Requirements. The program is designed to provide training commensurate with an individual's background and proposed position on the staff.

The Plant Training and Administrative Superintendent is responsible for the overall program. He designates qualified individuals to prepare lectures, tests, and 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) Unlicensed Technical Personnel, and (3) General Employees.

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 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. The duration of listed courses are typical, but some may vary depending on the intensity of the course instruction and needs of the students.

13.2.1.1 Program Description

13.2.1.1.1 Licensed Personnel

The Licensed Operator Training Program is designed to ensure that the individuals who operate the controls of a nuclear reactor are competent to do so. This competence entails:

1. Understanding of the underlying principles in the various engineering disciplines which relate to their responsibilities.

2. Knowledge of the systems and components over which they have responsibility and control.

3. Knowledge of the procedure established for controlling the plant.

4. Skill in manipulating plant controls.

The Senior Licensed Operator Training Program is designed to ensure that the individual who directs the activities of the licensed operators possesses an understanding of principles, knowledge of systems and components, and analytical ability beyond that required of the Licensed Control Room Operator.

All license candidates receive training in the following areas:

1. Nuclear Fundamentals Training
2. Systems Operation Training
3. Simulator Training and Certification
4. Operating Practices Training
5. License Examination Preparation

In addition, to the above, Senior Licensed Operator candidates receive additional training in the areas of:

1. Procedures and Bases
2. Plant Operation and Casualty Response
3. Supervisory Skills

13.2.1.1.2 Nuclear Fundamentals Training

All license candidates shall receive approximately twelve weeks of classroom training in the science and engineering subjects listed below:

1. Mathematics
2. Classical Physics
3. Atomic and Nuclear Physics
4. Reactor Theory
5. Chemistry
6. Heat Transfer Thermodynamics and Fluid Flow
7. Plant Materials
8. Radiation Detection
9. Radiation Protection
10. Basic Electronics and Electricity
11. Instrumentation and Controls

During the Fundamentals Training phase, written examinations should be given at the conclusion of each subject area. These written examinations should be supplemented by written quizzes administered throughout the presentation of each subject. At the conclusion of the Fundamental Training phase, a comprehensive written examination is given. All license candidates shall score at least 80% on all examinations in order to satisfactorily complete this phase of training.

13.2.1.1.3 Systems Operation Training

All license candidates shall receive approximately eight weeks of detailed classroom presentations covering each of the GGNS systems over which the Licensed 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 for each of the plant systems:

1. Purpose of the system, including design bases.
2. System components, including locations.
3. Normal and alternate system lineups.

4. Normal and alternate power supplies.
5. Associated limits and alarms.
6. Interrelationships with other systems.
7. Automatic features of system operation.
8. Associated instrumentation, indications, and controls.
9. Failure modes of controls and instruments.
10. Normal values for significant parameters.
11. Related Technical Specifications.
12. Related operating procedures.

Written examinations are given during the Systems Operation Training phase. In addition, oral examinations are given periodically on system design, function, and operation. Successful completion of the Systems Operation Training requires a passing grade of 80% on all written examinations and satisfactory performance on all oral examinations.

13.2.1.1.4 Simulator Training

All license candidates shall participate in a Simulator Training Program which prepares the individual to proficiently conduct routine evolutions and carry out abnormal/emergency action from the Control Room. The simulator utilized in this program should have operating characteristics and Control Room design similar to those of the Grand Gulf Nuclear Station. The Simulator Training Program requires a minimum of 80 hours on the control panel.

The Simulator Training Program shall emphasize plant transients and casualty response. In addition to routine startup and shutdown evolutions, the following faults and casualties, as a minimum, should be discussed, practiced, and critiqued:

1. Reactor scram.

2. Turbine or generator trip.

3. Loss of coolant, including large and small leaks located inside and outside of primary containment (including leak rate determination).

4. Loss of coolant flow/natural circulation.

5. Loss of all feedwater.

6. Nuclear instrumentation failure(s).

7. Non-nuclear instrumentation failure(s).

8. Loss of protective system channel(s).

9. Mispositioned control rod(s) (or rod drops).

10. Inability to drive control rods.

11. Conditions requiring use of standby liquid control system.

12. Fuel cladding failure or high activity in reactor coolant or off-gas.

13. Malfunction of automatic control system(s) which affect reactivity.

14. Malfunction of reactor coolant pressure/volume control system.

15. Loss of instrument air.

16. Loss of electrical power and/or degraded power sources.

17. Loss of condenser vacuum.

18. Loss of service water (if required for safety).

19. Loss of shutdown cooling.

20. Loss of component cooling system or cooling to an individual component.

21. Loss of normal feedwater or normal feedwater system failure.

22. Main 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 the formal training exercise is maximized.

Candidate performance during Simulator Training is evaluated by the instructor as each evolution is conducted. Successful completion of Simulator Training requires a erformance examination to certify the individual's ability to safely and competently manipulate the controls of a BWR on a reactor operator level during normal, abnormal, and emergency conditions and to understand all indications available during each evolution.

13.2.1.1.5 Operating Practices Training

Each license candidate shall gain experience in plant operation and casualty response through a combination of in-plant on-shift training and classroom presentations/discussions. This training is accomplished in three phases:

1. Administrative Requirements Training
2. Plant Operation and Casualty Response Training
3. In-Plant Training

13.2.1.1.5.1 Administrative Requirements Training

Each license candidate shall receive at least one week of training in the administrative procedures, policies, and practices which affect the Licensed Control Room Operator. This training covers such topics as:

1. Shift Turnover
2. Operator Logs
3. Verification of Plant System Status
4. Quality Assurance
5. Tagout Procedure
6. Reports and Notification
7. Shift Duties and Responsibilities
8. Use of Procedures
9. Health Physics Procedures
10. Radioactive Material Control Procedures
11. Effluent Release Limits and Bases
12. Facility License and Design Basis

Successful completion of the Administrative Requirements Training Course requires a passing grade of 80% on all written examinations.

13.2.1.1.5.2 Plant Operation and Casualty Response Training

Each license candidate shall receive at least two weeks of classroom training on the following subjects:

1. Normal, abnormal, and emergency operating procedures.
2. Plant transients and trend analysis.
3. Recognition and mitigation of the consequences of core damage.
4. Site Emergency Plan.
5. Calculation of release rates.
6. Safety limits, limiting safety system settings, and limiting conditions for operation.

Successful completion of the Plant Operation and Casualty Response Training Course requires a passing grade of 80% on all written examinations.

13.2.1.1.5.3 In-Plant Training

Each license candidate shall spend a period of time on shift in a training status under the direct supervision and guidance of the Licensed Control Room Operator. The objective of this training period is for each candidate to gain experience in the routine operation of a nuclear power plant.

1. Prior to initial criticality, candidates not holding or having held an NRC License or having qualified in the Navy Nuclear Power Program as a Reactor Operator (RO), Engineering Watch Supervisor (EWS), or Engineering Officer of the Watch (EOOW) shall spend at least four weeks at an operating BWR (should be at or above 20% power) observing the day-to-day operation of the plant. The candidates shall be under the direct supervision and guidance of an individual who is qualified in accordance with 10 CFR Part 55.9(b). Each candidate should complete a checklist detailing those operations/evolutions to be performed, simulated, observed, and/or discussed. This checklist contains specific requirements in such areas as:

a) Plant operation from the Control Room.

b) Local control and operation of equipment.

c) Surveillance testing.

d) System valve and electrical lineups.

e) System component operation (i.e., pump startup and shutdown).

f) System interactions and indication.

Each checklist requirement is signed off by the qualified individual observing and supervising the candidate as the requirement is being accomplished.

The license candidate shall also gain experience in the operation of the Grand Gulf Nuclear Station through participation in plant operating procedure preparation and verification and/or preoperational testing or plant systems. In addition, each candidate is provided with a Control Room Operator Qualification Card which contains knowledge factors and practical factors to be accomplished/discussed while in an on-shift training status. The candidate's performance while on shift is monitored by the shift supervisor who shall provide an evaluation of the candidate's operating abilities at the conclusion of this training phase.

2. After initial plant criticality, each license candidate shall spend at least three months on shift in a training status in the GGNS Control Room. During this period, the candidate shall carry out the duties of a Control Room Oerator under the direct supervision and guidance of the Licensed Control Room Operator. The candidate's performance is monitored by the shift supervisor who shall provide an evaluation of the supervisor who shall provide an evaluation of the candidate upon the conclusion of this training phase. Each student is provided with a Control Room Operator Qualification Card which lists the knowledge factors and practical factors to be discussed/accomplished while in this onshift training.

13.2.1.1.6 License Examination Preparation

Within a reasonable period of time (typically 6 months) prior to the candidate's proposed NRC License examination dates, each license operator candidate attends a brief simulator refresher course. This training emphasizes overall plant operation during both normal and abnormal situations.

Upon completion of the simulator refresher training, each license candidate is administered NRC style comprehensive written and oral examinations to determine the individual's ability to operate the plant in a safe and competent manner. Based upon the examination results, an

evaluation shall be made of the candidate's weaknesses and a training progrm is developed to correct those weaknesses.

Before the NRC administered licensing examination is taken, the candidate's overall performance in the Licensed Operator Training Program shall be reviewed by an operator training evaluation board. The operator training evaluation board reviews the candidate's training record to verify that all NRC License examination prerequisites are met and evaluates the candidate's ability to safely and competently operate the plant and obtain the required license. If the board decides to retain the individual in the training program, the candidate is given remedial training in those subject areas of demonstrated weakness and shall score at least 80% on a written reexamination in those areas prior to bein reevaluated. If it is decided that the candidate can safely and competently operate the plant and possesses the ability to pass the required license examination, the board will forward the candidate's evaluation and training record to the Plant Manager, who is responsible for certifying the competency of each license candidate to the Assistant Vice President - Nuclear Production.

13.2.1.1.7 Senior Operator Training

13.2.1.1.7.1 Plant Operation and Casualty Response Training

Each senior license candidate receives additional classroom training on the following subjects:

1. Consequences of operating with parameters outside their normal bands.

2. Impact on abnormal system lineups or availability on operations and casualty control.

3. Response to multiple or compound failures.

13.2.1.1.7.2 Supervisory Training

Each senior license candidate receives at least one week of training in the supervisory skills necessary to carry out the administrative responsibilities of the Senior Control Room Operator. This training includes such topics as:

Motivation of Personnel
Professionalism/Attitude/Morale
Standards of Performance
Personnel Development
Combatting Stress and Boredom
Crisis Management/Stress Management
Interpersonal Communication (verbal/non-verbal)
Listening/Feedback
Sensitivity
Written Communication
Problem Analysis
Decision Making
Planning and Organizing

13.2.1.1.8 Onsite Training

The Onsite Licensed Operator Training Program will be conducted under the supervision of the Training and Administrative Superintendent and consists of approximately 14 months of classroom lectures and field training. The on-site training program provides all license candidates with an in-depth study of GGNS systems and license candidates with an in-depth study of GGNS sytems and equiment, GGNS nuclear characteristics, GGNS normal, off-normal, emergency, and administrative procedures, and technical specifications prior to NRC examinations. Licensed personnel supervising or performing fuel-handling operations will receive training on fuel-handling equipment and procedures prior to performing fuel-handling operations.

Instructors for the various onsite training lectures will be supplied by the Grand Gulf Training Section or consultants. Selection of the particular individual to conduct a specific training lecture will be based upon individual availability and knowledge of the subject matter involved. Permanent Training Center instructors and consultants assigned to training, who, after initial criticality will teach systems, integrated responses, 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 prior to teaching licensed operators. Prior to initial criticality these instructors will, as a minimum, be certified to the senior reactor operator level.

A brief simulator refresher training course, typically one to two weeks, is scheduled for all license candidates at a BWR-6 simulator prior to the licensing examination. Written and oral examinations will be administered as part of this phase of training.

Various Licensed Operator Training Program events have been scheduled to be conducted at specified times prior to fuel load. This keying of the training program to fuel load is done to minimize the possibility that the training programs will end substantially before fuel load. If fuel load is delayed the Training and Administrative Superintendent shall implement selected portions of the Licensed Operator Requalification Training Program to ensure that operator knowledge level does not deteriorate. This selected training will consist of topics selected from the subject areas listed in subsection 13.2.1.1.1.

13.2.1.1.9 BWR Refueling Training

Those candidates for an NRC license, who will be involved in refueling operations, participate as trainees in a fuel-handling training program which will be designed to acquaint each student with the procedures, skills, and equipment required for fuel handling evolutions.

13.2.1.1.10 Coordination with Preoperational Tests and Fuel Loading

The schedule for each part of the training program for each section of plant employees is being correlated as closely as possible with the schedule for preoperational testing and fuel loading.

13.2.1.1.11 Practical Reactor Operation

Practical (on-the-job) plant operation for license candidates will commence with the preoperational test program. Practical reactor operation for licensed personnel will commence with fuel loading, progress through the startup test program, and continue for retaining as described in subsection 13.2.2.

13.2.1.1.12 Previous Nuclear Training

Other nuclear training programs or experience that satisfy the intent of the program outlined in subsection 13.2.1.1.1 may be substituted instead of portions of the training outlined for reactor operator and senior reactor operator candidates. Examples of such training programs or experience that would be permissible for substitution instead of portions of training as described in subsection 13.2.1.1.1 are: attainment of a baccalaureate or higher degree in the fields of nuclear engineering or nuclear sciences; extensive participation in the design or design review of the station in nuclear-related areas; holding or having held a reactor operator's or senior reactor operator's license at a comparable reactor facility not subject to NRC licensing, e.g., reactor facilities operated by the military services; or satisfactory completion of an NRC-administered written examination and operating test at a comparable licensed reactor facility without issuance of a reactor operator's or senior reactor operator's license; or certification of satisfactory completion of an NRC-approved training program which utilizes a complete and accurate nuclear power plant simulator as part of this program.

13.2.1.1.13 Preparation of Station Operating Procedures

GGNS operations personnel will write or review station operating procedures with technical assistance furnished by General Electric Company and other consultants as may be required. This experience will familiarize personnel with the details of the reactor, turbine-generator, and associated systems.

13.2.1.1.14 Preoperational Testing of Equipment

Preoperational testing of plant equipment will provide station operators with nuclear power plant operating experience on station systems and equipment prior to fuel loading. Training emphasis will be placed in areas of component testing, system flushing, hydrostatic tests, system checkouts, and functional tests as system and component availability permits.

13.2.1.1.15 Training During Low Power Testing

As described in Section 14.2, plant operating personnel will participate in the preoperational and startup test programs, gaining hands-on experience in operating plant equipment and dealing with operational transients and problems.

The culmination of the preoperational test program is the ECCS integrated initiation during loss of offsite power test. FSAR

subsection 14.2.12.1.44 describes this test. To enhance the training benefit of this test, each shift will participate in one of the portions of the test. A training session will be held prior to the commencement of the test and this will be followed by preshift briefings during the test.

The cold functional test program described in FSAR subsection 14.2.10.1.2 provides additional opportunities for training. The cold functional tests are performed using plant procedures and are controlled and documented using checklists. The checklist provides a signoff to document each shift has received training and experience on specified systems.

During the startup test program, tests performed cold or with an open vessel, during heatup or at Test Condition 1 (see Table 14.2-3), provide training opportunities for operators prior to exceeding 5% rated core thermal power.

Licensed operators on each shift will:

a) See at least one pressure controller transient (STI22).
b) Operate the RCIC (STI14).
c) Operate the Recirculation Flow Control System (STI29).

Other testing will be balanced as much as practicable to ensure even exposure to testing for all operating shifts. A training session will be held for all licensed personnel prior to the commencement of the low power test program. This will be followed by preshift briefings prior to the performance of the various low power tests.

13.2.1.2 Training Programs for Nonlicensed Personnel

Selected technical, professional, and supervisory personnel are provided the necessary training to satisfy the applicable requirements of their particular position. This is accomplished by assigning individuals to specific courses of instruction that best fit their education, previous experience, and intended position. In addition to the specific courses described in the following subsection, technical and professional staff personnel are scheduled to attend portions of the Licensed Operator Training Programs to enable them to become familiar with Grand Gulf Plant Operation.

13.2.1.2.1 BWR Control Rod Drive System Maintenance

This course is designed to train responsible maintenance supervisors and senior mechanics in the specialized tasks of control rod drive and hydraulic control unit maintenance. The instructor is a GE Training Engineer thorougly versed and experienced in actual component maintenance. Heavy emphasis is placed on student participation, and each student is required to disassemble and assemble actual components using the proper tools and maintenance procedures. Selected maintenance personnel are designated to attend this course.

13.2.1.2.2 Nuclear Instrumentation

This course is designed to train instrument technicians and supervisors in the maintenance techniques of BWR nuclear instrumentation and controls. The course consists of classroom lecture integrated with laboratory work and is currently five weeks long. Experienced GE Nuclear Instrumentation startup and design instructors provide the instruction for this course. Selected technicians and engineers have completed this course.

13.2.1.2.3 Station Nuclear Engineering

This five week course is designed to train selected engineers and plant supervisors in the techniques of fuel calculations and management, startup testing, and assessment of nuclear performance. The course is taught by the General Electric Company and consists of lectures and studies covering the following topics: process computer, Buckle, reactor behavior, thermal hydraulics, technical specifications, LPRM calibration, core thermal limit calculations, rod worth, reactivity monitoring and shutdown margin, fuel shuffling, preoperational and startup test program, and reload during refueling outage.

13.2.1.2.4 BWR Chemistry

This 12-week course is designed to prepare and familiarize certain plant chemists with the radiochemical and analytical chemistry techniques of liquids and gases associated with operation of BWRs. The course includes BWR water chemistry, waste disposal, effluent monitoring, process, and laboratory instrument calibrations and studies in laboratory work. Compliance with and interpretation of the chemical and radiochemical aspects of the technical specifications, licenses, and plant warranties is also covered. Additionally, the course prepares the students for training their own laboratory technicians in analytical techniques, use of equipment, and procedures required to monitor the chemical aspects of BWR operation. Experienced GE startup chemistry instructors teach this course at the Vallecitos Nuclear Center. The station chemist has completed this course.

13.2.1.2.5 Process Instrumentation and Control

This 4-week course is designed to train technicians and responsible supervisory personnel in the theory and application of process instrumentation and control systems used in BWR nuclear steam supply systems. The course consists of classroom training integrated with laboratory work and is taught by experienced GE instrumentation startup and design instructors. Selected I&C technicians and engineers have completed this course.

13.2.1.2.6 Radiological Engineering

This course, currently 8-weeks long, is designed to train radiation protection personnel in establishing the radiation protection program. It is a course of instruction in radiation monitoring methods, monitoring of the environs, internal and external dosimetry, bioassay, applied radioanalyses, applied shielding design, radiation safety

administration procedures and licensing and compliance administration. The course is taught by General Electric specialists. The Radiation Protection Supervisor has completed this course.

13.2.1.2.7 Process Computer Training

This series of courses is intended to train a sufficient number of plant personnel in areas such as the Honeywell 4400 computer, User Programming, RT MOS Analysis, SEER, and computer maintenance. These and other courses are taught by Honeywell training instructors in Phoenix, Arizona. Selected reactor engineers and technicians are required to complete the various Honeywell courses.

13.2.1.2.8 Vendor Schools

Selected plant technicians will attend various vendor schools on specialized equipment maintenance and troublesome techniques such as malfunction diagnosis, protective relays, and nondestructive evaluation.

13.2.1.2.9 Additional Training

All Health Physics Technicians will receive formal training at the GGNS site related to radiation protection to allow them to carry out safely and efficiently their assigned responsibilities in accordance with established policies and procedures. The course includes, but is not limited to, the following subject areas:

1. Radiation control.
2. Contamination control.
3. Airborne radioactivity control.
4. Medical program.
5. Radioactive waste disposal.
6. Radioactive material shipment.
7. Radiation protection forms, records, and reports.
8. Emergency plan and instructions.

13.2.1.2.10 Shift Technical Advisor Training Program (STA)

The training program for the Shift Technical Advisors (STA) will last approximately 20 weeks and include the following:

1. Plant Systems (6 weeks)

   The Plant Systems Course is an in-depth presentation of the Grand Gulf Nuclear Station plant systems. The course includes system contruction, design aspects, basic system operation and location of major components and their respective operating/control station.

2. Station Nuclear Engineering (5 weeks)

   This course is designed to train selected engineers and plant supervisors in the techniques of fuel calculations and management, startup testing, and assessment of nuclear performance. The course is taught by the General Electric

Company at the plant site and consists of lectures and studies covering the following topics: process computer, Buckle, reactor behavior, thermal hydraulics, technical specifications, LPRM calibration, core thermal limit calculations, rod worth, reactivity monitoring and shutdown margin, fuel shuffling, preoperational and startup test program, and reload during refueling outage.

3. Management Supervisory Training (1 week)

This one-week course is designed to provide management personnel with the skills necessary to cope with the day-to-day problems that arise with the supervision of personnel and stress management. The course covers such topics as communications, job satisfaction and morale, handling complaints and grievances, counseling and stress management.

4. Administrative Controls (4 weeks)

The administrative controls segment consists of a detailed presentation of the Grand Gulf Nuclear Station Administrative Procedures that pertain to the administrative activities necessary to operate the unit. Such topics as technical specifications, control and handling of radioactive materials, protective tagging, etc. will be covered.

5. General Operating Procedures (1 week)

The General Operating Procedures position will contain the presentation of the Grand Gulf Integrated Operating Instructions, System Operating Instructions, Alarm Response Instructions, Emergency Plan, and Site Security Plan.

6. Transient and Accident Analysis and Emergency Procedures (3 weeks)

This portion will give a detailed presentation of the transient and accident analysis section of the Grand Gulf Final Safety Analysis Report. The Emergency Procedures will be covered concurrent with transient and accident analyses so that an overall understanding can be obtained. Combined with these two topics will be an instructional period devoted to accessing and interpreting information supplied from the process computer.

7. [illegible] or Training (2½ weeks)

This [illegible] portion is designed to familiarize the STA's with a fundam[illegible]erstanding of system and plant operation in a control room a[illegible]sphere. The time is split between actual control room ope[illegible]tion and classroom presentation.

The STA Training Program is intended to be a short term plan which ensures that technical expertise is available to the

Shift Supervisor for matters dealing with accident/transient response of the GGNS plants. The long range plan is to certify the Shift Superintendents to the level of STA at which time there may no longer be a need for a separate STA.

13.2.1.2.11 General

In addition to the courses described previously, specific programs of instructon are developed to fulfill the needs of personnel assigned to each section, whether it be instrumentation, radiation protection, chemistry, or maintenance. The programs will be developed as the training requirements of each individual are defined.

Plant technicians also receive extensive training through participation in the preoperational testing program, startup, establishment of labs and shops, and on-the-job training associated with their plant specialty.

13.2.1.3 General Employee Training

Each full-time employee who must enter the secured area of the plant and who has not received more intensive training in the subjects covered will attend an orientation course. The course will indoctrinate personnel with plant layout, controlled security, and radiation protection areas. It will also cover applicable sections of the security plan, emergency plan, fire protection, and radiation protection manuals. Temporary personnel, if periodically utilized, are also trained in the previous courses to the extent necessary to assure safe execution of their duties.

Each 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.

13.2.1.3.1 Temporary Plant Personnel Training

Temporary maintenance and service personnel, i.e., those who are not assigned to the Grand Gulf Nuclear Station on a day-to-day basis, will be trained in the areas listed in subsection 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 listed in subsection 13.2.1.3 to the extent necessary to safely execute their normal duties.

13.2.1.3.3 General Employee Refresher Training

General employee refresher training for those items listed in subsection 13.2.1.3 will be provided to permanent plant employees on a biennial basis.

13.2.2 Requalification Program

A continuing requalification program for licensed operators and senior operators will be established and implemented in accordance with 10 CFR 55, Appendix A, no later than 3 months following the issuance of an operating license for the station.

Licensed operators and senior operators will participate in the requalification program as described in subsections 13.2.2.1 and 13.2.2.2.

The requalification program cycle shall be based on a 2-year period with training distributed over that period as required.

Plant Staff personnel whose normal duties are at the station on a day-to-day basis and who hold a license to provide backup capability for the operating staff will participate in the requalification program except to the extent that their normal duties preclude the need for retaining in specific areas. Operations Instructors will be enrolled in appropriate requalification programs to ensure that they are cognizant of current operating history, problems, and changes to procedures and administrative limitations.

As a minimum they shall:

1. Be administered the annual requalification exam and participate in the requalification lecture series based upon results of the annual requalification examination.

2. Perform reactivity control manipulations as specified in subsection 13.2.2.1.2.

3. Review changes to station design, procedures, and license as specified in subsection 13.2.2.1.4.

4. Review station abnormal and emergency procedures as specified in subsection 13.2.2.1.5.

5. Be evaluated at least once during the term of the license by oral examination.

The GGNS Training and Administrative Superintendent is responsible for establishing and supervising the licensed operator requalification program.

13.2.2.1 Program Description

13.2.2.1.1 Program Content

A planned lecture series will be presented covering, as a minimum, those areas where written examinations indicate the need for additional training in the following subjects:

1. Theory and principles of operation.
2. General and specific plant operating characteristics.

3. Plant instrumentation and control systems.
4. Plant protection systems.
5. Engineered safety systems.
6. Normal, abnormal, and emergency operating procedures.
7. Radiation control and safety.
8. Technical specifications.
9. Applicable portions of 10 CFR.
10. Station QA program as related to station operations.
11. Heat transfer and fluid flow.
12. Thermodynamics.
13. Mitigation of accidents involving a degraded core.
14. Understanding of reactor and plant transients.

The lecture series will be presented by the Grand Gulf Training Section. The lecture series will, with the exception of special activity periods such as refueling outages or heavy vacation periods, be spread reasonably evenly throughout each 2-year retraining program. Lectures may be deferred due to unanticipated shutdowns with provisions being made for conducting deferred lectures at a later date. A minimum of six preplanned lectures will be scheduled each year.

13.2.2.1.2 Reactivity Control Manipulations

Each licensed operator will, during the term of his license, perform a minimum of 10 reactivity control manipulations. The following items will be performed on an annual basis.

1. Plant and reactor startups to the point that reactivity feedback from nuclear heat addition is noticeable and a controlled heatup rate is established.

2. Manual control of feedwater during startup or shutdown.

3. Any significant (10%) power changes in manual rod control or manual control of recirculation flow.

4. Loss of coolant accidents.

   a. Inside/outside containment and drywell.
   b. Large/small, including leak rate determination.

5. Loss of coolant forced flow/natural recirculation.

6. Loss of all feedwater (normal and emergency).

The following items will be performed on a biennial basis:

1. Plant shutdown.

2. Any reactor power change of 10% or greater where load change is performed with load limit control.

3. Loss of instrument air (if simulated plant specific).

4. Loss of electrical power (and/or degraded power sources).

5. Loss of condenser vacuum.

6. Loss of standby service water if required for safety.

7. Loss of RHR shutdown cooling.

8. Loss of component cooling system or cooling to an individual component.

9. Loss of normal feedwater or normal feedwater system failure.

10. Loss of protective system channel.

11. Mispositioned control rod or rods (or rod drops).

12. Inability to drive control rods.

13. Conditions requiring use of emergency boration or standby liquid control system.

14. Fuel cladding failure or high activity in reactor coolant or offgas.

15. Turbine or generator trip.

16. Malfunction of automatic control system(s) which affect reactivity.

17. Malfunction of reactor coolant pressure/level control system.

18. Reactor scram.

19. Main steam line break (inside or outside containment).

20. Nuclear instrumentation failure(s).

Each licensed senior operator will either manipulate the controls or direct/evaluate the activities of others during 10 reactivity control manipulations. Reasonable effort consistent with the operating requirements of the station will be made to provide a variety of reactivity changes for each operator.

In addition, control manipulations which meet the requirements of one or any combination of the following are considered as acceptable reactivity control manipulations:

1. Any plant or reactor startup, to the point at which reactivity feedback from heat addition is noticable.

2. Any heatup or cooldown of at least 100°F.

3. Plant or reactor shutdown.

4. Plant shutdown to reactor hot standby.

5. Control rod sequence changes.

6. Shutdown margin checks.

7. Control rod scram insertion time tests.

8. Any reactor power change of 10 percent or greater including testing of equipment where load changes are performed with control rods, "load selector" of EHC system, or where the recirculation system is in manual speed control.

9. Plant and reactor operation that involves emergency or transient procedures where reactivity is changing.

10. Refueling operations where fuel is moved within the core.

If necessary, to provide a minimum of 10 reactivity control manipulations or a reasonable diversity in reactivity control manipulations, the GE/BWR-6 or GGNS simulator may be used to meet the reactivity control manipulation requirements of the requalification program.

13.2.2.1.3 Station Design Features

Each licensed operator and senior operator will demonstrate, in the performance of his duties, his satisfactory understanding of the operation of systems, components, and other apparatus in areas for which he has been licensed; and his knowledge of operating procedures pertaining to those systems or components.

13.2.2.1.4 Station Design, Procedure, and Facility Changes

Each licensed operator and senior operator will be kept advised of station design changes, procedure changes, and station license changes appropriate to the technical requirements of an individual's license as defined in subsection 13.2.1.1.1. To ensure the individual's cognizance of such changes, any of the following methods of communication may be used:

1. Brief lectures conducted by the shift supervisors.
2. Staff or section meetings.
3. The required reading procedure.
4. Preplanned lecture series.

13.2.2.1.5 Off-normal and Emergency Procedure Review

Each licensed operator and senior operator will review the off-normal and emergency operating procedures on an annual basis. To ensure the individual's review of these procedures, any of the following methods may be used:

1. Actual performance under off-normal or emergency operating conditions.

2. Simualated walk-through of the procedural steps necessary to cope with the situation.

3. Brief lectures conducted by the Shift Supervisor.

4. Drills utilizing a simulator.

5. Preplanned lecture series.

6. The required reading procedure.

13.2.2.1.6 Requalification of Inactive Licensed Operators and Senior Operators

Licensed operators or senior operators whose normal duties are at the station on a day-to-day basis and who are involved in the daily activities at the station will be considered on "active status."

A licensed operator or senior operator who has been inactive for four or more months will, before resuming licensed activities, demonstrate his adequate knowledge of current station operations. This demonstration will be accomplished by his satisfactory completion of a written examination and/or oral examination given by a qualified member of station management.

An unsatisfactory result in one or both of these examinations will require that the individual receive addtional training in those areas of his weakness and/or observe station operations for a minimum of 40 hours prior to reexamination. The nature of the additional training provided will be determined on the basis of the initial requalification examination results.

13.2.2.2 Requalification Evaluation of Operators and Senior Operators

13.2.2.2.1 Annual Requalification Examinations

Written requalification examinations will be given annually to all licensed operators and senior operators to determine areas in which retraining may be needed to maintain or upgrade licensed operator or senior operator knowledge. These examinations will be prepared, administered, and evaluated by the Grand Gulf Training Section, or by the NRC at their direction. A minimum grade of 80 percent correct on any section may exempt an operator or senior operator from required attendance at requalification lectures pertinent to that section. Licensed individuals who are directly involved in the preparation and grading of the examination may be exempt from taking the examination.

13.2.2.2.2 Retraining Program Examinations

Written examinations will be given covering material presented in the retraining program. These examinations will provide one of/or the basis for evaluating operator's knowledge of systems, administrative requirements, and procedures, and will be prepared and evaluated by members of the Grand Gulf Training Section.

A grade of less than 80 percent correct on any lecture series examination shall require an operator or senior operator to be rescheduled for lectures on that subject the next time such lectures are scheduled.

13.2.2.2.3 Practical Operator Performance Evaluation

Annually, the performance of licensed operators and senior operators will be evaluated and documented by supervisors and/or training staff members. An oral examination will be administered at least once during each 2-year qualification period to operators, senior operators, and senior operators limited to fuel handling and will include evaluation of actions taken or to be taken during actual or simulated off-normal and emergency conditions.

This oral examination may constitute one of or be in addition to the annual practical operator performance examination. The Grand Gulf control room may be used to accomplish the simulation of these conditions, or an appropriate simulator may be used to meet this requirement.

When the Grand Gulf control room facilities are used for these simulations, the action taken or to be taken for the condition under simulation will be discussed. If an appropriate simulator is used, the simulator will reproduce the operating characteristics of GGNS. The instrumentation and controls of the simulator used will closely parallel those of the GGNS.

13.2.2.2.4 Accelerated Requalification Program

An accelerated requalification program will be provided for those individuals who do not perform satisfactorily on their annual requalificaton examination. Any operator or senior operator who received an average grade of less than 80 percent overall and/or less than 70 percent in any area on an annual written requalification examination will be relieved of all duties requiring the use of his license and will participate in an accelerated requalification program. An operator who is relieved of his licensed duties will be so advised by station management. He may return to his licensed duties following attainment of an average grade of 80 percent overall and greater than 70 percent in all areas on a written qualification examination of the same format as the annual requalification examination.

Training provided to operators or senior operators participating in an accelerated requalification program may include preplanned lectures, self study, on-the-job instruction, or other training as required.

13.2.2.2.5 Requalification Exams' Formats

There will be three separate requalification exams adminsitered as follows:

Reactor Operator - This exam will be administered to holders of NRC Reactor Operator Licenses and will contain questions in the following categories:

1. Principles of Reactor Operation

   This category contains questions relating to basic nuclear reactor behavior, elementary nuclear reactor theory, technical terminology, and an appreciation of processes taking place in a reactor.

2. Features of Facility Design

   This category contains questions about the design features of the Grand Gulf facility, with emphasis on the reactor and auxiliary systems. It also inquires into design intent and the more important design parameters.

3. General Operating Characteristics

   This category contains questions on controlled and variable parameters of the reactor and auxiliary systems. Values which are expressed as normal or operating parameters (e.g., flow rates, temperatures, tank levels) or values which are measured as resultant characteristics (e.g., temperature coefficient, reactivity worth, pressure drop) are investigated in this category. Questions relating to the manner in which power, reactivity, rod worths, or other parameters of this facility would change in response to manipulations, heatup, core burnup, or other stimuli are also in this category. Further included are questions relating to the traces that one would see on recorders, with emphasis on facility behavior rather than instrument characteristics.

4. Instruments and Controls

   This category contains questions on the characteristics and interrelationships of the nuclear and process instrumentation and control systems. These questions will inquire into the principles of operation of detectors, location and settings of instruments, diagrammatic representation of instrument and control systems, and details of control rod drives' design and operation.

5. Safety and Emergency Systems

   This category contains questions on the design, construction, operation, and interrelationships of the systems most directly associated with reactor safey, such as scram and other power reduction systems, pressure relief, suppression and containment, poison systems, spray systems, emergency power systems, and annunciated malfunctions.

6. Standard and Emergency Operating Procedures

   This category contains questions on the procedures for the operation of the reactor and auxiliary systems including administrative controls. Operating restrictions in the facility license may be included herein to the extent that they are directly applicable to an operator.

7. Radiation Control and Safety

This category contains questions on terminology, radiation hazards, radiological safety practices and fixed and portable radiation monitoring equipment.

8. Principles of Heat Transfer and Fluid Mechanics

This category contains questions on heat transfer by conduction, convection, and radiation. Questions relating to heat transfer characteristics of fuel and heat exchangers are included. Natural and forced circulation heat transfer as well as boiling heat transfer are included. Critical heat flux, critical power, heat transfer limits on the fuel and reactor systems may also appear as questions.

9. Mitigation of Accidents Involving a Degraded Core

This category contains questions on the use of installed plant systems to control or mitigate an accident in which the core is severely damaged. Questions relating to the use of in-core neutron monitoring instrumentation, post-accident coolant chemistry, radiation monitoring, and hydrogen generation and control are included.

Senior Reactor Operator - This exam will be administered to holders of NRC Senior Reactor Operator Licenses and will contain questions in the following categories:

10. Reactor Theory

This category contains questions on principles of reactor theory including details of the fission process, neutron multiplication, source and control rod effects, and criticality indications. It has more advanced content than the operator Category I, but is not advanced to the level of a nuclear physicist or engineer. Further, this category may contain questions, as applicable to the facility, concerning some aspects of basic reactor engineering, e.g., heat transfer and fluid flow which affect the safety of the reactor core and vessel.

11. Radioactive Material Handling, Disposal, and Hazards

This category contains questions on radiation hazards which may arise during operations or the performance of experiments, shielding alterations, or maintenance activities. Close familiarity with the provisions of 10 CFR Part 20 and supplementary facility regulations is required as well as a good commonsense approach to radiological safety situations. Questions may include calculations involving inverse square law, decay rates, half-value thicknesses, and conversions of measured radiation intensities to rem, as well as other calculations of a similar nature.

Also included are questions relating to procedures and equipment (processing and monitoring) available for handling and disposal of radioactive materials and effluents.

12. Specific Operating Characteristics

This category contains questions on specific operating characteristics of the reactor and auxiliary systems including nuclear, hydraulic, thermal, pneumatic, electrical, and coolant chemistry. Questions regarding quantitative as well as qualitative explanations of causes, limitations, effects, and consequences of changes are included.

13. Fuel Handling and Core Parameters

This category contains questions regarding fuel, fuel handling and core loading including procedures and limitations concerning core loading and alterations, fuel transfer and storage, and detection and prevention of criticality. Questions relating to fuel element characteristics and limitations include consideration of reactivity worths, burnup, hot spots, rupture detection, effects of boiling, and programming.

14. Administrative Procedures, Conditions, and Limitations

This category contains questions on administrative, procedural, and regulatory items which affect operation of the facility.

15. Principles of Fluids and Thermodynamics

This category contains questions on the basic properties of fluids, fluids statics, and fluid dynamics. Questions relating to heat transfer and thermodynamics are also included.

16. Mitigation of Accidents Involving a Degraded Core

This category contains questions on the use of installed plant systems to control or mitigate an accident in which the core is severely damaged. Questions relating to the use of in-core neutron monitoring instrumentation, post-accident coolant chemistry, radiation monitoring, and hydrogen generation and control are included.

13.2.2.3 STA Requalification Program

Annually all STA's will be given additional training in transient and accident analysis as noted in the FSAR. This training will be conducted by lectures and simulator training. To ensure that STA's are aware of significant industry events they will participate, on a continuing basis, in the required reading program.

13.2.2.4 Retraining Records

Records of the requalification program will be maintained to document each licensed operator's and senior operator's participation in the requalification program. These records will contain:

1. Copies of written examinations administered.

2. Answers given by the licensee to written examinations.

3. Results of performance evaluations.

4. Documentation of additional training administered to operators and senior operators in areas where deficiences have been demonstrated.

5. Records of attendance at preplanned lectures.

6. Documentation of operator's and senior operator's cognizance of changes made to station design, appropriate procedures, and the station license.

7. Documentation of operator's and senior operator's review of off-normal and emergency procedures.

8. Documentation of operator's and senior operator's participation in reactivity control manipulations.

The Training and Administrative Superintendent is responsible for the maintenace of records pertaining to the requalification program.

13.2.3 Replacement Training

The purpose of the GGNS replacement training program is to ensure that replacement personnel satisfy the training requirements stipulated in ANSI N18.1-1971 and as stated in the NRC letter dated September 5, 1980, TMI action plan requirements, for various plant positions.

13.2.3.1 Licensed Personnel Replacement

Personnel who have satisfactorily completed a reactor operator selection program and who are designated as "in training" for a reactor operator's or senior operator's license will be given formal technical training and practical on-the-job training.

13.2.3.1.1 Replacement Personnel Technical Training

Formal technical training for reactor operator license candidates will be given in the following areas:

1. Principles of reactor operation.

2. Design features of GGNS.

3. General operating characteristics of GGNS.

4. Instrument and control systems.

5. Safety and emergency systems.

6. Normal and emergency operating procedures.

7. Radiation control and safety provisions.

8. Heat transfer, fluid flow and thermodynamics.

9. The use of installed plant systems to control or mitigate an an accident in which the core is severely damaged. (Shift technical advisors and operating personnel from the plant manager through the operations organization to the licensed operators will receive this training.)

10. Reactor and plant transients.

In addition to the above areas, formal technical training for senior reactor operator license candidates will be given in the following areas:

11. Reactor theory.

12. Handling and disposal of, and hazards associated with, radioactive materials.

13. Specific operating characteristics of GGNS.

14. Fuel handling and core parameters.

15. Administrative procedures, conditions, and limitations.

Reactor Operator and Senior Reactor Operator candidates who have not had previous nuclear training or operating experience at a reactor facility, as outlined in ANSI 18.1-1971, Section 5.2.1, and the NRC letter dated September 5, 1980, TMI action plan requirements, will receive formal technical training in the following areas:

1. Basic Nuclear - 16 to 20 weeks - equivalent to Basic Nuclear conducted for initial training.

2. A Grand Gulf Technology Course (5 weeks) similar to the course given for the initial operators.

3. Completion of specified on-the-job evolutions. The on-the-job training will consist of a least 6 months on shift.

4. License Study Time - 3 to 4 weeks - supervised study program prior to license examination.

13.2.3.1.2 Replacement Personnel Practical Reactor Operation Training

Comprehensive, practical, on-the-job training for reactor operator and senior reactor operator candidates will include the following areas:

1. Performance of at least two reactor startups conducted at GGNS prior to the demonstrative portion of the license examination under the direction of appropriate licensed personnel, followed by a startup of the reactor as part of the operating test; or

2. Manipulation of the controls of the GGNS reactor facility during five significant reactivity changes, as described in subsection 13.2.2.1.2, which may or may not include reactor startups. NOTE: The BWR-6 simulator may be used to satisfy these requirements if the plant is not available.

3. Instruction on the appropriate day-to-day station administrative activities and procedures. Receipt of such instruction will be documented in the trainee's training folder; and

4. A thorough self-study program under the guidance of more experienced station personnel to facilitate the candidate's knowledge and understanding of plant operating characteristics and station operating and emergency procedures. A minimum of 4 weeks will be designated for the self-study program. Completion of the self-study program will be documented in the trainee's training folder.

5. Senior reactor operator candidates will have 3 months of shift training as an extra person on shift.

6. Reactor operator candidates will have 3 months training on shift as an extra person in the control room.

13.2.3.3 Nonlicensed Personnel Replacement

Personnel filling positions not requiring an NRC operator's or senior operator's license shall meet the requirements stipulated in subsection 13.1.3 and will receive training as outlined in subsection 13.2.1.2.

13.2.3.4 Program Administration

The program will be administered by the Training Supervisor.

13.2.4 Fire Brigade Training

13.2.4.1 Instruction for Members of the Fire Brigade

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

1. Identification of fire hazards (and their location) and associated types of fires that occur in the plant.

2. Identification of areas where breathing apparatus is required, regardless of the size of the fire.

3. Identification and location of installed and portable firefighting equipment in the plant.

4. Familiarization with plant layout including access and egress routes for each area.

5. Proper use of installed and portable firefighting equipment including the station fire truck.

6. Correct methods of fighting various types of fires. This shall include electrical fires, fires in cables and cable trays, hydrogen fires, flammable liquids, waste/debris fires, and record file fires.

7. Indoctrination in the Fire Protection Plan and Implementing Instructions. This shall include individual and fire brigade responsibilities.

8. Proper use of breathing, communication, lighting, portable ventilation equipment, and radiation protection equipment.

9. Detailed review of fire protection plan implementation instruction, with particular emphasis on equipment to be used in particular areas.

10. Review of modifications, changes, etc., to the physical plant, procedures, firefighting equipment, or Fire Protection Plan.

11. Methods of fighting fires inside buildings and tunnels.

12. Identificaton of high radiation areas, potentially contaminated areas and methods for fighting fires in regulated areas.

13. Applicable first aid methods.

In addition to the above topics, fire brigade leaders and the Station Fire Chief shall receive training in directing and coordinating firefighting activities.

13.2.4.1.2 Instruction in the above topics will be coordinated by the Training and Administrative Superintendent. 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 in GGNS. Generally, fire brigade leaders will be used for this instruction.

13.2.4.1.3 Refresher training in the above topics will be conducted annually. The refresher training will be scheduled by the Training Coordinator for each fire brigade member. The sessions will be conducted quarterly and will be repeated every year.

13.2.4.2 Practice for Fire Brigades

Annually, each fire brigade member shall practice the proper method for extinguishing the various types of fires. Actual fires shall be extinguished except that energized electrical fires may be simulated.

Each fire brigade member shall also practice techniques that require the use of protective breathing equipment. These practice sessions may or may not involve actual firefighting and shall be conducted annually.

13.2.4.3 Fire Brigade Drills

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

1. Simulated use of equipment for various situations and types of fires which could reasonably occur in various areas of the plant. These simulations shall stress conformance to proper procedures and established firefighting plans.

2. Actual operation of fire protection equipment where practical. This includes breathing, communication, portable lighting, and ventilation equipment.

Fire brigade drills will be conducted using the following guidelines:

1. Each fire brigade shall be drilled at least semi-annually.

2. One drill per year for each fire brigade shall be unannounced.

3. One drill per year shall involve offsite fire department personnel. The intent of this drill is to practice established procedures for offsite assistance as well as firefighting.

4. Drill scenarios will be prepared to establish the objectives of each drill.

5. Each drill shall be critiqued to establish how well the objectives were met and to determine the following:

   a. Fire alarm effectiveness.
   b. Fire brigade response time.
   c. Selection, placement, and use of equipment.
   d. Leaders' effectiveness in directing the fire brigade.
   e. Each member's response.

The Training and Administrative Superintendent shall be responsible for scheduling, conducting, and documenting the fire brigade drills. He shall prepare drill scenarios for all drills.

13.2.4.4 Instruction for all Station Employees

Each permanent plant employee shall receive an indoctrination on the

Fire Protection Plan, evacuation routes from his normal place of duty, 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 routes, and fire reporting procedures.

13.2.4.5 Drills

An annual evacuation drill will be conducted.

13.2.4.6 Special Fire Protection Training

The station 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.

3. Firefighting techniques and procedures for plant personnel and the fire brigades.

Training for offsite fire departments includes basic radiation principles and practices, typical radiation hazards that may be encountered, and procedures.

Training for construction personnel shall include reporting instructions, alarm responses, and evacuation routes.

13.2.5 Training Records

Records of plant personnel qualifications will be maintained on each member of the plant staff. Each member of the plant staff will have a qualification and training folder maintained by the Training and Administrative Superintendent. The training folder contains a resume of the person's qualifications, records of training programs, training courses completed, lectures attended, and drill participation.

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 previously noted deficiences; and documentation acknoledging review of facility license changes, and changes to safety-related procedures.

All records and evaluations listed above will be used to judge the effectiveness of the training, retraining, and replacement training programs. The responsible member of the plant supervisory staff will periodically review in detail each individual's progress in the plant training program. The plant supervisory staff will also periodically review the overall training, retraining, and replacement training

program to determine how well the program is supplying and maintaining qualified personnel to operate the plant.

13.2.6 Documentation

Adequate records will be maintained in accordance with 10 CFR 55 to document the participation of all licensed personnel in the initial training and requalification programs.

13.2.7 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 and 12.5 and Appendix 3A for further details.