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December 2, 1983
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File No. G9.5.3.1
G9.8.2.13

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Denton:

River Bend Station Units 1 & 2
Docket Nos. 50-458/50-459

Enclosed are Gulf States Utilities Company's responses to the requests for additional information on Plant Personnel Training (dated May 23, 1983 and June 2, 1983) as well as revised sections of the Final Safety Analysis Report (FSAR) Chapter 13. Discussions with members of Region IV Staff have been the bases for other changes in Sections 13.1-Organizational Structure; 13.2-Training; 13.4-Review and Audit; and, 13.5-Plant Procedures. Attachment 1 summarizes the requests for information and indicates the section containing the corresponding discussion; Enclosure 1 contains the revised sections with comments and changes incorporated; and Enclosures 2 through 4 provide additional discussion which will be included in the FSAR in the next amendment.

Sincerely,

J. E. Booker

J. E. Booker
Manager-Engineering,
Nuclear Fuels & Licensing
River Bend Nuclear Group

JEB/ERG/JWL/kt

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ATTACHMENT 1

REQUEST NUMBER	REQUEST DESCRIPTION	REFERENCED SECTION
	May 23, 1983 DOCKET	
1	SRO/RO EMERGENCY PROCEDURE TRAINING	13.2.1.1.4 (2p) 13.2.1.1.5 (15) 13.2.1.1.9 (70)
	SUB-ITEMS: a,b,c,d,e	SEE ENCLOSURE 2
2	LICENSE CERTIFICATION PROCESS	13.2.1 PAR. 6
3	MODIFY TRAINING PROGRAM TO INCLUDE ITEM I.A.2.1 OF NUREG-0737	13.2.1.1.1 PHASE II
	SUB-ITEMS: a,b	SEE ENCLOSURE 3
4	MODIFY TRAINING PROGRAM FOR MITIGATING CORE DAMAGE TO INCLUDE ITEMS FROM MR. H. R. DENTON'S 3/28/80 LETTER	13.2.1.1.7
	SUB-ITEMS: a,b,c	SEE ENCLOSURE 4
5	PROVIDE A COMMITMENT TO COMPLY WITH ITEM I.A.2.1. OF NUREG-0737 REGARDING RO/SRO EXPERIENCE	13.2.1.1 PAR.4
6	DISCUSSION HOW FIRE BRIGADE TRAINING WILL MAINTAIN THEIR RECORDS	13.2.2.2 (4)
7	MODIFY THE REQUALIFICATION TRAINING PROGRAM FOR ON-THE-JOB TRAINING TO INCLUDE GUIDANCE FROM MR. H. R. DENTON'S 3/28/80 LETTER	13.2.2.3 (3 PAR.1)
8	MODIFY THE REQUALIFICATION TRAINING PROGRAM TO COMPLY WITH SECTION 4(c) AND 4(e) OF 10 CFR 55 APPENDIX A	13.2.2.3 (4)
	JUNE 2, 1983 DOCKET	
1	MODIFY THE SIMULATOR TRAINING PROGRAM TO MEET THE GUIDE-LINES OF REG. GUIDE 1.149 SECTION C.2.	13.2.1.1.4 PAR.1

Enclosure 1

RBS FSAR

CHAPTER 13

CONDUCT OF OPERATIONS

13.1 ORGANIZATIONAL STRUCTURE OF APPLICANT

13.1.1 Management and Technical Support Organization

This section provides information relative to the corporate organization, its functions and responsibilities, and the number and qualifications of personnel participating in the facility design, design review, design approval, construction management, testing, and operation of River Bend Station.

13.1.1.1 Design and Operating Responsibilities

The following sections summarize the degree to which design, construction, and preoperational activities have been accomplished and describe the specific responsibilities and activities relative to technical support for operations.

13.1.1.1.1 Design and Construction Activities (Project Phase)

13.1.1.1.1.1 Principal Site-Related Engineering Work

Meteorology

A preoperational meteorological monitoring program was established at the site on December 16, 1971 to provide those meteorological factors that bear upon plant design, operation, and safety. During the first two annual cycles, the meteorological systems were calibrated by Weather Measure Corporation personnel. In March 1977 the program changed in that Teledyne-Geotech supplied new meteorological instruments. This company checked the instruments every two months. In addition, S&W site personnel checked the instrumentation five days a week. S&W's meteorological group reviewed data obtained via this monitoring program. The systems have since been turned over to GSU personnel with the most recent calibration by Teledyne-Geotech occurring in April 1983. The monitoring program is discussed in Section 2.3.

Geology

Prior to the initiation of construction, site and regional geological investigations were conducted by geotechnical

personnel of S&W or by consultants retained by S&W during the period from 1972 to 1975. During construction, all foundations were inspected and photographed. Section 2.5 provides details of these investigations.

Seismology

Consultants to S&W were assisted by S&W personnel in conducting geophysical surveys of the site. In particular, Dr. Clay Durham, an independent consultant, was retained to make the seismicity study and interpret seismic survey data. Section 2.5 includes more detailed information.

Hydrology

S&W made use of the project design flood defined by the U.S. Army Corps of Engineers to estimate the probable maximum flood (PMF) from offsite areas for the River Bend Station site. Since the plant grade elevation is well above the PMF elevation of the Mississippi River, the controlling event is the potential flooding of the site due to a combination probable maximum precipitation and an Operating Basis Earthquake. Design integrity of safety-related structures in the event of this occurrence has been assured. Flood protection is discussed further in Section 3.4.1.

Demography

S&W consulted with the U.S. Bureau of the Census, the University of New Orleans, and Gulf South Research Institute for demographic studies relative to population within 50 mi of the plant as discussed in Section 2.1.3.

Environmental Effects

A preconstruction monitoring program was developed to enable the collection of data necessary to determine possible impact on the environment due to construction activities and to establish a baseline from which to evaluate future environmental monitoring.

A portion of this program was established to provide for a periodic review of all construction activities and to ensure that those activities conform to the environmental conditions set forth in the construction permit. Preoperational monitoring will begin at least 2 yrs. prior to commercial operation of Unit 1.

13.1.1.1.1.2 Design of Plant and Ancillary Systems

An evaluation of progress as of October 31, 1983, indicated overall completion of Unit 1 at 80.0 percent with 79.2 percent of the construction completed. Activities are planned in accordance with a fuel load in April 1985 for Unit 1. Commercial operation for Unit 2 is not scheduled at this time.

13.1.1.1.1.3 Review and Approval of Plant Design Features

Design control and review of safety-related systems, components and structures was performed in accordance with the Construction QA Program.

During the construction phase, the implementation of design control has been delegated to General Electric for the NSSS and to Stone & Webster Engineering Corp. for the BOP. While GSU does not design any safety-related components, the Project Engineer is responsible for review, analysis, and comment on proposed design changes or modifications. This design review is accomplished through written procedures in accordance with the QA Program. In addition, the Project Manager directs GSU interfaces with GE and SWEC Engineering, as well as arranging the necessary support for the construction process. Design control as applied to fire protection requires input from a qualified fire protection engineer.

13.1.1.1.1.4 Site Layout with Respect to Environmental Effects and Security Provisions

The shield, turbine, radwaste, and auxiliary buildings have portions of their structures below station grade, thus giving a low profile to the station. The grounds in the immediate vicinity of the plant buildings will be attractively landscaped. Undisturbed portions of the site will be allowed to remain in their natural state, with provisions having been made for management of wildlife.

Security provisions in accordance with applicable NRC regulations were incorporated into the overall site layout as described in Section 13.6.

13.1.1.1.1.5 Development of Safety Analysis Reports

Overall responsibility for preparation and updating of the FSAR rests with the GSU Nuclear Licensing section. Preparation of the individual sections was assigned to the cognizant technical groups within GSU, or to S&W for balance of plant systems and GE for NSS systems.

13.1.1.1.1.6 Review and Approval of Material and Component Specifications

Safety-related project specifications were reviewed in accordance with the construction phase quality assurance program.

13.1.1.1.1.7 Procurement of Materials, Equipment and Services

Procurement of safety-related materials, equipment and services is accomplished in accordance with construction phase QA programs.

Efficient procurement procedures and instructions are established to provide for plant needs in accordance with established GSU Quality Assurance and Corporate requirements. Measures have been taken through revision of the GSU Corporate Purchasing Policy to assure that procurement for nuclear requirements occurs under Quality Assurance policies and procedures.

The Manager-Engineering, Nuclear Fuels, and Licensing is responsible for nuclear fuel procurement. This responsibility has been delegated to the Supervisor-Nuclear Fuels and his staff which develops contracts regarding nuclear fuel procurement. During construction, the remainder of contract management is the responsibility of the Project Manager. The Project Manager's duties include directing the monitoring of contracts and the procurement efforts required for the construction of River Bend Station.

13.1.1.1.1.8 Management and Review of Construction Activities

Commencing with the start of site preparation in September 1975, the following review activities have been performed at the construction site by the GSU construction group.

1. The River Bend Project Manager delegates authority to a staff that has technical and administrative competence in Engineering; Contract Management; Accounting, Cost, and Scheduling; and Start-up. During the construction phase, he reports to the Vice President - River Bend Nuclear Group.

2. The River Bend Project Engineer delegates authority to a staff that has technical competence in nuclear, electrical, mechanical, and civil/structural matters. During the construction phase, he reports to the Project Manager. In addition, General Electric has been delegated the responsibility for the design and procurement of the NSSS and nuclear fuel; and Stone & Webster Engineering Corporation has been delegated the responsibility for the design and procurement of the BOP.

3. Cost and scheduling personnel monitor the contractor's cost and schedule performance to keep the GSU construction group informed of project status.

4. The GSU Director of Contract Management has monitoring responsibility for all onsite construction activities performed by S&W and other contractors to ensure compliance with contractual obligations.

5. The Director-Accounting, Cost & Scheduling and the Director-Management Systems have a staff of analysts and engineers that evaluate and control the construction costs and scheduling problems. These persons report to the River Bend Project Manager.

13.1.1.1.2 Preoperational Activities

13.1.1.1.2.1 Development of Human Engineering Design Objectives and Design Phase Review of Proposed Control Room Layouts

The human engineering design objectives were developed jointly with GSU headquarters personnel, S&W, and GE.

Features pertinent to making the main control room an environment conducive to shift operations include: the use of consistent color schemes providing visual relief and instrumentation coordination; floor layering yielding noise abatement; and lighting that minimizes strobing effects and operator disorientation (which can be caused with neon lamps).

The main control room control center area was arranged to be efficient in operation. Every effort was made to ensure compatibility of all indicating and alarm systems for ease of operator interface. Instrumentation was arranged to minimize personnel interference with control system dynamics and to provide ease of maintenance and calibration.

Several design features were implemented that improve the man-machine interface.

1. Control panels were placed for greater ease in control and panel-mounted indicators that provide the best readability were obtained.

2. Control display arrangement was designed to allow the operator to distinguish immediately the primary device from some auxiliary.

3. The use of color CRTs in a limited graphics mode increases operator comprehension and information access.

4. Uniformity of panel-mounted consoles provide for better recirculation control system operability.

5. Design includes features for ready location of faulty component control devices.

13.1.1.1.2.2 Development and Implementation of Staff Recruiting and Training Programs

The training programs to be utilized for this facility are described in Section 13.2. These programs are being implemented in accordance with the schedule indicated in that section. Recruiting of personnel to fill positions is currently taking place. The organization dedicated to Unit 1 operation is scheduled to be filled by April 1985. A position on Regulatory Guide 1.8, Personnel Selection and Training, is presented in Section 1.8.

13.1.1.1.2.3 Development of Plans for Initial Testing

The GSU River Bend Station (RBS) Startup and Test Superintendent and his staff have responsibility for all aspects of the River Bend Station startup and test program. The scope of testing to be accomplished during the test program was defined by this group. This included defining the boundaries of the systems to be tested so that a clear interface could be established where systems overlapped. Effort was expended towards defining the manpower and material requirements required by the startup and test program (Chapter 14).

A conceptual plan for RBS-1 was prepared and approved by GSU. This plan details the GSU startup organization and presents manpower estimates for the testing sequences.

Administrative controls for the test program have been detailed and agreed upon, and an overall schedule for RBS-1 startup program was finalized in December 1982.

The startup manual contains a general description of organizational responsibilities and of S&W and GE interfaces regarding the startup program. Procedures for writing,

reviewing, and implementing tests are given. Preoperational and initial test program policies are stated and the responsiblities of the Facility Review Committee (FRC) and Joint Test Group (JTG) are delineated regarding the performance of reviews. Startup procedure preparation has begun and will continue throughout the startup program. Preoperational and startup and test programs will incorporate operational staff as discussed in Section 13.2.1.2. The experience gained provides an improved working knowledge of the systems, components, and equipment at RBS.

13.1.1.1.2.4 Development of Plant Maintenance Programs

The maintenance programs are organized to ensure efficient maintenance while maintaining radiation exposure as low as is reasonably achievable. The organization of the resident maintenance forces is described in Section 13.1.2. The mechanics, electricians, and technicians report through their respective supervisors to the General Maintenance Supervisor. RBS will employ qualified and experienced maintenance personnel prior to the initial fuel loading.

The RBS maintenance program ensures the safety of the public and plant personnel, provides reliable equipment, and satisfies the requirements of the regulatory agencies having jurisdiction. Those structures, systems, and components that prevent or mitigate the consequences of postulated accidents are maintained in accordance with the quality assurance program promulgated by GSU.

The maintenance staff is sized to perform the routine and preventive maintenance work load. The station staff is supplemented as necessary by GSU maintenance crews and outside contractors. Maintenance and repairs of safety-related equipment are performed under the direction of cognizant supervisors and in accordance with accepted procedures and work practices.

The scope and frequency of the preventive maintenance is based on past experience with similar equipment, engineering judgment, and the manufacturer's recommendations. Suitable records are kept to establish, at the minimum, the maintenance history of major safety-related equipment. Maintenance and repairs of safety-related equipment are performed in accordance with written maintenance instructions, operating instructions, station and division orders, vendor technical manuals, and applicable codes and regulations. Except for emergencies, all maintenance work is preplanned.

The responsibility for development of Plant Maintenance Programs lies with Plant Staff. Recommendation for creating, modifying, or removing any programs or procedure which affect Plant Maintenance must be reviewed by the General Maintenance Supervisor, Assistant Plant Manager-Operations, and the Facility Review Committee for forwarding to the Plant Manager for final approval. Should changes affect either design or operation, the Technical Staff and/or Nuclear Plant Engineering are notified for proper review and approval. During startup, any tests or experiments requiring changes to existing or proposed maintenance programs or procedures are reviewed by the Superintendent-Startup and Test and the General Maintenance Supervisor for resolution of potential problems.

13.1.1.1.3 Technical Support for Operations

Technical support for plant operations has been established and is in effect for RBS. Refer to Fig. 13.1-1 for the corporate organizational structure; Fig. 13.1-2 for the plant operations organizational structure. The Engineering, Nuclear Fuels, and Licensing Department provides technical support to RBS for the life of the plant (See Fig. 13.1-4).

Safety-related design work for RBS is the responsibility of the Manager-Engineering, Nuclear Fuels and Licensing. Performance of safety-related design work is delegated to the Director-Nuclear Plant Engineering and his staff (both onsite and offsite) with additional input available from Plant Staff or outside consultants. This safety-related design work (i.e. configuration management including drawing control, see Section 13.1.2 and 17.2.5) is accomplished in accordance with procedures which have been reviewed by the Director-QA or his designee. Departmental procedures reflect applicable regulatory requirements and stipulate proper preparation, review, approval and verification.

The Nuclear Licensing section coordinates and effects official communications with the NRC staff, develops documentation concerning the station facility licenses and permits, and provides recommendations on regulatory issues.

The Emergency Planning section directs the preparation of the necessary emergency plans for RBS to assure that the federal, state, and local regulatory requirements for licensing and operating the nuclear generating facility are met in a timely fashion.

The Nuclear Fuels section coordinates, monitors and directs (1) GSU contracts and activities for procurement,

conversion, enrichment, and fabrication of uranium fuels, (2) spent fuel, high level, and low level waste disposal programs, (3) material safeguards programs and (4) incore fuels management programs.

The Power Plant Engineering and Design group (supporting GSU's fossil plants) is an inhouse organization available to the River Bend Nuclear Group. Whenever additional expertise or resources are required, GSU's Power Plant Engineering and Design group or outside consultants are contacted.

Since GSU has only one nuclear project, the River Bend Nuclear Group (RBNG) was formed to concentrate the company's expertise on RBS. Therefore, there are no plans for offsite technical support in the areas of chemistry/radiochemistry, health physics, and fueling and refueling operations support. These areas are capably handled by the onsite organization as delineated in Section 13.1.2. However, the Department of Nuclear Plant Engineering does have technical staff available for input in these areas as required. This support is available on an individual-problem area basis as specified by the Director-Nuclear Plant Engineering.

13.1.1.2 Organizational Arrangement

13.1.1.2.1 General

Fig. 13.1-1 depicts an organization chart for the Corporate Structure; Fig. 13.1-2 depicts an organization chart for Plant Operations; Fig. 13.1-3 depicts an organization chart for Project Management present only during construction; Fig. 13.1-4 depicts an organization chart for additional technical support; and Fig. 13.1-5 depicts an organization chart for unit shift staffing of Unit 1 during operations.

GSU is committed to providing the necessary fire protection for RBS during construction, start-up and operation. Administrative controls and procedures exist which insure safe, reliable activities at RBS. Additional details regarding fire protection at River Bend Station can be found in FSAR Section 9.5.1 and Appendices 9A and 9B.

13.1.1.2.1.1 Senior Vice President - River Bend Nuclear Group

The ultimate responsibility for design, procurement, construction, testing, quality assurance, and operation of RBS rests with the Senior Vice President-River Bend Nuclear Group who reports to the Chairman of the Board. The Senior Vice President-River Bend Nuclear Group delegates authority to the Vice President-River Bend Nuclear Group and the Director-Quality Assurance.

13.1.1.2.1.2 Vice President - River Bend Nuclear Group

The Vice President-RBNG assists the Senior Vice President-RBNG with the executive direction and coordination of the RBNG. The Vice President-RBNG delegates authority to the Vice President-Nuclear Operations, the Project Manager, and the Manager-Engineering, Nuclear Fuels and Licensing who, with their respective staffs, provide technical support for plant design and construction.

13.1.1.2.1.3 Vice President - Nuclear Operations

The Vice PresidentNuclear Operations reports to the Vice President-RBNG. He is responsible for developing and maintaining an efficient operations staff and supporting programs. Assistance is provided as indicated on Figure 13.1-2. His principal accountabilities are:

1. Ensure that the River Bend Station has adequate staffing to successfully perform operations, maintenance and protection functions.

2. Direct the management of documentation and records management functions in compliance with regulatory requirements.

3. Direct the development of procedures and procedure manuals for all operating functions and activities and ensure the verification of procedures.

4. Ensure the procurement and development of qualified staff to meet the project's needs during development and eventual operation.

5. Ensure that regulatory requirements imposed by NRC and other agencies are implemented.

6. Direct the operations staff of the River Bend Station facility.

7. Direct contract management and procurement of materials, equipment and services excluding nuclear fuel.

8. Direct Nuclear Training which plans, administers, and documents all nuclear related training required for the startup and operation of River Bend Station.

13.1.1.2.1.4 Manager-Engineering, Nuclear Fuels & Licensing

The Manager-Engineering, Nuclear Fuels and Licensing is responsible for the administration of the Nuclear Licensing, Emergency Planning, Nuclear Fuels, and Nuclear Plant Engineering Sections. His supervision ensures that the necessary licenses are obtained in compliance with pertinent regulations; emergency plans are adequate, effective, and up-to-date to ensure the safety of the public and plant personnel; nuclear fuel procurements are made to support schedules, and in-core fuel management programs are adequate; and engineering support for design, construction, and operations is available and commensurate with the changing needs of RBS. His principal duties include:

1. Direct preparation and submission of all supportive data for RBS nuclear licenses and permits and specifically assure the collation and submission of data to support the application for the operating license.

2. Reviews and analysis of proposed design changes (specifications and drawings) of the plant to ensure that the design meets GSU corporate requirements and the requirements of regulatory criteria (10 CFR 50.59, etc...) and industry concerns. This includes investigation and suggestion of alternative designs if there is concern with the existing or proposed design.

3. Interface with other RBNG and parent GSU departments to assure availability of technical information, to project internal cost estimates and schedules, and to assure compliance with regulatory agency requirements and GSU policies.

4. Maintain appropriate GSU corporate interface with the NRC and appropriate state and local officials.

5. Develop a satisfactory emergency response plan for RBS that meets regulatory requirements to support the operating license application, and ensure such a plan remains up-to-date and cognizant of regulatory requirements.

6. Develop and assist local (parish) emergency response programs and assist and interface with analogous state (Louisiana and Mississippi) groups to meet regulatory requirements.

7. Coordinate, manage, and monitor contracts and activities for the procurement, conversion, enrichment, and fabrication of uranium fuels for RBS to meet the schedule of first core fuel loading by April 1985, and reload schedules as required.

8. Develop nuclear fuel safeguards and incore fuel management programs.

9. Develop programs for disposal of spent fuels and high level wastes that will meet agency requirements and satisfy GSU requirements.

10. Direct the analysis of potential safety problems which may need to be reported to the NRC as significant deficiencies (as defined by 10CFR50.55(e)) or substantial safety hazards (reportable under 10CFR21).

11. Review analyses pertinent to safety as conducted in response to issues that raise regulatory and industry concern.

12. Coordinate and oversee technical support from the corporate engineers.

13. Oversee the yearly FSAR updates and other license documents.

13.1.1.2.1.5 Project Manager

During the construction phase, the Project Manager assists the Vice-President-RBNG through the direction and coordination of four areas: 1) Accounting, Cost & Scheduling, which involves managing monies and schedules to ensure River Bend Station is completed on schedule and budget; 2) Contract Management, which entails monitoring contracts and procurement for the station; 3) Project Engineering, which is responsible for directing the A/E and GSU engineering and construction activities, and; 4) Startup & Test, which includes preparation of procedures and startup and testing activities. His principal activities include:

1) Coordinating, accounting, budgeting and scheduling activities to ensure adequacy of cost records and to accomplish completion of the River Bend Station on schedule and within budgetary constraints.

2) Directing monitoring of contracts and the procurement effort required for the construction of the River Bend Station.

3) Directing the A/E and GSU engineering effort to ensure implementation of the plant design and arranging the necessary support of the design and construction process.

4) Ensuring the development of plans and procedure to accomplish the objectives of the startup and test phase of the project and directing the startup and test program.

13.1.1.3 Qualifications of Headquarters Staff

13.1.1.3.1 General

Members of the headquarters staff (personnel in the Engineering, Nuclear Fuels, & Licensing Departments) available for the technical support of RBS possess the education, experience, and skill that provides reasonable assurance that decisions and actions during the design, procurement, construction, testing, quality assurance, and operation of RBS does not constitute a hazard to the health and safety of the public.

The Nuclear Review Board (NRB), responsible for independent reviews, primarily has members who are not directly responsible for plant operations. Membership in the NRB shall require a bachelor's degree in engineering or the physical sciences (or equivalent experience) as appropriate, and 3 yr of professional level experience in the field of his specialty. More details on the NRB can be found in Sections 13.4 and Section 6 of the Technical Specifications.

The educational background and experience of the headquarters staff meet or exceed the criteria presented in ANSI/ANS-3.1-1978. The qualifications for nuclear plant personnel are described in Section 13.1.3.

13.1.1.3.2 Resumes

The resumes of key headquarters personnel providing technical assistance for the construction and operation of RBS are presented in Appendix 13A.

13.1.2 Operations Organization

The operation of RBS is under the responsibility and authority of the Plant Manager.

RBS instructions, procedures, and drawings used by the operation staff are reviewed by the QA Department per the GSU OQA Manual. Further discussion of drawing control is addressed in FSAR Section 17.2.5.

13.1.2.1 Plant Organization

The plant organization for RBS-1 is shown in Fig. 13.1-2. The number of personnel necessary to support plant operations and those plant positions requiring NRC licenses are indicated in Figure 13.1-5. The functional positions in Fig. 13.1-2 and Figure 13.1-5 will be filled by the time of initial fuel loading. When additional personnel are required to augment the normal crews during outages, GSU plans to have plant personnel work overtime and use consultants and contractor personnel to handle the additional work load. Where the number of personnel in a duplicate position is increased for the second unit, these positions will be filled prior to the initial fuel loading of Unit 2.

13.1.2.1.1 Operations Section

The operations section is responsible for fuel loading, startup, operation, and shutdown of all station equipment. It also provides the nucleus of the emergency and fire-fighting teams. The operations section is under the responsibility and authority of the Operations Supervisor who reports to the Assistant Plant Manager-Operations.

The minimum shift crew is shown in Fig. 13.1-5. In addition, at least one radiation protection technician, one chemistry technician, and one test technician - nuclear are on duty at all times.

Plant management and technical support is present or on call at all times. This shift composition provides adequate manpower to cover operating contingencies which can reasonably be expected to occur, and if necessary, implement the Emergency Plan. Additional operating personnel will be added for Unit 2 operation.

13.1.2.1.2 Maintenance Section

The maintenance section is responsible for all mechanical, electrical, and I&C maintenance activities in the plant. The maintenance section is under the responsibility and authority of the General Maintenance Supervisor, who reports to the Assistant Plant Manager Operations. The maintenance section also provides trained personnel and supervision to perform the tasks related to supplies and spare parts for the plant.

13.1.2.1.3 Radiation Protection/Chemistry Section

The radiation protection/chemistry section is responsible for establishing and implementing the RBS radiation protection program, and is responsible for the sampling and analysis of plant fluid systems. This includes ensuring that radiation exposure is kept as low as reasonably achievable (ALARA) and within the guidelines of 10CFR20. This section also ensures that all plant staff, contractors, and visitors to RBS have received proper radiation training and are monitored for radiation in accordance with the Radiation Protection Manual and NRC regulations. This section certifies that all radioactive material meets DOT, NRC, and receiver requirements prior to being removed from RBS.

The radiation protection/chemistry section is under the responsibility and authority of the Radiation Protection/Chemistry Supervisor, who reports to the Assistant Plant Manager-Operations.

13.1.2.1.4 Technical Staff Section

The technical staff section is responsible for plant and reactor engineering activities at the plant. This section is also responsible for technical support, plant systems engineering, instrumentation and control engineering, surveillance and outage planning, performance, reliability, and compliance verification and fire protection. This section is under the direction of the Technical Supervisor, who, reports to the Assistant Plant Manager-Services.

13.1.2.1.5 Administrative Section

The administrative section maintains the plant records and document control system and provides various administrative and clerical services to the plant staff. This section is under the direction of the Administrative Supervisor, who reports to the Assistant Plant Manager Services.

13.1.2.1.6 Security Section

A contracted security force of properly trained and qualified personnel implement and maintain the RBS Physical Security Plan. This force is under the direction of the Plant Security Supervisor, who reports to the Assistant Plant Manager-Services.

13.1.2.2 Plant Personnel Responsibilities and Authorities

The functions, responsibilities, and authorities of key supervisory and technical positions in the RBS organization are briefly described in the following sections. Detailed job descriptions for these positions have been prepared in accordance with ANSI/ANS-3.1-1978, Selection and Training of Nuclear Power Plant Personnel.

13.1.2.2.1 Plant Manager

The Plant Manager has overall responsibility for the safe, reliable, and efficient operation of the plant and training of the staff. He is responsible for maintaining compliance with the requirements of the operating license and technical specifications. It is his responsibility to maintain a staff of properly trained and licensed personnel to accomplish all the various plant functions. He reports directly to the Vice President-Nuclear Operations.

The Plant Manager is responsible for the security of River Bend Station and has the authority to direct any action to ensure that security is adequate and properly maintained. FSAR Sections 13.3.3.3 and 13.3.3.4 further describe station security management responsibilities and chain-of-command, with Fig. 3.3-1 of the Physical Security Plan illustrating RBNG management structures and Fig. 3.3-2 showing site security structure.

The Plant Manager issues plant administrative procedures which clearly define the responsibilities and authorities of key plant personnel.

During the absence of the Plant Manager, his responsibilities are assumed by the Assistant Plant Manager-Operations.

13.1.2.2.2 Assistant Plant Managers

The Assistant Plant Managers report to the Plant Manager. They exercise managerial responsibility for the safe and efficient operation and maintenance of RBS. They have been

trained to a level commensurate with a Senior Reactor Operator or have been previously certified or licensed as an SRO on a BWR Power Plant.

The following section heads report to the Assistant Plant Manager- Operations:

1. Operations Supervisor

2. General Maintenance Supervisor

3 Radiation Protection/Chemistry Supervisor

In the absence of the Assistant Plant Manager-Operations, his responsibilities are assumed by the Operations Supervisor, or another designated individual.

The following section heads report to the Assistant Plant Manager-Services:

1. Technical Supervisor

2. Plant Security Supervisor

3. Administrative Supervisor

In the absence of the Assistant Plant Manager-Services, his responsibilities are assumed by the Technical Supervisor, or another designated individual.

13.1.2.2.3 Operations Supervisor

The Operations Supervisor, an SRO, is responsible for the actual day-to-day operation of the plant, including the radwaste system. He reports to the Assistant Plant Manager-Operations. He supervises a group of approximately 48 operators and 14 supervisors including the Radwaste Foreman. The Operations Supervisor is responsible for issuing special orders to shift operations personnel.

In the absence of the Operations Supervisor, his responsibilities are assumed by the Assistant Operations Supervisor.

13.1.2.2.4 Assistant Operations Supervisor

The Assistant Operations Supervisor, an SRO, functions as the Operations Supervisor's Senior Shift Supervisor and is qualified to assume the Operations Supervisor's responsibilities and duties if necessary.

13.1.2.2.5 Shift Supervisor

The Shift Supervisor, an SRO, is responsible to the Operations Supervisor for all activities relating to station operation and safety during his assigned shift. This responsibilility includes compliance with applicable license and regulatory requirements, and the safety of plant personnel and equipment. In the event of an accident or emergency, the Shift Supervisor is responsible for determining the severity of the situation and directing the actions of the shift personnel until he is relieved. The Shift Supervisor has the responsibility to shut down the plant if, in his judgment, conditions warrant this action. There is one Shift Supervisor assigned to each shift, representing the senior management individual on shift, and is on-site, in the main control room, when fuel is being moved or loaded.

13.1.2.2.6 Control Operating Foreman

The Control Operating Foreman, an SRO, monitors and manipulates the reactor controls, directs all core alterations, and directs the activities of the Nuclear Control Operators and Nuclear Equipment Operators. He reports to the Shift Supervisor and has the authority and responsibility to shut down the plant if, in his judgement, conditions warrant this action. There is at least one Control Operating Foreman assigned to each shift. The Control Operating Foreman will be the Fire Brigade Leader on his assigned shift. FSAR Section 9B.4.8 describes fire brigade size and membership. Administrative provisions exist so that, in the event that the Control Operating Foreman is temporarily acting as the Shift Supervisor at the time a fire breaks out, the Shift Supervisor or Assistant Operations Supervisor is notified immediately thus allowing the Control Operating Foreman to assume his duties as Fire Brigade Leader.

13.1.2.2.7 Nuclear Control Operator

The Nuclear Control Operators, an RO, under the direction of the Control Operating Foreman or the shift supervisor, monitor and manipulate the reactor controls as well as other controls and plant auxiliary equipment. There are normally three Nuclear Control Operators assigned to each shift and at least one in the Main Control Room at all times.

13.1.2.2.8 Nuclear Equipment Operator

The Nuclear Equipment Operators, under the direction of the Control Operating Foreman or Shift Supervisor, operate the plant auxiliary equipment and the radwaste system. There are normally four Nuclear Equipment Operators assigned to each shift. They are non-licensed personnel.

13.1.2.2.9 General Maintenance Supervisor

The General Maintenance Supervisor is responsible for overall direction of electrical maintenance, mechanical maintenance, instrumentation and control maintenance, and spare parts supply at RBS. He reports to the Assistant Plant Manager-Operations, and is responsible for compliance with technical specifications relating to maintenance. The General Maintenance Supervisor provides maintenance expertise and directs the work of the Mechanical Maintenance Supervisor, Electrical Maintenance Supervisor, Instrumentation and Controls Supervisor, Maintenance and Planning Coordinator, and the Building and Grounds Foreman.

13.1.2.2.10 Instrumentation and Controls Supervisor

The Instrumentation and Controls Supervisor reports to the General Maintenance Supervisor and is directly responsible for all work performed by instruments and controls (I&C) foreman and technicians maintain and/or repair any instruments or controls. His duties include coordination, development, and administration of the I&C section and personnel; development, scheduling, implementation, and review of appropriate procedures with proper record control; conformance to RBS OQA/QC Program; and adherence to RBS Operating Manual and applicable I&C Technical Specifications.

13.1.2.2.11 Radiation Protection/Chemistry Supervisor

The Radiation Protection/Chemistry Supervisor is responsible for the management of the RBS radiation protection program, the direction of all radiation protection department personnel, and directing the sampling and analysis of plant fluid systems as well as evaluating and reporting the results. He supervises the radiation, environmental, and personnel monitoring programs, the ALARA program, the respiratory protection program, and the whole body counting program. He ensures that adequate radiation protection training has been given to all plant staff and emergency team members and that they have completed training and medical qualifications prior to working in radiation areas.

The Radiation Protection/Chemistry Supervisor reports to the Assistant Plant Manager-Operations, but has direct access to the Plant Manager, on all radiation protection matters.

13.1.2.2.12 Technical Supervisor

The Technical Supervisor reports to the Assistant Plant Manager-Services and is responsible for directing all plant systems engineering, performance evaluation, technical support, and instrumentation and controls engineering at the plant. He directs the work of the Performance Supervisor, Process Systems Supervisor, Supervisor Computer Systems, Control Systems Supervisor, and Reactor Engineering Supervisor.

The Technical Supervisor also has the responsibility for development of the fire-protection program, including assisting in the development of the fire protection-related training program, and maintaining, inspecting, and testing of all fire protection equipment (see Section 9A.3.2.1 for additional discussion.)

13.1.2.2.13 Operational Quality Assurance Supervisor

The OQAS has direct responsibility for assuring implementation of the GSU QA program at RBS. He reports directly to the Director-QA, and maintains a working interface and communication with the Plant Manager as described in Section 17.2.

13.1.2.2.14 Administrative Supervisor

The Administrative Supervisor reports to the Assistant Plant Manager-Services and directs the activities of the plant clerical staff. He directs the work of the Clerical Section Head, the Materials Supervisor, and the Budget Analyst.

13.1.2.2.15 Security Supervisor

The Security Supervisor reports to the Assistant Plant Manager-Services and is responsible for the conduct and content of the security programs. A contracted security force of properly trained and qualified personnel implement and maintain the RBS Physical Security Plan.

13.1.2.2.16 Contingency Responsibilities

During normal plant operations, the Plant Manager is responsible for overall plant operation. In the event of unexpected contingencies of a temporary nature, the

following persons are responsible in the order listed for plant activities.

1. Plant Manager
2. Assistant Plant Manager-Operations
3. Operations Supervisor
4. Assistant Operations Supervisor
5. Shift Supervisor

13.1.2.3 Operating Shift Crews

During normal operations, the licensed shift complement consists of one Shift Supervisor, holding a senior reactor operator license; one Control Operating Foreman, holding a senior reactor operator license; and three Nuclear Control Operators, holding reactor operator licenses. In addition, each shift includes four nuclear equipment operators who are nonlicensed operators. There is also a qualified Radiation Protection Technician assigned to each shift to implement the radiation protection program, a Chemistry Technician to perform necessary sampling and analysis, and a Test Technician-Nuclear to troubleshoot electrical problems.

During refueling operations, any additional shift personnel requirements are filled by qualified personnel working overtime and utilizing relief shift personnel; however, any overtime which may be required will follow the guidelines of Generic Letter 82-12 as reprinted below:

A. An individual should not be permitted to work more than 16 hours straight, excluding shift turnover time.

B. An individual should not be permitted to work more than 16 hours in any 24-hour period, nor more than 24 hours in any 48-hour period, nor more than 72 hours in any seven day period, all excluding shift turnover time.

C. A break of at least eight hours should be allowed between work periods, including shift turnover time.

D. Except during extended shutdown periods, the use of overtime should be considered on an individual basis and not for the entire staff on a shift.

Any deviation from the above guidelines must be authorized by the Plant Manager, his assistants, or higher levels of management. Controls are included in the procedures such that individual overtime is reviewed monthly by the Plant Manager, or his designee, to assure that excessive hours have not been assigned.

13.1.3 Qualifications of Nuclear Plant Personnel

13.1.3.1 Qualification Requirements

RBS personnel meet the requirements of ANSI/ANS 3.1-1978, Selection and Training of Nuclear Power Plant Personnel.

13.1.3.2 Qualifications of Plant Personnel

Resumes are provided in Appendix 13A.

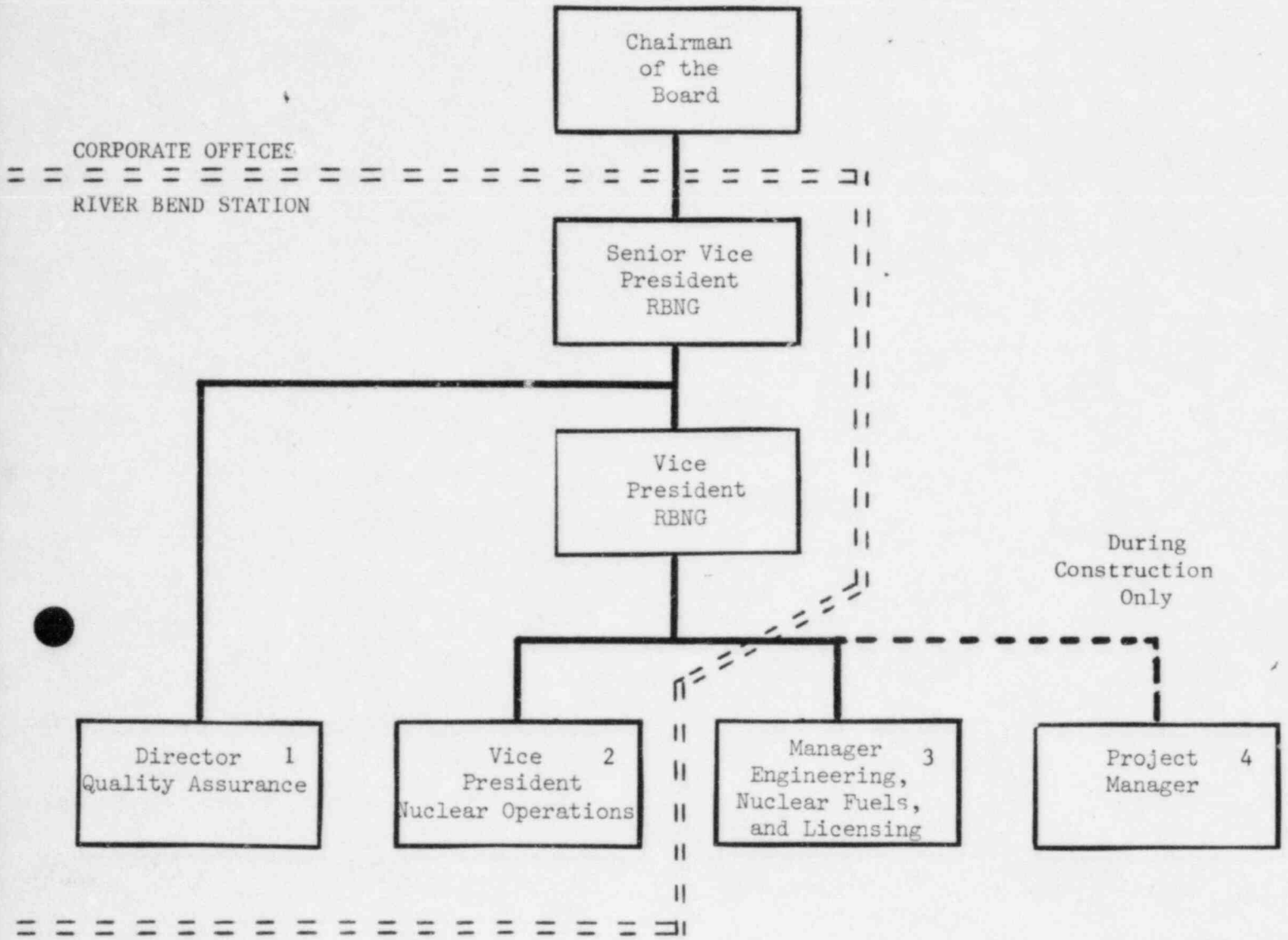

Figure 13.1-1
Corporate Structure
River Bend Station-Unit 1

1 See Figure 17.2-1

2 See Figure 13.1-2

3 See Figure 13.1-3

4 See Figure 13.1-4

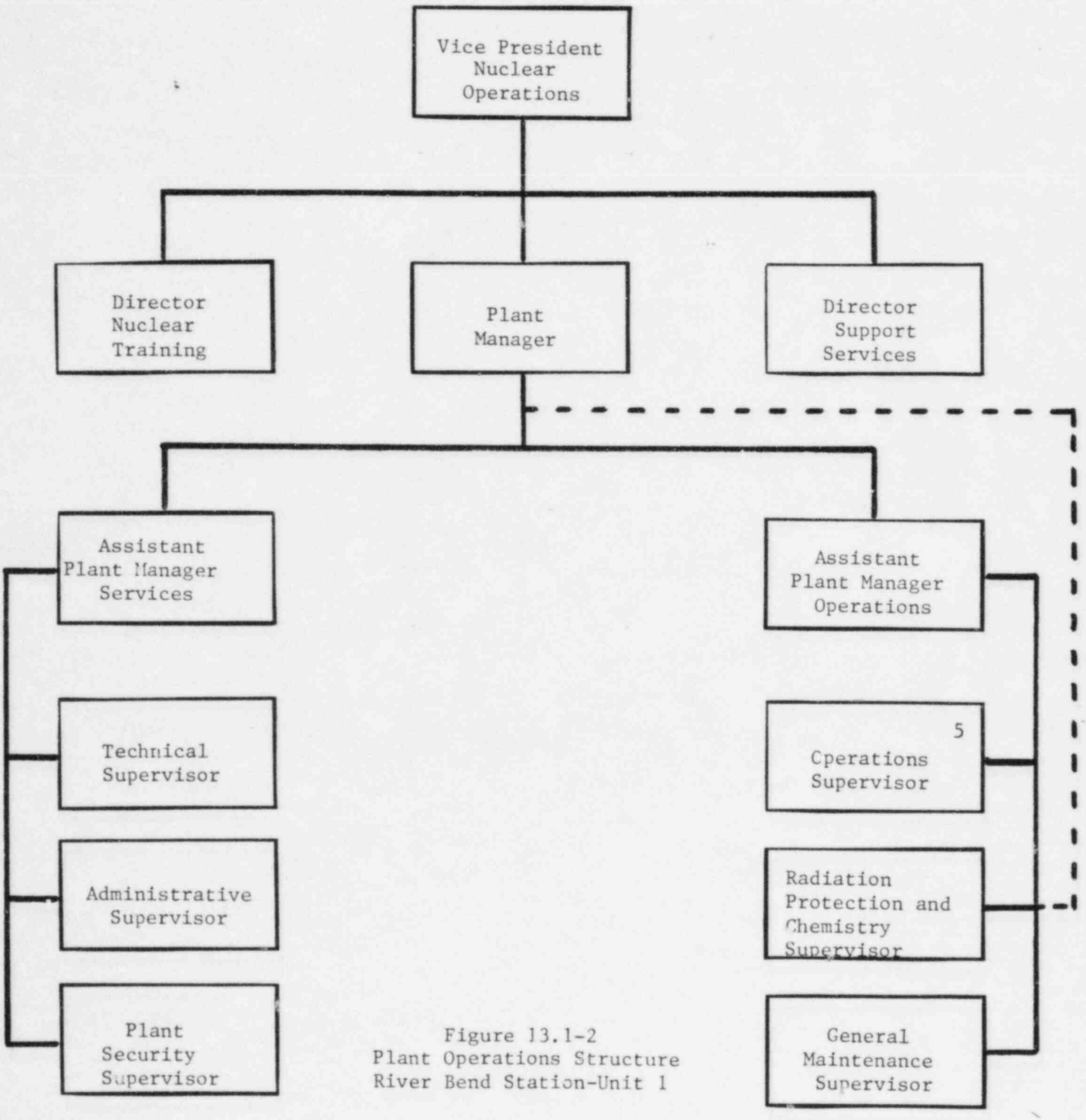

Figure 13.1-2
Plant Operations Structure
River Bend Station-Unit 1

--- Direct Access for Radiation Protection Matters

5 See Figure 13.1-5

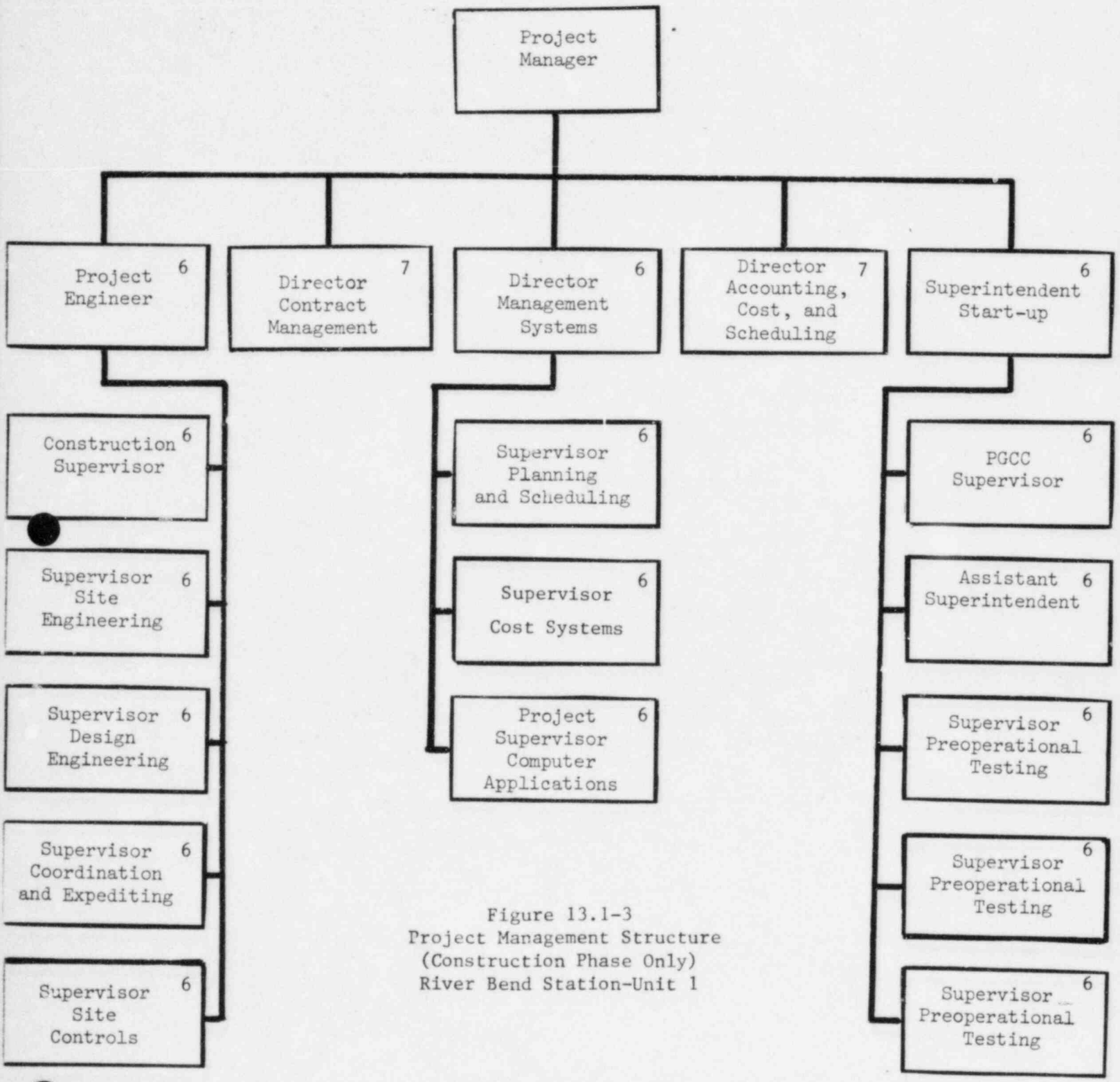

Figure 13.1-3
Project Management Structure
(Construction Phase Only)
River Bend Station-Unit 1

6 Located at River Bend Station

7 Staff located at River Bend Station and Corporate Offices

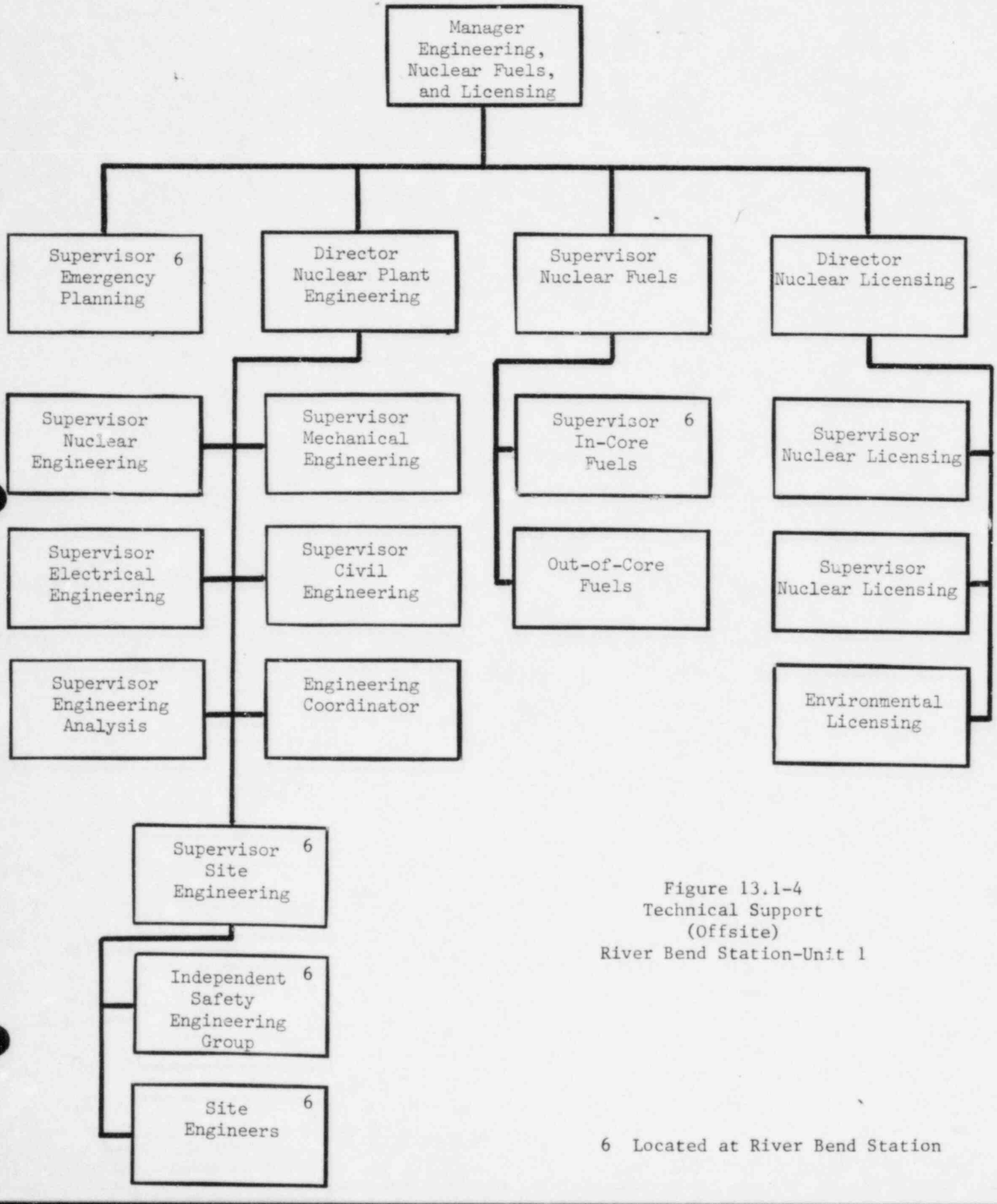

Figure 13.1-4
Technical Support
(Offsite)
River Bend Station-Unit 1

6 Located at River Bend Station

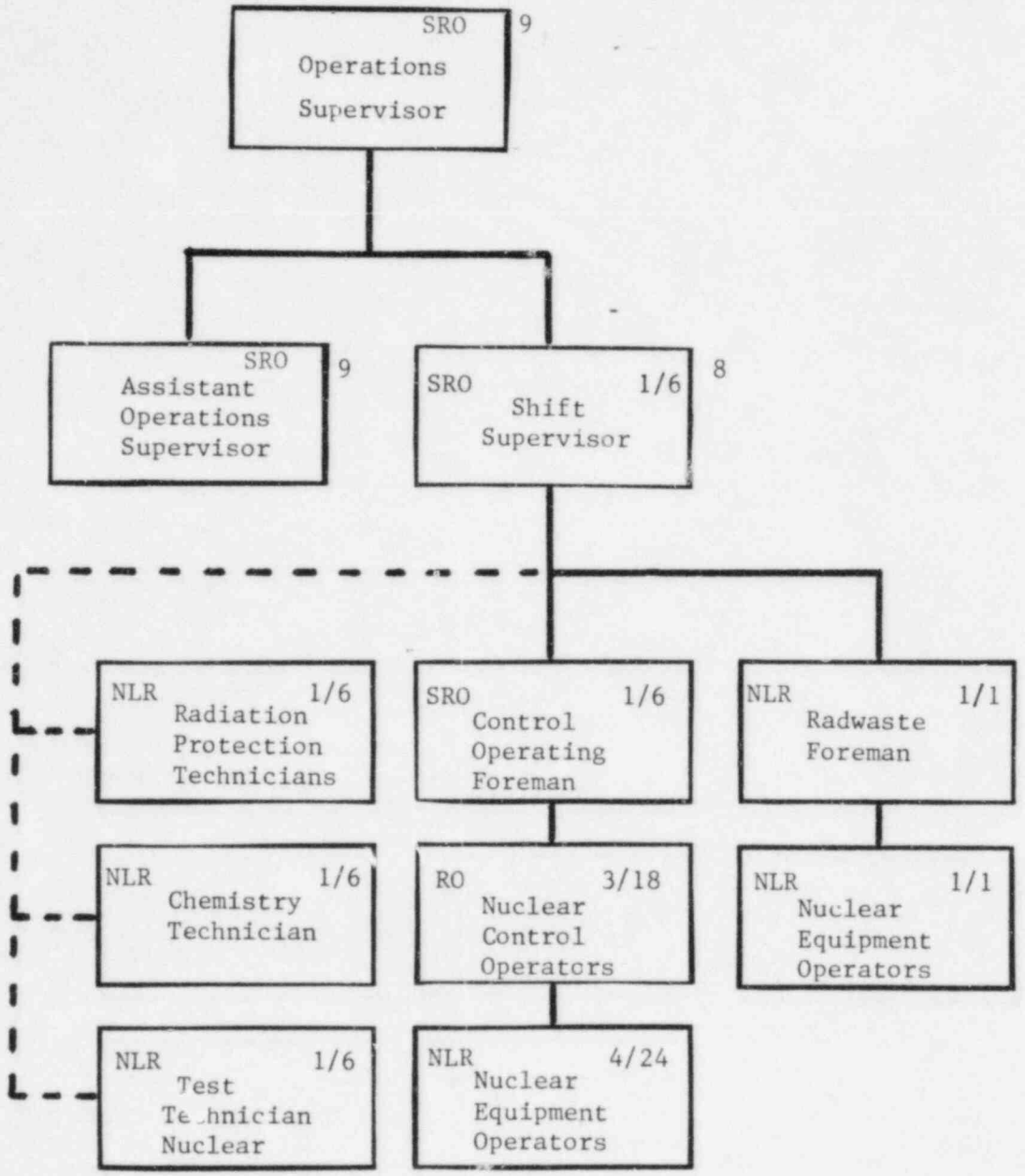

Figure 13.1-5
River Bend Shift Organization
River Bend Station-Unit 1

NLR No License Required
SRO Senior Reactor Operator
RO Reactor Operator
x/y Number per Shift/Total Staff
8 Trained to a Level Equivalent to a Shift Technical Advisor (STA)
9 Not on Shift; Shown for Clarity Only

FSAR 13 13.2
13.2 TRAINING

13.2.1 RIVER BEND STATION STAFF TRAINING PROGRAM

The objectives of this program are to:

1. Establish and maintain an organization fully qualified to be responsible for the operation, maintenance, and technical aspects of the River Bend Station

2. Train sufficient personnel to operate and maintain the plant in a safe and reliable manner throughout its life

3. Prepare operational, technical, professional, and other personnel requiring licenses for Nuclear Regulatory Commission (NRC) Examinations, both cold and hot

4. Provide the necessary training, on a continuing basis to insure adequate numbers of qualified individuals exist to offset the impact of promotions and attrition

5. Provide requalification training to maintain a high level of proficiency throughout the plant staff

The initial plant staff training schedule including that for cold license operator candidates, is presented on Fig. 13.2-1. This schedule is established to meet an April 1985 fuel load date. It is the intent of Gulf States Utilities Company (GSU) to provide training to each individual(s) as outlined on this schedule unless;

1. The individual(s) are already qualified on the basis of experience, academic or related technical training

2. The individual(s) have received sufficient documented on-the-job training to negate the need for specific formal classroom instruction

3. The individual receives or has received training in a particular area/topic to a greater depth than that outlined in the above schedule. Any deviation between the training an individual actually receives and that identified in Fig. 13.2-1 will be documented in accordance with approved programs and this documentation retained in the training records system. Having not received all the identified training does not in itself disqualify an individual from performing duties associated with his or her job, so long as, he or she is allowed to perform only those function(s) for which documented qualifications exist.

Subsequent training for plant staff will be the same as depicted on Fig. 13.2-1 with exceptions, and/or deviations as noted. The frequency of presentation of this training will be sufficient to develop the proficiency required, for safe, competent performance and supervision.

The overall training program for the plant staff is the responsibility of the Vice President-Nuclear Operations. The details of the training program(s) and the administration thereof is the responsibility of the Training Director or his designee.

The Training Director delegates the responsibility for implementation of specific programs to individual discipline coordinators. The coordinators are responsible for the quality and adequacy of the program content, material development, presentation, examinations, performance evaluation, and documentation of each respective program.

As of October 1983, there are 41 operations personnel on shift or in training with 24 additional openings scheduled to be filled prior to fuel load. This staffing allows for a full six-shift complement with a 10% attrition rate. Those individuals applying for a license or license renewal will have certification complete pursuant to 10 CFR Sections 55.10 (a)(6) and 55.33 (a)(4) and (a)(5) signed by the Vice President-Nuclear Operations and provided to the NRC on NRC form 398. Section 12 of Form 398 will be a breakdown of the training received by each license candidate including classroom training, specific River Bend simulator training, and training gained at any other operating facility.

13.2.1.1 PROGRAM DESCRIPTION

The overall training program for River Bend Station (RBS) is designed to provide the initial plant staff training. The individual training programs comply with Regulatory Guide 1.8 through implementation of ANSI/ANS 3.1-1978. They are designed to utilize past training and/or experience coupled with the necessary site specific training to insure each position within the plant staff is manned by a competent well qualified individual.

Pursuant to ANSI-3.1-1978, differences in the training programs based on the extent of an individual's previous nuclear power plant experience may be used to establish eligibility for cold license examinations as follows:

1. Individuals who have had nuclear experience at facilities not subject to licensing (e.g., U.S. Navy) are evaluated on a case-by-case basis to determine training required.

2. Individuals who hold, or have held, licenses for comparable facilities (light water reactor experience will be evaluated

on a case-by-case basis to determine if credit may be given) participate in the RBS Simulator Course.

3. Individuals certified to have completed an NRC approved training program utilizing a nuclear power plant simulator or having completed an NRC administered written examination and operating test at a comparable licensed reactor facility without issuance of a Reactor Operator (RO) or Senior Reactor Operatior (SRO) license will attend the RBS Simulator Course as a minimum. Additional training is specified on a case basis commensurate with the individual's needs.

4. Individuals with no previous nuclear experience attend the complete training program.

SRO candidates who will serve in the dual role SRO/Shift Technical Advisor (STA) will have as a minimum the education and training provided in NUREG-0737, "Clarification of TMI Action Plan Requirements: Item I.A.1.1. Present plans make use of Memphis State University's Advanced Technical Principles for Senior Operators Program which is described in FSAR Section 13.2.1.1.2.

GSU also complies with NUREG-0737 Item I.A.2.1 in that after one year of station operation, RBS will require one year of experience for hot license SRO applicants. In addition, three months of on-shift experience as an extra person will be accomplished during the control room training program as the candidate assumes a trainee status with no concurrent duties.

In the following subsections each course is described to include (1) a general course description, (2) the approximate course length, (3) the organization responsible for teaching the course or supervising the instruction, and (4) a listing by title of personnel required to attend.

13.2.1.1.1 FUNDAMENTAL/TECHNICAL TRAINING-PHASE I AND II (A1, A2) 12 WEEKS

These courses are structrued to teach basic power plant technology with added emphasis on nuclear power plants. Included is a review of mathematics and science. Phase I of this segment is designed for the entry level trainee, while Phase II is tailored toward the upper or journeyman level trainee. In addition the Phase II portion will insure compliance with Enclosure 2 of Mr. H. R. Denton's letter dated March 28, 1980.

The course is conducted by Memphis State University personnel and contains, but is not limited to, the following material:

TECHNICAL/FUNDAMENTAL TRAINING - PHASE I - 6 weeks

1. Power Plant Cycle

    a. Basic Steam/Water Cycle
    b. Physical Processes
    c. Direct Cycle BWR
    d. Major Reactor Auxiliaries

2. Piping Systems and Components

3. Flow of Fluids

    a. Natural Convection
    b. Forced Convection
    c. Types of Flow
    d. Units of Flowrates

4. Plant Components

    a. Turbine
    b. Pumps
    c. Valves
    d. Heat Exchangers
    e. Compressors

5. Introduction of Plant Electrical System

a. Sources of Electrical Power
b. Components
c. Distribution

6. Diesel Engines

a. Basic Principles of Operation
b. Mechanical Cycles
c. Construction
d. Moving Parts
e. Support Systems

7. Basic Water Chemistry

a. Purpose
b. Impurities
c. Effects of Impurities
d. Analysis
e. Control

8. Principles of Lubrication

a. Purpose and Necessity
b. Friction and Wear
c. Oils
d. Greases

9. Basic Print Reading

a. Piping
b. Electrical
c. Logic

10. Basic Reactor Fundamentals

a. Fission Process
b. Neutron Sources and Interaction
c. Moderator
d. Fuel
e. Reactor Control
f. Basic Core Design

11. Measurement of Process Variables

a. Temperature
b. Pressure
c. Level
d. Flow

FUNDAMENTAL/TECHNICAL TRAINING - PHASE II - 6 weeks

1. Classical Physics

    a. Units
    b. Mass
    c. Force
    d. Energy
    e. Work
    f. Power

2. Thermodynamics

    a. First Law
    b. Second Law
    c. Working Substances
    d. Properties
    e. Steam Water Cycle
    f. Heat Transfer
    g. Fluid Flow

3. Atomic and Nuclear Physics

    a. Atomic Structure
    b. Nuclear Structure
    c. Isotopes
    d. Mass and Energy Conversion
    e. Nuclear Interactions

4. Nuclear Heat Source

    a. Fission Process
    b. Radioactive Decay
    c. Residual Heat

5. Reactor Theory

    a. Source of Neutrons
    b. Classification of Neutrons
    c. Cross Sections
    d. Interactions

6. Radiation Protection

    a. Effects of Radiation
    b. Units
    c. 10CFR20
    d. Detectors
    e. Personnel Dosimetry

7. Chemistry

   a. Impurities
   b. Sources of Impurities
   c. Effects of Impurities
   d. Control/Removal of Impurities

8. Metallurgy

   a. Definition
   b. Physical Properties of Metals
   c. Alloys
   d. Heat Treating
   e. Brittle Fracture

9. Instrument and Controls

   a. Basic Control Loop Diagrams
   b. Logics
   c. Basic Control Circuits

10. Reactor Plant Protection Concepts

   a. Thermal Hydraulic Operating Limitations
   b. Safety Limits
   c. Limiting Conditions for Operation
   d. Administrative Controls and Procedural Concepts.

Personnel attending this course include:

1. Shift Supervisor
2. Control Operating Foreman
3. Nucler Control Operator
4. Nuclear Equipment Operator
5. Other[1]

13.2.1.1.2 ADVANCED TECHNICAL PRINCIPLES FOR SRO (A3) 32 Weeks

This course provides academic training in mathematics, reactor physics, chemistry, materials, thermodynamics, fluid mechanics, heat transfer, and electrical theory. The course is designed to provide the required academic training to qualify individuals for dual role SRO/STA status. The presentation of this course will be supervised by GSU. The course contains, but is not limited to, the following:

[1] Individuals pursuing NRC Licenses will receive these courses or their equivalent prior to taking the examination(s)

1. Differential Calculus

   a. Algebra
   b. Trigonometry
   c. Geometry
   d. Special Functions
   e. Differentiation
   f. Special Applications

2. Integral Calculus

   a. Integration
   b. Definite Integrals
   c. Multiple Integrals
   d. Applications
   e. Differential Equations
   f. Special Techniques

3. Advanced Reactor Physics

   a. Reactor Physics
   b. Reactor Control
   c. Nuclear Fuels
   d. Core Hydraulics
   e. Application
   f. Operating Experience

4. Materials Study Course

   a. Metallic Materials
   b. Plastic and Elastomers
   c. Ceramics
   d. Special Materials

5. Fracture Mechanics

   a. Crystal Structure
   b. Mechanical Properties of Metals
   c. Thermal Properties of Metals
   d. Fracture Mechanics
   e. Methods of Testing
   f. Neutron Damage

6. Corrosion Processes

   a. General Attack
   b. Electrochemical Corrosion
   c. Stainless Steels
   d. Special Corrosion Processes
   e. Erosion

f. Nuclear Pressure Vessel and Tubing

7. Computer Technology

   a. Program Languages
   b. General Computer Technology
   c. Computer Systems
   d. Digital Systems
   e. Problem Solving

8. Electric Generation and Transmission

   a. Basic Electric Generation
   b. Plant Generation
   c. Station Electric Circuits
   d. Electric Transmission
   e. Instrumentation

9. Thermodynamics I

   a. Dimensions, Units, and Properties
   b. Gas Laws
   c. Non-Flow Process
   d. Flow Processes
   e. Introduction to Cycles
   f. Carnot Cycle

10. Thermodynamics II

   a. Water and Steam
   b. Saturation Properties
   c. Reactor Power Plant Equipment
   d. Basic Steam Turbine
   e. Feed Water Heating
   f. Condenser Thermodynamics

11. Heat Transfer

   a. Basic Quantities
   b. Conduction
   c. Convection
   d. Radiation
   e. Overall Heat Transfer
   f. Boiling Two-Phase Heat Transfer
   g. Condensation
   h. Application

12. Fluid Mechanics

    a. Fluid Flow Basic Principles
    b. Ideal Fluid Flow
    c. Actual Fluid Flow
    d. Fluid Flow Measurement
    e. Fluid Flow Pumps
    f. Fluid Flow in Turbines

13. Human Behavior

    a. Basic Principles
    b. Personality Traits
    c. Social Traits
    d. Applied Psychology
    e. Applications

14. Project Course

    a. Analysis Techniques
    b. Methodology of Analyzing Systems
    c. Methodology of Analyzing Components
    d. Operating Experience Reports

Personnel attending this course include the following:

1. Shift Supervisor[2]
2. Control Operating Foreman[2]

13.2.1.1.3 RIVER BEND STATION BWR SYSTEMS TRAINING[3] (A4) 6 Weeks

This course is designed to provide the student with an understanding of the design, construction and operating characteristics of RBS. In conjunction with the classroom phase of this course, students will gain "hands-on" training on these systems. This will be accomplished through the completion of system qualification cards. The course length may vary according to the experience level of the student. This course will be taught by General Physics Corporation (or other Training Contractor Firms) and will include the following:

[2]Sufficient number of these individuals to meet STA requirements prior to fuel load.

[3]This course will be approximately twelve (12) weeks for the initial cold license candidates.

1. Introduction to the River Bend Station BWR
2. Reactor vessel and internals
3. Reactor vessel instrumentation
4. Recirculation and flow control system
5. Control rod drive mechanism
6. Control rod drive hydraulics
7. Control rod motion control systems
8. Startup range nuclear instrumentation systems
9. Power range nuclear instrumentation
10. Fuel
11. Reactor water cleanup system
12. Decay heat removal systems
13. Main steam
14. Feedwater control system
15. Reactor protection system
16. Primary containment and generic support systems
17. Fuel pool cooling and cleanup system
18. Emergency core cooling systems
19. Standby liquid control system
20. Process and area radiation monitoring
21. Reactor refueling equipment and operation
22. Plant startup and operation
23. Turbine
24. Turbine auxiliary systems
25. Generator
26. Generator auxiliary systems
27. Generator excitation
28. Condensate system
29. Feedwater system
30. Condensate demineralizer system
31. Auxiliary steam system
32. Leak detection systems
33. Circulating water system
34. Condenser air removal system
35. Service water systems
36. Feedwater heaters
37. Extraction steam system
38. Floor and equipment drain systems
39. AC electrical distribution
40. Diesel generators
41. DC electrical distribution
42. Radwaste processing systems
43. Off gas system
44. Instrument air system
45. Service air system
46. Heating, ventilation, and air-conditioning system
47. Chilled water systems
48. Makeup water systems
49. Fire protection systems

A shortened Systems Training Course will be taught for the Hot License Candidates because these candidates will have had River Bend Systems Training or equivalent training/experience prior to attending license operator training.

As part of this systems training, candidates will go through a systems checkout program. This includes a walkdown to perform or simulate developed performance criteria.

Personnel attending this Course include:

1. Operations Supervisor
2. Shift Supervisor
3. Control Operating Foreman
4. Nuclear Control Operator
5. Nuclear Equipment Operator
6. Others[4]

13.2.1.1.4 Simulator Training (A-5) 5 Weeks

The simulator training course is designed to provide classroom as well as "hands-on" training for the operations staff who are or will be licensed as RO's and SRO's. The simulator at the River Bend Training Center is a full-scope, plant-referenced simulator that meets Regulatory Guide 1.149, including Section C.2 as it relates to plant malfunctions (see FSAR Section 1.8.) The intent of this program is to provide these individuals with a requisite understanding of the integrated response of the plant during normal and off-normal conditions; the bases for this response; and the appropriate operator actions to maintain the plant in a safe condition with emphasis toward procedure usage and understanding.

[4]Individuals pursuing NRC licenses will receive these courses or their equivlent prior to taking the NRC examination(s)

The simulator training program for cold license candidates will be twelve weeks in length while that for hot license candidates will be five weeks in length. The additional cold training is a certification program that includes five weeks of classroom training and two weeks of written and performance exams. The successful completion of either program, in conjunction with observation training, results in the certification required to establish eligibility for either NRC "Cold" or "Hot" license examinations.

Each instructor who will conduct programs for licensed operators on the River Bend Simulator shall be SRO certified on the River Bend Simulator. This certificiaton process is supported by their previous experience and participation in the development phase of material at River Bend, as well as an intensive 6-week instructor certification program including knowledge of River Bend specifics and simulator training program goals and format.

Subject matter for the Simulator Training Program consists of the following:

1. Classroom Training

    a. BWR reactor theory review
    b. BWR thermal hydraulics
    c. RBS technical specifications
    d. NRC licensing requirements
    e. Health physics review
    f. RBS transient response
    g. RBS accident response

2. Simulator Training (includes malfunction response training)

    a. Main control room familiarization
    b. Perform cold startup preparations
    c. Perform RBS startup procedure for criticality
    d. Perform system startups
    e. Approach to critical
    f. Reactor startup and establish heatup
    g. Plant heatup
    h. Roll turbine and synchronize generator
    i. Transfer station service
    j. Mechanical trip valve tests
    k. Power changes (up and down power maneuvers)
    l. Normal shutdown procedure

m. Shutdown to cold conditions
n. Rod restraint in transition zone
o. Observation of Xenon effects
p. Emergency procedures
q. Radiation monitor malfunctions
r. Load rejection transients
s. Malfunctions involving core damage
t. Feedwater and pressure regulation malfunctions
u. Multiple malfunctions with various size LOCA
v. Post-LOCA conditions
w. Plant hydrostatic test procedure
x. Reactor scrams

Personnel attending this course include:

1. Shift Supervisor
2. Control Operating Foreman
3. Nuclear Control Operator
4. Others

13.2.1.1.5 Observation Training (A6) 4 Weeks

The observation course is designed to give the "Cold" license candidate access to an operating nuclear plant facility in which to gain experience prior to the NRC license examination. The experience is gained by both academic classroom time and actual in-plant observation. Current plans are to use Georgia Power Company's Hatch Plant as the principle observation site; however, other plants will be used if the need arises. Supervision for this portion of the cold license training program will be the responsibility of GSU. The training consists of the following:

1. Routine processing/indoctrination
2. In-plant tours (following classroom reviews)
3. Site tour
4. Systems reviews
5. Equipment arrangements
6. Containment design
7. Control room review
8. Instrumentation
9. Technical specifications
10. Routine equipment checks

[5] Individuals pursuing NRC licenses will receive this course or its equivalent prior to taking the examination(s).

11. Radiation detector locations
12. Plant performance logs
13. Following plant evolutions in progress
14. Surveillance activities
15. Station emergency procedures
16. Station standard practice manual
17. Station fire protection systems and controls

Personnel attending this course are the same as indicated in 13.2.1.1.4.

13.2.1.1.6 CONTROL ROOM TRAINING (A7) 12 WEEKS

This phase of the licensed operator training program is designed to provide the "Hot" license candidate with an opportunity to observe the operating practices as well as the operation of a nuclear power plant from a central control room. Further RO candidates will manipulate the controls under the supervision of a license operator. This training is a requirement for both RO and SRO candidates.

This segment of the training program will be supervised by GSU and utilize the RBS main control room where candidates will be maintained in a trainee status and will not be assigned concurrent duties. Any individual pursuing a "Hot" license will participate in this training segment.

13.2.1.1.7 REACTOR TRANSIENTS AND MITIGATING THE CONSEQUENCES OF SEVERE CORE DAMAGE (A9) 1 WEEK

This program is intended to provide training for operating personnel in the use of installed plant systems to control or mitigate an accident in which the core is severely damaged. Criterion used in developing this program included suggestions from Enclosure 3 of Mr. H. R. Denton's letter dated March 28, 1980, the INPO letter of April 30, 1980, the first revision to INPO's letter dated January 15, 1981, as well as General Physics originally proposed program.

The presentation of the course will be by General Physics Corporation (or other Training Contractor Firms) and will consist of the following outline showing approximate time to be spent in each topical area.

Chapter 1 - Introduction (1 hour)

A program designed to ensure that all operating personnel are trained in the use of installed plant systems to control or mitigate an accident in which the core is severely damaged. This program has been divided into 10 chapters. The overall program will be previewed during the introduction.

Chapter 2 - Three Mile Island Incident (4 hours)

Objective: The trainee will be introduced to the accident at TMI-2 in order to have a better understanding of the lessons learned from the transient.

Subject Areas Presented:

- The first 16 hours of the TMI-2 accident.
- Basic system drawings and event graphs to help understand this incident.
- Review of actual accident data to better understand this incident.
- Review of actual accident data to better understand its general applicability to other light water reactors.

Chapter 3 - Core Cooling Mechanics (8 hours)

Objectives: The trainee will be able to:

- Understand BWR Core Thermal Hydraulics relevant to ensuring adequate reactor core cooling.
- Understand the operational effectiveness of the Core Standby Cooling Systems
- Understand natural circulation in a BWR.
- Understand the criteria for operation and cooling mode selection to receiver from an inadequate core cooling condition to mitigate reactor core damage.

Subject Areas Presented:

- BWR Core Thermal-Hydraulics
- Critical Power and Linear Heat Generation Rate Considerations
- Operation of Core Standby Cooling Systems
- Effectiveness of Core Standby Cooling Systems
- Criteria for operation and cooling mode selection

Chapter 4 - Potentially Damaging Operating Condntions (4 hours)

Objectives: The trainee will be able to recognize plant operating conditions in which the plant is most vulnerable to multiple failures.

Subject Areas Presented:

- Plant Response to Loss of Feedwater Events
- Plant Response to Small Break LOCA

Chapter 5 - Recognizing Core Damage/Critical Plant Parameters (4 hours)

Objectives: The trainee will be able to relate certain available parameters in the plant to suspected core damage and utilize available vital instrumentation to confirm possible damage.

Subject Areas Presented:

- Fission Product Release Scenario
- Isotopic Analyses of Radionuclides
- Hydrogen Production and ZrO_2-UO_2 Eutectic Formation
- Reporting Requirements for Plant Transients and Accidents
- Vital Parameter Instrumentation
- Monitoring of Critical Parameters During Accident Conditions

Chapter 6 - Hydrogen Hazards During Severe Accidents (3 hours)

Objectives: The trainee will be able to:

- List the sources of hydrogen within the containment
- State the hazardous concentration ranges of explosive and flammable mixtures of hydrogen and oxygen
- Describe the means of concentration measurement and control of hydrogen oxygen

Subject Areas Presented:

- Sources of Hydrogen in Containment

- Hazardous Concentrations and Characteristics of Hydrogen Explosives
- Hydrogen Phenomena at TMI-2
- Hydrogen Pressure Effects on BWR Containment Types
- Sample BWR Hydrogen Generation Calculation

Chapter 7 - Neutron Monitoring System/Core Recriticality (4 hours)

Objectives: The trainee will be able to quickly ascertain whether or not reactor core damage has occurred through the use of nuclear instrumentation

Subject Areas Presented:

- Incore Nuclear Instrumentation Systems lessons learned at TMI
- Out-of-core Nuclear Instrumentation Systems lessons learned at TMI
- Neutron Monitoring System for a BWR
- Neutron Monitoring System Lessons Learned from TMI
- Standby Liquid Control System

Chapter 8 - Radiation Hazards/Radiation Monitoring (4 hours)

Objectives: To enable the trainee to:

- Discuss the content and implementation of the radiological Emergency Plan
- Identify plant areas normally used that may become High Radiation Areas
- Discuss the precautions associated with sampling primary coolant and containment atmosphere
- Describe post accident response from radiation monitors within containment
- Discuss radiation monitor failure modes.
- Discuss a method of determining radiation levels by direct measurement of detector (Radiation Monitoring System) output signal.

Subject Areas Presented:

- Radiological Emergency Planning
  - Plant High Radiation Areas
  - Plant Radiation Monitoring System
- Radiation Monitor Accuracy and Potential Failure Modes
- Anticipated Radiation Hazards
- Lessons Learned from the TMI Concerning Radiation Hazards

Chapter 9 - BWR Lessons Learned (1 hour)

Objective: The trainee will understand the lessons learned at the TMI-2 Incident as they apply to a BWR.

Subject Areas Covered:

- A summary of the lessons learned from the Three Mile Island incident which have general applicability to a BWR is listed. These lessons learned have been presented in the preceding chapters but are simply summarized here for review.

Chapter 10 - Federal Register on Mitigating Core Damage (1 hour)

Objective: The trainee will become familiar with the interim requirements related to hydrogen control and certain degraded core considerations.

Subject Areas Covered:

- Hydrogen Management
- High Points Vents
- In-Plant Iodine Instrumentation
- Leakage Integrity Outside Containment
- Detection of Inadequate Core Cooling

Final Examination (2 hours)

A Final Examination of two hours in length is scheduled to follow this course. The exam will cover each of the chapters presented during this program.

For hot license candidates the duration of this portion of their training program will increase from about 1 week to around 2 weeks. This increase is provided to augment the reduction in simulator training and incorporate additional transient accident analysis training.

Although specific inclusion of a Primary Chemistry Section does not exist, the concept developed in Enclosure 3 to Mr. H. R. Denton's March 28, 1980 letter are integrated into Chapter 5, Recognizing Core Damage, and Chapter 8, Radiation Hazards. The topic of Gas Generation is addressed in Chapter 6, Hydrogen Hazards, and also in Chapter 5.

Personnel attending this course will consist of:

1. Plant Manager
2. Shift Supervisor
3. Control Operating Foreman
4. Nuclear Control Operator
5. Other[6,7]

13.2.1.1.8 ADMINISTRATIVE TRAINING (B1) - 1 WEEK

This course of study consists of training in the following areas for all supervisory positions requiring an NRC SRO License:

1. Leadership
2. Interpersonal Communication
3. Command Responsibilities and Limits
4. Motivation of Personnel
5. Problem Analysis
6. Decisional Analysis
7. Administrative Controls

This course is presented under the supervision of GSU.

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[6] Supervisors, foreman, and technicians in the Instrumentation & Controls, Health Physics, and Radiation Protection/Chemistry sections of the operating staff will be provided with the mitigating core damage training commensurate with their responsibilities.

[7] Individuals pursuing NRC licenses will receive this course or its equivalent prior to taking the examination(s).

13.2.1.1.9 SIMULATOR REFRESHER AND NRC EXAMINATION REFRESHER (B2) - 4 WEEKS

This particular portion of the license operator training program is designed to be a period of intensive review with emphasis directed toward those topics or areas associated with the NRC examinations. As necessary, individuals will be given a simulator refresher with concentration on off-normal plant response with emphasis directed toward the understanding and use of plant abnormal and emergency operating procedures.

This phase of the licensed operator training program is conducted under the general supervision of GSU and includes the following topics:

1. Preoperational and other checks performed by operators
2. Performance of startup checks
3. Daily operational checks
4. Scram recovery checks
5. Identification of nuclear instrumentation
6. Principles of nuclear instrument operation
7. Interpretation of nuclear instrument response
8. Perform reactor startup
9. Establish reactor criticality
10. Reactor heatup and pressurization
11. Transfer from "start to run"
12. Turbine roll and generator synchronization
13. Power increase to 100 percent
14. Interpretation of effects on reactivity during startup
15. Startup physics review
16. Response to alarms and annunciators
17. Interpretation of alarms and annunciators during startup
18. Response to alarms and procedures using appropriate procedures
19. Predictions of pertinent instrumentation response
20. Normal operating parameters during startup
21. Parameter changes and control during startup
22. Reactor power control and changes
23. Power control systems and operation review
24. Perform power changes with control rods
25. Power change limitations
26 Auxiliary systems
27. Startup necessary auxiliary systems during plant startup
28. Predict auxiliary systems effects upon the reactor
29. Standard calculations operators perform
30. Period calculation during startup

31. Power increase calculations
32. Calculating power from nuclear instrumentation
33. Auxiliary ard emergency system operation
34. Review of auxiliary and reactor systems
35. Operation of systems in different plant conditions
36. Identification and interpretation of system instrumentation
37. Radiation monitoring systems
38. Interpretation of radiation monitoring system
39. Plant operation in abnormal radiation conditions
40. Abnormal and emergency conditions
41. Selected equipment malfunctions
42. Analyze effects of selected equipment malfunctions
43. Selected plant transients
44. Transient analyses
45. Abnormal and emergency procedures
46. Familiarity with operating procedures and standards
47. Proper procedure used during normal, abnormal, and emergency operation
48. Technical specifications
49. Restrictions and limitations imposed on power operation
50. Principles of reactor operation
51. Reactor theory
52. Nuclear terminology
53. Features of facility design reactor
54. System design intentions
55. System design parameters
56. Parameter limitations
57. General operating characteristics
58. Parameter controls of the reactor
59. Normal operating parameter values
60. Parameter value change resulting from process changes
61. Parameter changes from normal and abnormal transients
62. Nuclear instrumentation characteristics
63. Process and control instrumentation characteristics
64. Interrelationships of instrumentation
65. Indications/Consequences of improper instrument performance
66. Safety and emergency systems
67. Reactor safety system
68. Design, construction, and interrelationships
69. Conditions requiring the use of safety systems
70. Standard and emergency operating procedures
71. Administrative controls
72. Fission products

73. Neutron multiplication source and control rod effects
74. Criticality indication
75. Heat transfer and fluid flow effects on core
76. Radioactive material handling, disposal, and hazards
77. Operational radiation hazards
78. Title 10CFR20
79. Facility radiation regulations
80. Handling and disposal of radioactive materials
81. Specific operating characteristics of the reactor and auxiliary system
82. Effects and causes of system changes
83. Fuel handling and core parameters
84. Fuel handling and loading
85. Core loading procedures and limitations
86. Fuel transfer and storage
87. Fuel characteristics
88. Fuel handling personnel requirements
89. Administrative procedures and controls
90. Administrative, procedural, and regulatory items affecting facility operations
91. Design and operating considerations
92. Facility license considerations

Personnel attending this phase consists of those listed in 13.2.1.1.4

13.2.1.1.10 PRE-LICENSE EXAMINATION (B3)

This service consists of actual written and oral examinations closely adhering to NRC methods and practices. These examinations will be completed prior to certification of competency of an individual to the NRC. Examinations are critiqued and reviewed with GSU management as part of this service.

These examinations will be administered by a qualified outside agent experienced in this area.

Personnel participating in this phase of the training will consist of any license candidate who has not been previously licensed on a commercial reactor.

13.2.1.1.11 FIRE PROTECTION TRAINING

Fire protection training consists of training in three specific areas:

1. Employees designated to be members of the station fire brigade
2. Employees assigned to the fire protection staff
3. Offsite fire departments

Specific training requirements for each of the above categories of personnel are as described in the following sections.

13.2.1.1.11.1 Fire Brigade Training (B4) - 1 Week

All personnel assigned to be designated as fire brigade members receive formal training prior to fuel load. The course subject matter is selected to satisfy the requirements of Regulatory Guide 1.120 and the NRC document "Nuclear Plant Fire Protection Functional Responsibilities, Administrative Controls, and Quality Assurance." In addition, course material selection also includes the guidance of NFPA Codes 801, 802, and 803. The instruction period of 1 week consists of approximately one-half classroom and one-half practical applications. Specific course and lesson plans for both on-site and off-site training programs are being developed.

Course material includes the following:

1. Chemistry of fire
2. Classification of fires and principles of extinguishment
3. Fire prevention and inspection techniques
4. Fire protection systems - tailored to systems of interest at the River Bend Stations
5. Respiratory protection equipment - use and maintenance
6. Radiological safety aspects of fires at nuclear facilities - survey and contamination control
7. Fire brigade command and control - evaluation and direction
8. Field exercises
   a. Electrical fires, including transformers and cable trays
   b. Flammable gas and liquid fires
   c. Waste/debris fires
   d. Pressurized fuel storage tank fires, techniques to control, and source shut-off
   e. Spill fires
   f. Industrial fire hose and nozzles
   g. Portable extinguisher on small fire
   h. Fuel transfer pump fire
   i. Breathing apparatus use in confined, smoke - filled structure
   j. Multi-level structural fire, including rescue and recovery
   k. Firefighting with radioactive contamination, including rescue and decontamination

Onsite Fire Brigade Training

The onsite fire brigade training program ensures that the capability to fight potential fires is established and maintained. The program consists of an initial classroom instruction program followed by periodic classroom instruction, firefighting practice, and fire drills:

1. Instruction

The initial classroom instruction includes:

a. Indoctrination of the plant firefighting plan with specific identification of each individual's responsibilities.

b. Identification of the type and location of fire hazards and associated types of fires that could occur in the plant.

c. The toxic and corrosive characteristics of expected products of combustion.

d. Identification of the location of fire-fighting equipment for each fire area and familiarization with the layout of the plant, including access and egress routes to each area.

e. The proper use of available firefighting equipment and the correct method of fighting each type of fire. The types of fires covered should include fires in energized electrical equipment, fires in cables and cable trays, hydrogen fires, fires involving flammable and combustible liquids or hazardous process chemicals, fires resulting from construction or modifications (welding), and record file fires.

f. The proper use of communication, lighting, ventilation, and emergency breathing equipment.

g. The proper method for fighting fires inside buildings and confined spaces.

h. The direction and coordination of the firefighting activities (fire brigade leaders only).

i. Detailed review of firefighting strategies and procedures.

j. Review of the latest plant modifications and corresponding changes in firefighting plants.

Note: Items (i) and (j) may be deleted from the training of non-operations personnel who may be assigned to the fire brigade.

The instruction is provided by qualified individuals who are knowledgeable, experienced, and suitably trained in fighting the types of fires that could occur in the plant and in using the types of equipment available in the nuclear power plant.

Instruction is provided to fire brigade members and fire brigade leaders.

13.2.1.1.11.2 Fire Protection Staff Training (B5)

The station fire protection staff receives training in:

1. Design and maintenance 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.

Specific arrangements for this training have not been completed, but will be provided in a future amendment.

13.2.1.1.11.3 Offsite Fire Department Training (B6)

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

GSU plans to utilize General Physics Corporation (or other Training Organizations) to conduct this training. Specific course material has not been developed at this time, but will be provided in a future amendment.

13.2.1.2 COORDINATION WITH PRE-OPERATIONAL TESTS AND FUEL LOAD

On-the-job training for plant staff personnel, including reactor and senior reactor operator license candidate, commences with the pre-operational test program. During periods when members of the plant staff are not engaged in formal classroom exercises, they are utilized

by the Start-up and Test group, through their respective supervisor. for such operations as component testing, system flushing, system line-ups and checkouts, functional tests, etc.

The RBS staff reviews operating procedures, system descriptions, emergency plans, etc.

Documentation of the participation of "Cold" license candidates will be maintained in accordance with Training Department documentation procedure.

13.2.1.2.1 CONTINGENCY PLAN IN THE EVENT FUEL LOADING IS SUBSTANTIALLY DELAYED

The RBS staff training plan will be adjusted accordingly in the event fuel loading is substantially delayed.

13.2.1.3 TRAINING PROGRAMS FOR NONLICENSED PERSONNEL

Professional, Supervisory, and Technical Personnel receive training necessary to satisfy requirements for their positions. This training will consist of formal classroom presentations coupled with on-the-job training. Vendor training will be utilized to provide additional knowledge on specific tasks.

13.2.1.3.1 BWR TECHNOLOGY TRAINING (B7) Length: 4 Weeks

This course provides BWR plant operating, technical, and maintenance personnel with the design and operating details of the balance of plant systems at the River Bend Station.

This course will be taught by NUS Corporation (or other Training Contractor Firm). Subject matter includes, but is not limited to:

1. Turbine
2. Turbine auxiliary systems
3. Generator
4. Generator auxiliary systems
5. Condensate system
6. Feedwater system
7. Condensate demineralizer system
8. Auxiliary steam system
9. Leak detection system
10. Circulating water system
11. Condenser air removal system
12. Service water systems
13. Feedwater heaters
14. Extraction steam system
15. Floor and equipment drain system
16. AC electrical distribution

17. Diesel generators
18. DC electrical distribution
19. Radwaste processing systems
20. Off gas system
21. Instrument air system
22. Service air system
23. Heating, ventilation and air-conditioning system
24. Chilled water systems
25. Makeup water systems
26. Fire protection systems

Personnel attending this course include:

1. Maintenance Supervisors (Mechanical, Electrical, I&C)
2. Maintenance Foreman (Mechanical, Electrical, I&C)
3. Mechanics
4. Electricians
5. I&C Technicians
6. Chemical Foreman
7. Chemistry Technicians
8. Health Physics Foreman
9. Rad Protection Technicians
10. Selected Personnel from the Technical Staff

13.2.1.3.2 BWR CHEMISTRY (B8) LENGTH: 12 WEEKS

The course is designed to prepare the members of the plant chemistry staff to set up and operate the chemistry program. It includes BWR water chemistry, waste disposal, process instrument calibration, environs sampling, and studies in laboratory work. The course promotes the understanding of the process involved in the transport and control of radioactive materials within the power plant.

The initial training will be performed by General Electric.

This course includes, but is not limited to, the following:

1. Basic BWR chemistry cycle
2. Responsibilities of the chemistry staff
3. Equipping a BWR laboratory and counting room
4. Understanding the chart of the nuclides

5. Interpreting decay schemes
6. General characteristics of alpha, beta, and gamma counting
7. Operation and calibration of the integral gamma counter
8. NaI (TI) spectrometry - operation and calibration
9. Ge (Li) spectrometry - operation and calibration
10. Calculator - computer application to gamma spectrometry
11. Alpha and beta counting - proportional and scintillation detectors
12. Liquid scintillation counting
13. Basic radiochemical separation procedures and techniques
14. Activity balances using gamma spectrometry and integral gamma and beta counters
15. Formation, release, and behavior of the principal fission products
16. Interpretation of fission gas and iodine release data
17. Determination of fission gas geometry factors
18. Gas transfer and charcoal collection techniques
19. Functions and capabilities of the process radiation monitors
20. Calibration of the process radiation monitors and flow instrumentation
21. Startup chemical and radiochemical tests
22. Routine chemical and radiochemical analysis required to follow and understand the safe operation of a BWR
23. Metals analysis using both atomic absorption and spectrophotometry
24. Sample station design
25. Off gas treatment system
26. Methods for locating failed fuel
27. NRC requirements and their implementation
28. Ion exchange resins and water treatment

Personnel attending this course include the Lead Plant Chemist.

13.2.1.3.3 RADIOLOGICAL ENGINEERING (B9) LENGTH: 7 WEEKS

This 7-week course consists of classroom lectures, field exercises, and projects, and is designed to give the station Health Physicist and/or Radiation Protection Supervisor the needed background in science, laws and regulations, and operational experience for effective implementation of the Radiation Protection program.

The presentation of this course will be supervised by GSU.

Subject matter includes, but is not limited to:

1. Radiation Fundamentals
2. External Gamma and Beta Dosimetry
3. Biological Effects of Radiation
4. Internal Contamination and Dosimetry
5. Federal Regulations and Guides
6. Health Physics Instrumentation
7. Radiation Monitoring
8. Contamination Control
9. Radiation Exposure Control
10. Environmental Monitoring

13.2.1.3.4 GENERAL EMPLOYEE TRAINING (C1)

The objective of the RBS General Employee Training program is to indoctrinate all personnel requiring unescorted access to the plant in the general procedures utilized to assure nuclear plant safety and personnel safety. Only those personnel who have completed the General Employee Training Course are allowed unrestricted plant access. General Employee Training covers seven areas, as specified in ANSI/ANS 3.1-197

1. Quality Assurance Training
2. Radiation Protection Training
3. Station Emergency Procedures
4. Industrial Health and Safety
5. Access Control and Security
6. Plant Description, Operating Policy, Organization and Administration
7. Fire Protection

New employees and contractor personnel participate in the initial General Employee Training. Temporary consultant, maintenance, service personnel, vendor personnel, etc, receive the General Employee Training to the extent necessary to safely execute their duties.

The course is presentation will be supervised by GSU.

13.2.2 RETRAINING

13.2.2.1 GENERAL EMPLOYEE TRAINING (C2)

In order to maintain the knowledge acquired during the initial training, periodic retraining is provided. The material presented during the retraining will be the same as used for initial training and will cover the seven areas listed in 13.2.1.3.4. As specified in ANSI/ANS 3.1-1978, RBS plans to keep training programs up-to-date to

reflect plant modification and procedural changes. The retraining will also be updated to assure all plant personnel remain proficient.

The radiation protection training segment is conducted twice each calendar year and the entire GET program is conducted once each calendar year.

13.2.2.2 FIRE BRIGADE TRAINING (C3)

1. CLASSROOM

Regular planned meetings are held at least every 3 months for brigade members to review changes in the fire protection program and other subjects as necessary. Periodic refresher training sessions are held to repeat the classroom instruction program for brigade members over any 2-year period. These sessions may be concurrent with the regular planned meetings.

2. Practice

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

3. Drills

Fire brigade drills are performed in the plant so that the fire brigade can practice as a team.

Drills are performed at regular intervals not to exceed 3 months for each shift fire brigade. The offsite local fire department is invited to participate in at least one drill per year.

Each fire brigade member should participate in each drill, but must participate in at least two drills per year.

4. Records

Individual records of training provided to each fire brigade member, including drill critiques, will be maintained as part of the permanent plant files for at least 3 years to ensure that each member receives training in all parts of the

training program. Retraining or broadened training for fire-fighting within buildings will be scheduled for all those brigade members whose performance records show deficiencies. A system to document drills including critiques and corrective actions is under development. As well, Fire Brigade Training Review and individual performance programs are also under development. These areas will be incorporated into the FSAR Section 13.2.3, Training Program Documentation, when they become available

13.2.2.3 LICENSE OPERATOR REQUALIFICATION TRAINING (C4)

The following outlines the training program as set forth in the NRC Regulatory Guide 1.8, "Personnel Selection and Training" that endorses, in part, ANSI/ANS 3.1-1978, "Selection and Training of Nuclear Power Plant Personnel."

In accordance with 10CFR55, the NRC issues two types of licenses. In general, anyone who manipulates reactor controls must be licensed as an Operator, and those who direct the activities of li sed Operators must be licensed as SRO's. In practice, the Control Room Operators at a power station are the Licensed Operators and their immediate supervisor is normally the SRO.

Periodic requalification for all RO's and SRO's is necessary to maintain their continued competence. The following is an outline of the NRC requalification requirements (10CFR55 Appendix A):

1. Schedule - The requalification program is conducted for a continuous period not to exceed 2 years, and upon conclusion promptly followed, pursuant to a continuous schedule, by successive requalification programs.

2. Lectures - The requalification program includes preplanned lectures on a regular and continuing basis throughout the license period in those areas where annual operator and senior operator written examinations indicate that emphasis in scope and depth of coverage is needed in the following subjects:

   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 emergency operating procedures
   g. Radiation control and safety
   h. Technical specifications

i. Applicable portions of Title 10, Chapter I Code of Federal Regulations
j. Heat transfer, fluid flow, and thermodynamics
k. Station QA program as related to station operations
l. Mitigating core damage

The RO/SRO requalification will not be a reiteration of previously covered topics, instead, the program is designed to ensure a level of knowledge and skill which will be built upon to better improve the operation of RBS.

Classroom lectures, seminars, and exercises will include a special emphasis toward LER's, I&E Bulletins, Information Notices, and Operational Experience and the Adaptation to River Bend specifics. The "How's" and "Why's" of the reference events or occurrences will be emphasized and details of observational experience will be applied to specific systems, subsystems or components.

Individual study on the part of each operator is encouraged. A requalification program based solely upon the use of films, videotapes, and/or individual study is not an acceptable substitute for the lecture series.

3. On-the-job training - The requalification program includes on-the-job training so that:

Each licensed Operator at RBS manipulates the plant controls and each licensed Senior Operator shall either manipulate the controls or direct the activities of individuals during plant control manipulations in any combination of reactor startups, reactor shutdowns or other control manipulations which demonstrate skill and/or familiarity with reactivity control systems. The On-The-Job Training with respect to reactivity control manipulations will incorporate the guidance specified in Enclosure 4 of Denton's Letter dated March 28, 1980. The use of a simulator for yearly retraining may fulfill the ten reactivity control manipulation requirements, and will include as a minimum 12 days per year on a 3-day per quarter basis.

During this segment, emphasis will be placed on polishing and refining operational skills and knowledge necessary to control the plant during normal, abnormal, and emergency conditions. Special emphasis will be directed toward observed trouble areas or upcoming evaluations. Additionally, the use of procedures and other administrative

documents will be stressed as part of the requalification program.

Each licensed RO and SRO demonstrates satisfactory understanding of the operation of all apparatus and mechanisms and know the operating procedures in each area for which he is licensed.

Each licensed RO and SRO is cognizant of facility design changes, procedure changes, and facility license changes.

Each licensed RO and SRO reviews the content of all abnormal and emergency procedures on a regularly scheduled basis.

4. Evaluation

An integral part of the continuous and on-going Operator Requalification Program will be an annual performance evaluation. This evaluation will normally be completed based on an individual's performance on the Simulator. However, as available, input from the licensed individual's supervisor(s) will be incorporated into the performance evaluation.

Key elements to be addressed in completing the evaluation will include:

1. The individual's ability to recognize and diagnose abnormal/emergency situations.

2. The ability of the individual to progress from the recognition of the abnormal/emergency situation to the appropriate plant procedure(s) designed to cope with or mitigate the consequences of the existing condition.

3. The ability of the individual to use and/or adapt the applicable procedures(s) to the situation at hand.

4. The ability of the individual to perform competently the steps of the applicable procedure(s).

5. The ability of the individual to relate the existing condition(s) to established Administrative Policies/Guidelines including the Plant Emergency Plan and the River Bend Technical Specifications.

Documentation of the above evaluations will be reviewed by the Operator Training Evaluation Committee. The results of this review will be utilized to upgrade the content of the Operator Requalification Program.

Following completion and review of an individual's Annual Performance Evaluation and/or the results of the annual written examination, a determination by the Operator Trainng Evaluation Committee will be made as to the competency of a licensed individual to execute the duties associated with his/her job. If the determination is such that the competency of the individual is deemed inadequate, he/she will be removed from independent shift assignment until deficient areas are corrected. The correction could consist of either documented classroom lectures, required reading, or simulatory training.

The on-going program of evaluation and feedback is implemented via direct feedback at meetings with plant staff and supervisor personnel, in-class evaluation of instructors and students and the review of student performance. Training effectiveness, changing training needs, and meeting course performance objectives are stressed in the evaluation phases.

13.2.3 TRAINING PROGRAM DOCUMENTATION

Records are maintained to document each person's participation in this program. These records include:

1. Attendance records
2. Copies of all operator requalification examinations given with acceptable answers
3. Copies of the answers to these examinations
4. Results of performance evaluations of licensed operators
5. Records of any additional training given to correct exhibited deficiencies of licensed operators
6. On-the-job training records
7. Copies of licenses of all operators
8. Records for personnel other than operators as addressed in ANS 3.1-1978.

13.2.3 Applicable Documents

The River Bend Station training program follows the regulations and considers the guidance listed below:

1. 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities"

2. 10 CFR Part 55, "Operators' Licenses"

3. 10 CFR Part 19, "Notices, Instructions, and Reports to Workers; Inspections"

4. Regulatory Guide 1.8, "Personnel Selection and Training"

5. Regulatory Guide 8.2, "Guide for Administrative Practices in Radiation Monitoring"

6. Regulatory Guide 8.8, "Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations will be as Low as is Reasonably Achievable"

7. Mr. H. R. Denton's letter to All Power Reactor Applicants and Licensees dated March 28, 1980 on the subject of Qualifications of Reactor Operators

8. Clarification of TMI Action Plan Requirements, NUREG-0737, November 1980

9. INPO's letter dated April 30, 1980 "Nuclear Power Plant Shift Technical Advisor: Recommendations for position description, qualifications, education and testing." Revision)

10. INPO's letter dated January 15, 1980. Revision 1 to the April 30, 1980 letter.

FIGURE 13.2-1 KBS IDEAL STAFF TRAINING PLAN

CLASSIFICATION	1981				1982				1983				1984				1985			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Plant Manager														A9		C1				
Secretary															C1					
Assistant Plant Manager - Services															C1					
Assistant Plant Manager - Operations															C1					
Administrative Supervisor															C1					
Budget Analyst																C1				
Clerk																C1				
Materials Supervisor																C1				
Materials Foreman																C1				
Storekeeper																C1				
Storekeeper Assistant															C1					
Data Entry Clerks															C1					
Section Head															C1					
Procedure Writer															C1					
Technical Supervisor	B7														C1					
Performance Supervisor											B7					C1				
Process Systems Supervisor											B7					C1				
Computer Systems Supervisor																C1				
Control System Supervisor											B7					C1				
Reactor Engineering Supervisor											B7					C1				

CLASSIFICATION	1981				1982				1983				1984				1985			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Engineer											B7				C1					
Security Supervisor															C1					
Assistant Security Supervisor															C1					
Security Training Coordinator															C1					
Assistant Access Program Director															C1					
Operations Supervisor													A9	A5	C1	B2	B3			
Assistant Operations Supervisor																				
Shift Supervisor	A1	A2						A3			A4	A9-A5	B1	A6	B4-C1	B2	B3			
Radwaste Foreman													B1			C1				
Control Operating Foreman	A1	A2						A3			A4	A9-A5	B1	A6	B4-C1	B2	B3			
Nuclear Control Operators	A1	A2						A3			A4	A9-A5		A6	B4-C1	B2	B3			
Nuclear Equipment Operators											A1	A9	B4			C1				
General Maintenance Supervisor													B7			C1				
Electrical Maintenance Supervisor													B7			C1				
Electrical Maintenance Foreman													B7		C1					
Electricians													B7	B4	C1					
Maintenance Planners													B7		C1					

CLASSIFICATION	1951				1952				1953				1954				1955			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
I&C Supervisor															B7	C1				
I&C Foreman														*A9	B7	C1				
I&C Technicians													B4	*A9	B7	C1				
Mechanical Maintenance Supervisor											B7				C1					
Mechanical Maintenance Foreman															B7	C1				
Repairman														B4	B7	C1				
Building & Grounds Foreman																C1				
Utility Worker																C1				
Radiation Protection/ Chemistry Supervisor													B7	*A9		C1				
Radiation Protection Supervisor													B7			C1				
Environmental Supervisor															C1					
Chemistry Supervisor													B7	*A9		C1				
Radiation Protection Foreman													B7			C1				
Radiation Engineer													B7	*A9	B9	C1				
Senior Health Physicist													B7	*A9	B9	C1				
Health Physicist													B7	*A9		C1				
Radiological Hygienist															C1					
Environmental Specialist															C1					

CLASSIFICATION	1981				1982				1983				1984				1985			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Chemical Engineer													B7			C1				
Lead Chemist													B7	B8	*A;	C1				
Chemistry Foreman													B7		*A;	C1				
Radiochemistry Foreman													B7			C1				
Chemistry Technician													B7		*A9	C1				
Radiation Protection Technicians													B7		*A9	C1				

*TRAINING IN MITIGATING CORE DAMAGE FOR THESE INDIVIDUALS WILL BE IN A DEPTH AND SCOPE COMMENSURATE WITH THEIR RESPONSIBILITIES

NOTES:

~~1-5 — SAME AS ON CURRENT FIGURE~~

6 - ADVANCED TECHNICAL PRINCIPLES FOR SENIOR OPERATORS REQUIRED ONLY FOR THOSE INDIVIDUALS WHO WILL SERVE AS DUAL ROLE SENIOR REACTOR OPERATORS i.e. Shift Supervisor / Shift Technical Advisor

1. SCHEDULE IS SUBJECT TO CHANGE. THE SCHEDULE IS KEYED TO FUEL LOAD. IF FUEL LOAD CHANGES, THE SCHEDULE CHANGES IN RESPONSE.
2. SRO & RO CANDIDATES COMPLETE A QUALIFICATION CARD DURING THE COLD LICENSE ON SITE TRAINING PROGRAM TO DOCUMENT PARTICIPATION IN PRE-OPERATIONAL TEST PROGRAMS AND PROCEDURE DEVELOPMENT.
3. GENERAL EMPLOYEES ARE TRAINED IN GROUPS TO COMPLETE AT LEAST TWO MONTHS PRIOR TO FUEL LOAD.
4. COURSES NOT IDENTIFIED ABOVE ARE PROVIDED AS THEY BECOME AVAILABLE.
5. S-1, A-3, ETC. REFER TO COURSES IDENTIFIED IN SECTION 13.

FSAR 13 13.4

13.4 REVIEW AND AUDIT

GSU has developed a comprehensive program for reviews and audits of operating phase activities that are safety-related. This program has been developed from the guidance provided by NRC Regulatory Guide 1.33, Revision 2, which endorses ANSI N18.7-1976.

A program for reviews, including in-plant and independent reviews, is established to accomplish the following:

1. Verify that activities affecting safety-related structures, systems and components during the operational phase are performed in conformance with applicable codes and standards, company policy and rules, approved operating procedures, license provisions, and QA requirements.

2. Review proposed plant changes to design, tests, and procedures that affect nuclear safety.

3. Verify that reportable events, which require reporting to NRC in writing within 24 hr, are promptly investigated and corrected in a manner which reduces the probability of such events recurring.

4. Detect trends which may not be apparent to a day-to-day observer.

To perform these reviews, GSU utilizes two committees and one permanent group. Reviews at the plant level are performed by the Facility Review Committee (FRC). Independent reviews are performed by the Nuclear Review Board (NRB), of which a majority of members are independent of direct responsibility for plant operations. In addition, an Independent Safety Engineering Group (ISEG) performs on-site independent review of plant operations with respect to unit, technical, industrial, and regulatory requirements as a method of providing additional, on-site, technical expertise for improving plant safety. These two committees and the ISEG are discussed in the following sections and in the Technical Specifications, Chapter 6.

13.4.1 Onsite Review

The FRC is responsible for in-plant reviews. It will be established and functional at least 6 months prior to initial fuel loading. The committee is made up of management and technical personnel from the operating plant staff and others as necessary functioning to advise the Plant Manager on all matters related to nuclear safety. The FRC activities and membership are defined in a written administrative procedure.

13.4.1.1 Membership

The FRC membership is:

Assistant Plant Manager, Operations - Chairman.

Operations Supervisor - Member.

Technical Supervisor - Member.

General Maintenance Supervisor - Member.

Reactor Engineering Supervisor - Member.

Radiation Protection/Chemistry Supervisor - Member.

Operations Quality Assurance Supervisor - Non-Voting Member.

Supervisor, Site Engineering - Non-Voting Member.

Nuclear Licensing Representative - Non-Voting Member.

13.4.1.2 Alternates

Alternate members are appointed in writing by the FRC chairman to serve on a temporary basis. An alternate has qualifications comparable to the absent permanent member. No more than two alternates participate as voting members in FRC activities at any one time.

13.4.1.3 Meeting Frequency

The FRC meets at least once per calendar month and as convened by the Chairman or his designated alternate.

13.4.1.4 Quorum

The minimum quorum necessary for the performance of the FRC responsibility and authority consists of the Chairman, or his designated alternate, and four voting members including no more than two voting alternates.

13.4.1.5 Responsibilities

The FRC is responsible for:

1. Review of all procedures required by Technical Specification 6.8 and its changes, and of any other proposed procedures, programs and changes as determined by the Plant Manager which constitute an unreviewed safety question.

2. Review of all proposed tests and experiments that affect nuclear safety.

3. Review of all proposed changes to the technical specifications.

4. Review of all proposed changes or modifications to plant systems or equipment that affect nuclear safety.

5. Investigation of all violations of the technical specifications, including the preparation and forwarding of reports covering evaluation and recommendations to prevent recurrence to the Operations Supervisor and the NRB.

6. Review of events requiring 24-hr written notification to the NRC.

7. Review of unit operations to detect potential nuclear safety hazards.

8. Performance of special reviews, investigations or analyses, and reporting on them as requested by the Plant Manager or the NRB.

9. Review of the Physical Security Plan and Implementing Procedures and submittal of recommended changes to the NRB.

10. Review of the Emergency and Fire Protection Plans and Implementing Procedures and submittal of recommended changes to the NRB.

11. Review of unplanned releases, which require reporting, of radioactive material to the environs including the preparation and forwarding of reports covering evaluation, recommendations and disposition of the corrective action to prevent recurrence to the Vice President-Nuclear Operations and to members of the NRB.

12. Review of major changes to the radwaste system.

13. Review the following list of River Bend Station audit reports:

    A. Nuclear Regulatory Commission

    B. Quality Assurance

    C. American Nuclear Insurers

    D. Nuclear Review Board

14. Review the following programs and changes thereto:

    A. Primary Coolant Systems Outside Containment

    B. In-Plant Radiation Monitoring

    C. Post-Accident Sampling

    D. Process Control Program

    E. Offsite Dose Calculation Manual

13.4.1.6 Authority

The FRC's authority includes:

1. Recommend in writing to the Plant Manager approval or disapproval of Items 1 through 4 considered in Section 13.4.1.5 prior to their implementation.

2. Rendering determinations in writing with regard to whether or not each item considered under Items 1 through 5 of Section 13.4.1.5 constitutes an unreviewed safety question prior to their implementation.

3. Providing written notification within 24 hr to the Vice President -Nuclear Operations and the NRB Chairman of disagreement between the FRC and the Plant Manager; however, the Plant Manager has responsibility for resolution of such disagreements.

13.4.1.7 Records

The FRC maintains written minutes of each meeting that, at a minimum, document the results of all FRC activities performed under the responsibility and authority provisions of Section 13.4.1. Copies are provided to the Plant Manager, the NRB Chairman, and the FRC members.

13.4.2 Independent Review

The NRB, which is responsible for independent reviews, will be established and functional at least 6 months prior to initial fuel loading. The NRB is chaired by the Senior Vice President - External Affairs and includes a majority of members who are not directly responsible for plant operations. The NRB functions to provide independent review and audit of designated activities in the areas of nuclear power plant operations, nuclear engineering, chemistry and radiochemistry, metallurgy, instrumentation and control, radiological safety, mechanical and electrical engineering, quality assurance practices, and any other appropriate fields associated with the unique characteristics of the nuclear power plant.

13 4.2.1 Membership

The NRB membership is:

Senior-Vice President, External Affairs - Chairman

Vice President, River Bend Nuclear Group - Alternate Chairman.

Vice President, Nuclear Operations - Member.

Vice President, Power Plant Engineering and Design - Member.

Manager, Engineering, Nuclear Fuels, and Licensing - Member.

Director, Quality Assurance - Member.

RBS Plant Manager - Member.

Director, Nuclear Plant Engineering - Member.

Director, Nuclear Licensing - Member.

13.4.2.2 Alternates

Alternate members are appointed in writing by the NRB Chairman to serve on a temporary basis; however, no more than two alternates participate as voting members in NRB activities at any one time.

13.4.2.3 Consultants

Consultants are utilized as determined by the NRB Chairman to provide expert advice to the NRB.

13.4.2.4 Meeting Frequency

The NRB meets at least once per calendar quarter during the initial year of unit operation following fuel loading and at least once per 6 months thereafter.

13.4.2.5 Quorum

The minimum quorum of the NRB necessary for the performance of the review and audit functions consists of the Chairman, or his alternate, and at least four NRB members, including no more than two alternates. No more than a minority of the minimum quorum may have line responsibility for operation of the unit.

13.4.2.6 Review

The NRB reviews:

1. Safety evaluations for changes to procedures, equipment, or systems, and for tests or experiments completed under the provision of 10CFR50.59 to verify that such actions did not constitute an unreviewed safety question.

2. Proposed changes to procedures, equipment, or systems which involve an unreviewed safety question as defined in 10CFR50.59. A subcommittee reviews the Security Plan and Implementing Procedures, with direct input from Nuclear Operators, to assure restricted access to safety-related areas does not present impediments to unit operation or safe shutdown.

3. Proposed tests or experiments which involve an unreviewed safety question as defined in 10CFR50.59.

4. Proposed changes to Technical Specifications.

5. Violations of codes, regulations, orders, technical specifications, license requirements, or of internal procedures or instructions having nuclear safety significance.

6. Significant operating abnormalities or deviations from normal and expected performance of unit equipment that affect nuclear safety.

7. Events requiring 24-hr written notification to the NRC.

8. All recognized indications of an unanticipated deficiency in some aspect of design or operation of structures, systems, or components that could affect nuclear safety.

9. Reports and minutes of meetings of the FRC.

13.4.2.7 Audits

Audits of River Bend Station activities are performed by the Quality Assurance Department under the cognizance of the NRB. These audits encompass:

1. Conformance of unit operation to provisions contained within the Technical Specifications and applicable license conditions at least once per 12 months.

2. Performance, training, and qualifications of the entire unit staff at least once per 12 months.

3. Results of actions taken to correct deficiencies occurring in unit equipment, structures, systems, or methods of operation that affect nuclear safety at least once per 6 months.

4. Performance of activities required by the Operational Quality Assurance Program to meet the criteria of Appendix B, 10CFR50, at least once per 24 months.

5. Emergency Plan and Implementing Procedures at least once per 24 months.

6. Security Plan and Implementing Procedures at least once per 12 months.

7. Any other area of unit operation considered appropriate by the NRB or the Senior Vice President - River Bend Nuclear Group.

8. Fire Protection Program and Implementing Procedures at least once per 24 months.

9. Independent fire protection and loss prevention inspection and audit performed annually, utilizing either qualified offsite licensee personnel or an outside fire protection firm.

10. Inspection and audit of the fire protection and loss prevention program performed by an outside qualified fire consultant at intervals no greater than 3 years.

11. The Radiological Environmental Monitoring Program and the results thereof at least once per 12 months.

12. The Offsite Dose Calculation Manual and implementing procedures at least once per 24 months.

13. The Process Control Program and implement procedures at least once per 24 months.

14. The performance of activities required by the Quality Assurance Program to meet the criteria of Regulatory Guide 1.33 Revision 2 at least once per 12 months.

15. The documentation of the 10 CFR 50.59 evaluations.

13.4.2.8 Authority

The NRB is chaired by the Senior Vice President - External Affairs and advised in those areas of responsibility specified in Sections 13.4.2.6 and 13.4.2.7.

13.4.2.9 Records

Records of NRB activities are prepared, approved, and distributed as follows:

1. Minutes of each NRB meeting are prepared, approved, and forwarded to the Senior Vice President - River Bend Nuclear Group within 14 days following each meeting.

2. Reports of reviews encompassed by Section 13.4.2.6 are prepared, approved, and forwarded to the Senior Vice President - River Bend Nuclear Group within 14 days following completion of the review.

3. Audit reports encompassed by Section 13.4.2.7 are forwarded to the Senior Vice President - River Bend Nuclear Group and to the management positions responsible for the areas audited within 30 days after completion of the audit.

13.4.3 Independent Safety Engineering Group

The ISEG is an on-site, technically-oriented, independent review organization. This group will be established and functional at least 3 months prior to initial fuel load and physically located at River Bend Station. The function of the ISEG is to increase the available technical expertise located on-site and provide continuing, systematic, and independent assessment of plant activities.

The ISEG reports to the Supervisor-Site Engineering on-site who reports to the Director-Nuclear Plant Engineering. Finally, the Director-Nuclear Plant Engineering informs the Manager-Engineering, Nuclear Fuels & Licensing of all ISEG activities and recommendations.

13.4.3.1 Membership

The ISEG is composed of at least five, dedicated, full-time engineers located on-site. Each has as a minimum, a Bachelor's Degree in Engineering or a related science, and at least 2 years of professional level experience in their field, one of which must be in the nuclear field.

13.4.3.2 Meeting Frequency

As a full-time engineering group, the ISEG does not hold routinely specified meetings but interacts, instead, on a continuous basis with the technical staff, operational staff, quality assurance organizations, and engineering support groups in order to complete their responsibilities as defined in Section 13.4.3.3. Special meetings may be called for and announced by the Manager-Engineering, Nuclear Fuels, and Licensing in order to accomodate any abnormal occurrences or special problems.

13.4.3.3 Responsibilities

The principal function of the ISEG is to examine plant operating characteristics, NRC Issuances, Licensing Information Service Advisories, and other appropriate sources of plant design and operating experience information that may indicate areas for improving plant safety. The ISEG is to perform independent review and audits of plant activities including maintenance, modifications, operational problems, and operational analysis. The ISEG need not perform detailed audits of plant operations and is not responsible for sign-off functions such that it becomes involved in the operating organization.

Another function of the ISEG is to maintain surveillance of plant operations and maintenance activities to provide independent verification that these activities are performed correctly and that human errors are reduced as far as practicable.

13.4.3.4 Authority

The ISEG has continued access to plant facilities and records and direct contact with operating personnel.

The ISEG will interface with Engineering Support Groups; however, the ISEG is not an integral part of the QA organization.

Where useful improvements can be achieved, the ISEG develops and presents detailed recommendations to the Manager-Engineering, Nuclear Fuels, and Licensing for any of their responsibilities defined in Section 13.4.3.3. The ISEG also has the authority to advise GSU management on the overall quality and safety of operations.

13.4.3.5 Records

Records of activities performed by the ISEG are prepared, maintained, and forwarded each calendar month to the Manager-Engineering, Nuclear Fuels, and Licensing.

13.4.4 Audit Program

A comprehensive program of planned and periodic audits is established and implemented by the Quality Assurance Department under the direction of the Director - Quality Assurance. The audit program is fully described in Section 17.2 and complies with the guidance in NRC Regulatory Guide 1.33, Revision 2. Audit results pertaining to plant operation are distributed to appropriate management for corrective action and the NRB for review and assessment.

13.5 PLANT PROCEDURES

13.5.1 Administrative Procedures

Management of the River Bend Station in a safe, productive, and efficient manner is assured through the use of administrative procedures. The responsibilities, assignments, methods used, and procedural action are defined in these procedures which are the top level documents within the station operating manual. All safety-related operations are conducted by detailed written, approved procedures.

Administrative procedures address procedure development and the organizations of administration, operation, maintenance, technical support, radiation protection/chemistry, and training. These administrative procedures may have individual instruction in areas of significant safety or management administrative control. In addition, specific plant sections include procedures in which the supervisor specifies section policies, practices and assigns responsibilities to section personnel.

Administrative procedures, as a minimum, cover such subjects as standing orders to shift operating personnel, senior reactor operator and reactor operator authority and responsibilities, responsibilities to meet 10CFR50.54 (i), (j), (k), (l), and (m) requirements, special orders of a transient nature, equipment control, maintenance and modification control, scheduling surveillance testing, temporary procedures, fire protection procedures, and a diagram of the control area indicating the area designated "at the controls."

13.5.1.1 Conformance with Regulatory Guide 1.33

River Bend Station is operated according to documents such as the Technical Specifications and Station Operating Manual. Specific conformance with Regulatory Guide 1.33 is addressed in Section 1.8.

13.5.1.2 Preparation of Procedures

Procedures for the River Bend Station Operations Manual are prepared by the plant staff and others under the direction of the Plant Manager. These procedures include the activities, systems, and subjects listed in Appendix A to the Regulatory Guide 1.33 which are applicable to the River Bend Station configuration. Administrative and technical aspects are addressed in these procedures.

Procedures are classified as safety-related or nonsafety-related and are reviewed by qualified individuals. Approved plant procedures required to support fuel load will be completed at least 70 days prior to fuel load. Approved procedures may be changed in accordance with River Bend Station Operations Manual Administrative Procedures. These revisions to safety-related procedures are reviewed for conformance to 10 CFR 50.59 by a qualified individual.

13.5.1.3 Procedures

A procedures status list includes the procedure type, procedure number, and responsible office for each procedure. These include:

1. Administrative procedures
2. Abnormal operating procedures
3. System operating procedures
4. General operating procedures
5. Surveillance test procedures
6. General maintenance procedures
7. Alarm response procedures
8. Emergency operating procedures
9. Chemistry and radiochemistry procedures
10. Radiation protection procedures
11. Fuel handling procedures
12. Reactor engineering procedures
13. Instrument control procedures
14. Plant procurement procedures
15. Material handling procedures
16. Plant engineering procedures
17. Plant security procedures
18. Fire fighting procedures
19. Training program procedures
20. Emergency plan implementing procedures

13.5.1.3.1 Administrative Procedures - General

The general format for administrative procedures is as follows:

1. Cover sheet
2. Later's page, if applicable
3. List of effective pages
4. Table of contents
5. Text pages - purpose, references, definitions, precautions, limitations and actions, procedures
6. Other documents, attachments, or enclosures

Administrative procedures have been developed to provide administrative controls of a general nature and include, but are not limited to, the following:

1. Procedural Review and Approval
2. Equipment Control Procedures
3. Control of Maintenance and Modifications
4. Fire Protection Procedures
5. Crane Operation Procedures
6. Temporary Changes to Procedures
7. Temporary Procedures
8. Special Orders of a Transient Self-Cancelling Nature

Additional administrative procedures, of a specific nature, have been developed to define and provide control of plant staff operational activities. These procedures include, but are not limited to, the following:

1. Standing orders to shift personnel
2. Assignment of shift personnel to duty stations
3. Shift relief and turnover
4. Control Room access
5. Limitations on working hours
6. Feedback of operator experience

7. Shift supervisor administrative duties

8. Verification of correct performance of operating activities

13.5.1.3.2 Administrative Procedures - Initial Test Program

The general format for these procedures is the same as for administrative procedures - General

RBS has commited to providing administrative controls on procedures relating to the Initial Test Program in the RBS Startup Manual and references such in appropriate sections of the FSAR.

Control has been provided in, but not limited to the following three areas of the initial test program:

1. Test Program Procedures - Preoperational Test Procedures (14.2.3.1) and Initial Startup Test Procedures (14.2.3.2) delineate Development, Review, and Approval Procedures. The Facility Review Committee (14.2.2.7 and 13.4.1), Joint Test Group (14.2.2.6) and the GSU Startup and Test Department (14.2.2.1) responsibilities and functions are discussed as they pertain to the review and approval of Initial Test Procedures. Additional groups/individuals which participate in procedural review processes are described in FSAR Sections 14.2.2.3, 14.2.2.4, and 14.2.2.5 while Section 14.2.2.8 stipulates the minimum qualifications for any personnel responsible for developing, performing, and generating test procedures.

2. Conduct of Test Program - Conduct of Preoperational Phase Testing (14.2.4.1) and Initial Startup Phase Testing (14.2.4.2) addresses testing prerequisites and procedural adherence; while FSAR Section 14.2.4.3, GSU Work Request, discusses performance of modification and/or repair resulting from test program analysis and subsequent retesting.

3. Review, Evaluation, and Approval of Test Results- FSAR Section 14.2.5, Review, Evaluation, and Approval of Test Results, provides discussion of organizations involved in these processes (when acceptance criteria is met or not met), appropriate technical review by qualified groups, and assures prerequisites are met before advancing to the next scheduled test or phase of testing. FSAR Section 14.2.6, Test Records, provides proper documentation and permanent plant filing for each individual test and phase of the test program.

13.5.2 Operating and Maintenance Procedures

13.5.2.1 Control Room Operating Procedures

13.5.2.1.1 System Operating Procedures

The general format for system operating procedures is as follows:

1. Cover sheet
2. Table of contents
3. Text pages - purpose, precautions and limitations, prerequisites, procedure, references.
4. Other documents - attachments such as valve lineups, electrical lineups, data sheets, instrument lineups.

System Operating Procedures provide detailed operating instructions for specific plant systems. System Operating Procedures include, but are not limited to, the following:

1. Nuclear boiler system
2. Control rod drive hydraulic system
3. Reactor recirculation system
4. Containment isolation system
5. Bearing cooling water system
6. Circulating water, cooling towers, and vacuum priming system
7. Condensate system
8. Condensate storage, makeup and transfer system
9. Reactor feedwater system
10. Moisture Separater Reheater (MSR) and feedwater heaters extraction steam and drains system
11. Main steam system
12. Main turbine lube oil system
13. (Spare)
14. Electrohydraulic Control (EHC) oil system
15. Gland seal system

16. Reactor plant component cooling water system

17. Turbine plant component cooling water system

18. Normal service water system

19. Generator seal oil system

20. Generator stator cooling system

21. Service and breathing air system

22. Instrument air systems

23. Generator hydrogen and carbon dioxide system (generator)

24. Nitrogen blanketing system

25. Condenser air removal

26. Auxiliary steam system

27. Remote shutdown system

28. Standby liquid control system

29. Automatic depressurization system

30. High pressure core spray system

31. Residual heat removal system

32. Low pressure core spray system

33. Drywell and containment leak detection systems

34. Main Steam positive leakage control system

35. Reactor core isolation cooling system

36. (Spare)

37. (Spare)

38. (Spare)

39. (Spare)

40. Hydrogen mixing, purge, and recombiner

41. Penetration valve leakage control system

42. Standby service water system

43. Standby gas treatment system

44. (Spare)

45. 13.8-kV ac system

46. 4,160-V ac system

47. 480-V ac system

48. 120-V ac system

49. 125-V dc system

50. 24 and 48-V dc systems

51. Cathodic protection system

52. High Pressure Core Spray (HPCS) diesel generator & auxillary System

53. Emergency diesel generator and auxiliary system

54. Main generator operation

55. Main and station transformers

56. Station lighting system

57. Administration building Heating, Ventilation, and Air Conditioning (HVAC) system

58. Control building HVAC system

59. Containment HVAC system

60. Drywell cooling system

61. Diesel generator building HVAC system

62. Fuel building HVAC system

63. Radwaste building HVAC system

64. Turbine building HVAC system

65. Auxiliary building HVAC system

66. Plant and control building chilled water system

67. Isolation phase bus cooling system

68. Water treatment building HVAC system

69. Auxiliary boiler room HVAC system

70. Yard structure HVAC system

71. Rod control and information system
72. (Spare)
73. (Spare)
74. Reactor neutron monitoring system
75. (Spare)
76. (Spare)
77. Traversing incore probe system
78. (Spare)
79. Reactor protection system
80. Main turbine and EHC control system
81. (Spare)
82. Process radiation monitor system
83. (Spare)
84. Containment atmospheric leakage monitoring system
85. (Spare)
86. Digital radiation monitoring system
87. (Spare)
88. (Spare)
89. (Spare)
90. Reactor water cleanup system
91. Fuel pool cooling and cleanup systems
92. Off gas system
93. Condensate demineralizer system
94. Hypochlorination and chemical feed systems
95. Cooling tower makeup water and clarifier
96. Domestic water
97. (Spare)
98. Makeup demineralizer system

99. Makeup water system

100. Waste oil disposal system

101. Liquid radwaste system

102. Solid radwaste system.

103. (Spare)

104. Floor & equipment drains system

105. (Spare)

106. Sanitary sewage treatment

107. Waste water treatment

13.5.2.1.2 Abnormal Operating Procedures

Abnormal Operating Procedures are provided to correct abnormal conditicns which in themselves do not constitute an actual emergency condition, but which could degenerate into a true emergency in the absence of positive corrective action. These conditions include but are not limited to those events listed in Appendix A of Regulatory Guide 1.33.

The general format for Abnormal Operating Procedures is as follows:

1. Cover Sheet

2. Text Pages - purpose, symptoms, automatic actions, immediate operator actions, and subsequent operator actions.

3. Other Documents - attachments such as charts, tables, etc...may be included as needed.

Abnormal Operating Procedures include, but are not limited to, the following:

1. Reactor scram

2. Main turbine and generator trips

3. Automatic isolations

4. Loss of offsite power

5. Loss of main condenser vacuum

6. Loss of feedwater flow

7. Loss of feedwater heating

8. Loss of instrument air

9. Loss of normal service water

10. Loss of one or both Reactor Protection System (RPS) buses

11. Loss of reactor plant component cooling water

12. Loss of turbine plant component cooling water

13. Loss of containment integrity

14. Loss of 125 V dc

15. Loss of drywell cooling

16. Loss of standby service water

17. Pressure regulator failure - increasing & decreasing

18. Fuel cladding failure

19. Resin intrusion of the reactor coolant system

20. (Spare)

21. (Spare)

22. (Spare)

23. Feedwater level control signal failure-maximum demand

24. Decrease in recirculation system flow rate

25. Loss of Reactor Protection Isolation System (RPIS)

26. Misaligned control rods

27. Fuel handling mishaps

28. Earthquake

29. Severe weather operation

30. Control rod drive malfunctions

31. Shutdown from outside the main control room

32. General employee response to fire

33. Reactor Recirculation pump trip

34. Inadvertent initiation of an Emergency Core Cooling System (ECCS)

35. Safety relief valve stuck open

36. Single Main Steam Isolation Valve (MSIV) closure

37. Condensate high conductivity

38. Unexplained increase in reactor power

39. Hydrogen explosion in the offgas system

40. Operation with a limiting control rod pattern

41. Main turbine bypass valve stuck open

42. Instrument bus power failure

43. Offgas system leak

44. Main transformer cooling system malfunction

45. Failure of Short Range Monitor (SRM) or Intermediate Range Monitor (IRM) detector to retract

46. Offgas activity high

47. Off-site gaseous releases

48. Liquid radwaste system leak or failure

49. Increase in recirculation system flow rate

50. Station blackout

51. (Spare)

52. (Spare)

13.5.2.1.3 General operating procedures

General operating procedures are written to instruct operators in the conduct of major plant evolutions. In general, The General Operating Procedures direct system alterations and lineups in accordance with the System Operating Procedures by direct reference.

The General Format for General Operating Procedures is as follows:

1. Cover Sheet

2. Later's Page, if necessary

3. Table of Contents

4. List of effective pages, if necessary

5. Text-Purpose, references

6. Enclosures

7. Performance package - cover sheet, precautions, limitations and actions, prerequisites, procedure with step sign-off spaces, other attachments

General operating procedures include, but are not limited to:

1. Plant startup to Low Power Alarm Point (LPAP) (35%)

2. Power Operations

3. Shutdown from LPAP to Hot Standby or Hot Shutdown

4. Shutdown from Hot Shutdown to Cold Shutdown

5. Startup from Hot Shutdown to LPAP

6. Startup from Hot Standby to LPAP

7. Scram recovery

8. (Spare)

9. (Spare)

10. (Spare)

13.5.2.1.4 Emergency Operating Procedures

Emergency operating procedures are provided to govern the plant operation during emergency conditions and specify operator actions to be taken to return the plant to a stable condition.

The general format of Emergency Operating Procedures is as follows:

1. Cover sheet

2. Text - purpose, entry conditions and symptoms, operator actions (including instructions and contingency actions)

Licensed plant operators are required to know the entry conditions in the Emergency Operating Procedures.

Emergency Operating Procedures include, but are not limited to, the following:

1. Reactor Pressure Vessel (RPV) control
2. Primary containment control
3. Secondary containment control
4. Radioactivity release control
5. Level restoration
6. Emergency RPV depressurization
7. Steam cooling
8. Core cooling without level restoration
9. Alternate shutdown cooling
10. RPV flooding
11. Level/power control

13.5.2.1.5 Alarm Response Procedures

Each Alarm Response Procedure is composed of a group of individual alarm enclosures. These groups are normally by systems and are located near the panel that contains the alarms annunciator to provide timely reference by the operator.

Each Alarm Response Procedure contains at least the following information:

1. Alarm number
2. Alarm window/title
3. Alarm panel, sections, and grid numbers
4. Alarm set points
5. Alarm initiating devices
6. Automatic equipment actions that occur when the alarm is received
7. Immediate operator actions
8. Possible causes for the alarm condition
9. Subsequent operator actions.

13.5.2.1.6 Temporary Procedures

Temporary Procedures are procedures that may be used to direct operations during testing or maintenance that are not covered in any other plant procedure. Temporary Procedures are of a self-cancelling nature, and are subject to the appropriate approval cycle described in the Administrative Procedures (Section 13.5.1.2).

13.5.2.2 Other Procedures

13.5.2.2.1 Radiation Protection Procedures

Radiation Protection Procedures are as described in Section 12.1.

13.5.2.2.2 Radioactive Waste Management Procedures

Radioactive Waste Management Procedures are as described in Section 12.1.

13.5.2.2.3 Chemistry and Radiochemistry Procedures

Chemistry and Radiochemistry Procedures provide direction to technicians in the proper methods to obtain, analyze, and report required fluids systems samples.

13.5.2.2.4 Plant Security Procedures

Plant Security Procedures are as described in Section 13.6.

13.5.2.2.5 Emergency Plan Implementing Procedures

Emergency Plan Implementing Procedures are prepared under the direction of the Supervisor of Emergency Planning and approved by the Plant Manager. They contain instructions to plant staff personnel on the requirements and methods to implement the RBS Emergency Plan.

13.5.2.2.6 Instrument Control Procedures

Instrument Control Procedures are under the direction of the General Maintenance Supervisor. They provide instructions to the instrumentation and controls group for instrument calibration, test, and repair.

13.5.2.2.7 General Maintenance Procedures

General Maintenance Procedures are under the direction of the General Maintenance Supervisor. Maintenance which affects the performance of safety-related equipment is performed by maintenance personnel in accordance with these written procedures. These procedures contain provisions to ensure that, when a safety system is removed from service, requirements for operability of the redundant safety systems are not violated.

13.5.2.2.8 Material Control Procedures

Material Control Procedures are under the direction of the Administrative Supervisor. These procedures are followed by plant storeroom personnel to ensure proper handling and storage of spare parts.

13.5.2.2.9 Fire Protection Procedures

Fire Protection Procedures are under the direction of the Technical Supervisor. These procedures are followed in the implementation of the fire protection program described in Section 9.5.1.

13.5.2.2.10 Reactor Engineering Procedures

Reactor Engineering Procedures are under the direction of the Technical Supervisor. They provide direction to the technical staff for implementation of core monitoring and reactor kinetics determinations.

13.5.2.2.11 Plant Engineering Procedures

Plant Engineering Procedures are under the direction of the Technical Supervisor. They provide direction to the plant staff in the implementation of engineering support to other staff sections.

ENCLOSURE 2

In response to Question 1 concerning the program which will provide training to Reactor Operators and Senior Reactor Operators, there are specific Emergency Implementing Procedures (EIPs) to the RBS Emergency Plan related to items a through e. The EIPs corresponding to items a through e are as follows:

ITEM	TRAINING PROGRAM AREA	EIP NUMBER	EIP TITLE
a	RECOGNITION OF EMERGENCY CONDITIONS	1-EIP-1	EMERGENCY ACTION LEVEL IDENTIFICATION
b	CLASSIFICATION OF OBSERVED EMERGENCY CONDITIONS	1-EIP-1	EMERGENCY ACTION LEVEL IDENTIFICATION
c	NOTIFICATION OF EMERGENCY TO OFF-SITE AUTHORITIES	1-EIP-6	EMERGENCY NOTIFICATION AND COMMUNICATIONS
d	RECOMMENDATION OF PROTECTIVE ACTION TO OFF-SITE AUTHORITIES	1-EIP-11	RADIOLOGICAL DOSE ASSESSMENT
e	DIRECTION TO STATION STAFF TO TAKE PROTECTIVE ACTION	1-EIP-10	EVACUATION

The training program for the RBS Emergency Plan will be designed so that persons designated as the Shift Supervisor will be required to demonstrate a working knowledge of the above listed procedures through classroom instruction and examinations, walk-through drills, and the annual full-scale NRC-reviewed emergency exercise. A matrix of the EIPs, lesson plans, and emergency positions will specify which individuals receive which training and the degree of depth of that training. The training program will also be documentable to allow for audits and to identify both (1) qualified personnel and (2) on-going training needs.

The training program will be developed during the first quarter of 1984, with the classroom phase beginning in May, allowing an eight-month period for preparation for the January 1985 full-scale exercise.

ENCLOSURE 3

Training in the topics listed below will be provided as part of the Fundamental/Technical Training - Phase II.

A. Training in Heat Transfer, Fluid Flow, and Thermodynamics

The Phase II portion of this training will consist of approximately six (6) weeks of instruction with approximately one (1) week devoted to the above topics. The majority of the elements identified in Enclosure 2 to the H. R. Denton's letter dated March 28, 1980, will be addressed in the Introduction to Thermodynamics section of the Phase II training. Certain elements, Burnout and Flow Instability, and Reactor Heat Transfer Limits, will be covered during the Reactor Plant Protection Concepts segment of the program.

B. Training in reactor and plant transients, and all normal, abnormal, and emergency procedures

Training in reactor and plant transients and all normal, abnormal and emergency procedures is not contained in a single segment of the operator training program. Instead, this forms the fundamental basis for the majority of the Operator Training Program.

The "Cold" License Operator Training Program, excluding Fundamental/Technical and other non-position training, will be approximately thirty-seven (37) weeks in length for the classroom portions. A breakdown of these portions along with a discussion of each phase is provided below.

1. River Bend Systems - 12 weeks

In order for an operator to safely and reliably perform the duties associated with his job, he must be thoroughly knowledgeable of the systems within the plant. This knowledge must include the function(s) which these systems are capable of performing and under what conditions they can be performed. Further, he must be able to align and operate these systems to perform these functions. The operator must monitor system operation and from available indication(s) he must determine whether the system is responding normally or as expected.

2. Simulator Training - 12 weeks

Following acquisition of the required systems level knowledge, the candidates are provided with training in the actual systems operation. That is, they learn to manipulate the system controls necessary to align and operate the system. Evolutions are guided by the use of normal operating procedures. Further, the student is taught to integrate this system's knowledge into overall

plant operations. The trainee learns to monitor and/or control the plant during normal and abnormal/emergency conditions.

The use of abnormal/emergency procedures is stressed. As an aid in developing the ability to use these procedures, classroom lectures and/or seminars are conducted to explore the bases behind certain procedures or procedural steps. Trainees are closely monitored and evaluated on their ability to operate and/or maintain the plant in a safe condition.

The trainees become familiar with the administrative controls and guidelines, i.e., Emergency Plan, Technical Specifications applicable not only to normal but abnormal/emergency conditions as well.

3. Observation Training - 4 weeks

During this period, the trainees will be assigned to an operating plant. While there, the trainee will observe the day-to-day operation of a commercial nuclear power plant.

4. Mitigating Core Damage - 1 week

This program is intended to train operating personnel in the use of installed plant systems to control or mitigate an accident in which the core is or potentially could be severely damaged. Included in this segment is an analysis of selected plant transients/accidents.

5. Intensive Review - 8 weeks

This segment of the program will provide specific training in those areas requiring operator knowledge. Formal classroom discussion will be conducted on the use and understanding of Abnormal and Emergency Operating Procedures, Administrative Controls, Technical Specification and Emergency Response. Included during this segment will be a one week Simulator Refresher.

ENCLOSURE 4

A. The topic, "Gas Generation," as addressed in Enclosure 3 of H. R. Denton's March 28, 1980 letter, should be addressed.

While not specifically referenced as a topic, the intent of the "Gas Generation" segment of the Mitigating Core Damage training as referenced in Enclosure 3 of H. R. Denton's letter will be met. There will be included instruction in:

1. The sources of hydrogen as well as other gas in the post-accident Drywell/Containment at River Bend.

2. Methods for minimizing and/or reducing the concentration of these cases.

B. Provide and justify the training duration for each topic of the program.

See FSAR Section 13.2.1.1.7

C. Managers and Technicians in Instrumentation and Control (I&C), Health Physics, and Chemistry Departments shall be provided with the mitigating core damage training commensurate with their responsibilities.

Provisions will be made to provide Mitigating Core Damage training to those individuals listed. This training will be provided to the Plant Manager. See the paragraph listing personnel attending this course and footnote 6 of Section 13.2.1.1.7.