UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	§	
	§	
HOUSTON LIGHTING & POWER COMPANY, ET AL.	§	Docket Nos. 50-498OL 50-499OL
	§	
(South Texas Project, Units 1 & 2)	§	
	§	

TESTIMONY ON BEHALF OF HOUSTON LIGHTING & POWER COMPANY, ET AL.

OF

MR. GEORGE W. OPREA, JR.
MR. JEROME H. GOLDBERG
MR. ROBERT I. MOLES
MR. RICHARD A. FRAZAR

REGARDING

THE OPERATION OF THE SOUTH TEXAS PROJECT

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Testimony of George W. Oprea, Jr., Jerome H. Goldberg, Robert I. Moles and Richard A. Frazar Regarding the Operation of the South Texas Project

Q1. State your names and current employment.

A1. George W. Oprea, Jr., Executive Vice President for Houston Lighting & Power Company (HL&P)

Jerome H. Goldberg, Vice President, Nuclear Engineering and Construction, for HL&P.

Robert I. Moles, Plant Superintendent at the South Texas Project (STP), for HL&P.

Richard A. Frazar, STP Project Quality Assurance (QA) Manager for HL&P.

Q2. Mr. Oprea, describe your professional experience and educational background.

A2. (GWO): That information is presented in my testimony regarding HL&P's experience in the construction of STP.

Q3. Mr. Goldberg, describe your professional experience and educational background.

A3. (JHG): That information is presented in my testimony regarding HL&P's management of design and construction of the STP.

Q4. Mr. Moles, describe your professional experience and educational background.

A4. (RIM): I received the degree of bachelor of science in Electrical Engineering from the University of Texas in 1965.

I joined HL&P in 1965 as a Junior Engineer in the Energy Production Department. As a Junior Engineer, I performed testing on the 481 MWe P. H. Robinson Unit 1, and participated in the installation and startup of 12 gas turbine generating units. In 1968 I was promoted to Assistant Electrical Engineer in the Electrical Maintenance Section, which is responsible for maintenance of various electrical and electronic equipment in ten generating plants. In 1971 I became Assistant Superintendent at the H. O. Clarke Generating Station and in 1972 I was transferred to a similar position

at the Cedar Bayou Generating Station, where I supervised the operation and maintenance of three 750 MWe gas-fired units. I was appointed to my present position in 1977. I am a Registered Professional Engineer in the State of Texas.

Since becoming Plant Superintendent at STP I have attended the Westinghouse 30 week Reactor Operator Training Course, certifying at the Senior Reactor Operator (SRO) level. I have also attended requalification training on the Zion simulator in 1979 and 1981.

Q5. Mr. Frazar, describe your professional experience and educational background.

A5. (RAF): That information is presented in my testimony on HL&P's current QA program for the design and construction of STP.

Q6. Panel, describe the purpose of your testimony.

A6. (Panel): The purpose of our testimony is to describe the HL&P management organization and plans for the operation of STP; to show that HL&P will have the necessary technical competence to operate STP safely and has already taken important steps in that direction; that HL&P's planned staffing and organization meets applicable NRC requirements; and to demonstrate that HL&P's QA program for Plant operations will meet applicable NRC requirements.

Q7. Mr. Oprea, describe HL&P's management organization for the operation of STP.

A7. (GWO): As Executive Vice President I have ultimate responsibility for nuclear operations, including STP. The nuclear operations staff will report to me through a senior management position at the Vice President level. That Vice President will be responsible for operation of both the Allens Creek and STP plants. The organization for management of STP is shown on the attached chart (figure 1). We have been recruiting for a Vice President of Nuclear Operations and expect to fill that position in the near future with a person who has extensive nuclear operations experience.

Also reporting directly to me will be the Manager of the QA Department. Our QA Manager will have under him separate staffs for nuclear operations, nuclear and fossil design and construction, and supporting services. Our QA Manager, Mr. Frazar is currently serving as the STP QA Manager, and his office is at the Plant site. However, we expect to bring Mr. Frazar back to Houston once his replacement as STP QA Manager has taken over at STP. Mr. James Geiger, the new STP QA Manager is scheduled to report to work on June 22, 1981.

In addition to the nuclear operations and QA personnel there will be a technical support group. This

group is a part of the Nuclear Engineering and Construction organization that reports to Mr. Goldberg.

HL&P has a Nuclear Fuel group that is responsible for nuclear fuel support activities. The Director, Nuclear Fuel reports to me.

In addition to the staff working full time in the nuclear area, there are other HL&P staffs that will be providing support services for STP. Our Fossil Plant Engineering and Construction organization represents a resource of engineering expertise that will be utilized as needed. Although assistance from other HL&P groups and from outside consultants will be available to supplement our full time staff on the STP, we plan to make HL&P essentially self sufficient in regard to the conduct of our nuclear operations.

There are also two committees of executives and managers that will be reviewing the performance of Plant operations and QA. These are the Nuclear Safety Review Board (NSRB) and the QA Program Evaluation Committee. These two committees are described in FSAR Section 13.4 and 17.2, respectively, and are discussed below.

Q.8 Mr. Moles, describe the organization of the Plant Operations staff.

A.8 (RIM): Figure 13.1-2 of Section 13.1 of the Final Safety Analysis Report (FSAR) shows the organization for the operation of the two STP units, including the number of personnel per our current plans. While the details may vary as our planning progresses, I do not expect any major changes.

As shown in figure 13.1-2 and described in Section 13.1 of the FSAR, the organization includes four major Sections: Operating; Technical; Maintenance; and Training, each headed by a General Supervisor. The two other groups shown, the Radiation Protection Group and the Administrative Group, will also have senior level Supervisors. Section 13.1 of the FSAR summarizes the responsibilities of each group as well as the qualifications of key personnel. In my answers to the next few questions I describe the functions of each of these organizations, their ultimate staffing levels, and their staffing levels as of May 27, 1981.

Q.9 Describe the Operating Section.

A.9 (RIM): The Operating Section includes personnel licensed to operate the reactor and Auxiliary Operators. The Operating General Supervisor is in overall charge of reactor operations and will hold a Senior Reactor Operator (SRO) license on each unit.

The organization chart shows six Operating Supervisor positions in the Operating Section, our equivalent of the

Shift Supervisor required by the NRC. Operating Supervisors will hold an SRO license on each unit. A corporate management directive will be issued prior to fuel load, clearly establishing the command duties of the Operating Supervisor and emphasizing his primary responsibility for safe operation of the Plant. Plant procedures will clearly define the duties, responsibilities and authority of the Operating Supervisor and other licensed personnel.

The Watch Supervisors, reporting to Operating Supervisors, will be licensed SRO's and will be responsible for reactor operations command in the control room. Each one will receive supervisory training designed to optimize his performance as a Watch Supervisor.

We currently have one Operating Supervisor, two Watch Supervisors and 23 other personnel in the Operating Section. The three Supervisors were previously licensed SRO's on operating commercial nuclear power plants. We are preparing all 26 personnel to be eligible for cold licensing on Unit 1. At present 24 of them either have the required nuclear experience or have been certified in the Westinghouse Reactor Operator Training Program, and training for the other two is in progress.

We will have 22 Reactor Operators and approximately 30 Auxiliary Operators for two unit operation.

The Reactor Operations personnel are currently involved in writing system descriptions and/or operating procedures. As systems are turned over to HL&P these people will be participating in preoperational testing.

Q.10 Describe the Technical Section.

A.10 (RIM): The Technical Section is made up of four groups: Reactor Engineering, Chemical Analysis, Chemical Operations, and Results Engineering.

The Reactor Engineering Group will consist of a Lead Reactor Engineer and two Reactor Engineers, one for each unit. The two Reactor Engineer positions are filled. One of the Engineers has had extensive nuclear experience, including several years as a Navy Reactor Operator and Reactor Technician and 12 years working on the Research Reactor at the Texas A&M Nuclear Science Center. The other joined HL&P upon receipt of a Bachelor of Science degree in Nuclear Engineering from Texas A&M in 1977 and has since attended the 30 week Westinghouse Reactor Operator Training Program, certifying at the SRO level. Both Reactor Engineers have attended the Westinghouse Nuclear Engineers Course.

The Reactor Engineers are currently developing the core physics and thermal hydraulic testing programs to monitor core performance. They are developing the Initial Startup Test Program, the onsite Special Nuclear Materials

Accountability Program, and tne New Fuel Receipt, Inspection and Storage Procedures. Their responsibilities during Plant operation will include operational planning to determine plant loading and stretchout or coastdown capability to ensure that refueling periods correspond to the proper core burnup and system load demand. The Reactor Engineers will also implement the Special Nuclear Materials Accountability Program for control and accountability of all special nuclear material at the Plant site. They ensure that the receipt, inspection, and storage of fuel is conducted in accordance with applicable criteria.

The Chemical Operations Group will consist of 42 personnel, including a Supervisor, 6 Foremen, 15 Chemical Operators and 20 Trainees and Auxiliary Operators. The number of Chemical Operations Foremen has been increased to provide supervision on each shift. We have one Chemical Operations Foreman, three Chemical Operators, and four Chemical Operator Trainees on board at this time. These Chemical Operators and Operator Trainees have nuclear navy backgrounds.

The Chemical Operations Group is responsible for the operation of Chemical Process Systems, Demineralizer Systems, Radioactive Waste Processing Systems, and Non-Radioactive Waste Processing Systems. They are currently writing procedures and developing training materials.

The Chemical Analysis Group will consist of 23 personnel, including a Supervisor, 2 Foremen, a Nuclear Plant Chemist, and 19 Chemical Technicians, Monitors, Junior Monitors and Trainees. The Chemical Analysis Group presently consists of a Supervisor, Foreman, and seven chemical technicians. At the time we reviewed our organization after TMI, we had one Supervisor over both Chemical Analysis and Chemical Operations. Our review concluded that this job was more than one man could properly handle, so it was split into two. A Nuclear Chemist also has been added on the current chart.

The Chemical Analysis Group is responsible for plant chemistry and radiochemistry. Chemical Analysis personnel perform laboratory analyses on samples as contrasted with Chemical Operations personnel who operate systems supporting reactor operation. Currently Chemical Analysis personnel are writing procedures, developing training materials, conducting the preoperational environmental sampling program, and providing chemical analysis support for hydrostatic tests.

The Results Engineering Group will consist of a Lead Results Engineer and approximately eleven Results Engineers. We have the Lead Results Engineer and five Plant Results Engineers at this time, all of whom have engineering degrees. Three of them have completed the 30-week Westinghouse Reactor Operator Training Course.

The Plant Results Engineers prepare test procedures, perform tests, and prepare test reports for initial startup, post-maintenance, and performance testing of Plant systems. They implement programs for In-service Testing of Pumps and Valves, HEPA Filter Testing, Containment Integrated Leak Rate Testing, and Technical Specification Surveillance Testing. One of these Engineers will have lead responsibility for implementation of the Plant Fire Protection Program. Results Engineers develop solutions to problems and equipment malfunctions in various Plant systems. The Results Engineers are currently developing the programs discussed above, writing procedures, and coordinating the Plant staff review of documents. The two Engineers developing the Fire Protection Program have each attended several schools and seminars on fire protection. In addition, we expect to utilize the services of a consultant to review our Fire Protection Program.

Q.11 Describe the Maintenance Section.

A.11 (RIM): The Maintenance Section is divided into four Groups; Electrical, Mechanical, Instruments & Controls and Support, each headed by a Supervisor. Electrical and Mechanical Maintenance were originally headed by a single Supervisor, but this position was split so that each Group will have its own Supervisor. This was done because of the

magnitude of the workload. With the exception of the Electrical Maintenance Group, the Supervisor positions have been filled. Two of the Supervisors whose experience was in fossil plants have been assigned to operating nuclear plants to gain experience by participating in eling outages.

The Maintenance Engineering Group will consist of 11 personnel, including a Supervisor, a Planning Scheduler, 7 Specialists and 2 Clerk-Typists. The Supervisor and one of the Specialist positions are now filled.

The Electrical Maintenance Group will consist of 21 personnel, including a Supervisor, 2 Foremen and 18 Electricians, Apprentices and Helpers. One Foreman, 5 Electricians and 3 Apprentice positions are now filled.

The Mechanical Maintenance Group will consist of 44 personnel, including a Supervisor, a Welding Specialist, 5 Foremen and 37 Mechanics, Apprentices and Helpers. The Supervisor, a Foreman, 13 Mechanics and one of the Apprentice positions are now filled.

The Instrumentation & Control (I&C) Group will consist of 51 personnel, including a Supervisor, 2 Engineers, 4 Foremen and 44 I&C Technicians and Apprentices. The Supervisor, an Engineer, a Foreman and 12 Technician positions are now filled.

Maintenance personnel are currently performing preventative and corrective maintenance on the Reservoir Makeup Pumping Facility and Meteorological Tower equipment. They will assume maintenance responsibility for Plant equipment as it is released for Preoperational Testing. Maintenance personnel will provide support, both manpower and procedural, for initial wire checks and functional checks, instrument and relay calibration, initial motor checks, initial pump checks, checkout of valves, electrical continuity, meggar and hi-potential tests, and final coupling alignment. The Maintenance Section will also provide support for test calibration and assistance in leak testing, flushing of piping systems, and the preoperational testing. All Maintenance Groups are currently writing procedures and developing spare parts requirements.

Q.12 Describe the Training Section.

A.12 (RIM): The Training Section is responsible for Plant staff training activities. Since one of the recommendations resulting from a recent organizational review was an expanded training organization, we plan a large Training Section. We have three Groups in our Training Section: Operator Training, Simulator Training and General Training. The Simulator Training Group will utilize a plant specific simulator which is now on order and is scheduled to be installed on the site by mid-1983.

The Training General Supervisor has 20 years Navy experience, 15 in the nuclear area. He has attended an 8-week training course at the training center in Zion and is participating in the INPO Instructor Qualification and Certification Workshops.

The Operator Training Group will consist of the Operator Training Supervisor and 3 Training Instructors, all of whom will be licensed SRO's. This group will be responsible for all operator license training, except that utilizing the simulator.

The Simulator Training Group will consist of a Supervisor, 3 Instructors, 2 Programmer Technicians, a Draftsman and a Clerk. This Group will utilize the plant specific simulator to train Reactor Operators and a number of other personnel, including members of the Technical Support Staff.

The General Training Group will consist of a Supervisor and 7 Instructors. This Group will provide technical and general employee training.

The three Instructor positions in the Operator Training Group have been filled. The Instructors each have about 7 years of nuclear Navy experience. All three have attended the 30-week Westinghouse Reactor Operator Training Program, and each is certified at the SRO level.

Q.13 Describe the Radiation Protection Group.

A.13 (RIM): The Radiation Protection Supervisor is assigned to the Plant staff from the corporate Health Physics organization. The Supervisor receives technical direction from the corporate Health Physics organization but receives direction on scheduling from me. The Group is responsible for a radiation exposure control program to assure that exposure to the Plant staff and the public are kept as low as reasonably achievable.

The Radiation Protection Group will consist of 33 personnel, including a Supervisor, two Health Physicists and 30 Radiation Protection Technicians, Monitors, Junior Monitors and Trainees. We currently have a Supervisor and one Health Physicist. The Supervisor has 30 years experience in applied radiation protection including both Navy and commercial nuclear power plant experience.

Q.14 Describe the Administrative Group.

A.14 (RIM): The Administrative Group will consist of 15-20 personnel, including a Supervisor. Its function will be to provide clerical and administrative support to the Plant organization.

Q.15 Mr. Frazar, describe the QA program for operations.

A.15 (RAF): As described in Section 17.2 of the FSAR, HL&P has a QA Manual that establishes the corporate QA

policy and commitments. The QA Manual will be implemented for STP operations by an Operations QA Plan (OQAP), which contains general criteria and requirements for STP operations. The OQAP is in turn implemented in accordance with procedures that provide detailed instructions to employees performing quality related work. The HL&P QA Manual has been in use for a number of years. The OQAP is currently under development, with a significant amount of the work already accomplished. Our plan shows a tentative completion of the OQAP by the middle of 1982, with further refinements occurring as we move toward the fuel load date. This will allow more than adequate time to continue development of the detailed procedures and training programs.

Q.16 Describe the QA organization for operation of STP.

A.16 (RAF): Our organization structure for operations QA will parallel the QA organization for design and construction described in my previous testimony. The QA organization for operations will report to executive level management not directly responsible for power production. The Operations QA organization consists of a Quality Engineering Group, an Auditing Group, a Surveillance Group, and a Quality Control (QC) Group. (See figure 2) The functions of these Groups are set forth in Section 17.2 of the FSAR and are summarized below.

Q.17 What are the functions of the Quality Engineering Group?

A.17 (RAF): Quality Engineering performs inspection planning; investigates nonconformance reports and corrective action requests; performs trending; reviews procedures, procurement documents, quality records, audit responses, specifications and receiving documents; evaluates test data; writes procedures and revisions to the OQAP; maintains the working QA files; prepares various QA reports; and provides QA training.

Q.18 What are the functions of the QA Auditing Group?

A.18 (RAF): The QA Auditing Group schedules audits; prepares audit plans; recommends auditor certification; provides input to the training program; and reviews and approves responses to the audit deficiency reports.

Results of auditing activities are reported to executive management as well as management responsible for the activities which have been audited. This audit group does not, by itself, perform all of the audits necessary to satisfy criterion XVIII of Appendix B. HL&P has an additional auditing group which is off-site and which provides broader-scoped program audits to ensure that all 18 criteria of Appendix B are audited. Although there will be some overlap

between these auditing functions, the purpose of the on-site group is to provide frequent smaller-scope audits to inform Plant and QA management regarding the current status of the program. The off-site audit group provides a macroscopic view of the QA program implementation by the whole STP organization.

Q.19 Will the QA functions in Houston that you described in your earlier testimony continue during Plant operation?

A.19 (RAF): Yes. The QA Department in Houston will continue to provide services to the Plant, including document review, vendor surveillance and auditing.

Q.20 What are the functions of the QA Surveillance Group?

A.20 (RAF): The QA Surveillance Group performs surveillance on the document control center, the record management system, general plant housekeeping, and activities controlled by the technical specifications. Results of surveillances are reported to Plant and QA management.

Q.21 What are the functions of the QC Group?

A.21 (RAF): The QC Group performs inspections to verify that acceptance criteria have been met for work done by Operations and Maintenance personnel.

The Group recommends approval of procedures and checklists; develops QC procedures; inspects activities

during maintenance, repair, and modification; and initiates nonconformance reports (NCR's).

Q.22 What is the current staffing level for the Operations QA staff?

A.22 (RAF): We currently have six professional personnel assigned to the Plant QA organization. Personnel will be added to support the Operations QA program according to a staffing schedule based on Project schedule information.

Q.23 What qualifications will be required for QA personnel?

A.23 (RAF): Quality Engineering personnel should preferably have a degree in a specific technical discipline (such as mechanical, electrical, or nuclear engineering) and experience in QA. Our intent is to employ a mixture of seasoned personnel with 5 to 10 years experience in nuclear QA, coupled with junior personnel to work alongside the senior people in a career development role.

Quality Surveillance personnel should have licensed operations experience in the commercial nuclear power industry or have had experience in one of the military programs as a nuclear reactor operator or a senior person in charge of an operating reactor, such as an Engineering Officer of the Watch in the Navy nuclear program.

Auditing personnel should have previous experience and certification as auditor or lead auditor and be certified in accordance with ANSI N45.2.23 requirements.

Our QC personnel will be certified in accordance with ANSI N45.2.6 requirements as Level II in the discipline to which they are assigned. Level III support to the QC organization will be provided from the QA Department.

Management level personnel directly responsible for the operations QA functions must have QA experience and preferably a degree in engineering or science, and must be knowledgable in nuclear power operations and maintenance.

Q.24 Mr. Oprea, does HL&P have an Operations QA Manager?

A.24 (GWO): No, we have been actively recruiting to fill that position, and expect to have a qualified individual on board by the fall of 1981.

Q.25 Mr. Goldberg, is HL&P planning how to provide technical support for Plant operation.

A.25 (JHG): Yes. Studying and planning for technical support of operations started in 1976 when HL&P defined the role of HL&P Engineering in pre-operational testing and start-up. In 1978 and early 1979, the scope of activities and responsibilities of the Site Engineering group during the design and construction stage was defined. Also, in 1979, a study was completed recommending that HL&P develop its own capability to perform non-LOCA transient analysis. We are now developing that capability. In the last two years, HL&P personnel have visited nuclear facilities of

Public Services of Colorado, Sacramento Municipal Utilities District, Southern California Edison, Virginia Electric and Power Company, Arizona Public Services, and Florida Power & Light to review various organizational structures used for technical support of Plant operations. Findings from these trips have been factored into our plans.

One of our most significant recent efforts was a study performed by Nuclear Services Corporation (NSC), completed in January 1980. A principal purpose of the NSC study was to evaluate, in light of TMI, the HL&P staff expertise needed to provide technical support during Plant operation. Numbers, skill type and skill levels of personnel as well as technical review areas were identified.

Q.26 What are HL&P's current plans for providing technical support for Plant operations.

A.26 (JHG): Most likely the present Site Engineering Group will form the nucleus for the technical group supporting Plant operation. We plan to have a technical group on-site, close to the activities it will support, to aid in developing a close relationship with the operating staff. Although formal procedures will govern such matters as requested design changes, a close relationship will be an aid to communications and mutual understanding. Some support will also be available from the headquarters office.

Our goal is to have an on-site staff technically capable of performing design verification for all technical areas, especially those that are uniquely nuclear. For very specialized and complex areas, such as seismic analysis, we will most likely continue to employ outside consulting assistance. We believe that a utility must have in-depth knowledge and involvement in technical matters affecting Plant operation and we will direct our recruiting and training efforts to that end.

As we move into the operations phase, our technical activities will shift from the headquarters to the site to perform, in support of the Plant Operations staff, such functions as:

1) Provide a program and procedures for control of Plant design.
2) Review proposed changes to operating procedures.
3) Review and evaluate operating experience and performance of selected systems and components.
4) Review activities such as maintenance, outages, and surveillance testing and the associated procedures.
5) Provide engineering design for Plant modifications (in-house and/or through contractors).

6) Participate in the resolution of nonconformances.

7) Participate in procurement of engineered equipment, including spare parts.

8) Interface with the Plant technical staff.

Q.27 Mr. Moles, please summarize the current staffing level of the STP Operations Division.

A.27 (RIM): Although Plant operation is still a few years away, HL&P has a significant part of the Plant operations staff on the job at STP.

Staffing the Plant organization began when the Assistant Plant Superintendent and I were named to our respective positions in February of 1977. Since that time we have grown to a staff of about 112 persons. We expect to build up to a staff of approximately 360 for two unit operation. To plan an orderly development of the operations staff we have identified the tasks which must be accomplished by the Plant staff up through commercial operation of Unit No. 2.

We have been hiring personnel with nuclear experience in the military services. We plan to continue to do this, realizing, however, that the demand for these personnel has greatly increased since TMI. We also plan to fill some key positions with personnel with commercial nuclear power plant operating experience.

Q.28 What are Plant Operations personnel doing during the construction phase?

A.28 (RIM): One of the major pre-operational activities we have identified is procedure development. We have made significant progress in preparing our Plant Procedures Manual. As of March 3, 1981, 137 procedures had been approved and another 149 were in some stage of development. The procedure index identifies over 1600 procedures which we plan to have in our Manual.

The Plant Operations Review Committee (PORC), which is described below, has been meeting monthly since July 1978. The Committee's primary activity to date has been the review of safety-related procedures. Other major activities of Plant personnel to date have included spare parts evaluations and development of training materials.

Another major activity which Plant personnel will be involved in is pre-operational testing. Operators, Electricians, Mechanics, and I&C Technicians will be assigned to the Test Engineers as needed. Very valuable experience will be gained by our personnel in this way. Present personnel are giving emphasis in procedure development to procedures that will be utilized for pre-operational testing.

In addition to working on plans for Plant operation, my staff is undergoing training and is reviewing and commenting

on the Plant design. The experience of our operations staff in operating similar systems at other plants has been reflected in suggested changes to the design to improve system operability and maintenance.

Q.29 Mr. Moles and Mr. Frazar, describe the transition from construction to Plant operation.

A.29 (RIM, RAF): Before fuel is loaded in the Plant, HL&P will conduct tests of the Plant equipment and systems. A separate HL&P organization, called the Startup Group, has been established to conduct these tests. The Startup Manager, Barry Duncan, is also Assistant Plant Superintendent and his qualifications are described in Section 13.1 of the FSAR. The Startup Organization is described in Section 14.2 of the FSAR. It includes a number of experienced engineers working on STP under a contract with Westinghouse. Plant Operations personnel, including Electricians, Mechanics, Chemical Operators, Chemical Technicians, I&C Technicians and Reactor Operators will be assigned to the Startup Group to assist in the performance of testing. The Startup Group is now writing the Startup test procedures utilizing, where practical, Plant procedures.

As each Plant system nears completion the HL&P Startup Group, HL&P Plant QA, Brown & Root (B&R) QA and B&R Construction Engineering will jointly review the status of

the system to determine what must be done for the system to be ready for testing. This activity includes "walk-downs" of the system to identify hardware exceptions or deficiencies.

When nonconforming conditions are identified by HL&P Plant QA or Startup an NCR will be generated. The NCR will be dispositioned by the construction NCR system. Depending on the scope of work necessary to disposition the NCR, HL&P maintenance or B&R construction will implement the disposition of the NCR.

Once a system is tested and the test results approved, it will be turned over to Operations.

Q.30 Mr. Goldberg, has HL&P hired the personnel who will provide technical support for Plant operations?

A.30 (JHG): As I mentioned before, the current design and construction technical staff will form the nucleus for the technical staff during operations. Technical activities on the Project are under the direction of the Project Engineering Manager. The experience and qualifications of that staff were described in my previous testimony in this proceeding.

NUREG-0731 identifies technical support skills required for both normal and emergency operations. We already have on staff individuals that meet or will meet most of the qualifications outlined in that document. We plan to acquire or train additional individuals so that all

the requirements are satisfied. For instance, this year we are actively recruiting specialized skills in the areas of welding engineering, metallurgy, ASME Division III pipe stress analysis, and transient analysis.

Q.31 Mr. Moles, describe the program for training STP Plant operations staff.

A.31 (RIM): An important element of our training program will be the use of a plant specific simulator.

Early this year we placed an order for a simulator for STP. The purchase of a simulator was one of the recommendations made after review of the lessons learned from TMI.

We have formed a project organization to follow the design, manufacture, installation, and testing of our simulator. It is expected that the nucleus of our Simulator Training Group will come from this Project organization.

The Operator Training Group will be responsible for all operator license training except that utilizing the simulator. The objective of HL&P's operator training is to equip the operator to assess any given situation and to use the available information to evaluate the Plant parameters displayed in the control room. The key to the operator's ability to do this is understanding such factors as the physical laws that govern the operation of Plant systems and

how those systems function. We expect to have a staff of trained personnel who will be able to handle any situation they may be confronted with in the control room.

Our on-site operator license training program consists of three parts: the Nuclear Steam Supply System (NSSS) Training Package developed by Westinghouse, a Balance of Plant Package, and a Procedures Package. The NSSS Training Package consists of 43 lessons including health physics, chemistry, reactor theory, systems, accidents, transient and instrument failure analysis. It includes system descriptions, lesson plans, and training aids. The Balance of Plant Package is being developed by our Operator Training Group. It will consist of 62 lessons on Plant systems. Each lesson will include system descriptions, lesson plans, and training aids. The current status is:

System Descriptions:	32 completed, 15 in draft
Lesson Plans:	20 completed
Training Aids:	20 in development

The Procedures Package has not yet been developed. It will consist of 12 lessons covering operating procedures, including normal, abnormal, emergency, and annunciator response.

The General Training Group will provide the other training for the Plant staff including General Employee Training (Security, QA, health physics, etc.). Technical

Training will also be provided for six of the Plant groups: Chemical Analysis, Chemical Operations, Radiation Protection, Mechanical Maintenance, Electrical Maintenance, and Instrumentation and Controls.

Q.32 Describe the training completed to date.

A.32 (RIM): Since 1977, we have sent three groups of trainees through the Westinghouse Phase I, Phase II, and Phase III programs at Zion.

These groups consisted of Reactor Operators, Supervisors, Plant management personnel and Engineers. Through this program we have certified 17 individuals at the SRO level and 8 individuals at the RO level. In addition to that program, we have taken 8 individuals who were already cold licensable and put them through a Westinghouse 8-week intensive course to familiarize them with Westinghouse commercial PWR's. Six additional co-licensable individuals began the Westinghouse 8-week course on June 8, 1981.

We think it is important to periodically provide refresher training to those individuals who have been through the Westinghouse programs. Accordingly, we have contracted with Westinghouse for 4-day Requalification programs on the Zion simulator. To meet current retraining requirements we intend to send our licensed operators to Zion on an annual basis for the 4-day Requalification program.

In September, October, and November of 1979, we sent 24 personnel to the Westinghouse 4-day Requalification program at Zion. In January, February, and March of this year we returned 33 personnel to Zion for that program.

Q.33 How will the training program be utilized to prepare for initial Plant operation?

A.33 (RIM): This spring we are conducting an abbreviated on-site lecture series. In early 1982 we intend to send our people back to Zion for the 4-day Requalification program and in the spring begin a 15 week on-site lecture series. In early 1983, we plan two weeks of Simulator training. When that is completed we will have the Westinghouse Pre-License Review Series and Audit and then personnel will be taking the license examination. Our plan is to put enough people into the start of this program to man both Units 1 and 2. Although we do not expect a 100% pass rate, we are confident that this approach will ensure that we have enough licensed personnel for Unit 1. We expect 40-50 people to be taking the license examination.

Q.34 How will the training program be utilized once the Plant begins operation?

A.34 (RIM): After Unit 1 fuel load, our program will be structured to bring peopl in at the entry level and train them to qualify for the SRO license by means of three programs.

The first is the Auxiliary Operator Training Program. Annually, we intend to have one class which will include the following: 2 weeks indoctrination, 7 weeks Nuclear Power Plant fundamentals, 8 weeks of systems, 8 months of on-the-job training, and 20 hours of simulator training.

After an Auxiliary Operator has been with us for 18 months, he is eligible to go into hot license training at the RO level. That is the second of the three programs. We intend annually to have one class which will include: 10 week lecture series, 200 hours of simulator training, and 13 weeks of standing watch in the control room under the direction of a licensed Reactor Operator. Finally, candidates for RO and SRO certificates will take the Westinghouse Pre-License Review Series and Audit, followed by the license examination.

The third program is the RO to SRO upgrade. Annually, we will conduct one class which will include: 13 weeks of standing watch at the SRO level under the direction of a licensed SRO, 40 class room hours of supervisory leadership training, 40 hours of simulator training at the SRO level, and 4 weeks of advanced theory.

All Auxiliary Operators, Reactor Operators, and Senior Reactor Operators will undergo retraining on a continuous basis. We plan to utilize a six shift rotation

which provides that five days in each 42 are used exclusively for retraining. Another four days in 42 are available for relief duty. When relief operators are not standing relief watches in the plant, they will be involved in additional retraining activities on an as-needed basis.

The retraining program will include lectures, simulator exercises, examinations, general employee training, Licensee Event Report (LER) review, respiratory training, fire brigade training, procedures review, and supervisory training.

Our plant specific simulator for STP will be located at the site. We hope to have the simulator operational in time to utilize it during the cold license training of our first group of Operators. Of the simulator training that I mentioned previously, that which is done before we have our simulator operational will be conducted at Zion.

Q.35 Mr. Frazar, please describe how the training program of the QA Department will be conducted during Plant operations.

A.35 (RAF): The QA Department will perform indoctrination and training for QA personnel as well as other HL&P employees whose duties and responsibilities will be governed by the QA program.

Indoctrination and training of QA and non-QA HL&P employees will be conducted to familiarize new or transferred

employees with the Nuclear QA Program. The program will stress the importance and meaning of QA as it applies to the employee's new position. It will include a discussion of the philosophy and objectives of the QA Program; an explanation of the QA Program and how it affects the duties and responsibilities of the employee; and the purpose, scope and implementation of quality-related manuals, instructions, procedures, Regulatory Guides, standards and codes, with specific emphasis on the sections which most directly affect the employee's new position. Emphasis will be placed on the fact that the QA Program has been endorsed by the President of HL&P and that quality policies and the various plans and procedures that make up the QA Program are mandatory requirements which must be implemented and enforced.

In addition to the QA Department training and indoctrination described above, each set of departmental procedures and the Plant procedures will provide for training and certification, if required, of personnel who perform quality-related work.

Q.36 Mr. Goldberg, will there also be training programs for technical support personnel?

A.36 (JHG): Yes. Training of the technical support groups involves a number of considerations. First, a general training program is planned for each technical discipline.

Included in this planned training will be the use of the STP simulator. We believe it is important that the technical support staff understand plant operations from the reactor operator's viewpoint.

Another important part of the technical support staff training is health physics training. We plan to perform this function totally in-house and to have on board the instructors and the appropriate multimedia equipment to accomplish this task.

Q.37 Mr. Moles, describe the organization for each shift during reactor operation.

A.37 (RIM): The shift organization is shown in Figure 3. An Operating Supervisor with an SRO license will be on site anytime a unit is loaded with fuel. All personnel on shift are responsible to him.

Reporting directly to him is an organization for each reactor unit headed by a Watch Supervisor with an SRO license and a Chemical Operations Foreman with associated staff. Each unit will also have two operators with RO licenses, a Radiation Protection Technician/ Monitor and a Chemical Technician/Monitor.

Chemical Operations personnel working on a unit will keep the Watch Supervisor informed of their activities, but will receive direction on priorities for scheduling work activities from the Operating Supervisor.

We have added administrative aides on shift as a result of TMI lessons learned. Administrative functions that detract from or are subordinate to the Operating Supervisor's management responsibility for the safe operations of the plant will be delegated to these personnel. Even before TMI we had anticipated a PBX operator on shift to relieve the control room of telephone answering responsibilities.

Our current plans call for the fire brigade to be headed up by the Chemical Operations Foreman. The other four members will be made up of Chemical Technicians and Chemical Operators from the Chemical Analysis Group.

Q.38 Does HL&P plan to include a Shift Technical Advisor (STA) in its shift organization?

A.38 (RIM): Our present plan is to provide the expertise of the STA through increased training of our Operating Supervisors. The STA position was recommended as a lesson learned from TMI in NUREG 0578. The purpose was to provide an individual on-shift, with training in nuclear engineering or a related science and training in plant design and transient response, to complement the functions of other shift operations personnel. The STA would be available in the control room within 10 minutes of being summoned to diagnose off-normal events and advise the shift supervisor. I understand that STA's are serving now at currently operating commercial nuclear power plants.

In NUREG 0731, "Guidelines for Utility Management Structure and Technical Resources", the NRC staff took the position that "the long-term need for a shift technical advisor to provide advice to the control room supervisor may be eliminated when upgraded qualifications for the control room supervisor ... and improved control rooms ... have been attained." We believe that the long term approach discussed in NUREG 0731 is preferable. The person making the decisions about reactor operation should have the necessary experience and education to perform properly.

However, if the NRC continues to require STA's as separate advisors, HL&P will add qualified STA's in accordance with the NRC requirement.

Q.38 What will be the procedures for controlling access to the control room?

A.38 (RIM): Plant procedures will limit normal access to the Control Room to those individuals responsible for direct operation of the Plant, technical advisors, and specified NRC personnel, and will establish a clear line of authority, responsibility, and succession in the control room. Limited special access to the control room may be approved by the Watch Supervisor for specified purposes.

Q.39 Will there be shift turnover procedures?

A.39 (RIM): Yes. Plant procedures for shift relief and turnover will require signed check-lists and logs to assure that the operating staff (including Auxiliary Operators and maintenance personnel) possess adequate knowledge of critical plant parameter status, system status, availability and alignment.

Q.40 Mr. Goldberg, how does HL&P plan to control design changes during plant operation?

A.40 (JHG): All changes affecting basic engineering design (equipment, structures, sizing and arrangement) or Plant operability will be reviewed and approved by the technical staff. Procedures will also require the approval of QA, the PORC and the NSRB. In addition to the normal review for technical adequacy or desirability, these requests for design changes will be reviewed with close attention to the impact on FSAR commitments, any affected analyses and whether or not an unreviewed safety question is involved. Once the request is approved, implementation of the design change will be directed by the site technical group through the normal engineering process.

Q.41 Does HL&P have a system for learning from the operating experience of other utilities?

A.41 (JHG): Yes, that type of information is available in documents such as NRC I&E Bulletins and LER's. At present,

NRC generated input, including I&E Bulletins, Notices, new regulations, and Regulatory Guides are screened by our Nuclear Licensing Department for applicability and importance and then sent for action to the appropriate management and technical personnel, including those in Operations. The publication, Nuclear Power Experience Reports, is used as another source of input to the technical support and Operations staffs. The reports are reviewed by the cognizant discipline and factored into the Plant design, construction and/or planned operation as appropriate along with other inputs.

In addition, both Mr. Moles, STP Plant Superintendent and Dr. James Sumpter, of my staff, are members of the EEI Nuclear Operations Subcommittee. This group, is composed of the chief technical support and operations personnel from many utilities in the U.S. They meet triannually and exchange information concerning operational experiences.

Through the efforts of Nuclear Safety Analysis Center and the Institute of Nuclear Power Operations, the many hundreds of LER's are now being screened and distributed to interested parties, through a service known as NOTEPAD. We are a user of that service.

Q.42 Mr. Moles, how will Plant operating procedures be controlled?

A.42 (RIM): Responsibility for preparation of each procedure is assigned to a supervisor in the Plant organization. After appropriate reviews, the procedure is submitted for approval to the Plant Superintendent. For safety-related procedures, the cycle includes review by the PORC, a group required by the Technical Specifications to perform such reviews as well as other functions. Procedures governing the activities of the PORC are included in the Plant Administrative Procedures.

Q.43 Describe the PORC.

A.43 (RIM): The PORC is a committee established by the Plant Administrative Procedure Manual and required by the Technical Specifications. Its members include the Plant Superintendent, the Assistant Plant Superintendent, the Operating General Supervisor, the Technical General Supervisor, the Maintenance General Supervisor, a Reactor Engineer, the Radiation Protection Supervisor, the Plant QA Supervisor and a Site Engineering Representative.

The PORC reviews procedures, tests, changes to Technical Specifications and safety-related systems, Technical Specification violations, 24-hour notification items, Plant operations, and the Security and Emergency plans.

The PORC advises the Plant Superintendent regarding these matters, and he makes his decisions after considering

their advice. We have built safeguards into this mechanism to minimize the possibility of suppression of dissenting opinions regarding safety matters. In the event of a disagreement between a PORC member and the Plant Superintendent, the member may request that the disagreement be documented in the meeting minutes. PORC meeting minutes go to the Chairman of the NSRB, which is discussed below. If a majority of PORC members disagree with the Plant Superintendent, the NSRB Chairman and the Executive Vice President must be notified in writing within 24 hours.

The PORC has been meeting monthly since July 1978. The Committee's primary function to date has been the review of safety-related procedures.

Q.44 Mr. Goldberg, describe the NSRB.

A.44 (JIG): The NSRB is a corporate headquarters committee that is chaired by me as Vice President, Nuclear Engineering and Construction. Its members include the Vice President, Nuclear Operations; the Manager, QA; the Manager, Nuclear Services; the Director, Nuclear Fuel; the General Manager, Fossil Power Plant Engineering; the nuclear plant Superintendents, and the Manager, Nuclear Licensing.

The NRSB reviews such matters as proposed changes to procedures, equipment, systems, Technical Specifications and the operating licenses. It reviews reports and meeting

minutes of the PORC and significant operating abnormalities, including violations of license requirements or internal procedures having nuclear safety significance.

In addition, it conducts periodic audits of the following areas:

1. The conformance of facility operation to provisions contained within the Technical Specifications and applicable license conditions.
2. The performance, training, and qualifications of the entire facility staff.
3. The results of actions taken to correct deficiencies occurring in facility equipment, structures, systems or method of operation that affect nuclear safety.
4. The performance of activities required by the OQAP to meet the criteria of Appendix B to 10CFR50.
5. The facility Emergency Plan and implementing procedures.
6. The facility Security Plan and implementing procedures.

Q.45 Will there also be a dedicated engineering staff at the site, without operational responsibilities, which will perform independent safety reviews?

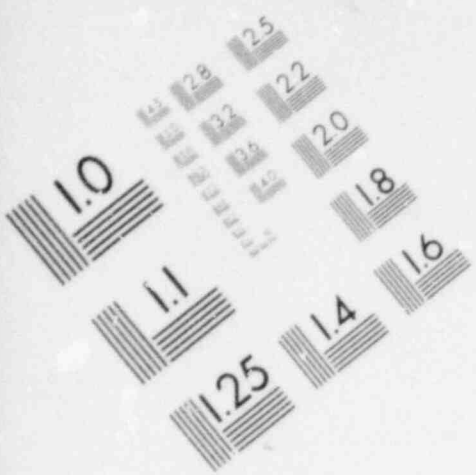
A.45 (JHG): Yes, as a result of our review of the NRC proposed post-TMI requirements, HL&P is committed to having an effective Independent Safety Engineering Group (ISEG) and we have under study the details of its operation. Our current plan is that the ISEG will report to me and will be composed of a small staff of on-site, full-time engineering personnel. Its responsibilities will include those specified in NUREG 0737, "Clarification of TMI Action Plan Requirements."

Q.46 Mr. Oprea, during Plant operation will HL&P continue to utilize the QA Program Evaluation Committee described in your previous testimony?

A.46 (GWO): Yes. The QA Program Evaluation Committee is a corporate level group that evaluates the performance of QA activities on all HL&P projects. Review of the performance of the STP Operations QA program will be an important function of this Committee.

Q.47 What is the composition of that Committee?

A 47 (GWO): I will continue to chair the Committee. The other members include the Group Vice President, Fossil Plant Engineering and Construction; the Vice President, Nuclear Engineering and Construction; the Vice President, Nuclear Operations; the Vice President, Purchasing and Services; the Vice President, Fossil Power Plant Construction; the Manager, STP; the Manager, QA; and the Director, Nuclear Fuel.



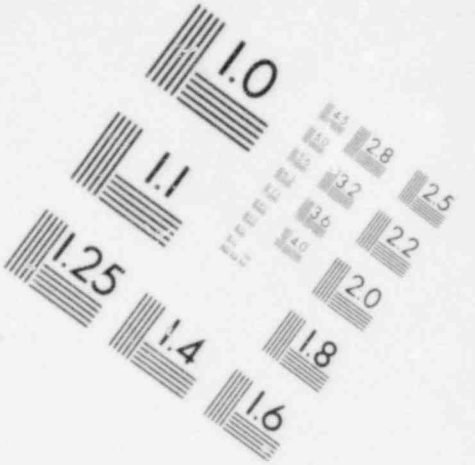
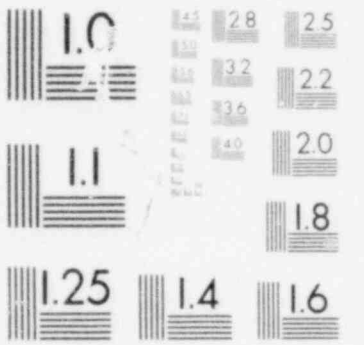
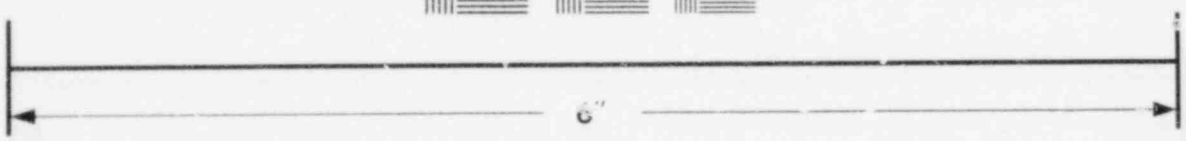
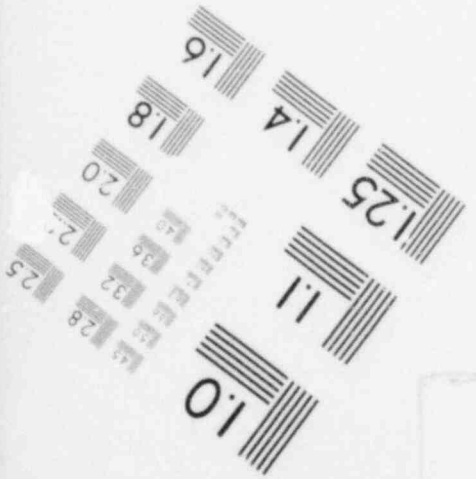
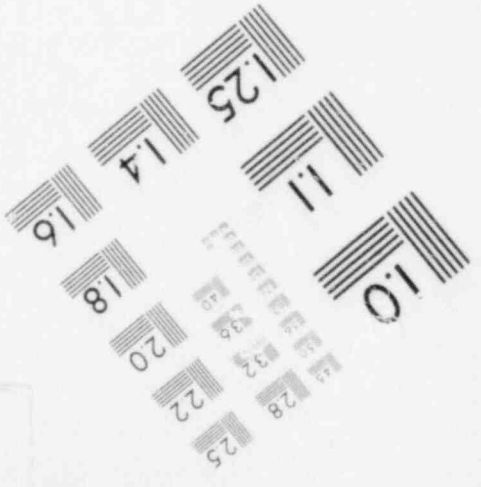


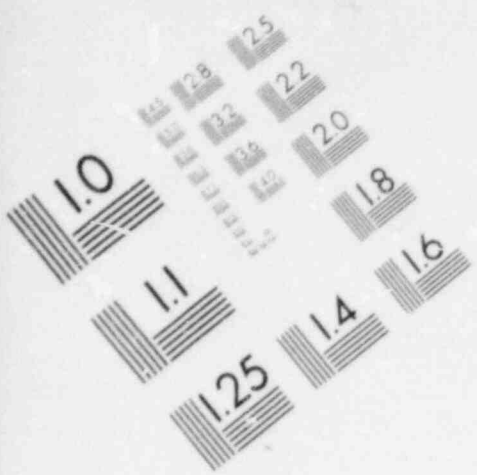
IMAGE EVALUATION
TEST TARGET (MT-3)

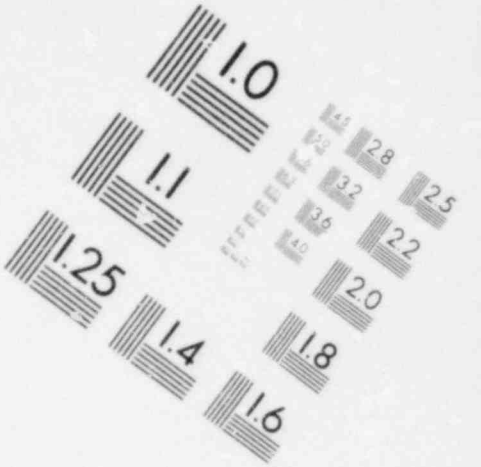












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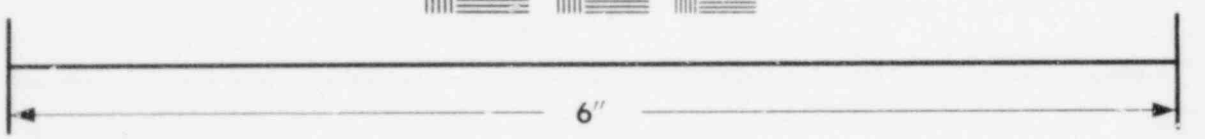

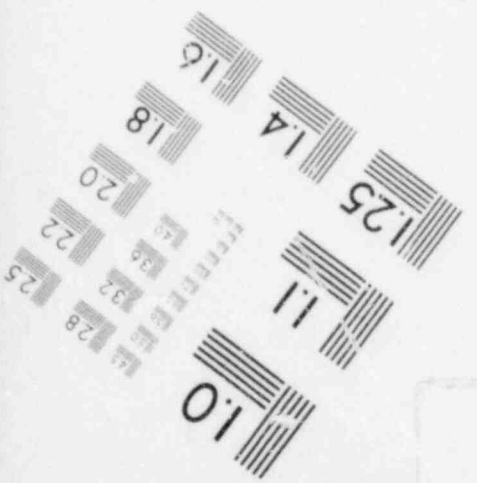

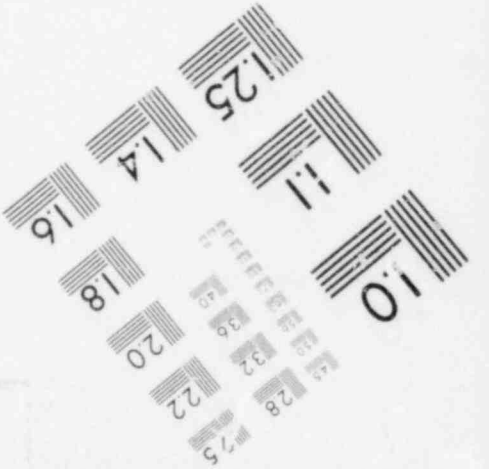

Q.48 What will be the functions of the QA Program Evaluation Committee during plant operation?

A.48 (GWO): The QA Program Evaluation Committee will continue to assess the effectiveness of the HL&P nuclear QA program from the management viewpoint. It will review NRC reports, trend analysis data, selected audit reports, and management QA audits. It will also review major substantive changes to methods and systems being implemented as part of the Nuclear QA program.

Q.49 Mr. Goldberg and Mr. Moles, does the FSAR describe how HL&P will conduct the operation of STP?

A.49 (JHG, RIM): Yes, Chapter 13 of the FSAR is entitled Conduct of Operations. It describes the HL&P organization for Plant operations, the personnel training program, certain Plant operating procedures and the review and audit program. Section 13.3 references the separate volume containing the Emergency Plan which is now being revised to meet POST-TMI requirements, and Section 13.6 references the Security Plan.

Q.50 How were Sections 13.0, 13.1, 13.2, 13.4 and 13.5 of the FSAR prepared?

A.50 (JHG, RIM): The Plant operations staff was responsible for drafting major portions of those sections. The Nuclear Licensing Section then coordinated an internal review of the drafts. These sections were reviewed and updated earlier

this year and we both personally reviewed and approved these FSAR sections as revised.

Q.51 Are the contents of FSAR Section 13.0, 13.1, 13.2, 13.4 and 13.5 true and correct to the best of your knowledge and belief?

A.51 (JHG, RIM): Yes.

Q.52 Mr. Frazar, is the Operations QA program described in the FSAR?

A.52 (RAF): Yes, there is a description of the Operations QA program in Section 17.2 of the FSAR.

Q.53 How was Section 17.2 prepared?

A.53 (RAF): Section 17.2 was originally submitted in 1978. In 1981 HL&P submitted a substantial revision. I reviewed Section 17.2 and its revisions in draft, as did various other staffs of HL&P and their comments were considered in the preparation of the final drafts that were then provided to HL&P Licensing for final editing, printing and submittal to NRC.

Q.54 Are the contents of FSAR Section 17.2 true and correct to the best of your knowledge and belief?

A.54 (RAF): Yes.

Q.55 What guidelines were used in the preparation of Section 17.2?

A.55 (RAF): We used the NRC's standard format Reg. Guide 1.70, Revision 1 and the Standard Review Plan, Nureg 75/087. In addition we considered the applicable industry Standards and Regulatory Guides, including Reg. Guide 1.33, "Quality Assurance Program Requirements (Operation), Reg. Guide 1.58, "Qualification of Nuclear Plant Inspection, Examination, and Testing Personnel", and the applicable ANSI N45 daughter documents.

Q.56 Mr. Frazar, in your opinion does HL&P's Operations QA program comply with Appendix B to 10 CFR Part 50, and applicable Regulatory Guides and industry standards?

A.56 (RAF): Yes. In my opinion the Operations QA program complies with Appendix B and the with relevant NRC guidance mentioned in Answer 55 above.

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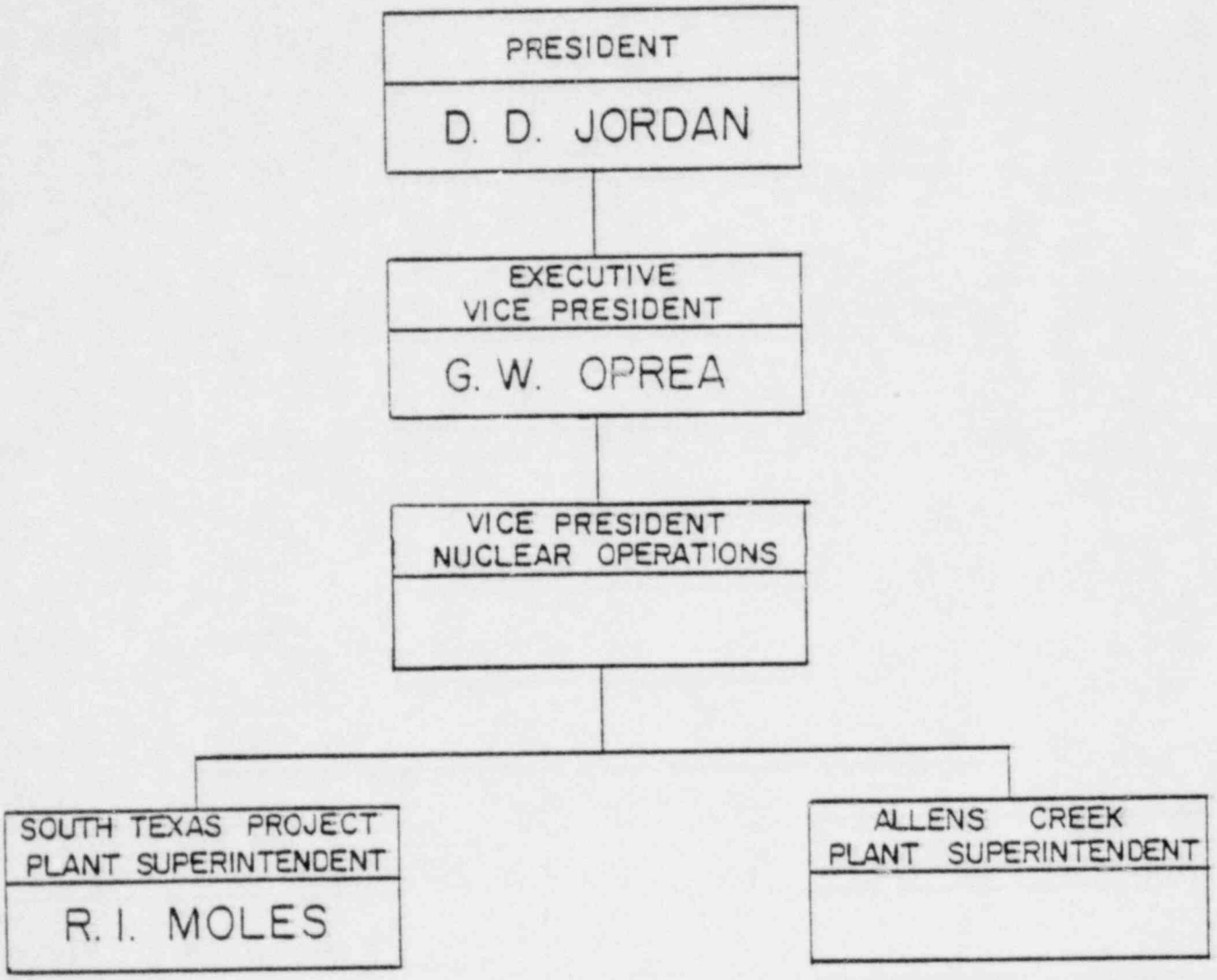
PRESIDENT
D. D. JORDAN
EXECUTIVE VICE PRESIDENT
G. W. OPREA
VICE PRESIDENT NUCLEAR OPERATIONS
SOUTH TEXAS PROJECT PLANT SUPERINTENDENT
R. I. MOLES
ALLENS CREEK PLANT SUPERINTENDENT

FIGURE 1

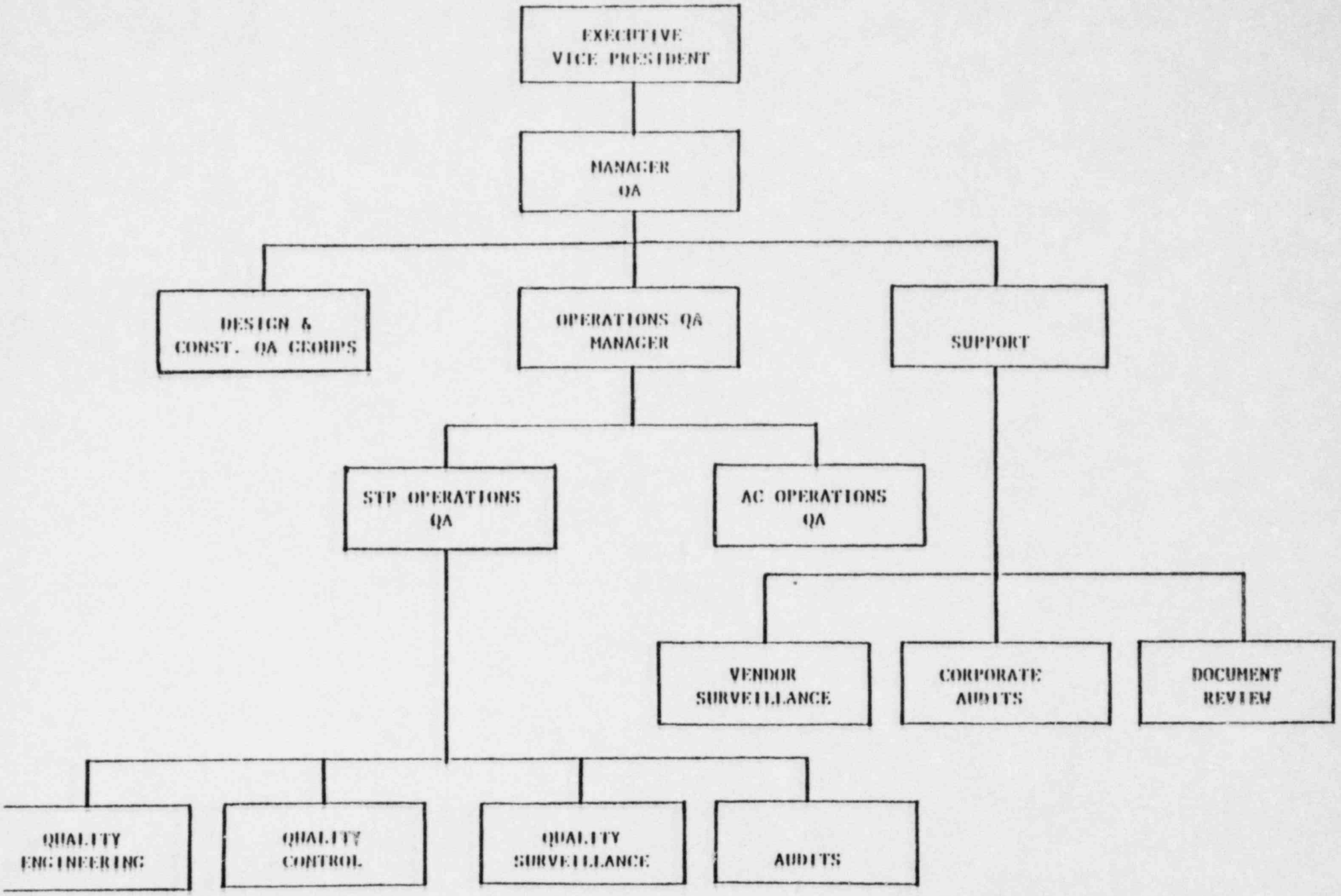
EXECUTIVE VICE PRESIDENT
MANAGER QA
DESIGN & CONST. QA GROUPS
OPERATIONS QA MANAGER
SUPPORT
STP OPERATIONS QA
AC OPERATIONS QA
VENDOR SURVEILLANCE
CORPORATE AUDITS
DOCUMENT REVIEW
QUALITY ENGINEERING
QUALITY CONTROL
QUALITY SURVEILLANCE
AUDITS

FIGURE 2

SHIFT ORGANIZATION

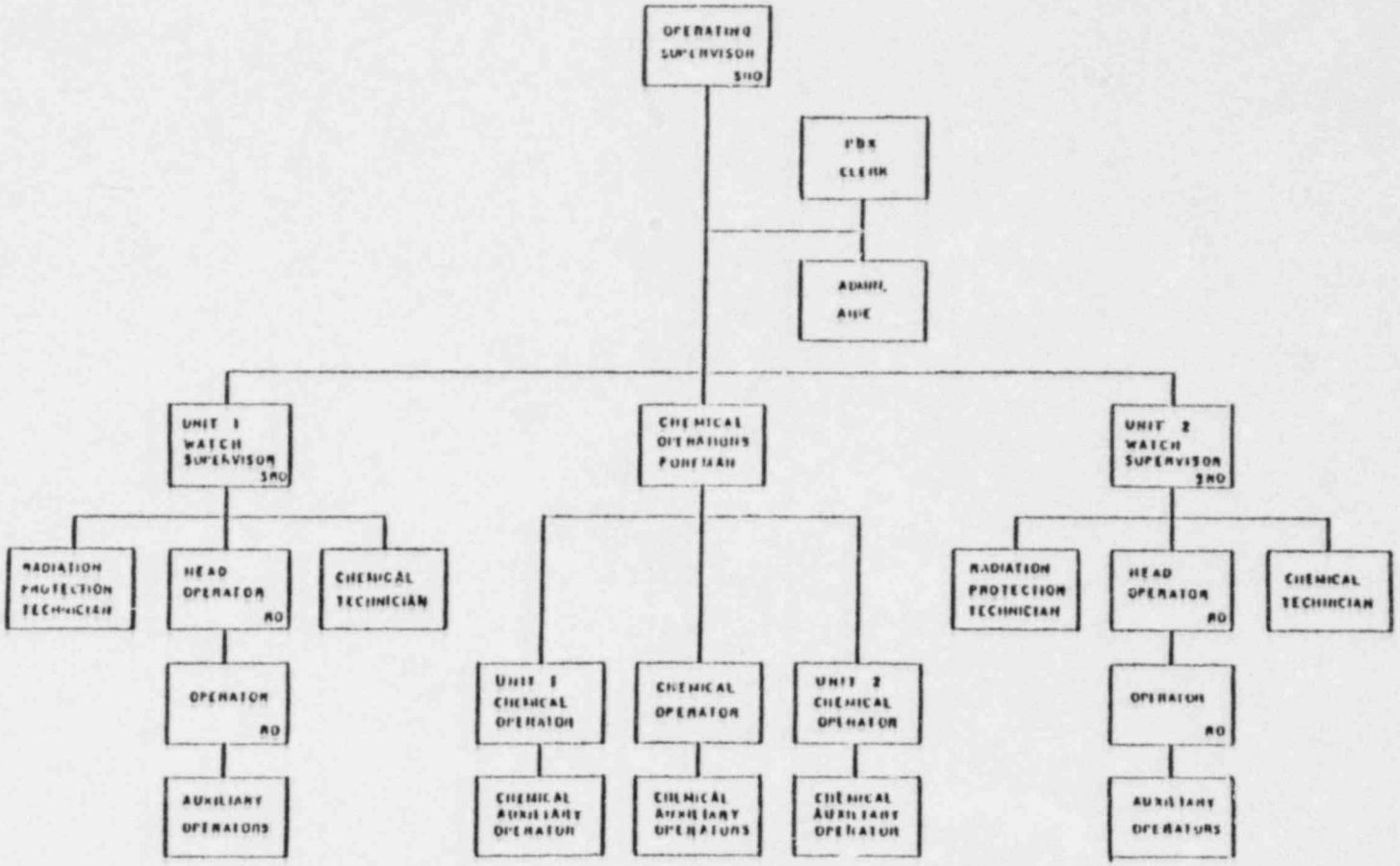

FIGURE 3