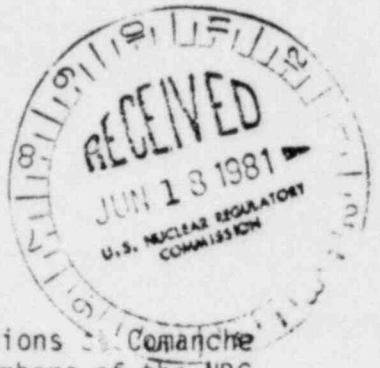
TEXAS UTILITIES GENERATING COMPANY
2001 BRYAN TOWER · DALLAS, TEXAS 75201

June 3, 1981

Docket Nos 50-445
and 50-446

BILLY R. CLEMENTS
VICE PRESIDENT



Mr. Robert L. Tedesco
Assistant Director for Licensing
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Tedesco:

Additional information concerning the conduct of operations at Comanche Peak Steam Electric Station (CPSES) was requested by members of the NRC staff in a meeting between staff members and representatives of Texas Utilities Generating Company (TUGCo) and Texas Utilities Services Inc. (TUSI) at Bethesda, Maryland on May 28, 1981. This information is contained in this letter and the attachments thereto.

In 1973, TUGCo started staffing CPSES for operation with the assignment of a plant superintendent, J. C. Kuykendall, and four department superintendents, including R. A. Jones, R. B. Seidel and T. L. Thompson. The purpose of the early staffing was to allow the staff time to obtain nuclear operating experience at other nuclear plants to supplement their fossil power plant experience. This also provided the opportunity for operational input into the design of CPSES.

In 1975, the Results Engineer, Reactor Engineer, I&C Engineer and Chemistry and Health Physics Engineer were assigned to the plant staff.

In August, 1975, a contract was negotiated with EDS Nuclear to provide nuclear experience and expertise to TUGCo Operations, as needed. The contract directed EDS Nuclear to supply experienced startup personnel including a Lead Start-up Engineer to the project, provide home office support to the start-up activity and provide procedure writing assistance to the various departments of the plant. It was at this time that R. E. Camp, Lead Start-up Engineer, assumed residency at the plant site to begin development of the start-up and test program and to interface with Engineering and Construction on project scheduling.

On September 1, 1975, TUGCo assigned B. R. Clements as Manager of the Nuclear Operations Division.

Between 1975 and the present time, a total of 60 personnel completed the seven month Westinghouse Initial Operator Training Program at the Westinghouse Nuclear Training Center in Zion, Illinois. In addition to the shift operations personnel, the following staff people attended the Westinghouse program and were certified at the Senior Reactor Operator level:

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J. C. Kuykendall - Manager, Nuclear Operations
R. A. Jones - Manager, Plant Operations
R. B. Seidel - Operations Superintendent
T. L. Thompson - Maintenance Superintendent
D. W. Braswell - Engineering Superintendent
R. T. Jenkins - Superintendent Operations Support
R. R. Wistrand - Operations Engineer
S. M. Ward - Engineer, Technical Support
W. J. Nixon - Reactor Engineer
R. D. Bird - Engineer
J. J. Allen - Engineer
D. L. Hubbard - Training Specialist
E. L. Dyas - Training Specialist
M. A. Niemeyer - Training Specialist

On September 1, 1977, the plant staff moved from the corporate office to the CPSES site. The staff numbered 36 at that time.

By mid 1980 the plant staff had grown to 156 persons. At this time a large percentage of the staff had spent a considerable amount of time at operating nuclear plants either observing or participating in initial core loadings, initial criticality, refuelings, start-ups (initial and post refueling) and various special tests.

In August, 1980, Mr. Clements was named TUGCo's Vice President-Nuclear with overall responsibility for CPSES including Quality Assurance. Mr. Kuykendall was named Manager of Nuclear Operations (reporting to Mr. Clements) with responsibility for all of the CPSES functions including training, technical support and community relations. Mr. Jones was named Manager of Plant Operations (reporting to Mr. Kuykendall) with responsiblity for the operation and maintenance of CPSES.

Mr. Clements will remain in the Company's corporate office in Dallas, Texas. Mr. Kuykendall will be located in the CPSES Operations Support Facility to be constructed on site property, but approximately 1 1/4 miles from the reactor buildings. Since CPSES is the only planned nuclear facility of the Company, the majority of the home office support personnel will the located at the Operation Support Facility (OSF) with a minimum number of persons on Mr. Clements' staff. The OSF is described in Attachment 1.

Corporate Organization

General

The preceding discussion of the early manning of the key operations staff positions and the experience which this staff gained through training and through experience both on-site and at other nuclear power plants is intended to answer the questions raised by the NRC staff as to the experience level of this staff. Additional information on the

experience level and size of the TUGCo Corporate Staffing including the Start-up Group is outlined in attachments 2, 4 and 6.

The Vice President, Nuclear, TUGCo is the corporate officer responsible for the safe operation of Comanche Peak Steam Electric Station (CPSES). He may call on the resources of any organization or group in the Texas Utilities Company system to assist him in carrying out this responsibility. The TUGCo-TUSI corporate organizational relationship is shown in attachment 5. The functions of technical support, licensing, and nuclear fuel have been assigned administratively to TUSI. This is a matrix organization and is so understood by persons assigned to TUGCo and TUSI who are involved with CPSES. Any level of TUGCo nuclear operations may and will contact any department in TUSI for the support of CPSES.

The Manager, Nuclear Operations has the authority to contact any organization in the Texas Utilities Company system for support for CPSES. He would as a matter of procedure notify the Vice President, Nuclear that he had done so.

In order to support nuclear operations, the Manager of Technical Support (TUSI) will work directly with the Superintendent, Operations Support (TUGCo). The only time the respective corporate officers need be involved in TUSI support of TUGCo nuclear operations would be if corporate policy per se was involved. The size and qualifications of the Nuclear Fuel, Licensing and Technical Support groups of TUSI are included as attachment 3.

Manager Nuclear Operations Staff
Operations Support Department

The Operations Support Superintendent is responsible for providing engineering and technical support to plant operations:

1. Engineering of Plant Modifications & Design Changes.
2. Independent Safety Engineering Review.
3. Providing Shift Technical Advisors to each operating shift.

Located nearsite in the Nuclear Operations Support Facility, he reports to the Manager, Nuclear Operations. Refer to FSAR Figure 3.1-2. The Operations Support Superintendent's responsibilities are carried out under the supervision of the Technical Support Engineer and the Operations Support Engineer.

Technical Support Engineer

The Technical Support Engineer is responsible for off-site engineering support to CPSES Plant Operations in licensing, general engineering support and plant modification and design change control. He is the focal point in the organization for all modification and design change

documentation during the operation of CPSES. Final design verification, review and approval of all modification packages rest with the Technical Support Engineer. Changes to plant drawings to incorporate modifications is the responsibility of the Technical Support Engineer. Actual engineering work and preparation of design changes may be performed by the Plant Operations Engineering Department, especially minor modifications. Major modifications or those requiring expertise in areas not available to the Technical Support Engineer will be engineered by the TUSI Technical Support Group or by contractors and consultants. The Technical Support Engineer is responsible for the design change or modification and is responsible for document control and document corrections associated with the change.

Administrative procedures will be developed to describe and control this design change process and to coordinate the engineering effort between the Plant Operations Engineering Department, the TUSI Technical Support Group and the Technical Support Engineer. The necessary number of people, with appropriate qualifications and experience level are being developed presently to support this effort. The anticipated combined number of engineers in the three functional groups mentioned above is fifty.

Operations Support Engineer

The Operations Support Engineer is responsible for providing Shift Technical Advisors to each operating shift in support of the shift supervisor. These Shift Technical Advisors (STA's) will meet the education, experience and training requirements of NUREG-0737, October 31, 1980, Appendix C "Nuclear Power Plant Shift Technical Advisor". Staffing of these positions began in the Spring of 1981.

The initial group of six to eight STA's will begin training in October, 1981. This training will be conducted by Westinghouse Electric Corporation and exceeds the requirements of NUREG-0737. Other groups of STA's will attend similar training programs prior to fuel load of Unit 1.

The necessary experience required for STA's by NUREG-0737 will be gained by involving these personnel in preoperational and startup testing activities and in design and construction engineering activities at CPSES. At the time of initial fuel load of Unit 1, the necessary number qualified STA's will be available to support the operation of CPSES.

The Operations Support Engineer is also responsible for independent safety engineering review of plant operations. He will provide the necessary personnel to perform independent safety assessment of plant operating characteristics, NRC issuances, Licensing Information Service Advisories and other sources of plant design and operating experience information. The personnel will periodically prepare reports to advise Texas Utilities management on the overall quality and safety of plant

operations.

The organizational arrangement for this safety engineering review group provides a very desirable independence from the management chain for power production. Located in the Operations Support Facility they have convenient access to the site for daily contact with the operating personnel and continued access to plant facilities and records, but report offsite to the Operations Support Engineer. Thus they do not come under the organizational umbrella of the Manager, Plant Operations. This allows them to operate with considerable independence to provide continuing, systematic and independent assessment of plant activities. Resumes for personnel in Operations Support and Training Department are enclosed in attachment 6.

Start-Up Group

The startup engineering staff is presently manned at 32, including two recent graduate engineers on loan from Georgia Power Corporation on a temporary assignment.

The startup group manpower needs are expected to peak at approximately 50 System Test Engineers one year prior to fuel load of Unit 1 and remain at that peak through commercial operation of Unit 1.

Subsequent to Unit 1 commercial operation system test engineer manpower requirements are estimated to decline to 30 engineers through commercial operation of Unit 2.

Resumes and details of nuclear experience for the startup engineering staff shown in attachment 2.

Operating Organization

Attachment 7 is an organization chart for the Plant Opeartions staff which shows the anticipated levels of staffing at CPSES for both one and two unit operations. The numbers shown on the organization chart are what we believe to be realistic estimates of people required to operate and maintain CPSES with a high margin of safety and to provide te desired degree of backup personnel for normal anticipated employee turnover rates. These numbers may be adjusted either upward or downward as necessary through the operational life of CPSES, and are not to be constructed as minimum personnel requirements.

Also shown on the organization chart is the separation of the responsibilities and personnel in the Chemistry and Environmental section and the Radiation Protection section.

Shift Technical Advisors will be on shift with members of the plant staff, but will report to the Manager, Nuclear Operations through the Engineer Operations Support and the Superintendent Operations Support.

The qualifications and experience levels are outlined in attachment 9.

Plant Staff

Operations Department

The Comanche Peak shift operations staffing plan will ensure that a sufficient number of licensed operators and supervisors are available to safely and efficiently operate the plant.

Properly qualified Reactor Operators will participate in Senior Reactor Operator Upgrade Training in order to ensure that a sufficient number of Senior Operator Licensed Personnel are available to provide for attrition in the Assistant Shift Supervisor and Shift Supervisor positions.

Auxiliary Operators will complete the Auxiliary Operator Training Program, and, when properly qualified, will be enrolled in the Licensed Operator Replacement Training Program. A sufficient number of the 54 Auxiliary Operators scheduled for two unit operation (36 for one unit operation) will be licensed in order to provide for attrition in the Reactor Operator position. All Auxiliary Operators will participate in training leading to a Reactor Operator license.

Auxiliary Operators will be hired and enrolled in training at a rate sufficient to provide replacement personnel consistent with anticipated attrition. The number of Auxiliary Operators planned is in excess of the NRC staffing requirement for this position in order to ensure an adequate supply of trained operations personnel.

The following table is a projection of the Licensed Operators required and the Licensed Operators that will be available in the years indicated. These projections are based on a five shift rotation, a licensing examination failure rate of 20%, an attrition rate of 8% based on actual 1977 through 1980 data, two unit operation beginning in 1984, and includes only shift operating personnel.

Year	Licensed Operators Required	Licensed Operators Available
1982	20	20
1983	20	30
1984	25	39
1985	25	35
1986	25	40

Attachment 8 is the table of Staffing Requirements for Emergencies which shows a commitment to have on shift at all times a designated Communications Coordinator. This person will be a member of the shift operating organization and he will have no other duties during an

emergency situation other than serving as the Communications Coordinator.

At the time of Unit 1 initial core loading, at least one member of each opearting shift crew will have had previous experience as a Licensed Operator at a commercial Pressurized Water Reactor Nuclear Power Plant. This experience will be provided by licensee personnel supplemented by contractor personnel as necessary. In the event that contractor personnel provide this experience, they will be assigned to the shift crews for six (6) months following Unit 1 initial fuel loading, until the power ascension testing program reaches the twenty percent (20%) level or until the unit begins commercial operation, whichever occurs first.

Maintenance Department

In 1978, TUGCo began a systematic effort to find a method for increasing the reliability and availability of the CPSES units. The major maintenance contractors, architect-engineers and equipment vendors were invited into the corporate offices to present any ideas that they might propose to meet the objective. Approximately thirteen companines participated, with Westinghouse Electric Corporation emerging as the company with the best approach with the managed maintenance program. A two-year contract was initiated in June, 1979, with Westinghouse to complete Phase I of the Managed Maintenance Program, which is the pre-planning part of the program. Phase II, which is the implementing part of the program will begin prior to commerical operation and will include the manager, supervisors, support personnel and craft personnel necessary to plan and execute a refueling outage.

The Managed Maintenance Program is designed to provide the plant staff with the maintenance data and information systems necessary to support proper planning and management of the maintenance activities. This is accomplished by a systematic evaluation of each plant component in which all maintenance activities are identified, and the resources for performing these activities are assessed. Examples of these resources are: manpower, radiation exposure, special tools, spare parts, procedure number, and plant condition required for performing the activity.

Once all maintenance activities have been identified, then two sets of maintenance plans are generated. The first set is the on-line preventive maintenance plant which includes all of those maintenance activities which can be performed with the plant at power. These activities are scheduled on an on-site computer with various print-outs and work sheets for the craft and supervisory personnel.

The second set of plans includes the outage-related work which will be done concurrently with refueling. These activities, along with the refueling sequence are plotted on a CPM computer network which is used

for managing the outage.

A significant point to note is that, because of inservice inspection requirements, the outage plan is repetitive with a ten-year cycle. The plant staff has completed the outage plans for the first ten-year cycle and, because of the repetitive nature of the work, has a plan for each year of commercial operation throughout the life of the plant. The Managed Maintenance Program is designed to be an active program which will be updated as plant conditions and requirements change.

In an effort to prepare for Phase II of the Managed Maintenance Program, research has been conducted to determine the availability of trained craft personnel in the vicinity of the plant. Adequate numbers were found to be available in the Dallas, Fort Worth and Waco areas, with additional backup support available in the Houston and Beaumont areas. At the initiation of Phase II, agreements will be made to have craft support available in the event of a major problem which is beyond the capability of the permanent plant staff. This same craft support will be available during refueling outages.

Training

Training Facilities (See Attachment 1)

The training facilities located in the Nuclear Operations Support Facility are designed to provide full-scope training for all areas of CPSES activities. The facilities available for chemistry and health physics laboratory training include a chemistry laboratory, counting laboratory and hot counting cell. The decontamination facility, a part of the EOF, is also intended to be used for training. Separate laboratories are included for electrical maintenance training and mechanical maintenance training. An electronics laboratory is to be used for instrumentation and control training as well as for simulator and computer repair. Seven classrooms are available for lectures. Four critique rooms can be used for small classes, individual study, critiques and examinations. Respiratory protection training, respirator fitting and whole body counting are to be conducted in this facility. The auditorium, normally used for public information or press briefings, may also be used for large classes. All technical resources that are available for the EOF and for the Operations Support Department are augmented by training materials and provided in the library of the Nuclear Operations Support Facility.

CPSES Simulator

The Nuclear Operations Support Facility will have a full-scope simulator for CPSES Unit 1 control room. All control boards and panels used to operate Unit 1 (Unit 1 boards and common boards) will be simulated. The complete control room environment will be simulated in as much detail as possible. The simulator will be supported by a computer room,

instructor console, simulator and computer repair laboratory and offices for three software engineers, two hardware technicians, and a supervisor for training systems.

TUGCo will retain a consultant in June, 1981, to aid in the acquisition of the CPSES simulator. The simulator specification written by TUGCo will be taken out for bid in June, 1981. TUGCo intends to make a selection of a simulator manufacturer in the fall of 1981 and is anticipating a thirty-six month acquisition schedule.

Training Staff Facilities

The training staff will be accommodated with facilities for the Director, Nuclear Training, four Training Supervisors, twenty-one Training Specialists, two Visual Aids/Draftsmen and support staff. The facility design allows for an increase in the size of the training staff if required.

Training Staff (Resumes - attachment 6)

The training group at CPSES presently consists of a training director, training supervisor and seven training specialists. All members of the training staff have nuclear operations, maintenance and training experience from U.S. Navy nuclear backgrounds. The Director, Nuclear Training has held USNRC Senior Operator Licenses on a Westinghouse 4-Loop PWR (Zion Units 1 and 2) and on the Westinghouse Nuclear Training Reactor, and has been a program instructor for all phases of nuclear operations including simulator instruction. The Training Supervisor is experienced in all phases of operator training including simulator instruction and is experienced in maintenance training. Three Training Specialists hold cold license certification from Westinghouse training at the Senior Reactor Operator level.

The training staff is expected to have about 28 persons assigned when fully manned. This does not include clerical support personnel.

CPSES Training Programs (General)

The training program at CPSES is designed to provide each individual with the information needed to perform work safely and effectively. Three categories of training are defined:

- General Employee Training. All employees (and others) who have unescorted access to the Protected Area of the station will receive training in the following areas to an extent commensurate with their responsibilities:

  1. General description of plant and facilities
  2. Review of appropriate department and station procedures
  3. Emergency Plan and Procedures

4. Fire Protection Plan and Procedures
5. Security Requirements and Practices
6. Safety Program
7. Quality Assurance Program
8. Radiological Health and Safety Program

- Radiation Worker Training. All employees (and others) who have unescorted access to Restricted Areas of the station will receive in-depth instruction in all aspects of radiation protection. Subject material will include but will not be limited to the following:

1. Handling radioactive material
2. Controls and access
3. Biological effects of ionizing radiation

General Employee Training and Radiation Worker Training will be repeated or reviewed to an extent needed on an annual basis. This retraining will include as a minimum: familiarization with important experience, modifications and changes within employee's interest, review of revisions to programs and procedures.

- Specialty Training. Each employee at CPSES will receive specific technical, skill, or craft training for the critical tasks required by the employee's level of responsibility.

CPSES Training Programs

- Training for Results Engineers

1. General Employee Training
2. Radiaiton Worker Training
3. Specialty Training. Specific Technical Training will be provided to certain engineers as needed to upgrade the technical competence of the section in these areas:

   a. PWR Systems Course: A three-week introduction to the plant systems (CPSES General Information) covers a description of each system, and the theory of operation of the major electrical, mechanical, and instrument and control systems at CPSES. This course will be given to all present and new engineers in this section.

   b. Technical Seminars. Selected engineers have attended technical seminars as appropriate for their areas of responsibility. The subject of these seminars include: Quality Assurance, Environmental Qualification of Safety Related Electrical Equipment, Reactor Safety, the ASME Boiler and Pressure Vessel Code, and Inservice Inspection of Nuclear Power Plant Components. Future engineers will

receive similar seminar training if needed to perform their functions.

c. On-the-job training. Every effort will be made to take advantage of the OJT opportunities that are present during the startup of a nuclear power plant. This will primarily be accomplished by active participation and assistance with preoperational and startup testing activities. The engineers will also review the test procedures and test results to better understand the systems and components in the plant. On the job training at operating nuclear power plants will be conducted to gain experience in specific areas such as containment leak testing and refueling activities.

Continuous retraining of Results Engineers is provided by immediate indoctrination in new procedures applicable to their position and continuous review of new or modified regulatory requirements applicable to CPSES.

- Training for Reactor Engineers

The following training is applicable for Reactor Engineers:

1. General Employee Training
2. Radiation Workers Training
3. Speciality Training. Reactor Engineering personnel having lead responsibility for writing procedures, implementing and performing duties in safety-related areas prior to and during CPSES initial startup will have completed the Westinghouse Station Nuclear Engineer Course (or equivalent training and experience) and will have completed on the job training at an operating nuclear station in applicable areas. During the operational phase of CPSES, new Reactor Engineering personnel will also receive proper training, instruction and guidance prior to performing safety-related activities.

- Training for Operations Engineer

Engineers assigned to provide technical support to the Operations Department will receive training appropriate to their assignments:

1. General Employee Training
2. Radiation Worker Training
3. Specialty Training. Some of these engineers will participate in licensed operator training with the intent of receiving an USNRC Operator License, and will participate in the normal licensed operator Requalification Training Program. Engineers not holding an USNRC Operator License will participate in requalifcation training appropriate to the responsibilities and

assignments of the position.

- Training for I&C Technicians

I&C Technicians will receive training described below:

1. General Employee Training
2. Radiation Worker Training
3. Specialty Training. I&C Technicians assigned to perform maintenance and calibration of safety-related systems will either have attended the Westinghouse I&C Engineer's Course or an equivalent on-site I&C course as well as the CPSES General Information course. All other I&C Technicians will receive the General Plant Information course and applicable sections of the on-site I&C course. Prior nuclear power plant experience will be taken into consideration. Annual requalification training will occur as required to maintain proficiency.

- Training for Chemistry Technicians

All Chemistry Technicians at CPSES will complete the training described below:

1. General Employee Training
2. Radiation Worker Training
3. Specialty Training. Each technician shall receive verbal and hands-on instruction for each specific critical task required by the employee's level of responsibility. The technician shall be required to read all applicable procedures and demonstrate his knowledge, understanding, and skill to perform the task.

- Training for Radiation Protection Technicians

All Radiation Protection Technicians at CPSES will complete the following training:

1. General Employee Training
2. Radiation Worker Training
3. Specialty Training. Each technician shall receive verbal and hands-on instruction for each specific critial task required by the employee's level of responsibility. The technician shall be required to read all applicable procedures and demonstrate his knowledge, understanding, and skill to perform the task.

- Training for Maintenance Personnel

The training program at CPSES for electricians and mechanics is described below:

1. General Employee Training
2. Radiation Worker Training
3. Specialty Training
   a. Each employee is trained in the areas of component and system interaction. This CPSES General Plant Information course is a three-week training program designed to give the electrician and mechanic a basic understanding of how the plant operates and the function of each component as it relates to the overall plant operation and to the operation of other components and systems. Although this training is not required to be completed prior to performing safety-related work, the General Plant Information course should be completed within the first year of employment.
   b. The skill development program is a comprehensive craft training program that is designed to take an entry-level employee from the basic elements of his craft through the application of the basic skills to the plant equipment and then to advanced skill development. For the electrician, the basic elements are such things as elementary electrical theory, reading circuit diagrams and the use of electrical measuring and test equipment. The application of these skills includes training on troubleshooting and repairing plant electrical and electronic equipment. The advanced skill development program is designed to further train an adequately trained electrician in areas of interest to both him and the company. The subject matter for the advanced programs is comparable to that of college-level electrical engineering courses. The craft training program for mechanics is similar to that for electricians in that it is designed to taken the entry level person through basic skill development, the application of those skills to the plant equipment and then into the advanced mechanical areas such as vibration analysis and strength of materials.

      A new employee can be entered into the skill development program at any level. The supervisor evaluates the knowledge level of each new employee based on previous work experience and personal interviews. He then enrolls the new employee at the appropriate level within the training program. The new employee's performance in the training program is monitored to verify that he is training at the appropriate level.

- Training for Administrative Personnel

The training for administrative personnel is described below.

1. General Employee Training
2. Radiation Worker Training
3. Specialty Training

a. Warehouse Personnel Training. Warehouse personnel will be trained in those procedure which implement the requirements of ANSI N45.2.2-1972. Certain Warehouse personnel may be tained and certified as Receipt Inspectors in accordance with ANSI N45.2.6-1978.
b. Security Officer Training. Security officers will be trained in accordance with 10CFR 73.55 as described in the Security Training and Qualification Plan.
c. Fire Brigade Training. Members of the Fire Brigade will be trained as described in Section 13.3B.2.1 of the FSAR.

- Training for Training Specialists

The training which a training specialist receives is described below:

1. General Employee Training
2. Radiation Worker Training
3. Specialty Training
   a. License Training. Some training specialists will participate in licensed operator training with the intent of receiving an USNRC Operator License, and will participate in the licensed operator Requalification Training Program.
   b. Training Specialists who do not hold an USNRC Operator License will participate in training appropriate to the areas of training for which they have responsibilities.
   c. Instructor Training. Training Specialists will participate in training designed to increase communication skills and teaching effectiveness. The training consists of, as a minimum, instruction in preparing a training program, teaching styles, preparing instructional materials, practice presentations, and course evaluation techniques.

- Training for Licensed Operators

Training for licensed operators is described in the CPSES/FSAR, Section 13.2.

- Training for Auxiliary Operators

Training for Auxiliary Operators is described below:

1. General Employee Training
2. Radiation Worker Training
3. Specialty Training
   a. Non-Licensed Operator Training. The Non-licensed Operator Training program is designed to train a new operator to the point that he is a useful Auxiliary Operator and is ready to enter a license training program.

Non-license training consists of 18 weeks of lecture training in organization, technical materials, plant systems, mathematics, physics, heat transfer and fluid flow, thermodynamics, chemistry, electricity, nuclear physics, health physics and plant materials.

Non-license auxiliary training also consists of 11 weeks of systems walk-through and procedure study.

b. The Replacement Training Program will upgrade an Auxiliary Program to a Licensed Operator.

   1. The lecture portion of the program consists of 8 weeks of theory and principles of operation, general and specific station operating characteristics, instrumentation and control systems, protection and engineered safeguards systems, procedures, technical specifications and code of federal regulations as well as review of theory of operations.

   2. Simulator training will be conducted for replacement training operators.

   3. Control room training will provide training and observation of operating practices in the control room.

It is intended that all Auxiliary Operators progress through these training programs to licensing. At that time, they will participate in the Licensed Operator Requalification Program. If an Auxiliary Operator does not progress to licensing, he will receive requalification training consistent with his job requirements rather than participating in Licensed Operator Requalification.

We would be happy to meet again with your staff to discuss the above information if you desire. My phone number is (214) 653-4017.

Sincerely,

Billy R Clements

BRC/grr
cc R.J. Gary

NUCLEAR OPERATIONS SUPPORT FACILITY

Texas Utilities Generating Company has committed to the acquisition of a multi-functional facility for the support of Nuclear Operations at Comanche Peak Steam Electric Station. The major uses of the building are 1) facilities for the Operations Support Department (Independent Safety Evaluation Group), 2) Public Information facilities, 3) Emergency Operations Facility (EOF), and 4) Training facilities, including a plant specific simulator. The Nuclear Operations Support Facility will be located approximately 1¼ miles from the containment buildings along the site access road. It will contain about 55,000 square feet of working space. Detailed planning and architectural/engineering work began in August, 1980. Building design has been finalized and construction is scheduled to begin September, 1981. Building completion and occupancy is anticipated December, 1982.

Facilities for public information will be provided in the Nuclear Operations Support Facility. A reception lobby containing models and descriptive graphics and an auditorium for public information presentations are part of the design. A viewing area of the CPSES simulated control room is provided that will have minimal distractions to instructors or personnel in training. The auditorium has been designed to be a news media briefing area, when needed, particularly if the EOF is activated.

CPSES STARTUP GROUP NUCLEAR EXPERIENCE SUMMARY

As of June 1, 1981

Name	Company	Nuclear Experience	Duration
D. B. Allen	EDS	Naval Reactors Facility, S1W Plant	3.0 years
		GE Bwr Trng Facility, Student and Instructor	.6 years
		TSURUZA (Japan)	.2 years
		Zimmer	3.0 years
		CPSES	.8 years
R. E. Camp	EDS	Cooper	1.6 years
		WPPS-WNP-2	1.5 years
		Newport News Shipbuilding	2.9 years
		CPSES	5.8 years
C. E. Beach	EDS	Newport News Shipbuilding	2.0 years
		Salem Unit #1	2.0 years
		Zimmer	2.0 years
		CPSES	1.7 years
D. M. Bright	EDS	Naval Reactors Facility, S1W Plant	4.0 years
		CPSES	.6 years
H. J. Cheatham	TUGCO	CPSES	3.3 years
J. M. Collins	EDS	Naval Nuclear Program	7.0 years
		Newport News Shipbuilding	.6 years
		St. Lucie Unit #1 & #2	2.0 years
		CPSES	.9 years
H. Druckman	EDS	River Bend	2.0 years
		Nine Mile Point Unit 2	.8 years
		CPSES	.6 years
J. L. Fortescue	EDS	Naval Nuclear Program	6.0 years
		Newport News Shipbuilding	5.0 years
		CPSES	3.9 years
S. M. Franks	EDS	Sequoyah Unit #1 & #2	7.5 years
		Brown's Ferry	.5 years
		CPSES	2.4 years
J. G. Hennessy	BSC	San Onofre Units #1 & #2	1.2 years
		South Texas Project	2.0 years
		CPSES	.2 years
T. E. Hodge	EDS	Navy Nuclear Program	7.3 years
		Newport News Shipbuilding	12.3 years
		DAEC	.8 years
		CPSES	.9 years
T. L. Hutson	EDS	CPSES	.9 years
R. G. Johansen	EDS	General Dynamics (Electric Boat)	5.1 years
		North Anna (College Co-Op)	.5 years
		CPSES	.8 years

Attachment 2

B. W. Kaulfus	TUGCO	CPSES	5.4 years
D. A. London	EDS	Naval Reactors Facility, SlW Plant	2.5 years
		CPSES	1.9 years
D. L. McKibbin	EDS	CPSES	.9 years
T. P. Miller	EDS	Donald C. Cook	4.3 years
		CPSES	3.4 years
M. W. Moak	EDS	Ingalls Shipbuilding	3.1 years
		CPSES	2.0 years
M. C. Murray	BSC	Farley Units #1 & #2	2.0 years
		South Texas Project	1.0 year
		VC Summer	1.0 year
		CPSES	.8 years
P. E. Olson	BSC	VC Summer	1.3 years
		Brunswick	1.0 year
		CPSES	3.6 years
R. M. Remaley	EDS	Calvert Cliffs	2.3 years
		ANO 1 Unit 1	.5 years
		CPSES	1.6 years
G. F. Riggio	EDS	Ingalls Shipbuilding	4.4 years
		CPSES	1.6 years
M. J. Riggs	TUGCO	GE Trng Center, Student & Inst.	.5 years
		Brunswick	.6 years
		E. I. Hatch	2.3 years
		CPSES	3.0 years
G. C. Sandlin	TUGCO	CPSES	.9 years
S. L. Siebenaler	EDS	Davis Besse (College Co-Op)	1.0 year
		CPSES	1.0 year
G. D. Smith	EDS	Vallecitos Nuclear Center, (GETR, VBWR, EVESR)	6.0 years
		Dresden Unit 1	.2 years
		SEFOR	4.6 years
		Pilgrim Unit #2	.2 years
		DAEC (Startup, Refueling, Outages 1 & 2)	4.0 years
		Farley Unit 1	.2 years
		Trojan	1.2 years
		Susquehanna Units 1 & 2	2.2 years
		CPSES	1.3 years
F. R. Stough	EDS	Naval Nuclear Program	6.0 years
		DAEC	.1 years
		Beaver Valley	.1 years
		Trojan	.2 years
		GE Trng Facility (student)	.3 years
		Grand Gulf	2.5 years
		CPSES	.5 years

R. E. Walz	G&H	Salem	2.0 years
		Seabrook	2.0 years
		CPSES	5.0 years
J. C. Zimmerman	EDS	ANO 1 Unit 2	1.0 year
		DAEC	1.0 year
		Maine Yankee	.3 years
		Calvert Cliffs	.1 years
		CPSES	1.1 years

Summary of Manyears Nuclear Experience

	CPSES	TOTAL
TUGCO	12.6	16.0
EDS	34.6	163.1
BSC	4.6	14.1
G&H	5.0	9.0
TOTALS	56.8	202.2

Richard E. Camp - Lead Startup Engineer

Education:

College Preparatory, George Washington High School, June 1960
BSME - Virginia Polytechnic Institute, June 1968
Post Graduate courses, 9 credit hours, Nuclear Engineering,
University of Washington Extension, Richland, Washington

Experience:

1960 -
1964 U. S. Navy, Honorable Discharge
Aviation Electronics, Second Class (E-5)

1964 -
1968 Virginia Polytechnic Institute

June 1968 -
Sept 1969 Employed by Brown Engineering Company assigned to the Test Programs Sectionproviding support to NASA on the Apollo Applications (Skylab) Project. My assignments involved liaison with design engineers regarding development, qualification and acceptance test requirements; preparation of test requirements for conttact specifications; preparation of component acceptance test plans, review and surveillance of neutral buoyancy and zero gravity test requirements, test and test results. The majority of my hardware experience was associated with pneumatic and hydraulic ground support equipment.

Sept 1969 -
Dec. 1970 Employed by Newport News Shipbuilding & Drydock Company assigned to the USS Enterprise Reactor Plant Test Group as a mechanical test engineer responsible for all mechanical component and fluid system tests performed during my assigned shift in the reactor plant. This required constant liaison and coordination with Navy and shipyard crafts personnel, in order to accomplish the installation, modification or rework and subsequent acceptance testing of reactor plant systems. Participated during conduct of cold and hot functional testing and power ascension tests.

Dec. 1970 -
June 1972 Employed by Newport News Shipbuilding & Drydock Company assigned to the Nuclear New Design Department, USS Nimitz Project. In this capacity, I was involved in writing and reviewing test specifications, test procedures and equipment operating instructions to be used for the ship's Propulsion Plant Acceptance Test Program.

During this period I was on departmental loan for five months to the Special Nuclear Projects Group, having complete responsibility for the design, including equipment specifications, test procedure and cost estimates submitted to the Naval Reactors Division of the AEC for a steam generator dehumidification system. I was also involved in feasibility studies and cost estimates for a steam generator chemical cleaning system, steam generator replacement and a steam reboiler system. In March 1972, I returned to the Nimitz project and resumed preparation of test procedures.

June 1972 - Jan. 1974

Employed by Burns & Roe, Inc., assigned to Cooper Nuclear Station, Brownville, Nebraska, as a startup engineer. Responsibilities included coordination of craft and operations personnel during performance of component functional tests and initial operation of station systems, flushing and secondary plant chemical cleaning; preparation and conduct of preoperational test procedures. System assignments for initial operation and flushing included Turbine Building Closed Cooling, Fire Protection, Core Spray, Reactor Coolant Isolation Cooling, High Pressure Coolant Injection, Auxiliary Steam, Residual Heat Removal, Standby Liquid Control, Fuel Pool Cooling and Cleanup and Condenser Waterbox Vacuum. Participated in the conduct of containment isolation valve leak test, containment Initial Leak Rate Test, Secondary Containment Leak Test, RCIC and HPCI Preoperational Test. Later phases of test program assigned responsibility for coordination and conduct of all balance of plant preoperational tests.

Jan. 1974 - Aug. 1975

Employed by Burns & Roe, Inc., assigned to the WNP-2 project site as Startup Operations Manager, responsible for direct supervision of Burns & Roe startup engineers involved in the development of balance-of-plant systems description, preoperational test specifications and procedures, Startup Program Manual, detailed startup sequence schedule contract requirements for contractor testing and support during the startup test program. In addition, my group provided assistance to the utility in the development of the FSAR Chapter 14, FPC Code of Accounts, a documentation storage and retrieval system.

Aug. 1975 - Present

Employed by EDS Nuclear, Inc., assigned to Comanche Peak Steam Electric Station under contract to Texas Utilities Generating Company as Lead Startup Engineer, having responsibility for formulating and providing technical direction of the project startup program, including organizational and contractural division of responsibility for conduct of various test phases; preparation of startup administrative procedures; supervising preparation and performing review of prerequisite, preoperational and initial startup procedures; preparation of project startup schedules and manpower estimates; and review of various FSAR sections, including Chapter 14.0.

Professional Affiliations:

American Nuclear Society

Certifications:

None

George D. Smith - (EDS) Assistant Lead Startup Engineer

Education:

High School - Marshall High School, Marshall, Texas - 1946 - 1950

College - Contra Costa Junior College, Concord California - 1957 - 1960
Major subjects: Math, Geology and mechanical engineering

Trade School - DeVry Institute - 1963
Subject: Basic Electronics

General Electric Company - Reactor Technology, Basic Nuclear Theory Course; Health Physics and Radiation Protection in Nuclear Power Plants

Experience:

Nov. 1950 - July 1951 Shell Oil Company - Roustabout in manufacturing department.

July 1951 - Feb. 1953 Standard Oil Company - Laborer, welders helper, welder maintaining 250 miles pipe line and seven pump stations.

Feb. 1953 - Apr. 1956 U. S. Marine Corps

June 1956 - Dec. 1956 Standard Oil Company - Boiler Fireman, Station Engineer

Dec. 1956 - June 1960 E. I. DuPont Company, Inc. Process Operator in manufacturing department of a refrigerant and tetra-ethyl lead plant.

June 1960 - Aug. 1972 General Electric Company - Licensed Reactor Operator on General Electric Test Reactor (GETR) and Vallecitos Boiling Water Reactor (VBWR). Senior Licensed Reactor Operator on Southwest Experimental Fast Oxide Reactor (SEFOR) Operations Shift supervisor on SEFOR. Field Test Engineer for CRD repair at Dresden 1 and installation and checkout of refueling equipment at Pilgram 1.

Aug. 1972 - Sept. 1979 Bechtel Power Corporation - Startup Engineer at Duane Arnold Energy Center (DAEC) responsible for checkout and initial operation of the following systems: Instrument Air, Circulating Water, River Water Supply, Station Service Water, R.H.R. and C.C.W. Group Leader at DAEC responsible for startup of all mechanical systems, including HVAC.

Assistant Project Startup Engineer at DAEC, responsible for field activities for complete plant startup.

Project Startup Engineer at DAEC responsible for coordination of startup program, including escalation to full power.

Assistant Project Startup Engineer at Trojan Nuclear Plant responsible for all administrative functions of startup group, responsible for all field startup activities. Member of Test Work Group.

Project Engineer responsible for the pre-planning, budgeting, coordination and report preparation of the 1st and 2nd refueling outages at DAEC.

Project Coordinator, responsible for erection and startup of electrostatic procipitators for three coal fired power plants for Iowa Electric Light and Power Company at Marshalltown, Iowa.

Project Startup Engineer at Susquehanna Steam Electric Station in charge of complete plant startup through power escalation.

Sept. 1979 - Present — EDS Nuclear, Inc. - Assistant Lead Startup Engineer responsible for coordination of field startup activities through five group supervisors.

Certifications:

Licensed Reactor Operator, Boiling Water Reactor (BWR)
Licensed Senior Reactor Operator, Liquid Metal Cooled Fast Breeder Reactor (LMFBR)
Certified on High Temperature Gas Cooled Grafite Moderated Experimental Reactor

Michael J. Riggs - Startup - Electrical Prerequisite Test Coordinator

Education:

B.S. Nuclear Engineering - Texas A & M University - 1974

General Electric Company Field Engineering Development Center, Schenectady, New York - 1974
Large Steam Turbine Generator Course
Boiling Water Reactor Technology Course

Boiling Water Reactor Training Center, Morris, Illinois - 1975
Reactor Operator Certification Course
Instructor Training Course

Experience:

1974 - Employed by General Electric Company assigned to Brunswick Steam Electric Plant startup group for initial training. Assisted in Radwaste systems construction and startup. Pre-operationally tested several Radwaste processing systems and seismic monitoring systems. Assistant G. E. Operations Shift Supervisor for Reactor Initial Operation Testing.

1975 - Employed by General Electric Company assigned to General Electric Training Center, as instructor. Taught utility company operators BWR operations and control of all BWR systems. Developed material and lesson plans for specific BWR plant training courses and for GE new instructors internal training course.

1976 - Employed by General Electric Company assigned to E. I. Hatch Nuclear Generating Plant startup group. Wrote large percentage of Plant Operating Procedures, including: systems operation instructions, emergency procedures, calibration and maintenance procedures, functional and surveillance testing and annunciator response procedures. Wrote and reviewed Preoperational Test Procedures. Reviewed Reactor Startup Test Instructions. Assigned as Preoperational Test Supervisor for Reactor Protection System, Primary Containment Isolation System and Main Generator and Auxiliary Systems; responsible for those system's assembly, deficiencies, construction, acceptance testing, functional testing, preoperational test/testing, and support documents. GE Operational Shift Supervisor for Reactor Vessel Hydro and for Recirc Pump Vibration Testing. Training Instructor for GE Shift Supervisor Certification course.

1978 - Employed by Texas Utilities Generating Company assigned to Comanche Peak Steam Electric Station startup group. Initiated Hydraulic Model Test Plan for Containment Recirculation Sump flow verifications. Assigned as Startup Test Engineer for station battery/DC distribution systems and for all main turbine and generator systems. As turbine/generator coordinator, responsibilities included construction and startup scheduling, installation verification and system testing.

1981 - Employed by Texas Utilities Generating Company assigned as Electrical Prerequisite Test Coordinator responsible for technical direction of startup test electricians, electrical support manpower assignemnts and projections and development of backlog testing to include most plant 6.9KV large motors.

Certifications:

GE Senior Reactor Operator Certification on Dresden Station Units 2 & 3 - 1975

GE Senior Reactor Operator Certification on E.I. Hatch Plant Units 1 & 2 - 1978

Professional Affiliations:

None

Richard M. Remaley - Startup - I&C Test Coordinator

Education:

BSEE - Lehigh University - 1973

Experience:

1973 - Employed by Philco Ford Corporation as a Junior Engineer. Designed analog and digital control systems for automobiles.

1974 - Assigned to Baltimore Gas & Electric Company by Fischer and Porter, Inc. as a field I&C engineer at BG&E's Calvert Cliffs Nuclear Power Plant. Duties included installation verification, device calibration and systems checkout on both NSSS and BOP instrumentation. Also responsible for measuring and test equipment calibration procedures.

1976 - Employed by Stone & Webster Engineering Corporation as an Engineer in the Advisory Operations Division. Duties included preparing instrument calibration procedures for the Power Authority of the State of New York and developing instrument loop calibration reports for Northeast Utilities Services Corporation (Millstone 2), Gulf States Utilities (River Bend 1) and Virginia Electric Power Corporation (North Anna 1 and 2).

1977 - Subcontracted to Arkansas Power & Light for startup of nuclear instrumentation on second unit of Arkansas Nuclear One. Engaged primarily in the writing of surveillance and calibration procedures for the plant protective system (Reactor Protection System and Engineered Safety Features).

1977 - Employed by Brown & Root, Inc. as an engineering specialist engaged in a plant improvement program for ALCOA's Warrick Pwoer Station, Duties included the redesign and upgrading of the steam temperature control, combustion and burner control systems.

1978 - Assigned responsibility for electrical startup of Southern Indiana Gas & Electric Company's A.B. Brown Power Station. Duties included preparing test procedures and acceptance criteria as well as providing technical guidance to electrical construction personnel and equipment vendors.

1978 - Employed by Bechtel Power Corporation as a Senior Startup Engineer at Salt River Project; Coronado Generating Station. Engaged primarily in the electrical startup and writing of acceptance procedures for caol handling, bottom and fly ash handling and emergency diesel systems.

1979 - Employed by EDS Nuclear, Inc. as a Lead Senior Engineer and assigned to Texas Utilities Services, Inc. at Comanche Peak Steam Electric Station. Duties included compiling list of essential electrical equipment and instrumentation and implementing damage studies for conduit and instrumentation.

1981 - Employed by EDS Nuclear, Inc. assigned to Comanche Peak Steam Electric Station startup group as I&C coordinator responsible for coordinating the turnover of instrumentation for construction to startup and subsequent initial calibration and associated wiring prerequisite tests.

Professional Affiliations:

Member IEEE

Member ISA

Certifications:

None

Thomas P. Miller - Startup - Mechanical Test Group Coordinator

Education:

BS Nuclear Science - State University of New York Maritime College - 1973

Experience:

1973 - 1975 Employed by Indiana and Michigan Power Company at the Donald C. Cook Nuclear Plant as a performance engineer with responsibilities for developing and performing plant preoperational, operating and surveillance procedures for fuel handling, core physics distribution limits and incore flux and temperature measuring systems. Training and supervising fuel handling crews during fuel handling operations from receipt of fuel through core loading. Develop and perform startup test procedures for initial core loading, initial criticality, low power and power ascension test programs of cycle 1.

1975 - 1977 Employed by Indiana and Michigan Power Company at the Donald C. Cook Nuclear Plant as a senior performance engineer responsible for the accountability of all special nuclear material on site - nuclear materials manager. Supervise the performance and subsequent data analysis of physics tests during criticality, low power and power ascension test programs for cycle 2. Development of procedures and performance of new and spent fuel assembly inspections. Supervise the performance of surveillance requirements for core power distribution limits and core monitoring instrumentation.

1977 - 1978 Employed by EDS Nuclear, Inc. as a principle engineer. Responsibilities included development of an operations plan, corporate and station administrative procedures for various utilities. Startup activities at Comanche Peak Steam Electric Station, including development of preoperational test, prerequisite and startup administrative procedures; system testing and initial operation of a demineralizer water treatment plant.

1978 - 1980 Employed by EDS Nuclear, Inc. as a senior engineer responsible for startup activities at the Comanche Peak Steam Electric Station. Duties include development of preoperational, prerequisite and startup administrative procedures, identify and resolve design problems on assigned systems, supervise test personnel during the testing and initial operation of the reverse osmosis water treatment system.

1980 - Employed by EDS Nuclear, Inc. as a Lead Senior Engineer assigned to Comanche Peak Steam Electric Station responsible as a Group Leader for the Containment/Waste Processing/Rad Monitoring Systems. Duties included supervision of test engineers assigned to the group during procedure preparation and system testing, review of group's procedures, system testing and manpower scheduling.

1981 - Employed by EDS Nuclear, Inc. assigned to Comanche Peak Steam Electric Station as Mechanical Test Group Coordinator responsible for overall coordination and technical direction of the mechanical craft personnel utilized during system testing, hydrostatic testing and flushing.

Professional Affiliations:

None

Certifications:

U. S. Coast Guard Third Assistant Engineer - Steam or Motor Unlimited Horsepower

U. S. Atomic Energy Commission - Senior Reactor Operator Limited to Fuel Handling - August, 1974

Richard E. Walz - Startup - Planning & Scheduling

Education:

BSIE - University of Rhode Island - 1965

Experience:

1965 - Employed by Agostini Construction Company as a Staff Engineer. Duties included motion and time studies, equipment utilization coordination and multi-project scheduling using computerized CPM techniques.

1966 - Employed by Computer Service Consultants, Inc. as Office Manager and Consultant. Duties included sales and CPM processing.

1967 - Employed by Nicholson File Company as a Staff Engineer in home office. Duties included research work, Quality Assurance/ Engineering audits, construction and manufacturing planning and scheduling activities and computer utilization control.

1972 - Employed by United Engineers and Constructors, Inc. as a Scheduling Engineer at the Salem Nuclear Station, progressing to Lead Scheduling Engineer at the Seabrook Nuclear Station. Engaged primarily in computerized planning and scheduling work. Specific scope included: assistance during contract negotiations for field work, constructability studies, cost effectiveness studies and Project Control procedure development. Extensive use of computerized Cost and Scheduling techniques.

1976 - Employed by Gibbs & Hill, Inc. as Senior Construction Engineer, transferred to Dravo Utility Constructors, Inc. (DUCI) assigned to Comanche Peak Nuclear Station as liaison and consultant. Duties included: participation in construction progress meetings, maintenance of a summary of actual vs scheduled progress, monitor equipment and engineering deliveries, preparation of timely progress reports and review of construction and engineering schedules for the client.

1978 - Employed by DUCI assigned to Comanche Peak Steam Electric Station startup group. Duties include maintenance of project startup sequence schedule, development of detailed system test schedules, development of status reporting formats and techniques and interfacing with construction project controls and scheduling department for input of startup requirements into project schedule.

Professional Affiliations:

None

Certifications:

None

Donald B. Allen - Startup - Containment/Rad Processing * Monitoring/Fuel Handling Systems Group Leader

Education:

B. S. Physics - Bradley Universiry - 1968

Experience:

1969 - U.S. Air Force

1973 - Employed by Westinghouse at the Naval Reactors Facility in Idaho as a Nuclear Plant Engineer. Advanced to Senior Training Assistant for the S1W submarine prototype. Qualified as Engineering-Officer-of-the-Watch, primary responsibilities in training, operations and maintenance.

1976 - Employed by General Electric Nuclear Energy Division as a Startup Test Engineer. Assigned to Morris BWR Training Center for 12 weeks operator's course - certified Senior Reactor Operator on Dresden 2.

1977 - Assigned to General Electric Nuclear Energy Division home office as a staff startup test engineer developing preoperational test specifications and instructions for Hanford, Grand Gulf and Susquehana.

1977 - Assigned to William H. Zimmer Nuclear Power Station as an NSSS Startup Test Engineer. Assigned systems included Fuel Handling Equipment, Automatic Depressurization System, Area Radiation Monitoring, Process Radiation Monitoring, Reactor Recirculation Hydraulic System, Main Steam Isolation Valves Leakage Control System. Responsibilities included test engineer for the Reactor Vessel Hydrostatic Pressure Test.

1980 - Temporary assignment to Cincinnati Gas and Electric Company Construction Department for construction supervision. Responsible for completion of several NSSS systems, including Control Rod Drive Hydraulic System, Reactor Water Clean Up System, Residual Heat Removal System and Standby Liquid Control System.

1980 - Employed by EDS Nuclear, Inc. as a Startup Test Engineer at Comanche Peak Steam Electric Station. Test Engineer for the Station Service Water System.

Promoted to present position as Group Leader for Conatinment, Radioactive Waste Processing, Radiation Monitoring and Fuel Handling Equipment Systems. Primary duties include turnover boundary description, turnover and test scheduling, testing coordination, test data review and design change recommendations for systems and equipment. Also responsible for preparation of prerequisite, acceptance and preoperational test procedures.

Professional Affiliations:

None

Certifications:

Engineering Officer-of-the-Watch - S1W Navy Prototype
Senior Reactor Operator - Dresden 2 Nuclear Power Station
Level III Inspector - William H. Zimmer Nuclear Power Station

Charles D. Beach - Startup - Balance of Plant Systems Group Leader

Education:

B.S. Aerospace Engineering - University of Kansas - 1969
Newport News Shipbuilding & Drydock Company - Radiation Worker Training

Experience:

1969 - U. S. Air Force

1973 - Employed by Newport News Shipbuilding & Drydock Company assigned as Mechanical Test Engineer on USS NIMITZ. Responsible for writing, implementation and supervision of testing during flushing, hydrostatics, reactor fill, cold and hot operation, criticality and power range testing.

1975 - Employed by LPL, Inc. assigned to Salem Nuclear Generating Station Startup group responsible for supervision and coordination of construction and initial startup activities on nuclear piping and ventilation systems such as; Residual Heat REmoval, Safety Injection, Containment Spray, Primary Plant Ventilation, Chilled Water, Hydrogen, Nitrogen, Oxygen and Carbon Dioxide. Completed plant familiarization and health physics courses.

1977 - Employed by EDS Nuclear, Inc. assigned to W. H. Zimmer Nuclear Power Station startup group responsible for preparation and execution of preoperational tests and flushing on nuclear support and radwaste systems, such as; instrument and service air, reactor component cooling, fuel pool cooling and cleanup, acid and caustic and waste processing. Developed FSAR abstracts, reviewed and revised test specifications and generated engineering changes to meet design specifications. Completed plant familiarization and health physics courses.

1979 - Employed by EDS Nuclear, Inc. assigned to Comanche Peak Steam Electric Station startup group as group leader for balance of plant systems. Primary duties include turnover boundary description, turnover and test scheduling, test coordination, test data review, design change recommendations for balance of plant systems. In addition, responsibilities include preparation of prerequisite and system acceptance tests procedures and supervision of startup engineers assigned to balance of plant systems.

Professional Affiliations:

Registered Professional Engineer, State of Ohio

Certifications:

None

Harold J. Cheatheam - Startup - Electrical Systems Group Leader

Education:

BSEE - Texas Tech University - 1967

Experience:

1966 - Employed by Litton Industries as electronic test technician to test and trouble shoot electronic component cards for naval guidance system.

1967 - Employed by Pan American Petroleum Corporation as pertroleum reservoir engineer with primary duties to evaluate well performance and recommend well treatments to increase well productivity. Also made an engineering evaluation of an established oil field for the purpose of unitization for secondary recovery by waterflood.

1969 - Employed by Dallas Power and Light Company as an associate engineer in the System Protection and Testing Division. Duties included plant, transmission distribution, protective relay settings, making coordination studies and reviewing electrical and protective control circuit design.

1975 - Employed by Texas Utilities Generating Company as electrical startup engineer at Martin Lake Steam Electric Station. Primary duties included testing, design changes and energization of the plant electrical distribution systems for Unit Nos. 1 and 2. Also checked out and run-in all large motors (100 HP and above).

1978 - Assigned to the Comanche Peak Steam Electric Station as startup engineer. Promoted to senior engineer and Startup Electrical Group Leader. Primary duties include turnover boundary description, turnover and test scheduling, testing coordination, test data review and design change recommendations for plant electrical systems and equipment. Also responsible for preparation of electrical prerequisite, acceptance and peroperational test procedures for all electrical systems.

Professional Affiliations:

Registered Professional Engineer in Texas

Certifications:

None

Sterling M. Franks, III - Startup - NSSS Systems Group Leader

Education:

BSNE - University of Tennessee @ Chattanooga - 1974

Experience:

1966 - 1970 U. S. Army

1971 - 1973 Employed by Tennessee Valley Authority, Sequoyah Nuclear Plant in civil engineering department as engineering aide inspecting and layout for equipment associated with the nuclear plant.

1973 - 1974 Assigned to mechanical engineering department at Sequoyah Nuclear Plant. The duties consisted of second shift assistance to craftsmen with problems related to heavy equipment erection and installation.

1974 - 1975 Assigned to Preoperational Test Section, Sequoyah Nuclear Plant, as nuclear engineer. The duties consisted of indoctrination training for Office of Power Engineering Training and Radiological Hygiene Training. Additionally developed preoperational tests for Containment Spray and Spent Fuel Pool Cooling and Cleaning Systems.

1975 - 1976 Temporarily assigned to Assistant Plant Manager, Browns Ferry Nuclear Plant, as Assistant Preoperational Test Coordinator. The duties included administrative development and direction for the fire restoration retest program. Additionally developed and performed preoperational test for high pressure safety injection, low pressure safety injection and reactor protection.

1976 - 1979 Returned to Preoperational Test Section, Sequoyah Nuclear Plant. The duties included procedure development and conduct of the Chemical and Volume Control, Safety Injection, Boron Recycle, Diesel Generator HVAC, Turbine-Generator Control Systems. Additionally developed test procedures for Control Rod Drop, Control Rod Drive, Rod Position Indication and Control Rod Bank Overlap.

1979 - 1980 Employed by EDS Nuclear, Inc. assigned to Comanche Peak Steam Electric Station startup group. The duties included developing various administrative control procedures, system scoping and scheduling, development and review of generic prerequisite test procedures, developed several preoperational tests to include Safety Injection and Chemical and Volume Control Systems.

1980 -
1981 Promoted to Lead Senior Engineer and designated as group leader for Nuclear Steam Supply Systems. Primary duties include turnover boundary description, turnover and test scheduling, test coordination, test data review, design change recommendations for NSSS systems. In addition, responsibilities include preparation of prerequisite and preoperational test procedures and supervision of startup engineers assigned to NSSS systems group. Have had direct responsibility for development of the preoperational piping vibrations program.

Professional Affiliations:

Sigma Phi Sigma

Certifications:

None

Bruno W. Kaulfus - Startup - HVAC Systems Group Leader

Education:

BSME - Texas A & M University - 1950

Experience:

1943 - 1946 U. S. Navy during WWII; Radio Operator aboard USS Bougainville CVE-100

1948 - Employed by Texas Electric Service Company working as temporary summer help on plant operations at North Main Steam Electric Station.

1950 - 1951 Employed by Texas Electric Service Company as a student engineer at the North Main Steam Electric Station. Performed electrical maintenance duties on the five turbine-generator units and auxiliaries.

1951 - 1952 Employed by Texas Electric Service Company as a junior engineer at Handley Steam Electric Station. Duties included startup operations of a new 80 MW turbine-generator unit.

1952 - 1954 Employed by Texas Electric Service Company as a senior engineer at North Main Steam Electric Station. Duties included initial startup operations of a 80 MW turbine-generator unit, operator training and assisted with instrumentation calibration and repairs.

1954 - 1957 Employed by Texas Electric Service Company as a senior results engineer at Eagle Mountain Steam Electric Station. Responsible for operator training and plant operations during the construction and initial startup of a 125 MW and 175 MW turbine-generator unit. Supervised plant instrumentation group and plant chemistry group. Responsible for the development of the station lubrication schedule and coordination of major plant design changes.

1957 - 1959 Employed by Texas Electric Service Company as assistant plant superintendent at the Leon Steam Electric Station. The duties consisted of assisting in management of the five unit turbine-generator station with total responsibility of overall plant operations, plant instrumentation and plant chemistry.

1959 - 1963 Employed by Texas Electric Service Company as senior results engineer at the Permian Basin Steam Electric Station. Responsible for operator training and plant operations during the construction and initial startup of a 125 MW turbine-generator unit. Responsible for operation, testing and maintenance of a plant supply water gathering system consisting of 10 high capacity deep wells. Supervised the plant instrument and chemistry group.

1963 - 1970 Employed by Texas Electric Service Company as assistant plant superintendent for two years at the Graham Steam Electric Station and five years at the Morgan Creek Steam Electric Station. Assisted in the overall station management with total responsibility of plant operations, instrumentation, reactor/demineralizer water treatment, plant operation records and equipment performance data. Additionally responsible for the checkout, testing and initial operation of a 500 MW turbine-generator with a subcritical once-thru boiler.

1970 - 1974 Employed by Texas Electric Service Company as plant superintendent for two years at the Permian Basin Steam Electric Station and two years at the Eagle Mountain Steam Electric Station. Duties consisted of overall management of each station. New construction of a 540 MW turbine-generator unit was in process at the Permian Basin Station.

1974 - 1976 Employed by Texas Electric Service Company as senior power engineer in the Fort Worth Power Department. The duties included system liquid fuel storage study and the design of an extension to deep water well gathering system. Additionally responsible for developing startup schedule and coordinating plant startup activities for two 425 MW turbine-generator units at the Handley Plant.

1976 - 1981 Employed by Texas Utilities Generating Company as senior startup engineer and promoted to principal engineer as HVAC System Group Leader and Administrative supervisor for all TUGCO Startup personnel. Primary duties include developing turnover boundary descriptions, turnover and test scheduling, test activity coordination, manpower planning, test data review and design change recommendations for HVAC systems. In addition, responsibilities include preparation of prerequisite, acceptance and preoperational test procedures and supervision of startup engineers assigned to the HVAC Systems group.

Professional Affiliations:

Registered Professional Engineer in Texas
Member of NSPE & TSPE - Fort Worth Chapter

Certifications:

None

David M. Bright - Startup - System Test Engineer

Education:

BS Chemistry - Virginia Military Institute - 1976

Experience:

1976 - U. S. Air Force

1976 - 1980 Employed by Westinghouse Electric Corporation at the Naval Reactors Facility, Idaho Falls, Idaho. Qualified as staff operator 1977 and as a Nuclear Plant Engineer in the same year. Duties primarily training in power plant operations, maintenance and chemistry.

Assigned as Acting Shift Supervisor, Crew A. Primary duties included the overall safe operation and maintenance of the reactor and steam plants. The training and timely qualification of the students assigned to the crew.

Assigned to the training department as the Staff Training Group Supervisor. Primary duties were the maintenance of the knowledge and operating skills of all staff operators at a high level and implementation of the Biennial Requalifications Program.

Qualified as Senior Shift Supervisor and assigned as Shift Supervisor, Crew A. Primary duties included the overall safe operation and maintenance of the power plant. The training and timely qualifications of the students assigned to the crew.

1980 - Employed by EDS Nuclear, Inc. assigned to the Comanche Peak Steam Electric Station startup group. Duties include preparation of Acceptance and Preoperational Tests, supervision of prerequisite, acceptance and preoperational tests performed on assigned systems, review of test data and preparation of test reports. Specific system assignments include; Chemical Feed, Potable Water, Vent and Drain and Feedwater systems.

Professional Affiliations:

None

Certifications:

Qualified Engineering Officer-of-the-Watch, S1W Prototype
Qualified Nuclear Plant Engineer, S1W Prototype
Qualified Senior Shift Supervisor S1W Prototype
Qualified Radiation Worker

John H. Collins, Jr. - Startup - System Test Engineer

Education:

AB Mathematics, LaGrange College, LaGrange, Georgia, 1969

MS Mathematics, Auburn University, Auburn, ALabama, 1971

Experience:

1971 - U.S. Navy; Engineering Office of the Watch on Navy's S3G and S5W Nuclear Power Plants. Instructor Navy Nuclear Power School.

1978 - Employed by Newport News Shipbuilding and Dry Dock Corp. as a Mechanical Test Engineer. Responsible for mechanical testing of systems on the Navy's 688 Class Nuclear Fast Attack Submarines.

1978 - Employed by Florida Power and Light Company as a startup engineer at its St. Lucie Site. System responsiblities included Reactor Coolant System, Condenser, Feedwater Heaters Vent and in System, and Diesel Generators. Participated in two refueling outage , complete condenser retubing and a complete feedwater heater replacement.

1980 - Employed by EDS Nuclear,Inc. assigned to Comanche Peak Steam Electric Station Project startup group. Duties include coordination of construction personnel and others as required to get systems/subsystems turned over to TUGCO; completion of required Prerequisite Tests, preparation and conduct of Acceptance and Preoperational tests, preparation of Initial Startup Tests and providing technical support during the Initial Startup Testing phase. Specific system responsibilities are Control Room HVAC, Office and Service Area HVAC and assisting in component cooling water flush.

Professional Affiliations:

None

Certifications:

None

Howard Druckman - Startup - System Test Engineer

Education:

B.S. Environmental Engineering, Cornell University - 1974

Experience:

1974 - Employed by Stone and Webster (Cherry Hill), assigned to the Riverbend Station Project, Gulf States Utilities, as a System Engineer with responsibility for water treatment systems. This included cooling tower makeup water treatment, makeup demineralizer, chemical feed and oil water separation systems. Duties included: design review, specification review, purchase recommendations and system drawing review.

1978 - Employed by Stone and Webster (Cherry Hill) assigned to N.M.P.-2 project, Niagara Mohawk Power Corporation, as an advisory operations engineer. Prepared system descriptions for a makeup water treatment system and a condensate demineralizer system.

1979 - Employed by Ecodyne-Graver Water Division as a Field Engineer with responsibility for Startup of Water Treating Equipment. Types of equipment included were makeup demineralizers, condensate demineralizers, filters, clarifiers and reverse osmosis units. This equipment was located at various industrial facilities and power plants around the country.

1980 - Employed by EDS Nuclear, Inc. assigned to the Comanche Peak Steam Electric Station Project. Responsible for preparation of preoperational test procedures for primary containment local Leak rate, fuel building overhead crane and radioactive waste processing systems.

Affiliations:

None

Certifications:

None

Joseph L. Fortescue - Startup - System Test Engineer

Education:

Military: Naval Nuclear Power Program

Other: Newport News Shipbuilding - A4W Shift Test Engineer School
Radiation Worker Training

Experience:

1965 - U. S. Navy - Duties included shift supervisor at a naval nuclear support facility; supervise operation of facility; ensure radiological control procedures performed correctly: ensure liquid and solid radioactive waste systems operate and are maintained properly.

Chief Reactor Auxiliary Operator - supervise, monitor and operate all systems required by a naval pressurized water reactor; perform maintenance and overhaul of reactor and support system components.

Naval Nuclear Power School and prototype - approximately one (1) year of comprehensive study and training covering subjects such as reactor theory, design, construction and operation; additional "hands-on" experience received in reactor operating and casualty procedures and radiological controls during prototype phase.

1972 - Employed by Newport News Shipbuilding as a Shift Test Engineer. Duties included safe and proper operation of all reactor and steam plant systems; ensure that all phases of plant testing are performed in accordance with specifications. Coordination of activities between naval personnel and shipyard testing support personnel. As a mechanical test engineer, performed hydrostatic testing, cleanliness flushing and preoperational checks of components and systems prior to delivery to U. S. Navy.

1977 - Employed by EDS Nuclear, Inc. assigned to Comanche Peak Steam Electric Station startup group. Duties include preparation of startup administrative procedures, prerequisite, acceptance and preoperational test procedures, supervision of prerequisite, acceptance and preoperational tests and review of test data.

In addition, duties involve coordination between construction and startup to identify and resolve construction/design deficiencies.

Professional Affiliations:

None

Certifications:

Qualified Shift Test Engineer on Naval Reactor Plant A4W
Qualified Radiation Worker

James G. Hennessy - Startup - System Test Engineer

Education:

College - Northeastern University, two years Mechanical Engineering

Technical - Wentworth Institute of Technology, Refrigeration and Air Conditioning

Military - U.S. Air Force - Air Craft Maintenance and Maintenance Management

High School - Graduated Cambridge High and Latin, Cambridge, Massachusetts

Experience:

1967 - U. S. Air Force

1968 - Employed by the Schrafft Candy Company, Boston, Massachusetts, as a power plant mechanic.

1974 - Employed by Allied Service Company of New England as a HVAC Technician. Participated in the design, installation, startup and servicing of all types of HVAC systems.

1978 - Employed by Bechtel Power Corporation at the San Onofre Nuclear Generating Station Units II and III as a Construction Field Engineer. Duties included setting up a maintenance program of all operating systems and equipment.

1979 - Employed by Brown & Root at the South Texas Project Nuclear Generating Station as a mechanical construction engineer in the HVAC group.

1980 - Promoted by Brown & Root to Construction Lead HVAC Engineer. Duties included working with Startup group in developing system lines for HVAC. Completed course in HVAC in Nuclear Plants.

1981 - Employed by Bahnson Service Company assigned to Comanche Peak Steam Electric Station. Duties include preparation of Acceptance and Prooperational Tests, supervision of prerequisite, acceptance and preoperational tests performed on assigned systems, review of test data and preparation of test reports.

Professional Affiliations:

None

Certifications:

None

Thomas E. Hodge - Startup - System Test Engineer

Education:

BS in Administration - George Washington University - 1976
Shift Test Engineer's School - Newport News Shipbuilding - 1969, 1971, 1972, 1977
U. S. Naval Nuclear Power School - 1961

Experience:

1959 - U. S. Navy. Assignments included Reactor Plant Mechanical Operator, Reactor Plant Watch Supervisor, and Engineering Laboratory Technician (e.g., Chemistry and Health Physics Technician).

1966 - Employed by Los Angeles Department of Water and Power as a Steam Plant Operator.

1967 - Employed by Newport News Shipbuilding as a Junior Designer and Progressed to Senior Engineer. Duties included preparation and review of test procedures, review of schedules and planning activities, performance and supervision of all phases of shipboard testing, from system flushing and initial operation through Power Range Testing. These duties included membership in the Joint Test Group, Supervising of other test engineers during overall test programs of five Multi-Reactor Naval Surface Ships.

1979 - Employed by EDS Nuclear, Inc. as a Senior Engineer and assigned to Duane Arnold Energy Center, for the pipe hanger/anchor bolt back-fit project (I&E Bulletin 79-02) functioning as the on-site project coordinator responsible to ensure all construction and engineering support activities were completed.

1980 - Employed by EDS Nuclear, Inc. assigned to the NSSS Startup Group at Comanche Peak Steam Electric Station. Duties include preparation and review of preoperational test procedures, for Component Cooling Water, SIS Accumulator Blowdown and Reactor Coolant Cold Hydro, performed systems testing on Component Cooling Water and assisted in testing of Station Service Water Systems and supervision of craft and other startup engineers. Additional duties include coordination of construction personnel and others as required to get systems/subsystems turned over to TUGCO; completion of required Prerequisite Tests, preparation and conduct of Acceptance and Preoperational tests, preparation of Initial Startup tests and providing technical support during the Initial Startup Testing phase.

Professional Affiliations:

American Nuclear Society Member

Certifications:

Shift Test Engineer for A2W, C1W, A4W and D2G Naval Reactor Plants
Chief Reactor Watch and Engineering Laboratory Technician Qualification from U. S. Navy

Timothy L. Hutson - Startup - System Test Engineer

Education:

BSME - Oregon State University - 1980

Experience:

1980 - Employed by EDS Nuclear, Inc. assigned to Comanche Peak Steam Electric Station startup group. Primary duties include preparing preoperational test procedures and reviewing design for the following systems: Containment Spray System, Residual Heat Removal Systems, ECCS - RHR Performance and Boron Thermal Regeneration System; assisting in initial startup of the following systems: Station Service Water System and Component Cooling Water System; System Test Engineer for the following systems: Auxiliary Feedwater-Condensate Storage System, freeze protection and heat tracing systems.

Professional Affiliations:

None

Certifications:

None

Robert G. Johansen - Startup - System Test Engineer

Education:

BSME - Northeastern University - 1975

S6G Reactor Plant Systems Shift Test Engineer, Reactor Plant Qualifications Program, General Dynamics, Electric Boat Division, Groton, Connecticut - 1977

Experience:

1972 - 1974 (Co-operative Education Experience) Texas Instruments Incorporated, Attleboro, Massachusetts. Assistant Manufacturing Engineer assigned to a Pressure Switch Production Line, responsible for specific projects dealing with Manufacturing Tooling, Equipment and Processes related to improving quality and delivery and costs reduction. Duties included procurement of new equipment such as furnaces, printers and welding machines and redesign of current processes into semi-automatic operations including Arc Welding, Riveting Assemblies and Quality Assurance test equipment.

1974 - 1975 (Co-operative Education Experience) Stone and Webster Engineering Corporation, Boston, Massachusetts, Support Engineer assigned to the Control Division involved in the design of Control Systems for Power Plants and associated systems including design of Control Systems for a Waste Treatment Center, a Fire Protection System for a Fossil Power Plant, and an HVAC System for the office building at the plant site. Additionally, responsibilities included coordination with design and engineering organizations for updating vendors' specifications and field design changes.

1975 - Employed by General Dynamics, Electric Boat Division, Groton, Connecticut assigned to S6G Reactor Plant Construction as a qualified shift test engineer. Duties included safety of the reactor plant and its associated systems, coordination and direct supervision of Navy and shipyard personnel during all phases of electrical and fluid testing, resolve and report resolutions for problems and failures that transpire during testing.

1980 - Employed by EDS Nuclear, Inc. assigned to the Comanche Peak Steam Electric Station startup group. Duties include coordination of construction personnel and others as required to get systems/subsystems turned over to startup for testing, completion of required Prerequisite Tests, preparation and conduct of Acceptance and Preoperational tests, preparation of Initial Startup Tests and providing technical support during the Initial Startup Testing phase. Specific system responsibilities are the condensate, condensate polishing, heater drains, circulating water, extraction steam and steam generator blowdown systems.

Professional Affiliations:

None

Certifications:

None

D. Arthur London - Startup - System Test Engineer

Education:

BSEE - University of Oklahoma - 1976

Experience:

1977 - 1979 Employed by Westinghouse Electric Corporation, Naval Reactors Facility, Idaho Falls, Idaho, as an Associate Engineer. Completed six month Nuclear Power School and six month qualification as Engineering Officer-of-the-Watch. Qualified as Nuclear Plant Engineer (S1W) and worked in all aspects of Plant Operations, Maintenance and Training. Progressed to Engineer and qualified as Acting Shift Supervisor. Acting Shift Supervisor duties included overall responsibility for plant operations, maintenance and training for a crew on shift.

1979 - Employed by EDS Nuclear, Inc. assigned to Comanche Peak Steam Electric Station startup electrical systems group. Assignments have included prerequisite tests and initial energization of the Control Room Annunciators, 6.9KV safeguards switchgear, sequential events recorder, station computer, plant communications, 480 volt motor control center, plant cathodic protection, solid state isolation equipment and reactor protection system inverters.

Professional Affiliations:

Engineer in Training, Oklahoma

Certifications:

1978 - Engineering Officer-of-the-Watch, S1W Plant
Naval Reactors Facility, Idaho Falls, Idaho

1978 - Nuclear Plant Engineer, S1W Plant, NRF, Idaho Falls, Idaho

1979 - Acting Shift Supervisor, S1W Plant, NRF, Idaho Falls, Idaho

David L. McKibbin - Startup - System Test Engineer

Education:

BSME - University of Illinois - 1980

Experience:

1980 - Employed by EDS Nuclear, Inc. in Management Service Division, San Francisco. Primarily worked on scheduling construction activities for technical support center and first draft preparation of a corporate emergency response plan.

1980 - 1981 Employed by EDS Nuclear, Inc. assigned to Comanche Peak Steam Electric Station spare parts task force. Duties included evaluation of major systems and components to recommend and requisition spare parts for plant operation.

1981 - Employed by EDS Nuclear, Inc. assigned to Comanche Peak Steam Electric Station startup group as System Test Engineer. Duties include coordination of construction personnel and others as required to get systems/subsystems turned over to TUGCO; completion of required Prerequisite Tests, preparation and conduct of Acceptance and Preoperational tests, preparation of Initial Startup Tests and providing technical support during the Initial Startup Testing phase. Specific system responsibilities are assisting in the prerequisite testing and flushing of the Fire Protection, Instrument Air and Condensate Systems.

Professional Affiliations:

None

Certifications:

None

Michael W. Moak - Startup - System Test Engineer

Education:

BSNE - Mississippi State University - 1976

Shift Test Engineer Training (Nuclear) - Ingalls Shipbuilding, Inc. - 1978

Experience:

1976 - Employed by Ingalls Shipbuilding, Inc. as prospective Shift Test Engineer (Nuclear). Duties included assisting the Shift Test Engineer in testing Naval Nuclear Reactor Systems and Test Procedure Preparation for Naval Nuclear Reactor Systems.

1979 - Employed by EDS Nuclear assigned to Comanche Peak Steam Electric Station Project. Duties include preparations of Acceptance and Pre-operational Tests, supervision of Prerequisite Acceptance and Preoperational Tests performed on assigned systems, preparation and review of test data and preparation of test reports.

Affiliations:

None

Certifications:

None

Michael C. Murray - Startup - System Test Engineer

Education:

BSET - California State Polytechnic Univ., Pomona, Calif. - 1974

Experience:

1974 - Employed by Bechtel Power Corporation at the Cholla Steam Generation Station as a Field Engineer. Responsibilities included design, installation and system testing.

1976 - Employed by Daniel Construction Company at Farley Nuclear Plant as a Construction Test Engineer. Areas of responsibility included coordination of construction completion for the electrical sub-contractor, assistance to plant operations for Preoperational Testing, assistance to the contractor for System Pressure Testing and initiation and follow-up of field change requests on assigned systems.

1977 - Employed by Diversified Electrical Contractors, a subsidiary of Daniel Construction Company, at Farley Nuclear Plant as the Lead Systems Engineer. Areas of responsibility were the coordination of the Electrical Construction work including the supervision of Systems Engineers.

1978 - Employed by Brown and Root at the South Texas Nuclear Plant as the Chief Systems Engineer. Areas of responsibility included the supervision and technical direction of the systems group. Coordinate the system activities, overseeing the test boundaries and definitions (mechanical, electrical and instrumentation) and ensuring that applicable code requirements were followed during pressure testing system integrity until release to the client.

1979 - Employed by Daniel Construction Company at the V.C. Summer Nuclear Plant as the Systems Completion Supervisor. Areas of responsibility included supervision of the systems engineers and to expedite the construction effort to meet the test schedule.

1980 - Employed by Bahnson Service Company assigned to Comanche Peak Steam Electric Station Project, Startup HVAC group. Areas of responsibility include the coordination of construction personnel and others as required to get systems/subsystems turned over to TUGCO; completion of required Prerequisite tests, preparation and conduct of Acceptance and Preoparational tests, preparation of Initial Startup Tests and providing technical support during the Initial Startup Testing phase.

Affiliations:

None

Certifications:

None

Peter E. Olson - Startup - System Test Engineer

Education:

Graduate of Nutley High School, Nutley, New Jersey - 1971

Experience:

1973 - Employed by Pennwalt Corporation, Wallace & Tiernan Division as Mechanical Draftsman for Water Treatment Facilities.

1974 - Employed by Brown & Root, Inc. at the Brunswick Steam Electric Station as a Draftsman Checker, later moving to Field Pipe Engineering. Duties included field inspections for system completion and instituting field modifications, primarily on various BOP systems.

1975 - Employed by Brown & Root, Inc. assigned to the Exxon Corporation, Baytown, Texas, Fuels Expansion Project. Duties included working with the Project Engineer resolving field construction problems.

1976 - Employed by Brown & Root, Inc. assigned to Comanche Peak Steam Electric Station mechanical engineering group. Duties included construction procedure preparation and resolution of field construction problems concentrating on NSSS systems in the reactor and fuel buildings.

1979 - Employed by Bahnson Service Company assigned to V. C. Summer Nuclear Station as a startup engineer. Duties included electrical and mechanical checkout and preoperational testing of HVAC systems throughout the plant.

1980 - Employed by Bahnson Service Company assigned to Comanche Peak Steam Electric Station as System Test Engineer. Duties include coordination of construction personnel and others as required to get systems/subsystems turned over to TUGCO; completion of required Prerequisite Tests, preparation and conduct of Acceptance and Preoperational tests, preparation of Initial Startup Tests and providing technical support during the Initial Startup Testing phase. Specific system responsibilities are the primary plant supply and exhaust filtration system, reactor building cooling and ventilation chilled water system.

Professional Affiliations:

American Society of Heating, Refrigeration and Air-Conditioning Engineers

Certifications:

None

Gaetano F. Riggio - Startup - System Test Engineer

Education:

B.S. Marine Engineering, minor in Electrical Engineering United States Merchant Marine Academy - 1975

MBA - University of Southern Mississippi - 1979

Experience:

1975 - 1978 Employed at Ingalls Shipbuilding as a Nuclear Test Engineer and assisted shift test engineer in testing of all nuclear systems. Passed the Naval Reactors written examination for Shift Test Engineer in September, 1976.

Qualified as a shift test engineer. Conducted comprehensive tests of nuclear and nuclear related systems under strictly controlled conditions. Directed ships personnel in placing reactor plant in a safe condition during times of casualty. Responsible for placing electrical and mechanical systems in appropriate status to facilitate all production work on the nuclear plant. Insured the production schedule was adhered to while maintaining optimum safety standards.

Assigned as a project engineer and coordinated nuclear plant engineering activities with field operations. Determined priorities and assignments of engineering tasks relating to assigned submarine. Acting liaison to other company departments and outside organizations.

1979 - Employed by EDS Nuclear, Inc. assigned to Comanche Peak Steam Electric Station startup group as a senior engineer. Duties include responsibility for initial operation of assigned systems including design review, completion of construction, preparation of test procedures and operational testing of individual components and the entire systems that were assigned during this period including condensate, circulating water, potable water, condenser vacuum and water box priming and the turbine plant cooling water systems.

Presently responsible for the startup of the Comanche Peak Unit 1 turbine generator. Responsible for scheduling startup testing, coordinating with construction to facilitate startup schedules, design review, writing the test procedures and testing the turbine generator and support systems.

Professional Affiliations:

None

Certifications:

Third Assistant Engineers License - Steam and Diesel, unlimited horsepower
Radiological Controls - Qualified to work in Radiation Control Areas
Naval Reactors - approved as qualified shift test engineer for S5W plants

Gary Craig Sandlin - Startup - System Test Engineer

Education:

1973 to 1978 - University of Texas at Arlington, Arlinton, Texas
B.S. Degree in Mechanical Engineering

1970 to 1972 - United Electronics Institute, Dallas, Texas
Associates Degree in Electronics

1967 to 1970 - Good Hope College Prep., St. Croix, U.S.V.I.,
High School Diploma

Experience:

1972 - Lenkurt Electric Company (G.T.E.), San Carlos, California. Installer - Installation and startup of microwave and cable toll telephone systems.

1973
1978 - University of Texas at Arlington

1979
1980 - Employed by Texas Electric Service Company, Handley Steam Electric Station. Associate Mechanical Engineer - Worked in all departments of a 1440 Megawatt gas and oil fired power plant, starting at Handley as a Junior Engineer and then progressing to Associate Engineer, engaged primarily in training in power plant operations, maintenance and chemistry.

1980 - 1981 Employed by Texas Utilities Generating Company assigned to Comanche Peak Steam Electric Station startup group. Duties include coordination of construction personnel and others as required to get systems/subsystems turned over to startup for testing; completion of required prerequisite tests, preparation and conduct of acceptance and preoperational tests, preparation of initial start-up tests and providing technical support during the initial start-up testing phase; identification of problem areas and recommend or affect actions to resolve deficiencies that can adversely affect test performance. Specific system assignments include Turbine, Gantry and Containment Access Cranes, 300gpm lake water clarification and reverse osmosis system, demineralized water, plant gas and main steam systems.

Professional Affiliations:

None

Certifications:

First Class Radio Telephone License

Steven L. Siebenaler - Startup - System Test Engineer

Education:

BSME - The University of Cincinnati - 1980

Experience:

1978 - Employed by the Toledo Edison Company at the Davis Besse Nuclear Power Station under a sanctioned co-operative education work program for four college quarters. Was responsible for the development and maintenance of fire protection and radioactive waste disposal procedures. Also prepared Licensee Event Reports and other communications required by the plant technical specifications.

1980 - Employed by EDS Nuclear, Inc. assigned to the Comanche Peak Steam Electric Station spare parts tast force. Was responsible for the specification and requisition of spare parts for plant operation.

1981 - Employed by EDS Nuclear, Inc. assigned to Comanche Peak Steam Electric Station startup group as System Test Engineer. Duties include coordination of construction personnel and others as required to get systems/subsystems turned over to TUGCO; completion of required Prerequisite Tests, preparation and conduct of Acceptance and Preoperational tests, preparation of Initial Startup Tests and providing technical support during the Initial Startup Testing phase. Specific system responsibilities are the Primary Sampling system, Fuel Pool Cooling and assistance on Component Closed Cooling Water System prerequisite testing and flushing.

Professional Affiliations:

Member, American Society Mechanical Engineers

Certifications:

None

Floyd R. Stough - Startup - System Test Engineer

Education:

Four (4) years towards EE - University of Texas at Austin
BWR Operation Courses - GE BWR Training Center, Dresden, Illinois
BWR Technology - Grand Gulf Nuclear Station, Port Gibson, Mississippi
A1W REactor (USN) - Idaho Falls, Idaho
Electricity & Electronics A1, USN - SSC Treasure Island,
San Francisco, California

Experience:

1968 - U. S. Navy. Electronics Technician involved with communication systems. Advanced to E4. Received two year scholarship to University of Texas.

1972 - U. S. Navy Reactor Operator. Duties included trouble shooting and repair of and operation of all Reactor Control Equipment. Qualified in submarines. Wrote procedures for and performed removal of Neutron Detector equipment.

1976 - Employed by Nuclear Services Corporation. Duties included preparation of procedures for and supervised performance of Time Response Testing of NSSS systems at Trojan Nuclear Plant, Washington. Performed Fire Protection Inspection of Duane Arnold Nuclear Station, Iowa. Wrote control rod drive functional testing and operating procedures for LOFT Site, Idaho. Performed BOP control panel re-engineering on Grand Gulf Nuclear Station. Assisted in pipe restraint analysis information collection at Beaver Valley, Pennsylvania. Involved in Waste Disposal Risk Analysis for ERDA.

1977 - Employed by Mississippi Power and Light as assistant operator, Grand Gulf Nuclear Station. Completed cold licensee training at Grand Gulf and advanced to Nuclear Operator. Certified as Reactor Operator for cold license at GGNS. Certified SRO on plant knowledge and control room operation.

1981 - Employed by EDS Nuclear, Inc. assigned to Comanche Peak Steam Electric Station Startup electrical systems group. Duties include initial energization of lighting and power distribution panels, energization of 345KV switchyard, control circuit checkout and modification of 480 VAC control power for the Unit 1 and Unit 2 main transformers and preparation of acceptance and preoperational test procedures for plant electrical systems.

Professional Affiliations:

None

Certifications:

BWR Reactor Operation Cold License Certification, GGNS
U.S. Navy Reactor Operator S5W-4A and A1W
U.S. Navy - Qualified in submarines
U.S. Navy - Electronics Technician, ET1 (SS)

Ian M. Thomson - Startup - System Test Engineer

Education:

B.S.E.E. - University of Maitoba - 1980

Experience:

1981 - Employed by EDS Nuclear, Inc. assigned to Comanche Peak Steam Electric Station Project startup electrical test group. Responsibilities include coordination with construction to get electrical components turned over for testing, supervision of circuit functional tests and documentation of test performed.

Professional Affiliations:

Institute of Electrical & Electronic Engineers

Certifications:

None

James C. Zimmerman - Startup - System Test Engineer

Education:

BSME - The University of Michigan - 1976

Experience:

1976 - Employed by Combustion Engineering Inc. as a NSSS Engineer, Grade 1. Was responsible for operating plant relaibility data software programs. Completed a one week PWR Simulator Operations Training Course.

1977 - Assigned to the Maine Yankee Atomic Power Station. Was responsible for EPRI Limiting Factors Analysis Study software development.

1978 - Assigned to the Clavert Cliffs Nuclear Power Station during refueling outage as an irradiated fuel team engineer. Supervised craft labor during fuel sleeving operation.

Promoted to NSSS ENgineer II and transferred to the Arkansas Nuclear One Unit 2 Station as a System Test Engineer. Responsibilities included the preparation and performance of peroperational and startup test procedures for the reactor coolant system (Thermal expansion measurement), emergency feedwater system, control element drive system and the core protection calculator system (response time testing). Was promoted to Shift Test Director with responsibility for conductance of initial criticality, low power physics and power ascension test procedures.

1979 - Employed by EDS Nuclear, Inc. as a Principal Engineer. Assigned to the Duane Arnold Energy Center. Was responsible for coordinating the resolution of quality assurance findings, prepared licensee event reports and conducted electrical penetration fire seal surveillance tests.

1980 - Employed by EDS Nuclear, Inc. assigned to the Comanche Peak Steam Electric Station project responsible for supervision of Spare Parts Task Force personnel delegated to specify and requisition spare parts for plant operation.

Promoted to Senior Engineer and assigned to the Comanche Peak Steam Electric Station startup group. Currently responsible for the development of pre-operational test procedures for primary conatinment integrated leak rate and radioactive waste processing system testing.

Professional Affiliations:

Member, The American Nuclear Society

Certifications:

None

Nuclear Services Division (NSD)

NSD is composed of the Nuclear Fuels Group and the Nuclear Licensing Group.

The Fuels Group will have four (4) engineers and eight (8) engineers assigned for 1 and 2 unit operation respectively.

The Nuclear Licensing Group has six (6) engineers assigned.

Resumes of the Manager, Nuclear Services and his staff are attached.

Technical Support Group

The Technical Support Group (TSG) currently consists of 17 engineers supplemented by consultants/contractors as required. The current and anticipated composition of the group is:

	Current	2 Unit Operation
Mech. Engr.	3	9
Elec. Engr.	4	8
Nuc. Engr.	5	7
I&C Engr.	4	6
Civil/Structural	1	4
Designers	0	6
	17	40

The Technical Support Group will be organized in such functional areas as engineering, analysis, planning, scheduling, purchasing, design and drafting. Clerical and secretarial support will be supplied as required.

Resumes of the Manager, Technical Support Group and his staff are attached.

Homer C. Schmidt - Manager, Nuclear Services

Education:

BSME - Southern Methodist University

Experience:

1956 - U.S. Army

1958 - Dallas Power & Light Co.
As Plant Engineer and Supervisor, responsible for providing in-plant evaluation of safety, reliability and production efficiencies of generating units; providing engineering and technical support for operations and maintenance activities; and maintenance of plant instrumentation and automatic control systems.

1962 - Dallas Power & Light Co.
As Coordinating Engineer for the Plant Department, responsible for Plant Department review of design and procurement documents for new generating units, liaison and coordination with Engineering Department, and monitoring of field construction activities for these units.

1968 - Dallas Power & Light Co.
As Plant Betterment Division Head, responsible for evaluating safety, reliability and production efficiency of all DP&L generating units; providing engineering and technical support for operations, maintenance and construction activities in the Plant Department; and conducting a continuous preventive maintenance program on all power plant instrumentation, computers and automatic control systems.

1971 - Texas Utilities Generating Co.
As Manager, Quality Assurance, responsible for developing and managing the quality assurance program for design, procurement and construction of Comanche Peak Steam Electric Station. In addition, responsible for assuring that TUGCO quality assurance requirements were implemented by TUGCO's prime contractors. During this period, developed the TUGCO/TUSI Corporate Quality Assurance Program and the Comanche Peak Quality Assurance Plan and guided its implementation.

1976 - Texas Utilities Services Inc.
As Project Manager-Nuclear Plants, responsible for cost, schedule and quality for engineering, construction, procurement, licensing and fuel managment of CPSES. In October 1977 the responsibility for engineering, construction, and procurement was transferred to the Office of the Project General Manager at the construction site. Mr. Schmidt retained responsibility for licensing, health physics, fuel management, and technical support.

1978 - Texas Utilities Services Inc.
As Manager, Nuclear Services, responsible for licensing and fuel management.

Activities:

Registered Professional Engineer in Texas
Member - ANS
Member - ASME
Member - Atomic Industrial Forum Committee on Reactor Safety and Licensing

John S. Marshall - Nuclear Licensing Supervisor

Education:

U.S. Naval Academy - 1964

Experience:

1964 - U.S. Navy Nuclear Submarine Service. Qualified to supervise operation of nuclear reactors. Qualified Nuclear Engineer Officer.

1974 - Bechtel Pow - Corporation. Design and licensing of balance of plant systems for foreign and domestic nuclear power plants representing four domestic NSSS manufacturers.

1979 - Texas Utilities Services Inc. as a Nuclear Licensing Engineer.

1980 - Texas Utilities Services Inc. as Nuclear Licensing Supervisor.

Acitivities:

Registered Professional Engineer in California
Member - ANS

Richard A. Werner - Senior Nuclear Licensing Engineer

Education:

BS Physics/Mathematics - East Texas State University - 1968
MSNE - University of Missouri - 1975

Experience:

1969 - U.S. Navy Nuclear Power Program, Engineering Division Officer, Nuclear Submarine USS Billfish SSN 676.

1973 - University of Missouri Research Reactor Facility. As a Reactor Engineer, responsible for the supervision of all maintenance and facility design changes for a 10 MWth research reactor. Also received an AEC reactor operator license, Docket No. 55-4844.

1975 - Texas Electric Service Co. as an Associate Nuclear Engineer assigned to Graham Power Plant.

1976 - Texas Electric Service Co. as an Associate Nuclear Engineer in the Information Department. Performed energy issue research with emphasis on nuclear issues.

1977 - Texas Utilities Services Inc. as a Nuclear Engineer in the Nuclear Division. Worked in preparation of OL application for CPSES, supervised the preparation of the ER(OLS) and various sections of the FSAR.

1980 - Texas Utilities Services Inc. as a Senior Nuclear Licensing Engineer.

Activities:

Member - ANS

Donald R. Woodlan - Senior Nuclear Licensing Engineer

Education:

BSEE, BS Math - U.S. Naval Academy - 1968
MSEE - Michigan State University - 1969
Naval Nuclear Power School - 1969
Naval Nuclear Power Training Unit - 1970

Experience:

1968 - U.S. Naval Officer in submarine force. Qualified supervisor of nuclear operations.

1975 - Cleveland Electric Illuminating Company as Operations Engineer for Perry Nuclear Power Plant.

1979 - Texas Utilities Services Inc. as a Senior Licensing Engineer for CPSES.

Activities:

Registered Professional Engineer in Ohio
Member - IEEE
Member - ANS
Member - Ad Hoc Committee on Environmental Qualifications
Member - ANS Subcommittee on Environmental Qualifications

Bohdan S. Dacko - Nuclear Licensing Engineer

Education:

BSAE - University of Illinois - 1967
MSME - University of Illinois - 1968
Naval Nuclear Power School and Prototype Training - 1971
MBA - University of Texas, Arlington - 1980

Experience:

1967 - General Dynamics as a Windtunnel Test Engineer.

1968 - LTV as an Aerodynamics Engineer.

1970 - U.S. navy, qualified to supervise the nuclear power system.

1974 - Texas Electric Service Co. as a Startup Test Engineer at a gas fired plant.

1976 - Texas Utilities Services Inc. as an Engineer in the design and construction of a lignite fired plant.

1978 - Texas Utilities Services Inc. as an Engineer in Nuclear Fuels responsible for core performance analysis.

1979 - Texas Utilities Services Inc. as a Nuclear Licensing Engineer.

Activities:

Registered Professional Engineer in Texas
Member - ANS
Member - ASME

James Patrick Shrewsberry - Nuclear Licensing Engineer

Education:

BS Radiation Protection Engineering - Texas A&M University - 1977

Experience:

1978 - Arizona Public Service Co. as an Environmental Engineer, Radiation Protection Engineer, and Betterment Engineer (Four Corners Power Plant)

1979 - Arizona Public Service Co. as a Nuclear Licensing Engineer.

1980 - Texas Utilities Services Inc. as a Nuclear Licensing Engineer.

Activities:

Member - ANS (North Texas Section)

Ronald W. Haskovec - Associate Nuclear Licensing Engineer

Education:

BSME - Texas A&M University - 1980

Experience:

1977 - Texas Utilities Services Inc. as a student engineer in the Nuclear Division.

1980 - Texas Utilities Services Inc. as an Associate Nuclear Licensing Engineer.

Anthony N. DiCesaro - Senior Nuclear Licensing Engineer

Education:

BSME - Purdue University - 1969
BS Chemistry - University of Pittsburgh - 1972

Experience:

1969 - Westinghouse Electric
1. Licensing Engineer for various plants
2. Environmental Effects - Offsite doses, distribution of radionuclides in CVCS, BTRS, liquid radwaste, gaseous radwaste, etc.

1973 - Bechtel Corporation as a Quality Control Engineer responsible for vendor contacts for nuclear piping, pumps, valves and tanks.

1974 - Westinghouse Electric as a Licensing Engineer responsible for Chapter 9, auxiliary systems and CRBRP PSAR.

1975 - Gilbert Commonwealth as a Quality Engineer responsible for quality program reviews, audits and equipment specification reviews.

1978 - Southern Science Applications, Inc. - A division of Black & Veatch - Senior Staff.
1. Assigned General Electric NC & IO - special problems at vendors and construction sites. Lead Auditor.
2. Assigned to TUSI Nuclear Licensing.

Randall L. Janne - Nuclear Fuels Supervisor

Education:

BSNE - Texas A&M University - 1975
MSNE - Texas A&M University - 1976
D. Eng. NE - Texas A&M University - 1978

Experience:

1976 - Texas Utilities Services Inc. as an Engineer in the Nuclear Fuel Group.

1981 - Texas Utilities Services Inc. as Nuclear Fuels Supervisor.

Activities:

Registered Professional Engineer in Texas
Member - ANS
Member - ASME
Member - Phi Eta Sigma
Member - Phi Kappa Phi
Member - Tau Beta Pi

Bill W. Coss - Nuclear Fuels Engineer

Education:

BSNE - Texas A&M University - 1972

Experience:

1972 - Texas Electric Service Company as a Jr. Engineer at the Handley Steam Electric Station.

1974 - Texas Utilities Generating Company as a Reactor Engineer at CPSES.

1975 - Completed Westinghouse initial operator training, Phases I, II and III. Received Westinghouse Senior Reactor Operator Certification.

1977 - Texas Utilities Services Inc. as an Engineer A in the Nuclear Division.

Activities:

Member - National Society of Professional Engineers
Member - Texas Society of Professional Engineers
Member - ANS
Member - Tau Beta Pi Engineering Society

Edmond Chen - Nuclear Fuels Engineer

Education:

BSEE - Louisiana State University
MSNE - Louisiana State University

Experience:

1974 - Dallas Power & Light Co. as a Jr. Engineer assigned to the Plant Betterment Division.

1976 - Texas Utilities Services Inc. as a Nuclear Fuels Engineer assigned to the Nuclear Division.

1978 - Completed Westinghouse initial operator training, Phases I, II and III. Received Westinghouse Senior Reactor Operator Certification

Activities:

Member - ANS
Member - Phi Kappa Phi

Brent L. Rice - Nuclear Fuels Engineer

Education:

BSNE - Texas A&M University - 1979
MSNE - Texas A&M University - 1981

Experience:

1981 - Texas Utilities Services Inc. as a Nuclear Fuels Engineer.

Activiti...:

Member - ANS
Member - Phi Eta Sigma
Member - Tau Beta Pi
Member - Nuclear Engineering Honor Society

Richard D. Calder - Manager of Technical Support

Education:

BSNE - Texas A & M University - 1970
MSNE - North Carolina State University - 1972

Experience:

1971 - Texas Utilities Services Inc.
As Fuels Engineer, assisting in writing the NSSS and Nuclear Fuel Specification for CPSES.

1972 - Texas Power & Light Co.
As Engineer for System Planning, responsible for the implementation of a computerized electrical demand program and a system programmer for engineering related programs.

1973 - Texas Utilities Services Inc.
As Engineer and Nuclear Fuels Supervisor responsible for the evaluation, procurement, management and planning fo all activities associated with the nuclear fuel cycle. During this period of time, he completed phase I, II and III of the Westinghouse Operator's Training Program and was certified as a Senior Reactor Operator.

1980 - Texas Utilities Services Inc.
As Manager of Technical Support, responsible for Technical Support to TUGCO and to engineer and procure all Three Mile Island requirements plus full responsibility for all engineering required to satisfy licensing requirements.

Activities:

Registered Professional Engineer (Texas)
Member - American Nuclear Society
Associate Member - Sigma Xi

Charles K. Fiest - Lead Mechanical Engineer, Technical Support

Education:

BSNE - Texas A&M University - 1971
MENE - Texas A&M University - 1972

Experience:

1970 - Texas Electric Service Co. as a Student Engineer at the Morgan Creek Power Plant.

1972 - Texas Electric Service Co. as a Jr. Engineer/Associate Engineer in operations, maintenance, and construction of fuel oil facilities.

1974 - Texas Utilities Services Inc. as Project Nuclear Engineer involved with design construction of CPSES.

1977 - Texas Utilities Services Inc. as Nuclear Licensing Coordinator.

1980 - Texas Utilities Services Inc. as Lead Mechanical Engineer for Technical Support of CPSES.

Activities:

Member - ANS
Member - ASME

Albert W. Latham - Senior Engineer, Technical Support

Education:

BSME - Georgia Institute of Technology - 1948
MSME - University of Pittsburgh - 1955

Experience:

1948 - Westinghouse Electric Corporation responsible for engineering managment and principal engineering activities in the design, manufacture, installation and service of nuclear power reactors and large rotating electrical power equipment.

1978 - Self employed in the engineering and marketing of heat recovery systems for air conditioning and refrigeration systems.

1979 - Mississippi Power & Light Co. in the Headquarters Engineering, Technical Services Group. Provided technical support to a nuclear power plant and five fossil plants.

1980 - Texas Utilities Services Inc. as a Senior Mechanical Engineer for Technical Support of CPSES.

Activities:

Registered Professional Engineer in Pennsylvania
Member - ASME

Prasit Chiratwatchai - Engineer, Technical Support

Education:

BSME - University of Nebraska - 1977

Experience:

1977 - Brunswick Corporation as a Student Engineer.

1977 - Black & Veatch as a System Design Engineer involved with the design of balance of plant systems.

1981 - Texas Utilities Services Inc. as a Mechanical Engineer for Technical Support of CPSES.

Activities:

Member - ASME

Bobby J. Browning - Engineer, Technical Support

Education:

U.S. Army Nuclear Reactor Operator Training
U.S. Army Nuclear Instrumentation Specialist Training
BSNE - Texas A&M University - 1977

Experience:

1966 - U.S. Army Nuclear Weapons Maintenance Foreman.

1971 - U.S. Army Nuclear Power Plant Operator.

1975 - Texas A&M University as a Research Reactor Supervisor responsible for overall reactor operation, scheduling and experimentation. Held Sr. Reactor Operators License.

1978 - Rockwell Hanford Operations as an Advanced Engineer in radioactive waste management.

1980 - Texas Utilities Generating Co. as an Engineer in Results Section responsible for CPSES Emergency Plan. Also, as an Engineer for Technical Support of CPSES.

Fred W. Madden - Lead Nuclear Engineer, Technical Support

Education:

BS Engr. Physics - Texas Tech University - 1972
MSNE - Purdue University - 1974

Experience:

1974 - Bechtel Power Corporation as an Engineer on San Onofre 1 Backfit Project, System Design, Equipment Specifications and as an Engineer on Nuclear Analysis Staff.

1976 - Brown & Root, Inc. as a Senior Licensing Engineer for South Texas Project and as a coordinator for South Texas Project Design Review Team following TMI-2 accident.

1980 - Texas Utilities Services Inc. as a Nuclear Licensing Engineer for CPSES.

1981 - Texas Utilities Services Inc. as Lead Nuclear Engineer for Technical Support of CPSES.

Activities:

Registered Professional Engineer in California
Registered Professional Engineer in Texas
Member - ANS
Member - Sigma Pi Sigma
Member - Tau Beta Pi
Member - Phi Kappa Phi

Tom M. Tai - Engineer, Technical Support

Education:

BS Physics - Illinois State University - 1971
MSNE - Georgia Institute of Technology - 1974

Experience:

1974 - Black & Veatch Fuel Cycle Analysis for BWR, PWR, & HTGR. Reviewed Mechanical & Structural Drawings for Shielding and Source Term Calculation.

1981 - Texas Utilities Services Inc. as a Nuclear Engineer for Technical Support of CPSES.

Ronald L. Estes - Lead I&C Engineer, Technical Support

Education:

Central Va. Comm. College
USN - Nuclear Power School

Experience:

1959 - U.S. Navy as a Electronics Tech/Senior Reactor Operator for nuclear submarines.

1966 - Babcock & Wilcox Company as a Senior Reactor Operator. Obtained AEC License.

1968 - Babcock & Wilcox as an I&C Design Engineer responsible for 12 different nuclear plants.

1974 - Brown & Root, Inc. as an I&C Senior Design Engineer on the South Texas Nuclear Project.

1976 - Brown & Root, Inc. as a Project I&C Engineer.

1980 - Texas Utilities Services Inc. as Lead I&C Engineer for Technical Support of CPSES.

Activities:

Member - IEEE
Member - ISA

Thomas E. Braudt - Engineer, Technical Support

Education:

BSNE - Texas A&M University - 1977

Experience:

1974 - Harris & Patterson, Engineers as a Student Engineer.

1977 - Houston Lighting & Power Co. as a Licensing Engineer on the South Texas Project.

1980 - Johnson Space Center, NASA as a Program Analyst in Operations Research.

1981 - Texas Utilities Services Inc. as an I&C Engineer for Technical Support of CPSES responsible for coordinating replacement parts.

Activities:

Member - Texas Society of Professional Engineers
Member - ANS

Dale L. Walling - Engineer, Technical Support

Education:

BSEE - University of Missouri, Rolla - 1975

Experience:

1975 - Black & Veatch as a Control Engineer, performed all aspects of I&C Engineering for large electric power generating stations, including 5 years of nuclear I&C engineering.

1981 - Texas Utilities Services Inc. as an I&C Engineer for Technical Support of CPSES.

Activities:

Professional Engineer in Missouri

Roy H. Nickum, Jr. - Engineer, Technical Support

Education:

BSNE - Kansas State University - 1969

Experience:

1967 - Black & Veatch as a Student Engineer involved with calculations and research for an advanced reactor power plant conceptual design..

1970 - Black & Veatch as an Associate Control Engineer involved with engineering for a nuclear power plant decommissioning.

1973 - Black & Veatch as an Control Engineer involved with two supercritial pressure power plants.

1974 - Black & Veatch as an Assistant Project Control Engineer involved with design & input to the PSAR for a nuclear power plant.

1975 - Black & Veatch as an Project Control Engineer involved with design activities for a nuclear power plant and its associated control room simulator.

1981 - Texas Utilities Services Inc. as a I&C Engineer for Technical Support of CPSES.

Activities:

Professional Engineer in Kansas
Professional Engineer in Oklahoma
Quality Asssurance Certification, Black and Veatch Consulting Engineers.
Member - ANS
Member - Instrument Society of America

Harold Kirby - Engineer, Technical Support

Education:

BSEE - University of Missouri, Columbia - 1973

Experience:

1969 - Black & Veatch as a Student Engineer.

1973 - Black & Veatch as a Control Engineer involved with Conesville 5 & 6, LaCygne 2, Black Fox 1 & 2, and Laramie River Station.

1981 - Texas Utilities Services Inc. as an I&C Engineer for Technical Support of CPSES.

Activities:

Professional Engineer in Missouri

Robert B. Williams - Lead Civil Engineer, Technical Support

Education:

BA Math - McMurry College - 1961
BSCE - Arlingtion State College - 1966

Experience:

1966 - Dallas Power & Light as a Civil Engineer responsible for design of transmission structures, retaining walls, fine walls, yard grading, and inspection of overhead & underground transmission lines.

1976 - Texas Utilities Services Inc. as a Civil/Structural Engineer involved in reviewing & approving design changes for CPSES.

1981 - Texas Utilities Services Inc. as Lead Civil Engineer for Technical Support of CPSES.

Activities:

Registered Professional Engineer in Texas

Peter B. Stevens - Engineer, Technical Support

Education:

BSEE - Texas Tech University - 1973

Experience:

1969 - Panama Canal Co. as a Student Engineer in the Power Branch.

1973 - Westinghouse as an Electrical Engineer in Field Sales Support & Contract Negotiations.

1975 - Brown & Love Elec. as an Electrical Engineer responsible for overall management and engineering of Electrical and HVAC Contractors.

1981 - Texas Utilities Services Inc. as an Electrical Engineer for Technical Support of CPSES.

Richard A. Mehnert - Engineer, Technical Support

Education:

BS Chem - Engineering School, Lehigh University - 1957
MSEE - University of Missouri - Columbia - 1973
Ph.D. EE - University of Missouri - Columbia - 1975

Experience:

1963 - Westinghouse Electric Scientific Equipment Department as an Engineer involved with the manufacture of scientific equipment and devices.

1966 - Bendix Corporation - Kansas City Division as a Staff Engineer. This company was a prime contractor to the USAEC weapons program.

1975 - Black & Veatch as a Control Engineer, Resident Engineer, and later as a Quality Assurance Engineer. Projects included the Black Fox Station Nuclear Power Plant and Iran 1 & 2 nuclear reactors under construction in Iran.

1977 - Motor - Columbus Consulting Engineers as a Nuclear Engineer involved with nuclear plants under consideration in Northwestern Iran.

1978 - Brown & Root, Inc. as a Site Internal Surveillance Supervisor involved with the South Texas Nuclear Project.

1979 - Ebasco Services, Incorporated as a Senior Quality Assurance Engineer.

1981 - Texas Utilities Services Inc. as an Electrical Engineer for Technical Support of CPSES.

Activities:

Registered Professional Engineer in Pennsylvania, Kansas, and California

Registered Fallout Analyst, U.S. DOD

Member - ANS

Member - American Society of Nondestructive Testing

Member - National Society of Professional Engineers

Member - Missouri Society of Professional Engineers

Harry Choudhry - Engineer, Technical Support

Education:

BSEE - G.N. Engineering College, State University of Punjab, India - 1968

Experience:

1974 - Sargent & Lundy as an Electrical Design Engineer.

1975 - Black & Veatch as an Electrical Engineer.

1977 - Black & Veatch as a Control Engineer involved with Public Service of Oklahoma's 1220 MW nuclear power plant, Wyoming Basin's Electric Project, and PSO's Black Fox Station.

1981 - Texas Utilities Services Inc. as an Electrical Engineer for Technical Support of CPSES.

Activities:

Professional Engineer in Kansas

Thomas James Talley - Lead Electrical Engineer, Technical Support

Education:

BSEE - Texas A&M University - 1971
MSEE - Texas A&M University - 1979
D. Eng. - Texas A&M University (not complete)

Experience:

1970 - Texas Electric Service Co. responsible for various distribution, transmission planning. Also, as an Electrical Engineer for the Eagle Mountain Power Plant. Later, as Superintendent of Gas Operations.

1977 - Education

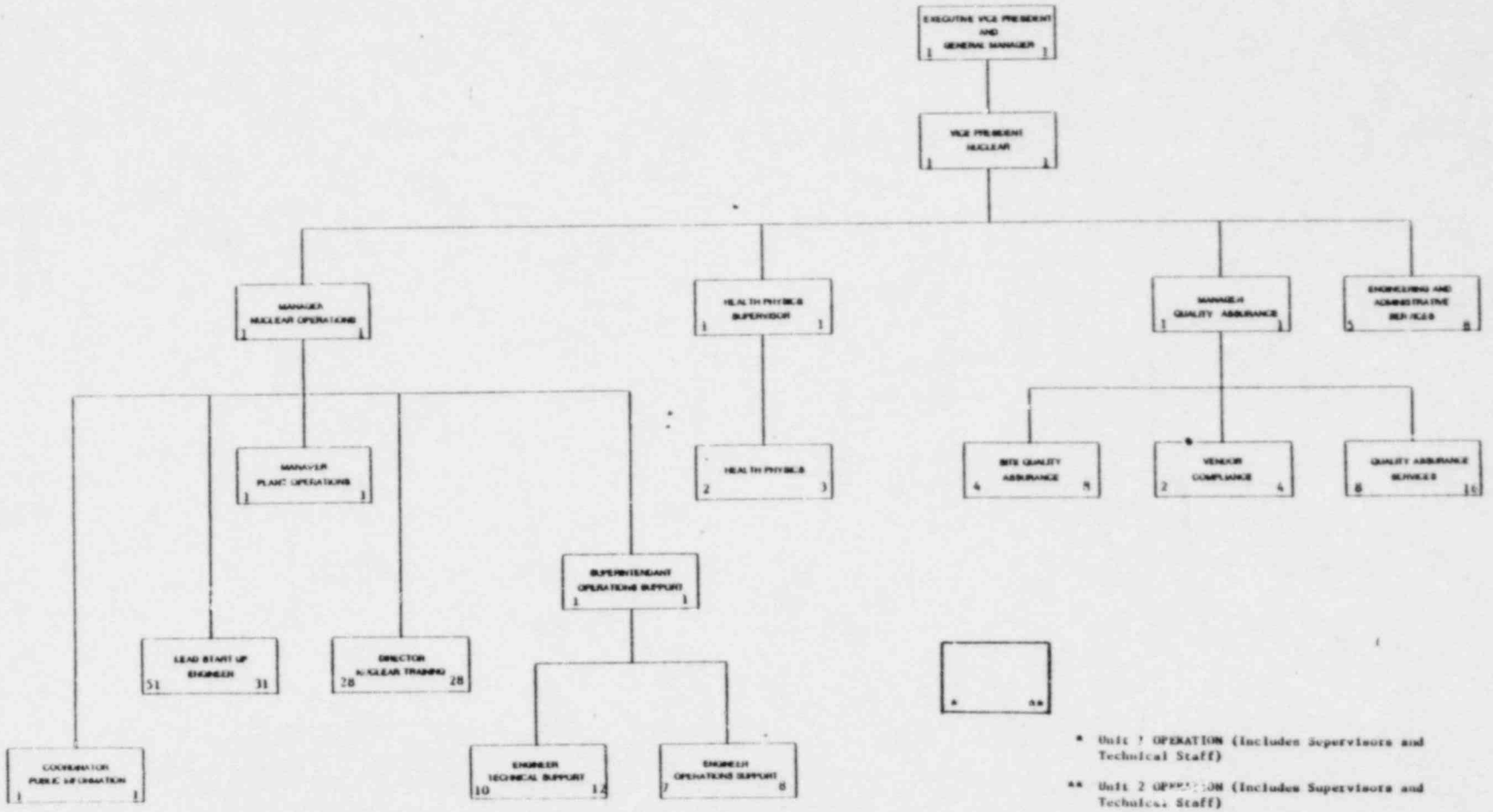
1980 - Rockwell International as a Senior Systems Research and Development Specialist.

1981 - Texas Utilities Services Inc. as Lead Electrical Engineer for Technical Support of CPSES.

Activities:

Member - IEEE
Member - Sigma Xi
Member - HKN

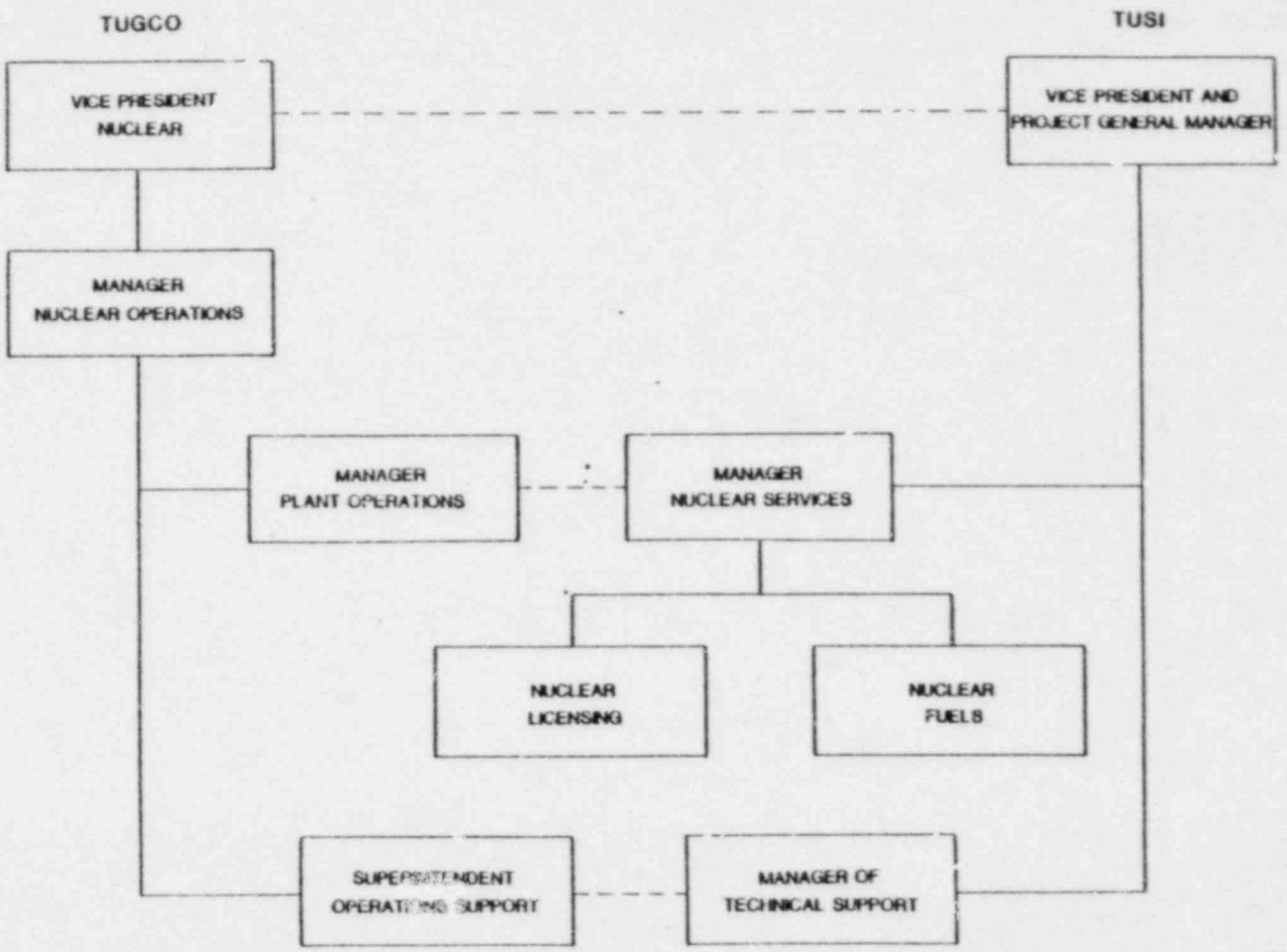
TUGCO CORPORATE NUCLEAR ORGANIZATION



* Unit 1 OPERATION (Includes Supervisors and Technical Staff)

** Unit 2 OPERATION (Includes Supervisors and Technical Staff)

TUGCO/TUSI
OPERATIONAL ORGANIZATION



ATTACHMENT 5

COMANCHE PEAK STEAM ELECTRIC STATION

RESUMES FOR OPERATIONS

SUPPORT AND TRAINING DEPARTMENTS

JUNE 2, 1981

Attachment 6

R. Ted Jenkins - Superintendent, Operations Support

Education:

B.S.M.E. - University of Texas - 1972

Experience:

1972 - Employed by Dallas Power & Light as Results Engineer and stationed at the Parkdale Steam Electric Station. Responsibilities included equipment performance testing, evaluation of test results, and recommendations of preventive maintenance and system improvement.

1973 - Transferred to the Lake Hubbard Steam Electric Station. Responsibilities included development and implementation of a performance test program to increase the efficiency, availability and reliability of plant equipment and systems. Participated in startup of the 515 MW gas fired No. 2 unit and contributed to the refining of the computer monitoring and control system.

1974 - Assigned to the position of Results/Test Engineer for the Comanche Peak Steam Electric Station. Responsibilities included reactor engineering, licensing, design review, environmental qualification of plant electrical equipment and accident analysis.

1974 - Participated in the initial core loading at Donald C. Cook Unit 1.

1975 - Participated in six weeks of on-the-job training at Trojan Nuclear Plant during preoperational testing program.

1976 - Participated in six weeks of on-the-job training at Prairie Island Unit 1 during refueling outage.

1980 - Assigned to present position of Superintendent, Operations Support.

1981 - Completed Westinghouse Initial Operator Training, Phase I, II, and III; received Westinghouse Senior Reactor Operator Certification.

Steve M. Ward - Technical Support Engineer

Education:

B.S.E.E. - Oklahoma State University - 1972

Experience:

1972 - Employed by Texas Electric Service Company at the Handley Plant as a Junior Engineer, progressing to Associate Electrical Engineer. Engaged primarily in power plant operation and instrumentation.

1975 - Completed Westinghouse Initial Operator Training, Phases I, II, and III. Received Westinghouse Senior Reactor Operator Certification.

1976 - Transferred to Comanche Peak Steam Electric Station as an Engineer in the Results Section. Responsibilities included electrical design review, licensing and environmental qualification of plant electrical equipment.

1978 - Worked as an engineer for three weeks at Northern States Power - Prairie Island Nuclear Power Plant during their refueling outage.

James B. McInvale - Engineer (Operations Support)

Education:

B.S.N.E. - Georgia Institute of Technology - 1981

Experience:

1981 - Employed by the Texas Utilities Generating Company as Engineer (Operations Support).

W. Larry Stendebach - Engineer (Operations Support)

Education:

B.S.N.E. - Texas A&M University - 1981

Experience:

1980 - Employed by Central Power and Light Company at the Barney M. Davis Power Plant as a maintenance helper.

1980 - Employed by Texas A&M University at the Radiological Safety Office engaged in radiation surveying and radioactive waste management.

1981 - Employed by the Texas Utilities Generating Company as Engineer (Operations Support).

Matthew W. Sunseri - Engineer (Operations Support)

Education:

B.S.N.E. - Texas A&M University - 1981

Experience:

1981 - Employed by the Texas Utilities Generating Company as Engineer (Operations Support).

POSITION: TRAINING MANAGER (4.2.5) August 22, 1980

NAME: C. L. TURNER

SECTION	REQUIREMENT	STATUS
4.2.5.a	Education: Bachelor Degree, including some courses in educational and technical subjects.	BA Biology, 1974, BA Math, 1975, Non-credit courses in undergraduate instructor courses.
4.2.5.b	Experience: Four years of professional level experience, of which two shall be nuclear power plant experience. During the two years, the individual shall participate in the operations or training section activities of an operating nuclear power plant during the following periods: (1) Requal. written and oral exam (1 to 2 months). (2) One month operation above 20% power.	10 years professional level experience. Six years, Navy Nuclear experience; four years, Commercial Nuclear experience. (1) Participated in Navy Nuclear requal. programs and administered written, oral and simulator requal. exams for Commercial Nuclear Plants. (2) Operated Navy Nuclear Plants 5 years as operator and instructor. Senior program instructor and Simulator Systems Coordinator at W Nuclear Training Center for Zion Simulator. three years.
4.2.5.c	Training: As required by 5.3.1 and 5.4. Shall have some training in educational techniques if not included in the Bachelor Degree course material.	Experience and achievement is commensurate with requirements of position description. General Employee Training will be completed prior to fuel load. Non-credit training for undergraduate instructors completed at college level. ComCor instructor training completed at W Nuclear Training Center.
4.2.5.d	If the training manager does not possess a Senior Operator License, another individual who holds a Senior Operator License shall be assigned the responsibility for the content and conduct of the training for licensed operators.	Has held SRO licenses SOP-3176 for Zion Generating Station, Unit 1 and Unit 2, and SOP-3176-1 for Zion Generating Station and Westinghouse Nuclear Training Reactor.
	The Training Manager shall be assigned on a schedule consistent with requirements for training of personnel. The individual may be located on-site or off-site.	Assigned on a schedule consistent with personnel training requirements. Located on-site.

POSITION: TRAINING COORDINATOR (4.4.7.1)

NAME: PHILLIP H. TACKETT June 2, 1981

SECTION	REQUIREMENT	STATUS
4.4.7.1.a	Education: High school diploma	Hold high school diploma.
4.4.7.1.b	Experience: The individual responsible for coordinating the on-site training program shall have two (2) years power plant experience of which six (6) months should be in the on-site training organization.	Eight years Navy Nuclear experience, 2½ years prototype instructor. 1¼ years classroom and simulator instructor Westinghouse Nuclear Training Center (Zion, Unit 1 simulator).
4.4.7.1.c	Training: As required by 5.3.2 and 5.4.	Experience and achievement is commensurate with requirements of position description, General Employee Training will be completed prior to fuel load.
4.4.7.1.d	The person responsible for the coordination of the training program and the person responsible for content of training may be one person in which case the person shall meet the higher qualification and be located on-site.	Responsible for content and conduct of non-licensed training. Responsible for conduct of licensed training.

POSITION: TRAINING COORDINATOR (4.4.7.1)

NAME: RICHARD E. WIRKKALA (Westinghouse On-site Training Coordinator)

June 2, 1981

SECTION	REQUIREMENT	STATUS
4.4.7.1.a	Education: High school diploma	High school diploma - 1966 B. S. - 1970
4.4.7.1.b	Experience: The individual responsible for coordinating the on-site training program shall have two (2) years power plant experience of which six (6) months should be in the on-site training organization.	Five years Navy Nuclear experience. Five years commerical nuclear experience: two and one half years with Westinghouse training organization in Pittsburgh; two and one half years in training organization on-site.
4.4.7.1.c	Training: As required by 5.3.2 and 5.4.	Experience and achievement is commensurate with requirements of position description. General Employee Training will be completed prior to fuel load.
4.4.7.1.d	The person responsible for the coordination of the training program and the person responsible for content of training may be one person in which case the person shall meet the higher qualification and be located on-site.	Responsible for content and conduct of non-licensed training. Responsible for conduct of licensed training.

POSITION: TRAINING INSTRUCTOR (4.4.7.2)

NAME: R. W. HAWKINS June 2, 1981

SECTION	REQUIREMENT	STATUS
4.4.7.2.a	Education: High school diploma and special education consistent with materials being presented.	Hold high school diploma and Navy Nuclear education.
4.4.7.2.b	Experience: Instructors shall have experience consistent with materials being presented.	Eight years Navy Nuclear experience, five years prototype instructor, develops and writes lessons presented.
4.4.7.2.c	Training: Senior operator (5.2) and as required by 5.4 and 5.5 or if not licensed, as required by 5.3.4, 5.3.5 and 5.4 as appropriate for the training being conducted.	Instructor will be hot licensed, will receive General Employee Training and will be enrolled in requalification program.
	Instructors who provide instruction of the simulator shall hold a senior operator license for a similar unit or have been certified at an appropriate simulator.	Not applicable.
4.4.7.2.d	The instructor shall have demonstrated knowledge of instructional techniques and be certified by the Training Manager as a qualified instructor for the material being presented.	Instructors will be evaluated and certified by the Training Manager annually.

POSITION: TRAINING INSTRUCTOR (4.4.7.2)

NAME: S. T. CASSINGHAM June 2, 1981

SECTION	REQUIREMENT	STATUS
4.4.7.2.a	Education: High school diploma and special education consistent with materials being presented.	Hold high school diploma and Navy Nuclear education.
4.4.7.2.b	Experience: Instructors shall have experience consistent with materials being presented.	Nine years Navy Nuclear experience, three years prototype instructor, develops and writes lessons presented.
4.4.7.2.c	Training: Senior operator (5.2) and as required by 5.4 and 5.5 or if not licensed, as required by 5.3.4, 5.3.5 and 5.4 as appropriate for the training being conducted.	Will be hot licensed, will receive General Employee Training and will be enrolled in requalification program. Will instruct in areas where possess specific expertise.
	Instructors who provide instruction of the simulator shall hold a senior operator license for a similar unit or have been certified at an appropriate simulator.	Not applicable.
4.4.7.2.d	The instructor shall have demonstrated knowledge of instructional techniques and be certified by the Training Manager as a qualified instructor for the material being presented.	Instructors will be evaluated and certified by the Training Manager annually.

POSITION: TRAINING INSTRUCTOR (4.4.7.2)

NAME: COY M. RICE

June 2, 1981

SECTION	REQUIREMENT	STATUS
4.4.7.2.a	Education: High school diploma and special education consistent with materials being presented.	Electrical Engineering Certificate, Naval Nuclear Training, and High School Diploma.
4.4.7.2.b	Experience: Instructors shall have experience consistent with materials being presented.	Eight years Navy Nuclear experience, three years prototype instructor, develops and writes lessons presented. One month instructor at CPSES.
4.4.7.2.c	Training: Senior operator (5.2) and as required by 5.4 and 5.5 or if not licensed, as required by 5.3.4, 5.3.5 and 5.4 as appropriate for the training being conducted.	Instructor will be hot licensed, will receive General Employee Training and will be enrolled in requalification program.
	Instructors who provide instruction of the simulator shall hold a senior operator license for a similar unit or have been certified at an appropriate simulator.	Not applicable.
4.4.7.2.d	The instructor shall have demonstrated knowledge of instructional techniques and be certified by the Training Manager as a qualified instructor for the material being presented.	Instructors will be evaluated and certified by the Training Manager annually.

POSITION: TRAINING INSTRUCTOR (4.4.7.2)

NAME: EUGENE L. DYAS June 2, 1981

SECTION	REQUIREMENT	STATUS
4.4.7.2.a	Education: High school diploma and special education consistent with materials being presented.	Hold high school diploma and Navy Nuclear education.
4.4.7.2.b	Experience: Instructors shall have experience consistent with materials being presented.	Eight years Navy Nuclear experience, three years prototype instructor, develops and writes lessons presented. 11 months instructor at CPSES
4.4.7.2.c	Training: Senior operator (5.2) and as required by 5.4 and 5.5 or if not licensed, as required by 5.3.4, 5.3.5 and 5.4 as appropriate for the training being conducted.	Instructor certified SRO, will be cold licensed, will receive General Employee Training and will be enrolled in requalification program.
	Instructors who provide instruction of the simulator shall hold a senior operator license for a similar unit or have been certified at an appropriate simulator.	Not applicable
4.4.7.2.d	The instructor shall have demonstrated knowledge of instructional techniques and be certified by the Training Manager as a qualified instructor for the material being presented.	Instructors will be evaluated and certified by the Training Manager annually.

POSITION: TRAINING INSTRUCTOR (4.4.7.2)

NAME: J. E. BOWLES June 2, 1981

SECTION	REQUIREMENT	STATUS
4.4.7.2.a	Education: High school diploma and special education consistent with materials being presented.	Hold high school diploma and Navy Nuclear education.
4.4.7.2.b	Experience: Instructors shall have experience consistent with materials being presented.	Eight years Navy Nuclear experience, three years prototype instructor, develops and writes lessons presented.
4.4.7.2.c	Training: Senior operator (5.2) and as required by 5.4 and 5.5 or if not licensed, as required by 5.3.4, 5.3.5 and 5.4 as appropriate for the training being conducted.	Instructor will be hot licensed, will receive General Employee Training and will be enrolled in requalification program.
	Instructors who provide instruction of the simulator shall hold a senior operator license for a similar unit or have been certified at an appropriate simulator.	Not applicable.
4.4.7.2.d	The instructor shall have demonstrated knowledge of instructional techniques and be certified by the Training Manager as a qualified instructor for the material being presented.	Instructors will be evaluated and certified by the Training Manager annually.

POSITION: TRAINING INSTRUCTOR (4.4.7.2)

NAME: DAVID L. HUBBARD June 2, 1981

SECTION	REQUIREMENT	STATUS
4.4.7.2.a	Education: High school diploma and special education consistent with materials being presented.	Hold high school diploma and Navy Nuclear education.
4.4.7.2.b	Experience: Instructors shall have experience consistent with materials being presented.	Six years Navy Nuclear experience, 2½ years prototype instructor, develops and writes lessons presented. 2½ years instructor at CPSES.
4.4.7.2.c	Training: Senior operator (5.2) and as required by 5.4 and 5.5 or if not licensed, as required by 5.3.4, 5.3.5 and 5.4 as appropriate for the training being conducted.	Instructor certified SRO, will be cold licensed, will receive General Employee Training and will be enrolled in requalification program
	Instructors who provide instruction of the simulator shall hold a senior operator license for a similar unit or have been certified at an appropriate simulator.	Not applicable.
4.4.7.2.d	The instructor shall have demonstrated knowledge of instructional techniques and be certified by the Training Manager as a qualified instructor for the material being presented.	Instructors will be evaluated and certified by the Training Manager annually.

POSITION: TRAINING INSTRUCTOR (4.4.7.2)

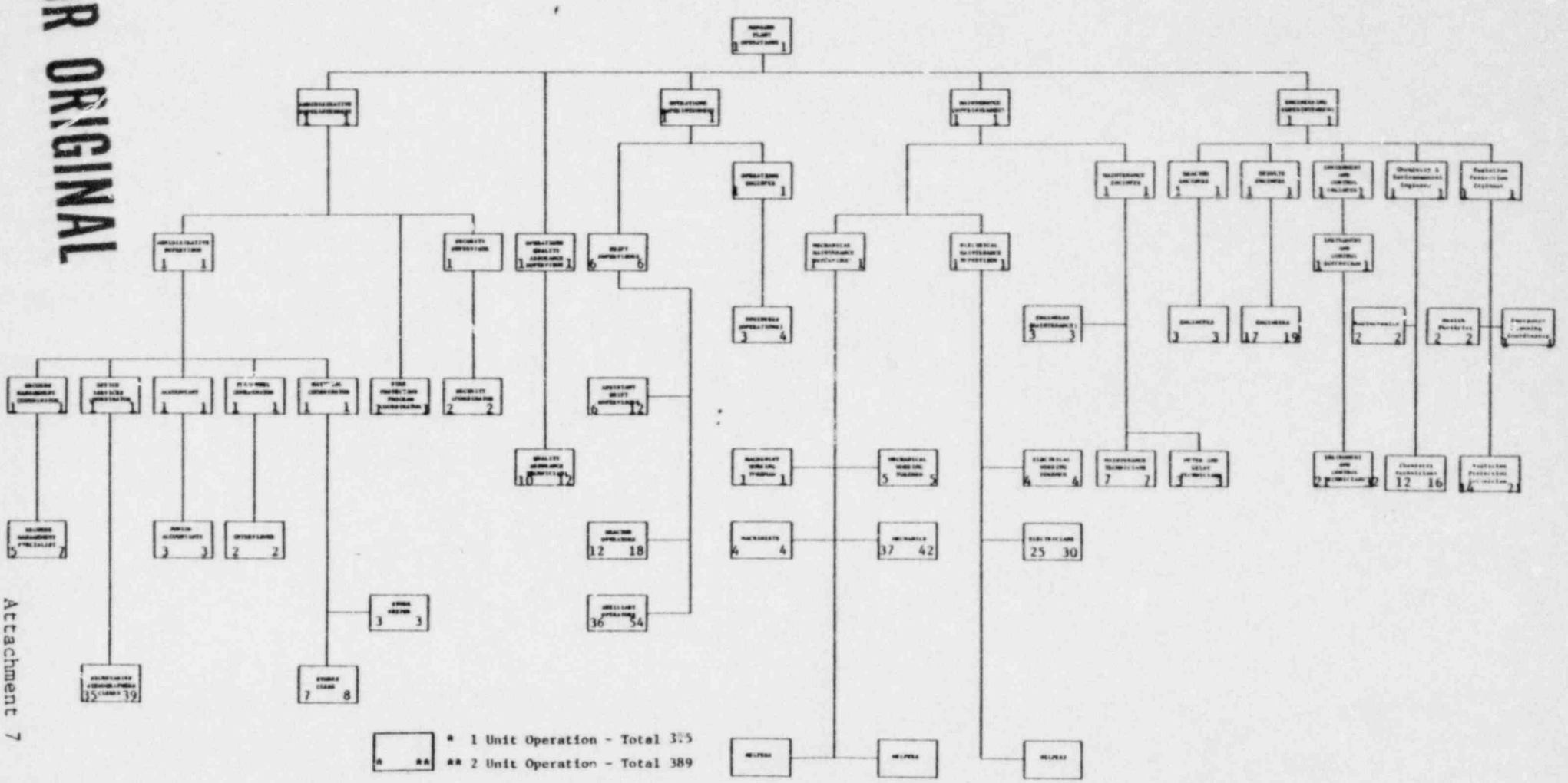
NAME: MICHAEL A. NIEMEYER June 2, 1981

SECTION	REQUIREMENT	STATUS
4.4.7.2.a	Education: High school diploma and special education consistent with materials being presented.	Hold high school diploma and Navy Nuclear education.
4.4.7.2.b	Experience: Instructors shall have experience consistent with materials being presented.	Eight years Navy Nuclear experience, three years prototype instructor, develops and writes lessons presented. 1 year instructor at CPSES
4.4.7.2.c	Training: Senior operator (5.2) and as required by 5.4 and 5.5 or if not licensed, as required by 5.3.4, 5.3.5 and 5.4 as appropriate for the training being conducted.	Instructor certified SRO, will be cold licensed, will receive General Employee Training and will be enrolled in requalification program.
	Instructors who provide instruction of the simulator shall hold a senior operator license for a similar unit or have been certified at an appropriate simulator.	Not applicable
4.4.7.2.d	The instructor shall have demonstrated knowledge of instructional techniques and be certified by the Training Manager as a qualified instructor for the material being presented.	Instructors will be evaluated and certified by the Training Manager annually.

PLANT OPERATIONS STAFF

COMANCHE PEAK STEAM ELECTRIC STATION

TEXAS UTILITIES GENERATING COMPANY



Attachment 7

TABLE 4.1

STAFFING REQUIREMENTS FOR EMERGENCIES

Functional Area	Task	Position Title	On Shift	Additions Within 1 Hr
Station Operation	Assessment of Operational Aspects	Shift Supervisor (SRO)	1	-
		Asst. Shift Supervisor (SRO)	1	-
		Reactor Operators (RO)	2	-
		Auxiliary Operators	3	-
Emergency Coordinator	Emergency Direction and Control and notification of NRC and DPS	Shift Supervisor (SRO)**	1*	1
Communications Coordinator	Notify Station personnel and maintain communications	Member of Shift Operating Organization such as an Auxiliary Operator or an Operations Clerk	1	2
Station System Engineering	Technical Support	Shift Technical Advisor	1	-
		Nuclear Engineer	-	1
		Electrical Engineer	-	1
		Mechanical Engineer	-	1
		Health Physicist	-	1
		Operations Engineer	-	1
Radiological Assessment	Station Surveys	R.P. Technician	1	2
	Chemistry/Radiochemistry	Chem Technician	1	1
	Offsite Surveys	R.P. Technicians	-	4
	Onsite Surveys	R.P. Technicians	-	2
	Dose Assessments	R.P. Engineer	-	1
System Corrective Actions	Damage Control	Mechanical Maintenance	1*	2
		Electrical Maintenance	1*	1
		I&C Maintenance	1*	1
		Rad Waste Operator	1*	1
Protective Actions	Radiation Protection a. Access Control b. Personnel Monitoring c. Dosimetry	R.P. Technician	2*	4
Firefighting	-----	-----	5*	Local Support
Rescue Operations and First Aid	-----	-----	2*	Local Support
Site Access Control and Personnel Accountability	Security, firefighting, Communications, personnel accountability	Security	Per Security Plan	Local Support

* May be provided by shift personnel assigned other functions.

** Shift Supervisor serves in this capacity until relieved by the Manager, Nuclear Operations or his alternate.

COMANCHE PEAK STEAM ELECTRIC STATION

OPERATING ORGANIZATION

QUALIFICATIONS & EXPERIENCE LEVEL

NOTE: The attached resumes are a comparison of the CPSES Operating Organization qualifications and experience levels to ANS 3.1, "Standard for Selection, Qualifications and Training for Personnel for Nuclear Power Plants", Draft, October 23, 1980, where applicable. This comparison was prepared August 22, 1980, and revised June 2, 1981. Other resumes of key positions not covered by ANS 3.1 are also included.

June - 1981

Job Title: Manager, Plant Operations (Plant Manager)

Name: R. A. Jones

ANS 3.1 Section 4.2.2

	Requirements	Status
a.	Education: B.S. Engineering	B.S.M.E. - 1967
b.	Experience:	
	1. 6 years Power Plant experience	14 years (6 years Fossil Plant)
	2. 3 years Nuclear Plant experience	8 years Design and Construction
	3. 2 month above 20% power	Experience not obtained
	4. Routine Refueling Outage	Initial core loading at D. C. Cook Unit 1 - 1 month Refueling at H. B. Robinson Unit 2 - 3 days
	5. Initial Startup Testing	Hot functional tests at D. C. Cook Unit 1 - 1 month Initial Criticality and Low Power Physics Testing at D. C. Cook Unit 1 - 1 month
c.	Management and Supervisory experience - 4 years min.	10 years experience
d.	Simulator Certification	SRO Certification 1976
e.	Assigned to site six months prior to preoperational testing.	4 years prior to preoperational testing.

Position: Operations Quality Assurance Supervisor

Name: DEVINEY, DAVID E.

Education: One hundred and thirty-eight (138) college hours in Mathematics and Science.

Associate of Applied Science Degree in Electronic Technology (Power Option) from Tarrant County Junior College 1979.

Experience: Thirteen years of actual working experience in quality assurance/quality control and the nuclear field. Nine of these thirteen years was in nuclear as follows:

four years - U. S. Navy
Three years- CPSES Construction QA
Two years - CPSES Operations QA

Training: Certified Quality Engineer by the American Society of Quality Control.

Certified as Lead Auditor in accordance with ANSI N45.2.23

Certified Level III Inspector in accordance with ANSI N45.2.6-1978 (Electrical, Mechanical and Protective Coatings)

Various Quality Assurance training programs conducted on and offsite.

U. S. Navy Nuclear Power School

U. S. Navy Nuclear Power Training Unit (Prototype)

U. S. Navy Basic Electricity and Electronics

U. S. Navy Electrician's Mate School

Ultrasonic Testing

Various other military courses

Qualified in Submarines

Position: Quality Assurance Technicians

Name: 5 personnel

Education: Average education is 15.4 years

Experience: The total quality assurance/quality control experience is 35.5 years. Of this experience 19.2 years was in nuclear. Other experience acquired includes nuclear design, conventional design, health physics, civil, electrical, mechanical, nuclear records management, nuclear receiving, calibration of equipment, specification writing, procedure development, purchasing, hydraulics, fire protection, codes and standards, and plant operations.

Training: All personnel are certified to ANSI N45.2.23
Various technical and quality assurance training conducted on and offsite.
At fuel loading all personnel will have completed a course in nuclear systems (3 weeks).

June 2, 1981

Position: Administrative Superintendent

Name: M. R. Blevins

Education: BSEE - 1973

Experience: Eight (8) years of power plant experience with three and one-half (3½) years of nuclear plant experience in design review, construction, program development, procedure preparation and start-up. Two and one-half (2½) years as Maintenance Engineer at site prior to current position.

Training: Participant in Supervisor's Development Program and various nuclear seminars and workshops, along with visits to other nuclear power plants. Certification training in NDE (PT, RT, MT, UT). Participation in Start-up Program.

General: Registered Professional Engineer assigned to site four (4) years prior to preoperational testing.

Position: Security Supervisor June 2, 1981

Name: John Rumsey

Education: High School Diploma
3½ years College - Criminal Justice/Administration
½ year Metropolitan Police Academy - Law Enforcement
½ year Southwestern Law Enforcement Institute - Management

Experience: Retired Lieutenant - 24 years in Metropolitan Police Department with field, supervision, and management experience.

Master Sergeant - 10 years experience active and reserve military experience.

Three (3) years of nuclear plant security in design, program development, procedure preparation and startup.

Training: Seminars, workshops, and conferences on law, Police, and the behavioral sciences. Seminars, workshops, and conferences on Nuclear Power Plant Physical Security programs. Police and military weapons training. Supervision and Management Development Programs in Police, military, and private industry sectors. Participation in planning and research in the police field. Participation in News Media and Public Information programs. Visits to other nuclear power plants.

General: Assigned to the site three (3) years prior to preoperational testing. Participation in Edison Electrical Institute Security Committee and Nuclear Security Subcommittee. Certified Texas Law Enforcement Officer and Instructor. Participation in President's Commission on Law Enforcement's Standards and Goals.

Position: Administrative Supervisor June 2, 1981

Name: Philip G. Smith

Education: Bachelor Business Administration, 1973

Experience: Four (4) years U. S. Coast Guard specializing in procurement, shipping and receiving per military specifications. Five (5) years in Procurement at Dallas Power & Light Company. Three (3) years nuclear experience onsite supervising and developing procurement, warehousing, document control and records management procedures. Developed receiving qualifications for Level 1 Inspector. Interface with construction activities in the area of construction records.

Training: Quality Assurance Procurement Course - General Atomic Company, 1979; Supervisory Development Program. Visits to other nuclear power plants, general onsite quality assurance training.

General: Assigned to site three and one-half (3½) years prior to preoperational testing.

Position: Fire Protection Coordinator June 2, 1981

Name: J. M. Arcesi

Education: GED - 1959

Experience: Twenty-six (26) years fire protection experience with four (4) years clear plant fire protection in design, construction, and start-up. Participation in development of fire protection program, procedures and their implementation.

Training: Participation in various nuclear power plant seminars and workshops. Visits to other nuclear power plants. Participation in Start-up Program. Texas A & M University Firefighting for Nuclear Power Plant Personnel.

General: Assigned to site two (2) years prior to preoperational testing. Member of the National Fire Protection Association.

POSITION: OPERATIONS SUPERINTENDENT (MANAGER) June, 1981

NAME: Seidel, R. B.

Ans 3.1 Section	Requirement	Status
4.2.2a	EDUCATION: Bachelor Degree in Engineering or related science.	B.S.M.E. (1970)
4.2.2b	EXPERIENCE: At the time of pre-operational testing or appointment to the position, whichever is later, the operations manager shall have four (4) years of power plant experience of which three (3) years shall be nuclear power plant experience. During the three years the individual shall participate in the operations or technical section activities of an operating nuclear power plant during the following periods.	Eleven and one-half (11½) years of power plant experience. Eight (8) years experience in nuclear power plant training, design review, startup and operations planning.
	(1) Two (2) month operation above 20% power	Three (3) weeks-Surry Power Station, VEPCO (1974)
	(2) Routine refueling outage (1 to 2 months).	One (1) month-refueling at R.E. Ginna Station, R G & E (1975) Two (2) days-refueling at H.B. Robinson, Unit 2, C P & L (1974)
	(3) Initial plant startup testing or post refueling outage startup testing.	Four (4) weeks-Hot Functional Testing at D.C. Cook, Unit 1, I & M Electric Co. (1974). Post Refueling outage testing at R.E. Ginna Station (1975)
4.2.2c	TRAINING: Obtain and hold senior operator license (5.2) and as required by 5.3.1, 5.4, and 5.5.	Senior Reactor Operator Certification from Westinghouse Electric Corporation (1977). Cold License Candidate.
4.2.2d	The initial operations manager shall be assigned to the site six (6) months prior to the start of preoperational testing.	Assigned to site four (4) years prior to preoperational testing.

POSITION: SHIFT SUPERVISOR June, 1981

NAME: Bain, Thomas E.

Ans 3.1

Section	Requirement	Status
4.3.1.1a	EDUCATION: High school diploma, plus the equivalence of sixty (60) semester hours of college level education, (900 classroom or instructor conducted hours) in mathematics, reactor physics, chemistry, materials, reactor thermodynamics, fluid mechanics, heat transfer, electrical and reactor control theory.	High School Diploma - 1971 Navarro J.C.-36 hours non-technical (1973) More than 1900 instructor conducted hours in the listed topics and in systems and simulator training.
	If the shift supervisor does not meet these educational requirements, a shift technical advisor (4.4.8) shall be present during this supervisor's shift.	CPSES plans to utilize shift technical advisors.
4.3.1.1b	EXPERIENCE: At the time of initial core loading or appointment to the position, whichever is later, a Shift Supervisor shall have four (4) years of power plant experience of which two (2) years shall be nuclear power plant experience. During the two years, the individual shall participate in reactor operator activities at an operating nuclear power plant during the following periods.	Eight (8) years of power plant experience. Four and one-half (4½) years experience in nuclear power plant training, procedure preparation, construction and startup. Three and one-half (3½) years of this nuclear experience is on-site.
	(1) Six (6) weeks operation above 20% power.	Experience not obtained.
	(2) Startup from subcritical to 20% power.	Experience not obtained.
	(3) Shutdown from above 20% power to cold (less than 212°F) and subcritical.	Experience not obtained.
	(4) Startup preparations following a refueling outage.	Experience not obtained.
4.3.1.1c	TRAINING: Obtain and hold a senior operator license (5.2) and as required by 5.2.1.3, 5.4, and 5.5. A portion of this training is applicable to fulfilling educational requirements show in 4.3.1.1a.	Senior Reactor Operator Certification from Westinghouse Electric Corporation (1977). Cold license candidate. More than sixty (60) hours of Supervisory skills training.

POSITION: SHIFT SUPERVISOR June, 1981

NAME: Barnes, Larry G.

ANS 3.1 SECTION	REQUIREMENT	STATUS
4.3.1.1a	EDUCATION: High school diploma, plus equivalence of sixty (60) semester hours of college level education, (900 classroom or instructor conducted hours) in mathematics, reactor physics, chemistry, materials, reactor thermodynamics, fluid mechanics, heat transfer, electrical and reactor control theory.	High school diploma - 1966 U. of Texas (Arlington) - 72 hours Technical/Non-Technical (continuing) More than 1900 instructor conducted hours in the listed topics and in Systems and Simulator Training.
	If the shift supervisor does not meet these educational requirements, a shift technical advisor (4.4.8) shall be present during this supervisor's shift.	CPSES plans to utilize Shift Technical Advisors.
4.3.1.1b	EXPERIENCE: At the time of initial core loading or appointment to the position, whichever is later, a Shift Supervisor shall have four (4) years of power plant experience of which two (2) years shall be nuclear power plant experience. During the two years, the individual shall participate in reactor operator activities at an operating nuclear power plant during the following periods.	Nine (9) years of Power Plant experience. Four and one-half (4½) years experience in Nuclear Power Plant Training, procedure preparation, construction and startup. Three and one-half (3½) years of this nuclear experience is on-site.
	(1) Six (6) weeks operation above 20% power.	Experience not obtained.
	(2) Startup from subcritical to 20% power.	Experience not obtained.
	(3) Shutdown from above 20% power to cold (less than 212°F) and subcritical.	Experience not obtained.
	(4) Startup preparations following a refueling outage.	Experience not obtained.

POSITION: SHIFT SUPERVISOR June, 1981

NAME: Barnes, Larry G.

ANS 3.1 SECTION	REQUIREMENT	STATUS
4.3.1.1c	TRAINING: Obtain and hold a senior operator license (5.2) and as required by 5.2.1.8, 5.4, and 5.5. A portion of this training is applicable to fulfilling educational requirements shown in 4.3.1.1.a.	Senior Reactor Operator Certification from Westinghouse Electric Corporation (1977). Cold License Candidate. More than sixty (60) hours of supervisory skills training.

POSITION: SHIFT SUPERVISOR June, 1981

NAME: Fortenberry, Ray L.

ANS 3.1 SECTION	REQUIREMENT	STATUS
4.3.1.1a	EDUCATION: High school diploma, plus the equivalence of sixty (60) semester hours of college level education, (900 classroom or instructor conducted hours) in mathematics, reactor physics, chemistry, materials, reactor thermodynamics, fluid mechanics, heat transfer, electrical and reactor control theory.	High School Diploma - 1962 Associate of Science in Mathematics - 1977 More than 1900 instructor conducted hours in the listed topics and in Systems and Simulator Training.
	If the shift supervisor does not meet these educational requirements, a shift technical advisor (4.4.8) shall be present during this supervisor's shift.	CPSES plans to utilize Shift Technical Advisors.
4.3.1.1b	EXPERIENCE: At the time of initial core loading or appointment to the position, whichever is later, a Shift Supervisor shall have four (4) years of power plant experience of which two (2) years shall be nuclear power plant experience. During the two years, the individual shall participate in reactor operator activities at an operating nuclear power plant during the following periods:	Fifteen (15) years of power plant experience. Four and one-half (4½) years experience in nuclear power plant training, procedure preparation, construction and startup. Three and one-half (3½) years of this nuclear experience is on-site.
	(1) Six (6) weeks operation above 20% power.	Experience not obtained.
	(2) Startup from subcritical to 20% power.	Experience not obtained.
	(3) Shutdown from above 20% power to cold (less than 212°F) and subcritical.	Experience not obtained.
	(4) Startup preparations following a outage.	Experience not obtained.
4.3.1.1c	TRAINING: Obtain and hold a senior operator license (5.2) and as required by 5.2.1.8, 5.4, and 5.5. A portion of this training is applicable to fulfilling educational requirements shown in 4.3.1.1.a.	Senior Reactor Operator Certification from Westinghouse Electric Corporation (1977). Cold License Candidate. More than sixty (60) hours of Supervisory Skills Training.

POSITION: SHIFT SUPERVISOR June, 1981

NAME: Lytle, Gary D.

Ans 3.1 Section	Requirement	Status
4.3.1.1a	EDUCATION: High school diploma, plus the equivalence of sixty (60) semester hours of college level education, (900 classroom or instructor conducted hours) in mathematics, reactor physics, chemistry, materials, reactor thermodynamics, fluid mechanics, heat transfer, electrical and reactor control theory.	High School Diploma - 1967 More than 1900 instructor conducted hours in the listed topics and in systems and simulator training.
	If the shift supervisor does not meet these educational requirements, a shift technical advisor (4.4.8) shall be present during this supervisor's shift.	CPSES plans to utilize shift technical advisors.
4.3.1.1b	EXPERIENCE: At the time of initial core loading or appointment to the position, whichever is later, a Shift Supervisor shall have four (4) years of power plant experience of which two (2) years shall be nuclear power plant experience. During the two years, the individual shall participate in reactor operator activities at an operating nuclear power plant during the following periods.	Five (5) years of power plant experience. Four and one-half (4½) years experience in nuclear power plant training, procedure preparation, construction and startup. Three and one-half (3½ years) of this nuclear experience is on-site. Eight (8) years experience in U.S. Navy Nuclear Program as E.L.T.
	(1) Six (6) weeks operation above 20% power.	Experience not obtained.
	(2) Startup from subcritical to 20% power.	Experience not obtained.
	(3) Shutdown from above 20% power to cold (less than 212°F) and subcritical.	Experience not obtained.
	(4) Startup preparations following a refueling outage.	Experience not obtained.
4.3.1.1c	TRAINING: Obtain and hold a senior operator license (5.2) and as required by 5.2.1.8, 5.4, and 5.5. A portion of this training is applicable to fulfilling educational requirements shown in 4.3.1.1a.	Senior Reactor Operator Certification from Westinghouse Electric Corporation (1977). Cold License Candidate. More than sixty (60) hours of Supervisory skills training.

POSITION: SHIFT SUPERVISOR June, 1981

NAME: Purdy, John M.

ANS 3.1 SECTION	REQUIREMENT	STATUS
4.3.1.1a	EDUCATION: High school diploma, plus the equivalence of sixty (60) semester hours of college level education, (900 classroom or instructor conducted hours) in mathematics, reactor physics, chemistry, materials, reactor thermodynamics, fluid mechanics, heat transfer, electrical and reactor control theory.	High School Diploma - 1950 Florida State U. - 14 hours Technical/Non-Technical (1963) More than 1900 instructor conducted hours in the listed topics and in Systems and Simulator Training.
	If the shift supervisor does not meet these educational requirements, a shift technical advisor (4.4.8) shall be present during this supervisor's shift.	CPSES plans to utilize Shift Technical Advisors.
4.3.1.1b	EXPERIENCE: At the time of initial core loading or appointment to the position, whichever is later, a Shift Supervisor shall have four (4) years of power plant experience of which two (2) years shall be nuclear power plant experience. During the two years, the individual shall participate in reactor operator activities at an operating nuclear power plant during the following periods.	Eight (8) years of power plant experience. Four and one-half (4½) years experience in nuclear power plant training, procedure preparation, construction and startup. Three and one-half (3½) years of this nuclear experience is on-site.
	(1) Six (6) weeks operation above 20% power.	Experience not obtained.
	(2) Startup from subcritical to 20% power.	Experience not obtained.
	(3) Shutdown from above 20% power to cold (less than 212°F) and subcritical.	Experience not obtained.
	(4) Startup preparations following a refueling outage.	Experience not obtained.
4.3.1.1c	TRAINING: Obtain and hold a senior operator license (5.2) and as required by 5.2.1.8, 5.4, and 5.5. A portion of this training is applicable to fulfilling educational requirements shown in 4.3.1.1.a.	Senior Reactor Operator Certification from Westinghouse Electric Corporation (1977). Cold License Candidate. More than sixty (60) hours of Supervisory Skills Training.

Position: Operations Engineer June 2, 1981

Name: R. R. Wistrand

Education: Bachelor of Science in Civil Engineering - 1973

Experience: Seven and one-half (7½) years of power plant experience. Four (4) years experience in nuclear power plant training, procedure preparation, start-up, operations planning and design review.

Training: Obtained a Senior Reactor Operator Certification from Westinghouse Electric Corporation (1977). Cold license candidate. Participates in Supervisor's Development Program. Witnessed preoperational testing at nuclear plants.

General: Assigned to the site four (4) years prior to preoperational testing. Registered Professional Engineer.

Position: Engineer, Operations June 2, 1981

Name: R. D. Bird, Jr.

Education: Bachelor of Science in Engineering Technology (1976)

Experience: Six (6) years of power plant experience. Two and one-half (2½) years experience in nuclear power plant training, procedure preparation, startup and design review.

Training: Obtained a Senior Reactor Operator Certification from Westinghouse Electric Corporation (1979). Participates in Supervisor's Development Program.

General: Assigned to the site two (2) years prior to preoperational testing.

P sition: Engineer, Operations June 2, 1981

Name: J. J. Allen

Education: Bachelor of Science in Electrical Engineering (1970)

Experience: Five and one-half (5½) years of power plant design, construction and startup. Two and one-half (2½) years experience in nuclear power plant training, procedure preparation, start-up, and design review.

Training: Obtained a Senior Reactor Operator Certification from Westinghouse Electric Corporation (1979). Participates in Supervisor's Development Program.

General: Assigned to the site two (2) years prior to preoperational testing. Registered Professional Engineer.

POSITION: LICENSED OPERATOR* June 2, 1981

NAME: EIGHTEEN (18) PERSONNEL

ANS. 3.1 SECTION	REQUIREMENT	STATUS
4.5.1.2.a	EDUCATION: High school diploma.	All comply.
4.5.1.2.b	EXPERIENCE: At the time of core loading or appointment to the position, whichever is later, NRC licensed operators shall have three (3) years of power plant experience. One (1) year of this experience shall be at the nuclear power plant for which he holds an NRC license. This one year of nuclear power plant experience shall include six (6) months of plant operational duties as a non-licensed operator.	All comply. Averages are approximately five (5) years of power plant experience. Two and one-half (2½) years of nuclear power plant experience in training, procedure preparation and start-up activities. nine (9) personnel have U.S. Navy Nuclear Power Program training and experience.
4.5.1.2.c	TRAINING: Obtain and hold operator license (5.2.1.1 through 5.2.1.5), 5.4 and 5.5.	All personnel certified Reactor Operator or Senior Reactor Operator by Westinghouse Electric Corporation (1977, 1978, 1979, 1981). One individual previously USNRC licensed.
4.5.1.2.d	CERTIFICATION: The competency of each applicant to operate the plant safely and competently shall be certified by corporate management prior to proposing the candidate for licensing by the NRC. This certification shall include consideration of successful completion of training, demonstrated abilities, satisfactory health, dependability, stability and trustworthiness. In making this determination, it is not sufficient to review only the training record of the applicant. In addition, the responsible manager shall review or cause to be reviewed less subjective documents such as supervisory evaluations, results of medical examinations and tests, security checks, and sick leave records for patterns indicative of ill health, drug addiction or alcoholism. In addition, the responsible manager should interview each applicant or appoint an appropriate board to perform this function.	To be completed prior to proposing candidates for licensing.

*Includes Westinghouse Electric Corporation certified Assistant Shift Supervisors, Reactor Operators, Auxiliary Operators, and previously licensed personnel in these positions.

POSITION: NON-LICENSED OPERATOR*, AVERAGE June 2, 1981

NAME: Nine (9) Personnel

ANS 3.1 SECTION	REQUIREMENT	STATUS
4.5.1a	EDUCATION: High school diploma.	All comply.
4.5.1b	EXPERIENCE: Non-licensed operators whose actions could effect the quality of structures, systems, and components important to safety shall have one (1) year of power plant experience.	All will comply prior to fuel loading. five (5) personnel have U.S. Navy Nuclear Power Program Training and experience. Three (3) personnel have nuclear skills training acquired at Memphis State University.
4.5.1c	TRAINING: As required by 5.3.5 and 5.4.	All have or will participate in Auxiliary Operator Training Program (18 weeks) and will participate in Licensed Operator Training when properly qualified.
4.5.1d	Non-licensed operators shall be qualified to perform various tasks at the nuclear power plant by demonstrating performance capability for the tasks assigned and operating knowledge of systems involved and their relationship to plant safety.	All will comply.

*Auxiliary Operators

POSITION: MAINTENANCE MANAGER June 2, 1981

NAME: T. L. THOMPSON

SECTION	REQUIREMENTS	STATUS
4.2.3.a	EDUCATION: Bachelor Degree in engineering or related science. Should have NDE familiarity, craft knowledge, and an understanding of Electrical, Pressure Vessel, and Piping Codes and Standards.	BSME - 1970. Craft knowledge and NDE familiarity gained through eleven years of experience in power plant maintenance Working knowledge of ASME, IEEE, and ANSI Codes and Standards that affect nuclear plant construction and maintenance.
4.2.3.b	EXPERIENCE: Four years of power plant experience of which two are nuclear plant experience: (1) One month operation above 20% power (2) Routine refueling outage	11 years total power plant experience. 8 years nuclear plant design and construction. Participation in refueling outage - H.B. Robinson - 1974 (6 weeks) Experience at operation above 20% power not obtained. Registered Professional Engineer
4.2.3.c	TRAINING: Specialized training for each individual. General Employee training.	Senior Reactor Operator Certification, participation in design and construction, participation in various nuclear power seminars and workshops, visits to other nuclear power plants, supervisor's development program. Participation in Vendor QA Audits, trips to equipment manufacturer's facilities. Participation in Start-up Program.
4.2.3.d	Assignment to site six months prior to start of Preop. Testing.	Assigned to site in 1977.

POSITION: MECHANICAL MAINTENANCE SUPERVISOR June 2, 1981

NAME: G. E. JERGINS

SECTION	REQUIREMENTS	STATUS
4.3.2.a	EDUCATION: High School Diploma	H.S.D. - 1953
4.3.2.b	EXPERIENCE: 4 years in craft he supervises, one of which is Nuclear Power Plant experience. Three months on site.	24 years power plant experience 5 years nuclear plant design and construction - assigned to site in 1977.
4.3.2.c	TRAINING: Specialized training for each individual; leadership, etc.; general employee training	Westinghouse Maintenance Engineering school Supervisor's Development program Participation in design and construction Safety valve test and repair certification Certified Welder Participation in Start-up program
4.3.2.d	Supervision of safety-related activities	Started supervising safety-related activities in 1978.

Position: Maintenance Engineer June 2, 1981

Name: C. E. Scott

Section		Requirements	Status
4.3.2.a	Education:	High School Diploma	BSEE - 1972
4.3.2.b	Experience:	4 years in craft he supervises, one of which is nuclear power plant experience. Three months onsite.	6 years power plant experience. 2½ years nuclear plant start-up and construction. Assigned to site in 1978.
4.3.2.c	Training:	Specialized training or each individual; leadership, etc.; general employee training.	Training for certification as NDE Level II in RT and UT, as a Certified Lead Auditor and as Level II QC Inspector. Supervisor's Development Program. Active participation in design and construction. Participation in various nuclear power seminars and workshops. Participation in refueling outage at operating nuclear power plant.
4.3.2.d		Supervision of Safety-related activities.	Started directing Safety-related activities in 1979.

Position: Maintenance Technician June 2, 1981

Section	Requirements	Status
4.5.2.a	Education: High School Diploma	Education ranges from high school diploma to associate technology degree to a BS degree.
4.5.2.b	Experience: Three years of working experience in their specialty.	Experience ranges from a minimum of two years at the site to six (6) years Navy experience to a maximum of twenty-one (21) years power plant experience.
4.5.2.c	Training: Specialized on-the-job training for each individual, related technical training and general employee training.	All training for certification as NDE Level II in MT, PT, RT and UT, and as Level II QC Inspectors. Active participation in design and construction activities.
4.5.2.d	Shall have demonstrated their ability to perform assigned tasks and their knowledge of the significance of these tasks on plant operation.	Verified by supervisor's evaluation.

POSITION. ELECTRICAL MAINTENANCE SUPERVISOR June 2, 1981

NAME: W. E. STONE

SECTION	REQUIREMENTS	STATU
4.3.2.a	EDUCATION: High School Diploma	H.S.D. - 1959 Associate Degree in Electrical Technology - 1962
4.3.2.b	EXPERIENCE: 4 years in craft he supervises, one of which is nuclear power plant experience. Three months on site.	20 years Power Plant Experience 3½ years nuclear plant design and construction. Assigned to site in 1978.
4.3.2.c	TRAINING: Specialized training for each individual; leadership, etc.; general employee training.	Westinghouse Maintenance Engineering School Supervisor's Development Program Participation in design and construction. Participation in Start-up Program.
4.3.2.d	Supervision of Safety-related activities	Started supervising safety-related activities in 1979.

MECHANICS, ELECTRICIANS, AND METER & RELAY TECHNICIANS June 2, 1981
(32 personnel)

MAINTENANCE PERSONNEL

SECTION	REQUIREMENTS	STATUS
4.5.3.a	EDUCATION: Journeyman Level	All comply.
4.5.3.b	EXPERIENCE: 3 years work experience in one or more crafts.	All comply.
4.5.3.c	TRAINING: Special training and general employee training.	Participation in construction and Start-Up activities, systems training course
4.5.3.d	Demonstrated ability to perform assigned tasks and knowledge of task significance to plant safety.	Verify by Supervisor's Evaluation QA Training

POSITION: ENGINEERING SUPERINTENDENT (4.2.4) June 2, 1981

NAME: D. W. BRASWELL

SECTION	REQUIREMENTS	STATUS
4.2.4.a	EDUCATION: Bachelor Degree in Engineering or related science.	B.S. Mechanical Engineering - 1970
4.2.4.b	EXPERIENCE: At the time of pre-operational testing, four (4) years experience in responsible position related to power generation, three (3) of which shall be nuclear power plant experience. During the three (3) years, the individual shall participate in the technical or operations section activities of an operating nuclear power plant during the following periods: (1) One (1) month operation above 20% power. (2) Routine refueling outage (1 to 2 months). (3) Initial plant startup testing or post refueling outage startup testing.	13 years professional level experience; 11 years power plant experience of which: 4 years nuclear power plant design and construction experience, 3 years fossil plant design and construction experience and 4 years testing, operation and maintenance experience.
4.2.4.c	TRAINING: Hold an NRC operator license for a similar unit, or have been certified at the plant or at an appropriate simulator, and as required by 5.3.1 and 5.4.	Successfully completed 31 week Westinghouse training program for Senior Reactor Operator Certification.
4.2.4.d	Initial Technical Manager shall be assigned to site six (6) months prior to commencement of pre-operational testing.	Assigned to 4 years prior to start of pre-operational testing.

Position: Reactor Engineer (4.4.1) June 2, 1981

Name: W. J. Nixon

Section	Requirement	Status
4.4.1a	Education: Bachelor Degree in Engineering or related sciences.	BS Nuclear Engineering, 1974
4.4.1b	Experience: By initial core loading four (4) years professional level experience of which two (2) years shall be nuclear power plant experience. The experience shall be in areas such as reactor physics, core measurements, core heat transfer, and core physics testing programs. During the two (2) years, must participate in reactor engineering section activities at an operating nuclear power plant during the following periods: (1) Routine refueling outage fuel handling. (2) Post refueling outage startup test program. (3) Power increases from 10% to 100% including stabilization of xenon. (4) Two (2) weeks operation above 20% power.	Seven (7) years of professional level experience of which five (5) years are design and construction and two (2) years are testing, operation and maintenance experience. Participated in post refueling outage startup program (Reactor Engineering Section) in areas of core measurements, core physics testing, core heat transfer and reactor physics as follows; three (3) weeks at Prairie Island Nuclear Plant (Unit No. 2 operating at 100% power), three (3) weeks at D. C. Cook Nuclear Plant (core measurements and core physics testing from 0 - 60% power), and two (2) weeks at North Anna Nuclear Plant (core measurements and physics testing).
4.4.1c	Training: As required by 4.3.2 and 5.4.	Successfully completed twelve (12) week Westinghouse Station Nuclear Engineering Course. Successfully completed thirty-one (31) week Westinghouse training program for Senior Reactor Operator Certification.

Position: Results Engineer June 2, 1981

Name: Edward Alarcon

Education: BSME - University of Texas at Austin, 1976

Experience:

1976 - Employed by General Electric Company at Knolls Atomic Power Laboratory (KAPL), as an engineer.

1977 - Completed Nuclear Power Engineering school at KAPL, assigned as Operations Engineer at the S7G (MARF) Prototype at the KAPL West Milton site.

1977 - Qualified as Engineering Officer of the Watch at the S7G (MARF) Prototype.

1978 - Qualified as Nuclear Plant Engineer and Staff Instructor at the S7G Prototype.

1978 - Employed by Texas Utilities Generating Company as an Associate Engineer in the Results engineering section at Comanche Peak Steam Electric Station.

1979 - Completed sixteen week Phase V cold licensing lecture series at Comanche Peak Steam Electric Station.

1980 - Completed Westinghouse three-week training module on the Nuclear Training Reactor at Zion, Illinois.

1980 - Assigned to present position as Results Engineer at Comanche Peak Steam Electric Station.

POSITION: INSTRUMENTATION & CONTROL (4.4.2) June 2, 1981

NAME: B. B. TAYLOR

SECTION	REQUIREMENTS	STATUS
4.4.2.a	EDUCATION: Bachelor Degree in Engineering or related science.	BSEE 1966 MSEE & CS 1972
4.4.2.b	EXPERIENCE: At the time of initial core loading, the responsible person shall have two (2) years power plant experience in instrumentation and control, of which one (1) year shall be nuclear power plant experience. During the one year, the individual shall participate in the instrument and control section activities at an operating nuclear power plant during the following periods:	17 years professional level experience; 7 years electronics maintenance and repair; 6 years propulsion power plant operations and maintenance of which 4 years have been Navy nuclear power plants. Participated in instrument and control activities during the six years and was responsible for instrument and control activities for two years on fossil fueled steam plant.
	(1) Surveillance testing and calibration of instruments and controls during a routine refueling outage.	Participated in surveillance testing and calibration of instruments and controls during three extended (greater than one(1) month) maintenance shutdowns. Participated in I&C activities during numerous other shutdown periods.
	(2) Startup preparation testing at the end of a routine refueling outage.	Participated in startup preparations following each extended maintenance shutdown period and numerous other reactor startups.
	(3) Post refueling outage startup testing.	Participated in required post startup testing.
	(4) One (1) month operation above 20% power.	26 months experience greater than 20% power level on Navy PWR propulsion plant.
	Six (6) months experience shall be on-site.	Will complete 6 months on-site experience 3 May 1981.
4.4.2.c	TRAINING: As required by 5.3.2 and 5.4	General employee training (Sec. 5.4) will be completed prior to fuel load.

POSITION: INSTRUMENT AND CONTROL SUPERVISOR June 2, 1981

NAME: R. E. COWAN

Education: ICS Degree in Chemical Lab Technology - 1966

U.S. Army Basic and Advance Electronics - 1959

Monahans High School, Monahans, Texas - 1958

Experience: 196? - Employed by Texas Electric Service Company as a technician at the Monahans Plant.

1977 - Employed by Texas Utilities Generating Company as a Senior I&C Technician at Comanche Peak Steam Electric Station.

1980 - Assigned to present position as I&C Supervisor at Comanche Peak Steam Electric Station.

POSITION: TECHNICIANS (4.5.2) June 2, 1981

INSTRUMENTATION AND CONTROL
THIRTEEN TECHNICIANS

SECTION	REQUIREMENTS	STATUS
4.5.2.a	EDUCATION: High school diploma.	Comply
4.5.2.b	EXPERIENCE: Three (3) years of working experience in their specialty.	The I&C technicians have an average of 7 years of professional experience. This experience includes four years average of Testing Maintenance and Operations and three years average of work during nuclear power plant design and construction. They average 3 months of nuclear power plant experience above 20% power.
4.5.2.c	TRAINING: As required by 5.3.4 and 5.4.	Three technicians have an AS degree in electronics or a related science. Nine of the technicians have received electronics training from the military, two of whom have Navy Nuclear Power training.

POSITION: RADIATION PROTECTION (4.4.4) June 2, 1981

NAME: B. T. LANCASTER

SECTION	REQUIREMENT	STATUS
4.4.4a	EDUCATION: Bachelor Degree in science or engineering subject, including some formal training in radiation protection.	B.S. Biology, Chemistry minor, 1969.
4.4.4b	EXPERIENCE: By the time of initial core loading, shall have four years of experience in applied radiation protection. At least three years of which shall be in applied radiation protection work in a nuclear facility dealing with radiological problems similar to those encountered in nuclear power plants. During the three years, shall participate in the radiation protection section of an operating nuclear power plant during the following periods:	Eighteen (18) years of professional level experience. Eleven (11) years power plant experience of which seven (7) years nuclear power plant Design and Construction experience. Five (5) years testing, operation and maintenance experience. One (1) month nuclear power plant radiation protection experience.
	(1) Routine refueling outage (1 to 2 months)	One month
	(2) Two months operations above 20% power.	One month
	Six months experience shall be on site.	Four (4) years on-site design and construction experience.
4.4.4c	TRAINING: As required by 5.3.2 and 5.4.	Successfully completed Oakridge Associated Universities ten (10) week Health Physics and Protection Course, 1975.

POSITION: CHEMISTRY AND RADIOCHEMISTRY (4.4.3) 8/22/80

NAME:

SECTION	REQUIREMENT	STATUS
4.4.3a	Education: Bachelor Degree in Engineering or related science.	Position not yet filled.
4.4.3b	Experience: By initial core loading two years experience in chemistry of which one year shall be nuclear power plant experience in radiochemistry. Included in the one year is three months of participation in the chemistry section of an operating nuclear power plant, of which no less than two months shall be with the plant operating above 20% power. Successful completion of a chemistry and radiochemistry training program may be equivalent to one year's nuclear power plant experience.	
4.4.3c	Training: Training shall be provided to compensate for deficiencies identified by comparing the individual's experience and knowledge with the experience and knowledge necessary to perform the job (5.3.2).	

POSITION: TECHNICIANS (4.5.2) June 2, 1981
CHEMISTRY & RADIATION

TWELVE TECHNICIANS

SECTION	REQUIREMENT	STATUS
4.5.2.a	EDUCATION: High school diploma.	Comply
4.5.2.b	EXPERIENCE: Three (3) years of working experience in their specialty.	The technicians have from 3 to 18 years of working experience in their specialty. Included in this time is from 2 to 11 years of power plant experience, of which 1 to 7 years were in operations and 1 to 5 years were in design and construction. Nuclear plant experience includes 3 to 7 years above 20% power and 4 to 8 weeks refueling outage.
4.5.2.c	TRAINING: As required by 5.3.4 and 5.4	Six of the technicians have attended the U.S. Navy Basic Nuclear Power School. One of the technicians is a Registered Radiation Protection Technologist. Four of the technicians hold an Associate of Applied Science in Nuclear Technology degree or related science.

Position: Health Physicist June 2, 1981

Name: M. C. Williams

Education: BSNE - Texas A&M University, 1973

Experience: 1973 - Duke Power Company
Health Physicist providing technical direction and support to Health Physics Group at Oconee Nuclear Station.

1974 - Duke Power Company
Health Physics Supervisor responsible for supervising ten Health Physics Technicians activities in implementing Oconee's Health Physics Program.

1975 - United Nuclear Industries, Inc.
Quality Assurance Engineer auditing reactor operation for compliance to limits and procedures.

1977 - United Nuclear Industries, Inc.
Senior Engineer responsible for directing Health Physics Technician's activities in implementing programs for exposure reduction.

1979 - United Nuclear Industries, Inc.
Manager of Radiological Engineering responsible for supervising Engineers, Health Physicists, and Health Physics Technicians in implementing radiation control, exposure reduction, radiological safety, and monitoring programs. Served as Radiation Protection Officer.

1980 - Texas Utilities Generating Company
Employed as Health Physicist at the Comanche Peak Steam Electric Station.

POSITION: EMERGENCY PLANNING COORDINATOR June 2, 1981

NAME: GREGORY L. BELL

Education: BS - Radiation and Nuclear Technology
Oklahoma State University - 1974

Experience:

1975 - Employed by Conesco Midcontinent, Inc. at Arkansas Nuclear One, as a Quality Assurance Manager

1975 - Employed by Florida Power and Light Co. at Turkey Point Plant as a Health Physics Associate Technician

1976 - Employed by Florida Power and Light Co. at Turkey Point Plant as a Health Physics Special Crew Radiation Protection Man

1977 - Employed by Florida Power and Light Co. at the St. Lucie Plant as a Health Physics Senior Technician

1980 - Employed by Texas Utilities Generating Co. as the Emergency Planning Coordinator for Comanche Peak Steam Electric Station

Position: Radiochemist June 2, 1981

Name: S. H. Daniel

Education: BS - Chemistry and Mathematics,
Tarleton State University, 1967
PhD - Chemistry, Texas A&M University,
1971

Experience: 1971 - Virginia Tech
Research Associate working in the
Chemistry Department Nuclear
Radiochemical Laboratory.

1973 - Radiation Management Corporation
Radiochemist responsible for
laboratory operation.

1975 - Radiation Management Corporation
Manager of Analytical Services
responsible for the administrative and
technical direction of twelve
Radiochemists and Lab Technician's
activities in laboratory analysis of
samples.

1976 - Scott and White Clinic
Radiochemist working in the Nuclear
Radiology Department.

1978 - Texas Utilities Generating Company
Employed as Radiochemist at the
Comanche Peak Steam Electric Station.
Successfully completed Westinghouse
12-week PWR Radiochemistry Course.