

b. Programmatic Controls

The establishment of this procedure system ensures ONP centralized control, technical uniformity, and continuity for the manner in which all corporate and site departments interface. ONP Policies and Directives will be approved by the Manager of Nuclear Power. ONP Standards will be issued to govern activities to be performed by two or more organizational components where a uniform result is required. The Director to whom responsibility is assigned approves and issues the ONP Standard after obtaining concurrences from those Directors affected by the stipulated requirements. All ONP Directives and Standards which establish and implement the Nuclear Quality Assurance Program will either be approved or concurred with by the Director of Nuclear Quality Assurance. The site procedures and instructions will be governed by ONP Policies, Directives, and Standards. The long-term program to upgrade operating plant procedures is based on the establishment of a management system which will ensure that commitments and requirements are systematically identified and incorporated in the appropriate procedures. A procedure tracking system will monitor the status (i.e. development, review, approval)

of each level of documentation within the Nuclear Procedures System. Transition to the new Nuclear Procedures System will be accomplished in a planned and orderly manner.

c. Resources for Implementation

The Nuclear Procedures Staff (NPS) has the responsibility and authority to monitor and coordinate the development of ONP Policies, Directives and Standards as well as to upgrade ONP Procedures and Instructions for each site. The NPS will ensure that site Procedures and Instructions represent appropriate extensions of the requirements and responsibilities for functions specified in the upper-tier ONP Policies, Directives, and Standards. This will be accomplished by the issuance of ONP Standards which will require that commitments and requirements be systematically identified and incorporated in the site Procedures and Instructions. To facilitate this process controlled information systems are being developed.

The NPS includes a dedicated staff at corporate headquarters with counterparts at the sites. The NPS is staffed with technical as well as administrative personnel under the

direction of the Manager, Nuclear Procedures Staff. The NPS will support the line organizations in developing the nuclear procedures system by providing guidance, coordinating the review and approval process, scheduling, tracking, editing, verifying, and human factoring of procedures. This charter for the NPS will exist throughout the short-term upgrade effort as well as on a permanent basis.

d. Conclusion

As a result of the foregoing improvements, ONP will ultimately have a set of nuclear directives and procedures to control activities throughout the ONP headquarters and at each of its nuclear sites.

2. Improvements in Planning and Integration of Nuclear Activities

As discussed above, TVA did not have a consolidated nuclear organization prior to 1985. Furthermore, TVA did not have a corporate-level nuclear office assigned the responsibility of planning, scheduling, and budgeting the activities of TVA's various nuclear departments. As a result, the efforts of TVA's

nuclear departments were not always integrated or performed in a timely manner.

TVA has taken steps to remedy this problem.

- a. As part of the consolidation of its nuclear organization, TVA has established the **Nuclear Business Operations Division**. This Division provides the overall direction to nuclear sites and headquarters departments in the execution of planning, scheduling, and financial activities of TVA's nuclear activities. Areas where the central staff will improve upon existing practices include:

- Development of a consistent approach to planning, scheduling, and budgeting throughout ONP. This approach will provide for enhanced work scope definition through a more structured process of estimating work activities, as well as integration of the efforts of all groups into common schedules. Scope definition and schedule integration efforts are currently underway at the nuclear sites.

- Establishment of internal controls to ensure that the planning, scheduling, and financial activities provide meaningful, accurate information to management.
- Development of a process for performing analysis of schedule and budget information so that trends can be established and variances identified to management for corrective action where appropriate.
- Creation of reports tailored to various levels of management, including summary level reports for the Manager, ONP.

In addition to providing overall direction for planning and budgeting, the Nuclear Business Operations Division will conduct periodic assessments of nuclear sites and headquarters departments to verify that the implementation and execution of planning, scheduling, and budgeting programs are effective and consistent with corporate policy and direction.

- b. Responsibility for developing and maintaining nuclear management information systems has been consolidated into the Division of Nuclear Services. The intent is to provide

adequate central control to ensure coordination and compatibility as well as system integrity while, at the same time, permitting divisions to have a feasible level of autonomy in system operation.

The Division of Nuclear Services will establish a system of data bases that can be utilized by the responsible ONP department. For example, the system as presently foreseen would have data bases for design control, configuration control, technical information, erection information, testing, maintenance, and operations support. The foundation of the design of the integrated data bases will be the concept of sharing computer-stored data among cooperating organizations. The design will be guided by the following principles:

- 1) A given item of data, such as a letter received from the NRC or the status of a particular corrective action or a contract being awarded, will be recorded only once. This saves time by eliminating duplicate efforts and minimizing data entry costs.

- 2) Master file data will be recorded and stored in a single location with appropriate backup. This eliminates duplicated files and the errors that occur when attempts are made to maintain the same data on several data bases. It also reduces the cost of storage and inconsistency that occurs in reports that are drawn from separate sources. Whether the "single location" is a central computer or a node in a network of computers will depend on several considerations.

- 3) Controlled access will be maintained to prevent unauthorized file changes while making data available to all with a "need to know."

The Division of Nuclear Services will maintain the integrated nature of the information systems and of the data bases by controlling changes to the computer programs and the associated procedures, by controlling the implementation of additions and enhancements to the computer software, and by executing the computer code with appropriate backup, recovery, and security functions. The organizations that supply input data will be responsible for the authenticity, accuracy, and

completeness of their inputs, and, in most cases, for the entry of that data into the systems. The nuclear management information systems will have interfaces to other TVA corporate systems such as Division of the Comptroller's new Accounting Information System.

The integrated data bases that are part of the nuclear management information systems will be available to serve operations, engineering, construction, quality assurance, and corporate nuclear management. Use of such centralized systems with the appropriate security, management controls, availability, and reliability will help assure that nuclear management, at all levels, will have sufficient information about the activities of each nuclear department in TVA.

- c. In sum, TVA has established organizations responsible for managing a centralized nuclear information system and for planning, scheduling, and financial control of TVA's nuclear activities based upon input provided by responsible managers. These actions will provide assurance that TVA's nuclear activities will be adequately integrated and performed in a timely manner.

3. Improvements in Commitment Tracking

Over the years, each organization within the TVA nuclear program (including each of the nuclear plants) has tracked NRC commitments for which it was responsible using its own managerial and system tracking capability. This resulted in a multitude of commitment tracking systems and no centralized system. Thus, some commitments were not adequately tracked and closed by TVA. TVA has taken steps to remedy this situation.

TVA has created a Corporate Commitment Tracking System (CCTS) which is administered by the Director of Nuclear Licensing and Regulatory Affairs. The CCTS is an integrated data base for tracking all formal commitments made to NRC in order to assure that licensing commitments will be met.

In order to maintain management control over commitments and ensure that commitments are documented and tracked, TVA is requiring that commitments be documented in formal correspondence to NRC or other reports required by regulation such as Licensee Event Reports (LERs). It is also intended that those verbal agreements made by authorized ONP managers in the course of day-to-day working relations with the NRC will be documented and tracked on CCTS where the agreement commits the TVA

organization to a future action. A procedure will be written to identify the authorized ONP managers and provide methodology for handling these verbal agreements.

Licensing personnel make the initial entry on the CCTS which identifies each commitment made to the NRC. When the action required to fulfill the commitment has been completed, a verification and completion form is sent to licensing, and the appropriate entry is made in the data base.

The responsible TVA management personnel are kept advised of the status of the open CCTS items. The Director of Nuclear Licensing and Regulatory Affairs or a designee's approval is required to change a forecast response or completion date for resolving a commitment.

Supervisors responsible for implementing commitments tracked in CCTS are also responsible for allocating resources and setting priorities to ensure that commitments are met on time or are revised (with appropriate approvals). When unexpected delays threaten completion of commitments on schedule, supervisors are required to inform the Director of Nuclear Licensing and Regulatory Affairs to permit timely notification to the NRC of the revised commitment dates.

The organization which is responsible for implementing an action necessary to fulfill a commitment is required to maintain an up-to-date status of the commitment on the CCTS until the item is closed out. After completion, licensing personnel will close the item in CCTS upon receipt of documentation which verifies completion and thereby justifies closure. Licensing periodically issues a report to the Manager of Nuclear Power showing numbers of commitments made, completed, and closed by each organization. Included in each report is a specific comment on trends observed for each organization responsible for timely closure of commitments.

The commitment tracking systems previously used by TVA's nuclear plants and various nuclear departments have been reviewed to ensure that CCTS includes all open/incomplete commitments made to NRC. The information in the tracking system which was previously used by licensing (which included commitments being tracked by corporate-level departments) was used as the initial source of information for CCTS. The data in the commitment tracking systems used at each of TVA's nuclear plants have been reviewed to verify that CCTS completely identifies open or

incomplete commitments and the CCTS is currently being used for tracking applicable commitments.

With the CCTS fully operational, TVA's nuclear program will have a single commitment tracking system which will be used in all of TVA's nuclear departments and plants. This centralized system will help assure that TVA's commitments to the NRC will be implemented in a timely manner.

4. Conclusions

TVA has taken and will take steps to improve its nuclear management systems and controls by establishing a long-term program to develop an integrated Nuclear Procedures System to direct and/or control activities at TVA's nuclear plants; by centralizing responsibility for planning, scheduling, and financial control of nuclear activities; by establishing a central management nuclear information system; and by implementing a Corporate Commitment Tracking System. These actions help to assure that TVA's nuclear activities are controlled by corporate-level management, that the activities

of each of TVA's nuclear departments are integrated, and that TVA satisfies its commitments to the NRC.

D. Improving TVA's Nuclear Corrective Action Program

During recent years, there have been occasions when TVA has identified problems in its nuclear program but has not corrected those problems in a timely manner, or has not identified and corrected the root cause of the problems in order to preclude their recurrence, or has not evaluated a problem at one nuclear plant to determine whether the same problem is applicable at another nuclear plant. This situation indicates a weakness in TVA's nuclear corrective action program and the management of that program. As is discussed below, TVA is taking several steps to improve its programs and management in this area.

1. Assuring Timely Corrective Action

In the past, TVA has not always taken timely action to resolve conditions adverse to quality (CAQ) in its nuclear activities, such as nonconforming items, noncompliances with procedural or other requirements, and audit findings. TVA has reviewed its various nuclear programs to ensure that they contain adequate

provisions for timely resolution of conditions adverse to quality and is implementing a centralized system to track CAQs in its nuclear activities.

TVA's Nuclear Quality Assurance program defines quality issues which must be tracked as CAQs. The Tracking and Reporting of Open Items (TROI) Computer System has been selected as the single corporate system for tracking such CAQs. This tracking system identifies the condition, the significance of the condition, the group responsible for determining a resolution for the condition, the group responsible for implementing the resolution, a deadline for implementing the resolution, and whether or not the condition has been closed. The deadlines will be based upon the significance of the CAQ and failure to satisfy a deadline or extensions of the deadline will be flagged by the system to provide for increased management attention and involvement. Training of ONP personnel who use TROI, in the characteristics and requirements of the system was completed on May 5, 1986. The TROI data base is controlled and maintained by the Division of Nuclear Quality Assurance.

The CAQ program has been implemented ONP-wide. This program has standard definitions of terms and conditions, uses standard forms for reporting, and provides for improved generic reviews of CAQs. TVA recognizes that since the new CAQ program is an ambitious effort to coalesce many programmatic activities it will need to be revised and updated to reflect experience.

A single computer program has been selected for trending of corrective action documents. The analysis of trend data supplied by the computer program will be the responsibility of line managers. Additionally, DNQA will identify QA trend indicators and perform a corporate-wide QA trend analysis to support its QA assessment responsibility on an ongoing basis. Corporate trend reports will be issued periodically to assist in identifying areas where increased management attention is needed. Subsequent to loading of data, line managers and DNQA will begin analyzing information to identify adverse trends.

Implementation of the TROI system provides an effective mechanism to facilitate the correction of safety-related conditions adverse to quality in a timely manner and ensures that conditions which are not resolved in a timely manner will

be brought to management's attention. Additionally, TROI provides a mechanism for identifying the need to improve the timeliness of TVA's corrective actions for nuclear activities should that become necessary.

2. Identification of the Root Cause of Problems

Some of the problems in TVA's nuclear activities have recurred, indicating a need for improvements in the identification of the root causes of the problems and in the development of actions to preclude recurrence of the problems. TVA has reviewed its various nuclear programs to ensure that appropriate provisions exist for identifying and addressing the root causes of problems. Guidelines for these provisions have been consolidated into the new CAQ program and are described below.

As discussed in the previous section, CAQs in nuclear activities will be tracked and their significance will be assessed. TVA will take two steps to identify the root causes of these conditions. First, each significant CAQ will be individually analyzed to determine its root cause and to recommend action to remedy that cause. Second, each CAQ will be placed in various

categories, such as the group responsible for causing the condition, the type of condition, the type of item or matter which is deficient, and if the CAQ is significant, the root cause of the condition. An analysis will be periodically performed to identify any adverse trends, and these trends will be evaluated to determine their root cause and to recommend action to remedy that cause. In both cases, management will be informed of any significant conditions adverse to quality and any adverse trends, their root causes, and the recommended action to remedy those causes. This will enable management to perform its own assessment and ensure that appropriate remedial action is implemented.

Implementation of these guidelines will provide assurance that the root causes of significant conditions adverse to quality and adverse trends will be identified. TVA will then be in a position to develop corrective action which addresses these root causes in order to preclude recurrence of the adverse condition.

3. Identification of Problems Applicable to More Than One Plant

There have been instances when problems identified at various nuclear plants throughout the country have not been accounted

for at TVA's plants and when problems identified at one of TVA's nuclear plants have not been accounted for at its other plants. TVA has taken action to address both of these concerns.

Licensing personnel, under the direction of the Director of Nuclear Licensing and Regulatory Affairs, will be responsible for managing the TVA Nuclear Operating Experience Review program system for internally and externally identified problems or events. Under this system, significant problems or events identified at other nuclear plants by the NRC, INPO, HSSS vendors, and others, and significant problems (events) identified at TVA's nuclear plants will be made the subject of experience review reports.

Operating experience information (internal and external to TVA) will be screened to determine applicability to TVA. If it is determined that the problem is applicable to TVA, then an analysis will be performed to develop corrective action recommendations or positions to be provided to sites, engineering, and training personnel to take immediate corrective action if necessary.

A corporate nuclear operating experience data base is being developed to interface with all facets of the TVA nuclear

organization. This data base will provide TVA-wide access and provide the necessary management tool to track all experience review items. A feedback mechanism has been established to ensure that the completed operating experience review recommendations are factored into the programs of operations, design, construction, and training.

The enhanced Nuclear Operating Experience Review program will ensure that significant problems identified at other nuclear plants in the country and at one TVA nuclear plant will be evaluated for applicability to TVA's other plants. This system will also provide a means for developing remedial or preventive action for those problems which are determined to be applicable to TVA's nuclear plants.

E. Programmatic Improvements

TVA is making improvements in various programmatic areas of its nuclear program. The improvements in each area are discussed in general below. Plant-specific improvements in TVA's nuclear program will be discussed in the Nuclear Performance Plans for each site.

I. Improvements in Operations

TVA has experienced problems associated with its nuclear operations and maintenance. Many of these problems involved inadequate procedures, failure to comply with procedures, weak operator training, and failure to identify the root causes of problems. As is discussed below, TVA is taking steps to address each of these areas.

- a. As discussed in Section VI.C.1 above, TVA is conducting reviews of its nuclear procedures. These reviews will emphasize upgrading of TVA's nuclear operation, maintenance, and surveillance procedures to correct documented deficiencies, incorporate organizational changes, and reflect plant modifications. In particular, these reviews will focus on the technical content and clarity of TVA's nuclear operation and surveillance procedures. TVA's long-term procedures upgrade program will assure that recent industry and NRC concerns, such as human-factors considerations, are properly accounted for in the procedures.

TVA's nuclear management has placed increased emphasis on procedure compliance and will monitor for noncompliance. For example, supervisors who are responsible for work activities will be required to ensure that proper procedures are identified to control the activities and that personnel performing the work are required to follow the procedure or obtain an approved temporary change to the procedures. Additionally, the nuclear headquarters staff and the site QA manager will be directed to monitor for compliance with procedures when conducting their plant performance assessment activities. Finally, TVA's nuclear procedures will specify progressive disciplinary action to be imposed for failure to follow procedures.

- b. TVA has taken and is taking steps to improve its nuclear operator training. As discussed in Section IV.E.3, TVA has consolidated responsibility for nuclear training activities under the Director of Nuclear Training. Additionally, TVA has made plant-specific improvements in operator training. TVA continues to aggressively pursue INPO accreditation for nuclear power training programs eligible for accreditation.

Currently, all ten programs at SQN, all ten programs at BFN, and five at WBN are fully accredited, leaving five at WBN to be accredited. With ten accredited programs at both SQN and BFN, TVA has earned full membership in the National Academy for Nuclear Training.

The remaining WBN programs (the three Operator Training Programs, the STA Training Program, and the Technical Staff and Managers Training Program) will be submitted after fuel load of WBN unit 1 has been completed.

c. Finally, TVA is taking other steps to identify problems and improve its nuclear operation and maintenance activities.

These steps include the following:

- The ONP headquarters organizations will have personnel with expertise in operations, maintenance, chemistry, health physics, planning, scheduling, and other disciplines relevant to the overall operation and maintenance of nuclear plants. These personnel will assist management with the development of TVA policy,

goals, and objectives for operation and maintenance activities. They will also monitor implementation of policy through onsite assessments of plant programs and observation of work activities, and assess site performance through review of performance data.

- An expanded corporate nuclear performance reporting system is being developed. This system will provide for the collection of key performance indicators for trending and analysis by the appropriate nuclear headquarters technical staff.
- TVA will implement a system engineer program at each nuclear site. The system engineers will be responsible for monitoring system performance and ensuring feedback into preventive maintenance programs, ensuring in-depth analysis and corrective action for system problems.
- As required to expedite work and focus resources, TVA has established task forces. The individuals performing these functions have been selected from throughout the nuclear industry because of their breadth of experience

and are on loan from their parent companies. Task forces at each site, except Bellefonte Nuclear Plant, have been established and are charged with the responsibility to verify the identification of problems, prioritize and evaluate performances of ongoing activities and initiate actions for resolution of known problems where necessary. The task force for Sequoyah Unit 2 restart has completed its tasks and is no longer needed for Sequoyah restart. The task force at Browns Ferry continues its activities. The task force at Watts Bar has been disestablished and the objectives of this task force are now encompassed by the Watts Bar Program team primarily made up of senior TVA personnel. This program team has the responsibility for developing an overall plan for completing both units at Watts Bar. This includes establishing guidelines for determining acceptability of work; determining requirements for reinspection and rework; and directing the evaluation of safety significance of any discovered deficiencies.

The establishment of these task forces does not relieve line management and, in particular, the Site Directors of their assigned responsibilities.

- d. In sum, TVA is reviewing and upgrading its nuclear operation, maintenance, and surveillance procedures, has placed increased emphasis on compliance with nuclear

procedures, and has taken steps to identify any developing problems in nuclear operations. These actions should help improve the safety of operation of TVA's nuclear plants.

2. Improvements in Maintenance

In recent years, TVA's nuclear plants have experienced problems in the area of nuclear maintenance. In April of 1986, the Nuclear Manager's Review Group (NMRG) was requested to conduct a comprehensive review of corrective and preventive maintenance at Browns Ferry, Sequoyah, and Watts Bar Nuclear Plants. Review results have been reported and corrective action responsibilities have been assigned. Corrective action plans are underway.

As recommended by the NMRG, a corporate nuclear maintenance and outage manager has been hired and efforts continue to define a supporting organization and select a staff. This manager is responsible for developing and implementing improved maintenance programs and policies at all TVA nuclear plants. Good elements of current maintenance programs will be used to the extent practicable, but modifications will be made as necessary to achieve improved programs that can be implemented uniformly at all nuclear sites. In general, differences in the programs not associated with hardware configuration will be minimized. Two steps taken toward accomplishing this have been the issue of ONP Directive 10.3, Plant Maintenance, and ONP Standard 4.4.7.

Administration of Site Instructions, Attachment 2, Writers Guide for Maintenance Organization Instructions. Training of the writers of maintenance instructions is underway. Knowledgeable maintenance personnel from all nuclear sites will contribute to these maintenance improvement efforts under the guidance and direction of the corporate nuclear maintenance and outage manager. Though each nuclear site will remain responsible for planning, scheduling, and executing its own maintenance, the corporate nuclear maintenance and outage manager and his staff will be responsible for regular assessment of the effectiveness of site maintenance and for assisting site maintenance personnel with needed improvements. Results of the corporate nuclear maintenance managers' efforts will be reported regularly to the Manager of Nuclear Power. Significant improvements are planned in the following maintenance areas.

First, improvements are being implemented in nuclear site preventive maintenance. These improvements will emphasize reducing recurring corrective maintenance, improving use of predictive maintenance, and adherence to established preventive maintenance routines. Analysis of equipment performance history and maintenance history, including reliability and availability information from NPRDS and TVA sources, will be used, together with vendor recommendations, to develop optimum preventive maintenance routines. Common routines will be used at all sites, except for differences made necessary by the hardware configuration.

Second, the planning and scheduling process for nuclear maintenance activities is being upgraded. The full scope of significant maintenance activities will be defined in advance of performing the activity, will be coordinated with the appropriate organizations including operations and quality assurance, and will be completed and documented prior to closeout of the activity. This process will incorporate procedures to be used, identification of equipment needed, quality assurance requirements, and postmaintenance testing requirements. Where appropriate, checklists will be used to ensure that all applicable requirements are adequately addressed and that coordination with other organizations is performed as appropriate.

Additionally, training of nuclear maintenance personnel is being upgraded at all sites. The instrument technician, electrical and mechanical maintenance training programs at Sequoyah, Browns Ferry and Watts Bar have been accredited by INPO.

This is a long-term program, which when fully implemented, will result in a system where maintenance activities that require specialized skills will be identified and only those personnel evaluated as possessing the requisite skills will be assigned responsibility for performing the work.

In addition to the craft training discussed above, maintenance engineering and planning and scheduling personnel will be better trained in execution of their responsibilities. Enhanced training for these personnel will be developed and implemented as improvements in the planning and scheduling process are made; priority will be placed on activities that have the potential to impact the adequacy of safety-related activities. These include selection of proper safety classifications for maintenance work and identification of proper post-maintenance testing.

In sum, TVA has selected a corporate nuclear maintenance and outage manager to centralize oversight of maintenance and has placed increased emphasis on adherence to approved procedures. Further, TVA has taken steps to upgrade its nuclear maintenance and surveillance procedures. These actions should contribute to safer operation of TVA's nuclear plants.

3. Improvements in Welding

Approximately 400 welding concerns have been identified through the Employee Concerns Special Program at Watts Bar Nuclear

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SEP 87 - NOV 87	MANAGER, NUCLEAR LABOR RELATIONS, TVA, CHATTANOOGA
OCT 82 - SEP 87	MANAGER, PROJECT LABOR RELATION, BECHTEL CONSTRUCTION, INC., DELTA, UTAH
JUN 81 - SEP 82	MANAGER, PROJECT INDUSTRIAL RELATIONS, BECHTEL GREAT BRITAIN, LIMERICK, IRELAND
JUN 78 - MAY 81	LABOR RELATIONS SUPERVISOR, BECHTEL POWER CORPORATION, ANN ARBOR, MICHIGAN
AUG 74 - MAY 78	SENIOR LABOR RELATIONS REPRESENTATIVE, BECHTEL POWER CORPORATION, MIDLAND, MICHIGAN
OCT 72 - JUL 74	LABOR RELATIONS REPRESENTATIVE, BECHTEL M&M DIVISION, MIAMI, ARIZONA
NOV 71 - SEP 72	STRUCTURAL-CIVIL SUPERINTENDENT, STEARNS-ROGER, TUCSON, ARIZONA
MAY 70 - OCT 71	CRAFT SUPERVISOR, BECHTEL CIVIL AND MINERALS, PHOENIX, ARIZONA
NOV 69 - APR 70	CRAFT SUPERINTENDENT, ARTHUR G. MCKEE, CLEVELAND, OHIO
OCT 68 - OCT 69	TRADES & LABOR GENERAL FOREMAN, STEARNS-ROGER, DENVER, COLORADO

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CHATTANOOGA, TENNESSEE

JAN 85 - JAN 87 PRESIDENT, FISHER SERVICES INC., MANAGEMENT
CONSULTING FIRM, AUGUSTA, NEW JERSEY
UNDER CONTRACT WITH ILLINOIS POWER TO SERVE AS
THE MANAGER OF NUCLEAR SUPPORT, RESPONSIBLE
FOR FINANCE AND BUDGET, PLANNING, SCHEDULING
AND ESTIMATING, PERSONNEL AND DOCUMENT CONTROL.

MAR 80 - JAN 85 DIRECTOR, FISCAL AND INFORMATION MANAGEMENT,
GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION,
PARSIPPANY, NEW JERSEY

SEPT 72 - MAR 80 CONTROLLER AND DIRECTOR OF FINANCE, MARTIN
MARIETTA CORPORATION, DENVER, COLORADO

MAY 68 - SEPT 72 CORPORATE FINANCIAL ANALYST, FAIRCHILD
INDUSTRIES, GERMANTOWN, MARYLAND

SEPT 59 - MAY 68 BUSINESS MANAGER, RESEARCH AND DEVELOPMENT AND
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CORPORATION, DENVER, COLORADO

SEPT 53 - SEPT 59 SUPERVISOR COST ACCOUNTING AND FINANCIAL
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1952 ACCOUNTING STUDIES - UNIVERSITY OF LOUISVILLE

1954 LAW STUDIES - SALMON P. CHASE COLLEGE OF LAW

Plant. These concerns indicated a need for investigation of the adequacy of TVA's overall nuclear welding program.

As is discussed in detail in TVA's letter to the NRC dated January 17, 1986 (Ref. 6), TVA has formed a Welding Project to perform such an investigation. The Welding Project is composed of managers and senior engineers from the Division of Nuclear Engineering, Division of Nuclear Construction, Division of Nuclear Quality Assurance and representatives of nuclear corporate staff. Consultants and outside contractors are also being used to provide certain expertise and perform independent evaluations.

The Welding Project is utilizing a two-phase approach to examine welding programs at all TVA nuclear plants. The objectives of Phase I are to ensure that TVA welding requirements and specifications are correctly reflected in the program for each plant and to identify and categorize concerns/deficiencies in each program. These objectives will be accomplished by (1) reviewing TVA commitments to NRC and verifying that TVA's welding programs reflect these commitments, and (2) assembling, identifying, and categorizing various indicators of the quality of welding (including employee concerns), and analyzing these indicators to determine their implications with respect to the adequacy of TVA's nuclear welding program. Following this

analysis, the Welding Project will determine the adequacy of the nuclear welding program to control welding and identify any deficiencies in the program and to propose corrective actions or improvements.

The purpose of Phase II for each plant is to evaluate the adequacy of implementation of TVA's nuclear welding procedures, verify that the installed weldments meet requirements or are adequate for service, correct identified welding deficiencies, and implement changes to prevent recurrence of these deficiencies. This purpose will be accomplished by performing independent audits of nuclear welding program implementation. Additionally, the Welding Project will evaluate the need for reinspection of welds based upon the results of the independent audits and the analyses of the quality indicators in Phase I.

Following this evaluation, reinspections of welds will be performed if warranted. Any deficiencies identified as a result of the independent audits and reinspections will be subject to appropriate corrective action.

The evaluations in Phases I and II will enable TVA to determine if the nuclear welding program and the safety-related welds are adequate to support operation of the plants. Once the plants are operational, TVA will continue to rely on the QA/QC program and inservice inspections to assure that a high quality welding

program is being maintained.

TVA is instituting appropriate changes to programs as the changes are identified by the welding projects at each site.

4. Improvements in the Control of Design Changes and Plant Modifications

TVA's nuclear plants have experienced problems in the area of controlling design changes and plant modifications. TVA has made several improvements in this area. These improvements are described below.

As discussed in Section IV.E.2, engineering and design activities performed for TVA's nuclear power plants, both under construction and in operation, are performed under the centralized control of the Division of Nuclear Engineering (DNE). Each site is supported by an engineering project team headed by a project engineer responsible for all engineering onsite.

Among other things, the project team assures that design changes are reviewed and approved by engineering personnel for compliance with technical specifications and other regulatory requirements and commitments.

Additionally, responsibility for the accuracy, adequacy and content of all drawings and technical documents has been assigned to the Division of Nuclear Engineering. Engineering will validate the as-constructed drawings and control changes to them as modifications are approved and made in the plant configuration. By placing this responsibility within one organization, TVA will help assure that design changes and nuclear plant modifications receive appropriate engineering review and approval and that drawings and other technical documents accurately reflect the actual plant configuration.

DNE is responsible for all engineering and design functions. It is DNE's responsibility to control the technical and administrative requirements for engineering activities. Technical direction at all sites will emanate from one source, the responsible technical branch.

A demonstration of how centralized responsibility can eliminate previous design control problems can be seen in respect to problems with "as-built" drawings. Previously, there were two sets of drawings applicable to plant systems, the "as-designed" drawing which represented engineering's efforts and the "as-constructed" drawing which represented construction/modification effort. With dual engineering responsibility, the

two drawings were not always reconciled when the work was complete. With centralized responsibility, DNE has sole responsibility for the engineering integrity and accuracy of drawings. This results in one set of drawings accurately reflecting the plant configuration and being reconciled with engineering requirements through a controlled design process.

For plant modifications, the centralization of engineering responsibility improves the accuracy of plant documentation by utilizing consolidated plant modification packages.

F. Continuing Evaluations

TVA has evaluated the various elements of its nuclear program and has identified fundamental problems. The short- and long-term improvements to be made in its nuclear management systems and programs are described herein. These improvements are being incorporated into the ONP Policies and Directives which will define plant programs, and procedures needed for implementation. As the ONP proceeds with the implementation phase of the Nuclear Performance Plan, further improvements to these programs may be identified. It is expected that the NMRG reviews, onsite assessments by ONP headquarters organizations, and audits such as the INPO audit conducted for the TVA Board, will provide a measure of the effectiveness of TVA's programs and guide evaluations for possible future improvements. TVA will keep the NRC informed of any significant developments in this area.

VII. IMPLEMENTATION OF THE REVISED CORPORATE NUCLEAR PERFORMANCE PLAN

TVA has already implemented many of the improvements described in this revised Corporate Nuclear Performance Plan, and many other improvements will be implemented within a short period of time. Moreover, before TVA operates any of its nuclear plants, it will implement those improvements which are essential for TVA to assure effective management of its nuclear activities.

The improvements which TVA considers essential for the effective management of its nuclear activities are as follows:

- Installing a new senior nuclear management workforce - This improvement is essentially complete. Although TVA expects that a few additional changes will be made in its middle-level and senior management positions, the central core of TVA's new senior management is in place and is sufficient to provide the necessary leadership and direction for TVA's nuclear program.
- Restructuring of TVA's nuclear organization - TVA's nuclear organization has been restructured and the responsibility and authority for management of all of its nuclear activities has been centralized in the Office of Nuclear Power. The new organization was approved on May 23, 1986 establishing the structure for the Office of Nuclear Power.

Position Descriptions have been developed and the lower tiers of the organization are being finalized. Although some minor realignments may occur after this time, they will not affect TVA's ability to establish clear lines of authority and responsibility and to provide centralized direction and control of its nuclear activities.

- Establishing the TVA Office of Nuclear Power Employee Concern Program - This program has been implemented.

In addition to the above actions, TVA has, as a part of its evaluations, listed the commitments that have been made in this Volume 1. In so doing, it has classified each as to whether it is an ongoing activity (O), a program or activity that must be complete prior to restart of Sequoyah (R), or a long-term program (L) that will be completed as this Nuclear Performance Plan is implemented. This listing is set forth in Appendix 8 together with TVA's current appraisal of progress on the item as it relates to those portions of the activities or efforts applicable to the restart of Sequoyah. Items that have been completed or for which procedures or programs have been implemented to meet ongoing commitments are classified as complete (C), that is, complete through TVA closure but not necessarily closed by NRC. The schedule for completion of those items not yet complete is given under the Progress Column. Further specific actions will be identified in the plant-specific Nuclear Performance Plans or in other submissions to the NRC. TVA will implement these actions expeditiously in order to further increase the effectiveness of its management.

The major programmatic implementation schedule for each long-term activity will be addressed specifically for each plant depending on the significance of the long-term program to that plant. Appendix 8 contains a listing of commitments indicating which activities are intended to be long term. Long term for these purposes means after restart of Sequoyah unit 2, the TVA unit first scheduled to restart. The Nuclear Performance Plan for each plant contains the specific status of CNPP commitments relating to restart or fuel load for that plant. Because of the relationship of each long-term program to the schedule for plant-specific activities, the major milestone schedule is being provided with each plant-specific Nuclear Performance Plan. For example, the elements of the major milestone schedule for the long-term program for developing an integrated nuclear procedure system, Section VI.C.1.a(2), required for Browns Ferry restart will be available in the Browns Ferry Nuclear Performance Plan. Also, long-term improvements in planning and integration of nuclear activities required for Browns Ferry restart, Section VI.C.2, although not specifically required for Sequoyah restart, will be addressed with major milestones and accomplishments in the Browns Ferry Nuclear Performance Plan.

VIII. CONCLUSION

TVA has taken several steps to improve the management of its nuclear program and to restore employee confidence in TVA's management. These steps include (1) installing a new experienced senior nuclear management workforce to provide leadership and direction for TVA's nuclear activities, (2) restructuring TVA's nuclear organization to provide clear lines of authority and responsibility and provide centralized management of TVA's nuclear program, (3) establishing an Employee Concern Program to identify and resolve employee concerns regarding TVA's nuclear activities, and (4) taking various actions to improve TVA's nuclear management programs, such as establishing a Corporate Commitment Tracking System, upgrading the corrective action program to provide for timely and effective corrective action, and providing centralized planning, scheduling, and budgeting. Additionally, TVA is continuing to evaluate specific elements of its nuclear program to determine whether further improvements can be made. As a result of this process, TVA will have taken significant action to address the root cause of the problems in TVA's nuclear program and to assure that TVA's plants can be safely operated.

IX. REFERENCES

1. Letter dated September 17, 1985, from William J. Dircks (NRC) to Charles Dean (TVA), with Enclosure 1, SALP Board Report, and Enclosure 2, Request for Information Under 10 CFR 50.54(f) Related to Staff Concerns.
2. Letter dated November 1, 1985, from Charles Dean (TVA) to William J. Dircks (NRC) transmitting TVA's Corporate Nuclear Performance Plan.
3. Letter dated December 20, 1985, from B. J. Youngblood (NRC) to H. G. Parris (TVA).
4. Letter dated May 2, 1986, from S. A. White (TVA) to Victor Stello (NRC) enclosing the Office of Nuclear Power (ONP) Employee Concern Program.
5. Letter dated January 15, 1986, from S. A. White (TVA) to Victor Stello (NRC) regarding briefings with the TVA Board.
6. Letter dated January 17, 1986, from J. A. Domer (TVA) to Harold R. Denton (NRC), with enclosures.

7. Letter dated March 10, 1986, from S. A. White (TVA) to Nunzio Palladino (NRC) forwarding the Revised Corporate Nuclear Performance Plan.
8. Letter dated May 1, 1986, from B. J. Youngblood (NRC) to Steven A. White (TVA) and enclosure.
9. Letter dated April 22, 1987, from James G. Keppler (NRC) to S. A. White (TVA).
10. NRC Safety Evaluation Report on Tennessee Valley Authority: Revised Corporate Nuclear Performance Plan, NUREG-1232 Vol. 1, dated July 1987.
11. Letter dated October 6, 1987, from John A. Zwolinski (NRC) to S. A. White (TVA), forwarding Safety Evaluation on the Tennessee Valley Authority Employee Concerns Special Program.
12. Letter dated September 30, 1987, from John A. Zwolinski (NRC) to S. A. White (TVA), forwarding Safety Evaluation of the Tennessee Valley Authority Employee Concern Program.

APPENDIX 4
RESUMES OF TVA'S KEY SENIOR
NUCLEAR MANAGERS

INDEX TO RESUMES

<u>TVA Managers</u>	<u>Name</u>	<u>Page</u>
Deputy Manager of Nuclear Power	C. C. Mason	3
Deputy Manager of Nuclear Power	C. H. Fox, Jr.	5
Assistant Manager of Nuclear Power	J. R. Bynum	7
Director, Nuclear Services	J. L. McAnally	8
Director, Nuclear Training	R. J. Johnson	10
Director, Nuclear Engineering	J. A. Kirkebo	11
Director, Nuclear Construction/Project Manager WBNP	R. A. Pedde	12
Site Director/Project Manager, BLN	J. P. Darling	13
Site Director, SQN	H. L. Abercrombie	15
Director, Nuclear Manager's Review Group	G. R. Mullee	16
Manager, Nuclear Personnel	R. G. Weatherred	17
Chairman, Nuclear Safety Review Boards	W. H. Hannum	18
Manager, Employee Concern Program	T. B. Jenkins	19
Director, Nuclear Business Operations	S. B. Fisher	20
Manager, Nuclear Power Information Staff	C. E. Ayers	21
Manager, Employee Concern Task Group	W. R. Brown, Jr.	22
<u>Loaned Managers</u>		
Manager, Nuclear Maintenance and Outage	G. L. Rogers	23
Director, Nuclear Quality Assurance	N. C. Kazanas	24
Director, Nuclear Licensing and Regulatory Affairs	R. L. Gridley	26
Site Director, BFN	H. P. Pomrehn	27
Site Director, WBN	G. Toto	28

DEPUTY MANAGER
OFFICE OF NUCLEAR POWER
CHARLES C. MASON

WORK EXPERIENCE

DEC 86 - PRESENT	DEPUTY MANAGER, ONP, TVA, CHATTANOOGA
OCT 86 - DEC 86	ACTING MANAGER, OFFICE OF NUCLEAR POWER, TVA, CHATTANOOGA
FEB 86 - OCT 86	DEPUTY MANAGER, OFFICE OF NUCLEAR POWER, TVA, CHATTANOOGA
OCT 85 - FEB 86	DEPUTY MANAGER, (MANAGER, NUCLEAR OPERATIONS), POWER AND ENGINEERING (NUCLEAR), TVA, CHATTANOOGA
AUG 84 - OCT 85	DIRECTOR, NUCLEAR OPERATIONS, AND SITE DIRECTOR, KANSAS GAS & ELECTRIC LIGHT, WOLF CREEK GENERATING STATION, BURLINGTON, KANSAS
APR 84 - AUG 84	SITE DIRECTOR, TVA, SEQUOYAH NUCLEAR PLANT
SEP 81 - APR 84	PLANT MANAGER, SEQUOYAH NUCLEAR PLANT, TVA
FEB 80 - SEP 81	POWER PLANT SUPERINTENDENT, TVA, WATTS BAR NUCLEAR PLANT
JUL 76 - FEB 80	ASSISTANT POWER PLANT SUPERINTENDENT, TVA, WATTS BAR NUCLEAR PLANT
NOV 69 - JUL 76	POWER PLANT RESULTS SUPERVISOR, SEQUOYAH NUCLEAR PLANT, TVA
SEP 67 - NOV 69	NUCLEAR ENGINEER (PROGRESSIVE ADVANCEMENTS), DIVISION OF POWER PRODUCTION, TVA, CHATTANOOGA
AUG 67 - JUL 82	U.S. NAVY RESERVE, CAPTAIN (RETIRED)
JUN 60 - AUG 67	U.S. NAVY, ACTIVE DUTY. LIEUTENANT
FEB 64 - AUG 65	U.S. NAVY ADVANCED NUCLEAR POWER SCHOOL AND SUBMARINE SCHOOL

EDUCATION

1960 B.A. CHEMISTRY, UNIVERSITY OF NORTH CAROLINA

CAREER HIGHLIGHTS

- o DIRECTED THE DESIGN, CONSTRUCTION, AND OPERATIONAL ACTIVITIES THAT RESULTED IN THE LICENSING AND COMMERCIAL OPERATION OF THE WOLF CREEK GENERATING STATION.
- o MANAGED SEQUOYAH NUCLEAR PLANT AS PLANT MANAGER AND SITE DIRECTOR FROM 1981 THROUGH 1984. THIS PERIOD INCLUDED THE FINAL PREOPERATIONAL TESTING, STARTUP TESTING, AND COMMERCIAL OPERATION OF UNITS 1 AND 2.
- o SERVED AS PLANT MANAGER OF WATTS BAR NUCLEAR PLANT DURING INITIAL OPERATIONAL STAFFING AND EARLY PREOPERATIONAL TESTING.
- o AS NAVAL RESERVE OFFICER, HELD POSITIONS OF INCREASING RESPONSIBILITY INCLUDING COMMAND OF THREE DIFFERENT UNITS BEFORE RETIRING WITH THE RANK OF CAPTAIN.

DEPUTY MANAGER
OFFICE OF NUCLEAR POWER
CHARLES HAYDEN FOX, JR.

WORK EXPERIENCE

FEB 87 - PRESENT	DEPUTY MANAGER, ONP, TVA, CHATTANOOGA
SEPT 86 - FEB 87	TVA, ASSISTANT MANAGER OF NUCLEAR POWER, CHATTANOOGA, TENNESSEE
JAN 84 - AUG 86	DEPARTMENT OF ENERGY, ASSISTANT MANAGER OF PROJECT MANAGEMENT, SAVANNAH RIVER PLANT, AIKEN, S.C.
NOV 81 - JAN 84	ASSISTANT DIRECTOR FOR ENGINEERING, CLINCH RIVER BREEDER REACTOR PROJECT, OAK RIDGE, TENNESSEE
JUN 81 - NOV 81	ENGINEER MANAGER AND DEPUTY ENGINEER MANAGER AND DIRECTOR, SYSTEMS MANAGEMENT DIVISION (DUAL POSITION), ENRICHMENT EXPANSION PROJECTS OFFICE, DOE-OAK RIDGE OPERATIONS, GS-15, FUNCTIONED AS THE ENGINEER MANAGER JUNE 81 - NOV 81.
SEP 80 - NOV 81	DEPUTY ENGINEERING MANAGER, DEPT. OF ENERGY, OAK RIDGE OPERATIONS, OAK RIDGE, TENNESSEE
SEP 77 - SEP 80	DIVISION DIRECTOR, SYSTEMS MANAGEMENT DIVISION, DEPARTMENT OF ENERGY, ENRICHMENT EXPANSION PROJECTS OFFICE, DOE-OAK RIDGE OPERATIONS, OAK RIDGE, TENNESSEE
SEP 76 - AUG 77	SYSTEMS ADVISOR TO DEPUTY MANAGER FOR ENRICHMENT EXPANSION PROJECTS, GS-15, DEPARTMENT OF ENERGY, DOE-OAK RIDGE OPERATIONS, OAK RIDGE, TENNESSEE
DEC 74 - SEP 76	SENIOR DEVELOPMENT ENGINEER, ATOMIC ENERGY COMMISSION, ENERGY RESEARCH AND DEVELOPMENT AGENCY, OAK RIDGE OPERATIONS, OAK RIDGE, TENNESSEE
JUN 74 - DEC 74	DEVELOPMENT ENGINEER, ATOMIC ENERGY COMMISSION, OAK RIDGE OPERATIONS, OAK RIDGE, TENNESSEE
JUL 73 - JUN 74	OPERATIONS ANALYST, ATOMIC ENERGY COMMISSION, OAK RIDGE OPERATIONS, OAK RIDGE, TENNESSEE

MAR 71 - JUL 73 TECHNICAL ANALYST, ATOMIC ENERGY COMMISSION,
SAVANNAH RIVER PLANT OPERATIONS OFFICE, AIKEN,
SOUTH CAROLINA

DEC 65 - SEP 68 ASSOCIATE DEVELOPMENT ENGINEER, UNION CARBIDE
CORPORATION, OAK RIDGE, TENNESSEE

SEP 62 - DEC 64 ENGINEERING COOP STUDENT, TENNESSEE VALLEY
AUTHORITY, CHATTANOOGA, TENNESSEE

CAREER HIGHLIGHTS

- o Was responsible for all facets of project management activities (design, engineering, and construction) at the Savannah River Plant, Aiken, S.C., for approximately 800 active projects ranging in size from less than \$1 million to \$900 million throughout the spectrum of technical complexity. The projects included the Defense Waste Processing Facility; the Naval Fuel Manufacturing Facility; the Steel Creek Dam Project which permitted the restart of the L Production Reactor; the Replacement Tritium Facility; and the Fuel Production Facility.
- o Provided engineering management and direction for all aspects of Clinch River Breeder Reactor Plant (CRBRP) Project, including technical supervision and contract administration of the CRBRP and supporting activities; managed CRBRP applied base research and development work at the reactor manufacturers and national laboratories; maintained overall supervision of programmatic and technical aspects of CRBRP and related activities, including all RRT technical and programmatic reviews and evaluations.

EDUCATION

JUN 66 B.S. NUCLEAR/MECHANICAL ENGINEERING, TENNESSEE TECHNOLOGICAL
UNIVERSITY

FEB 68 M.S. NUCLEAR/MECHANICAL ENGINEERING, NORTH CAROLINA STATE
UNIVERSITY

MAY 74 Ph.D. NUCLEAR ENGINEERING (MINOR-MECH. ENGR.), NORTH CAROLINA
STATE UNIVERSITY

LICENSES/CERTIFICATES

LICENSED PROFESSIONAL ENGINEER, CERTIFICATE E-18590

ASSISTANT MANAGER, NUCLEAR POWER
JOSEPH R. BYNUM

WORK EXPERIENCE

OCT 87 - PRESENT	ASSISTANT MANAGER OF NUCLEAR POWER, OFFICE OF NUCLEAR POWER, TVA, CHATTANOOGA
OCT 82 - OCT 87	PLANT MANAGER, ARIZONA NUCLEAR POWER PLANT, PALO VERDE NUCLEAR POWER PROJECT
JAN 81 - OCT 82	ASSISTANT PLANT SUPERINTENDENT, TVA, BROWNS FERRY NUCLEAR PLANT
JAN 80 - JAN 81	ASSISTANT PLANT SUPERINTENDENT, SPECIAL TEST COORDINATOR, TVA, SEQUOYAH NUCLEAR PLANT
NOV 75 - JAN 80	STARTUP AND PLANT SUPPORT SECTION SUPERVISOR, TVA, DIVISION OF NUCLEAR POWER
FEB 75 - NOV 75	TEMPORARY ASSIGNMENT, WESTINGHOUSE ELECTRIC CORP
JUN 72 - FEB 75	STARTUP ENGINEER, TVA, BROWNS FERRY NUCLEAR STATION

EDUCATION

1969	B.S., ELECTRICAL ENGINEERING, GEORGIA INSTITUTE OF TECHNOLOGY
1971	M.S., NUCLEAR ENGINEERING, GEORGIA INSTITUTE OF TECHNOLOGY

1968 - 1970 SENIOR ENGINEER, WESTINGHOUSE ELECTRIC CORPORATION, ADVANCED REACTOR DIVISION, MADISON, PENNSYLVANIA

1966 REACTOR ENGINEER, LOCKHEED NUCLEAR CORPORATION, DAWSONVILLE, GEORGIA

1962 - 1967 LICENSED NUCLEAR REACTOR OPERATOR, USAEC OP 1588, DEPARTMENT OF NUCLEAR ENGINEERING, TAUGHT BASIC ENGINEERING AND STRENGTH OF MATERIALS IN THE ENGINEERING SCIENCES DEPARTMENT, PURDUE UNIVERSITY, LAFAYETTE, INDIANA

EDUCATION

1962 B.S., NUCLEAR ENGINEERING, UNIVERSITY OF TENNESSEE
1966 M.S., NUCLEAR ENGINEERING, PURDUE UNIVERSITY
1968 Ph.D., NUCLEAR ENGINEERING, PURDUE UNIVERSITY
1972 M.B.A., HARVARD UNIVERSITY, 1972

LICENSES/CERTIFICATES

LICENSED NUCLEAR REACTOR OPERATION, USAEC OP 1588

DIRECTOR OF NUCLEAR TRAINING
R. JOE JOHNSON

WORK EXPERIENCE

MAY 86 - PRESENT	DIRECTOR, NUCLEAR TRAINING, TVA, CHATTANOOGA
NOV 79 - MAY 86	CHIEF, NUCLEAR TRAINING BRANCH, TVA, SEQUOYAH
APR 77 - NOV 79	COORDINATOR, POWER PRODUCTION TRAINING CENTER, TVA, SEQUOYAH
FEB 69 - APR 77	ASSOCIATE PROFESSOR, SCHOOL OF NUCLEAR ENGINEERING, GEORGIA TECH
SEP 67 - FEB 69	NUCLEAR ENGINEER, WESTINGHOUSE
JUN 67 - SEP 67	ASEE-NASA SUMMER FACULTY FELLOW, MARSHALL SPACE FLIGHT CENTER
SEP 66 - FEB 69	ASSISTANT PROFESSOR, SCHOOL OF NUCLEAR ENGINEERING
JUN 63 - SEP 63	NUCLEAR ENGINEER, BABCOCK & WILCOX CO.
SEP 58 - SEP 61	U.S. AIR FORCE, AIR WEATHER OFFICER
JUN 58 - SEP 58	ENGINEER IN TRAINING, BABCOCK & WILCOX CO.

EDUCATION

1958	B.S. MECHANICAL ENGINEERING, GEORGIA INSTITUTE OF TECHNOLOGY
1962	M.S. MECHANICAL ENGINEERING, CALIFORNIA INSTITUTE OF TECHNOLOGY
1966	PHD NUCLEAR ENGINEERING, GEORGIA INSTITUTE OF TECHNOLOGY

DIRECTOR OF NUCLEAR ENGINEERING
JOHN A. KIRKEBO

WORK EXPERIENCE

MAR 87 - PRESENT DIRECTOR OF DIVISION OF NUCLEAR ENGINEERING,
TVA, KNOXVILLE

OCT 86 - MAR 87 LOANED EMPLOYEE TO DIVISION OF NUCLEAR
ENGINEERING, TVA, KNOXVILLE (SWEC)

SEP 86 - OCT 86 DIRECTOR OF DIVISION OF NUCLEAR ENGINEERING,
TVA KNOXVILLE (SWEC)

JAN 86 - SEP 86 MANAGER OF ENGINEERING AND TECHNICAL SERVICES,
DIVISION OF NUCLEAR ENGINEERING, TVA,
KNOXVILLE (SWEC)

1983 - 1986 SENIOR PROJECT ENGINEER, GULF STATES UTILITIES
COMPANY, RIVER BEND STATION, UNIT 1 (SWEC)

1978 - 1983 PROJECT ENGINEER RIVER BEND STATION (SWEC)

1976 - 1978 ASSISTANT PROJECT ENGINEER (SWEC)

1975 - 1976 PROJECT COORDINATING ENGINEER, VIRGINIA
ELECTRIC AND POWER COMPANY, NORTH ANNA POWER
STATION, UNITS 1 AND 2 (SWEC)

1974 - 1975 LEAD POWER ENGINEER, STANDARD NUCLEAR PLANT,
NEW ENGLAND ELECTRIC SYSTEM (SWEC)

1973 - 1974 PRINCIPAL NUCLEAR ENGINEER, VIRGINIA ELECTRIC
AND POWER COMPANY, NORTH ANNA POWER STATION,
UNITS 3 AND 4 (SWEC)

1971 - 1973 NUCLEAR SYSTEMS ENGINEER, SWEC

1969 - 1971 WEAPONS DEPARTMENT HEAD, RANK OF LIEUTENANT,
OPERATIONAL READINESS OF THE POLARIS MISSILE
WEAPONS SYSTEM, FLEET BALLISTIC MISSILE
SUBMARINE REACTOR CONTROL DIVISION OFFICER,
NUCLEAR REACTOR PROPULSION SYSTEM

1964 - 1969 U.S. NAVY NUCLEAR POWER PROGRAM

EDUCATION

1964 B.S. CIVIL ENGINEERING, UNIVERSITY OF WASHINGTON

 U.S. NAVY NUCLEAR POWER PROGRAM, GRADUATE-LEVEL COURSES IN
 NUCLEAR REACTOR SYSTEMS AND PLANT ENGINEERING

LICENSES AND REGISTRATIONS

REGISTERED PROFESSIONAL ENGINEER (MECHANICAL), STATE OF LOUISIANA
03241/CC

ACTING DIRECTOR, NUCLEAR CONSTRUCTION AND PROJECT MANAGER
WATTS BAR CONSTRUCTION PROJECT
ROBERT A. PEDDE

WORK EXPERIENCE

JAN 87 - PRESENT	ACTING DIRECTOR, NUCLEAR CONSTRUCTION
JUL 86 - PRESENT	PROJECT MANAGER, WATTS BAR CONSTRUCTION PROJECT, TVA, WATTS BAR NUCLEAR SITE
JUN 84 - JUL 86	ASSISTANT TO THE MANAGER, OFFICE OF CONSTRUCTION, TVA, KNOXVILLE
MAY 82 - JUN 84	ASSISTANT TO MANAGER, DIVISION OF CONSTRUCTION
JUL 80 - MAY 82	COST MANAGEMENT SPECIALIST, OFFICE OF ENGINEERING DESIGN AND CONSTRUCTION, TVA, KNOXVILLE
APR 77 - JUL 80	SUPERVISOR, PLANNING AND SCHEDULING SECTION, OFFICE OF ENGINEERING DESIGN AND CONSTRUCTION, TVA, KNOXVILLE
APR 76 - APR 77	SUPERVISOR, PROJECT CONTROL SECTION, DIVISION OF CONSTRUCTION, OFFICE OF ENGINEERING DESIGN AND CONSTRUCTION, TVA, WATTS BAR NUCLEAR PLANT
OCT 74 - APR 76	PROJECT CONTROL ENGINEER, DIVISION OF CONSTRUCTION, OFFICE OF ENGINEERING DESIGN AND CONSTRUCTION, TVA, WATTS BAR NUCLEAR PLANT
AUG 72 - OCT 74	CIVIL ENGINEER, DIVISION OF CONSTRUCTION, OFFICE OF ENGINEERING DESIGN AND CONSTRUCTION, TVA, WATTS BAR NUCLEAR PLANT
JAN 72 - AUG 72	CIVIL ENGINEER, DIVISION OF CONSTRUCTION, OFFICE OF ENGINEERING DESIGN AND CONSTRUCTION, TVA, SEQUOYAH NUCLEAR PLANT
JUL 70 - JAN 72	U.S. ARMY
APR 70 - JUL 70	CIVIL ENGINEER, DIVISION OF CONSTRUCTION, TVA, CUMBERLAND STEAM PLANT

EDUCATION

1970 B.S. CIVIL ENGINEERING, MICHIGAN STATE UNIVERSITY

SITE DIRECTOR/PROJECT MANAGER
BELLEFONTE NUCLEAR PLANT
JAMES P. DARLING

WORK EXPERIENCE

OCT 85 - PRESENT	SITE DIRECTOR/PROJECT MANAGER, TVA, BELLEFONTE NUCLEAR PLANT
JUL 85 - OCT 85	ASSISTANT MANAGER, POWER & ENGINEERING (NUCLEAR), TVA, CHATTANOOGA
OCT 84 - JUL 85	MANAGER, OFFICE OF NUCLEAR POWER, TVA, CHATTANOOGA
APR 81 - OCT 84	DEPUTY MANAGER, OFFICE OF POWER, TVA, CHATTANOOGA
DEC 79 - APR 81	MANAGER OF POWER ENGINEERING, OFFICE OF POWER, TVA, CHATTANOOGA
AUG 77 - DEC 79	DIRECTOR, DIVISION OF FUELS, TVA, CHATTANOOGA
MAY 77 - AUG 77	ASSISTANT DIRECTOR, DIVISION OF POWER RESOURCE PLANNING, TVA, CHATTANOOGA
MAR 73 - MAY 77	BRANCH CHIEF, DIVISION OF POWER RESOURCE PLANNING, TVA, CHATTANOOGA
JUN 71 - MAR 73	ASSISTANT BRANCH CHIEF, DIVISION OF POWER RESOURCE PLANNING, TVA, CHATTANOOGA
SEP 67 - JUN 71	POWER PROGRAM ANALYST, OFFICE OF POWER, TVA, CHATTANOOGA
AUG 66 - SEP 67	RESEARCH ANALYST, FINANCIAL PLANNING STAFF, TVA, CHATTANOOGA
DEC 65 - AUG 66	MECHANICAL ENGINEER, DIVISION OF POWER PRODUCTION, POWER PLANT MAINTENANCE, TVA, CHATTANOOGA
MAR 59 - DEC 65	POWER SUPPLY ENGINEER, DIVISION OF POWER SUPPLY PLANNING, TVA, CHATTANOOGA
OCT 59 - APR 60	U.S. ARMY

EDUCATION

- 1959 B.S. MECHANICAL ENGINEERING, TENNESSEE TECHNOLOGICAL UNIVERSITY
- 1967 M.S. INDUSTRIAL ENGINEERING, STANFORD UNIVERSITY
- 1969 MBA, UNIVERSITY OF CHATTANOOGA

NUCLEAR SITE DIRECTOR
SEQUOYAH NUCLEAR PLANT
HERBERT L. ABERCROMBIE

WORK EXPERIENCE

NOV 84 - PRESENT	SITE DIRECTOR, TVA, SEQUOYAH NUCLEAR PLANT
APR 84 - NOV 84	DIRECTOR, DIVISION OF NUCLEAR SERVICES, TVA, CHATTANOOGA
SEP 81 - APR 84	ASSISTANT MANAGER, NUCLEAR PRODUCTION, TVA, CHATTANOOGA
JUL 79 - SEP 81	POWER PLANT SUPERINTENDENT, TVA, BROWNS FERRY NUCLEAR PLANT
MAR 77 - JUL 79	ASSISTANT POWER PLANT SUPERINTENDENT, TVA, BROWNS FERRY NUCLEAR PLANT
JAN 70 - MAR 77	POWER PLANT OPERATIONS SUPERINTENDENT, TVA, SEQUOYAH NUCLEAR PLANT
MAY 68 - JAN 70	POWER PLANT OPERATIONS SUPERVISOR, POWER PRODUCTION, TVA, CHATTANOOGA
JUL 66 - MAY 68	PERSONNEL OFFICER, POWER PRODUCTION, TVA, CHATTANOOGA
NOV 63 - JUL 66	SHIFT ENGINEER, DIVISION OF POWER PRODUCTION, TVA
DEC 53 - NOV 63	UNIT OPERATOR, DIVISION OF POWER PRODUCTION, TVA. PROGRESSIVE ASSIGNMENTS AFTER COMPLETION OF TVA'S STUDENT GENERATING PLANT OPERATOR (SGPO) TRAINING PROGRAM
DEC 50 - DEC 53	U.S. NAVY

EDUCATION

APPLIED SCIENCE DEGREE IN PROGRESS, UNIVERSITY OF ALABAMA (109 HOURS
COMPLETED)

DIRECTOR OF NUCLEAR MANAGER'S REVIEW GROUP
G. RICHARD MULLEE

WORK EXPERIENCE

APR 87 - PRESENT	DIRECTOR OF NUCLEAR MANAGER'S REVIEW GROUP, TVA, CHATTANOOGA
1984 - APR 87	MANAGER, SHIPPINGPORT PLANT, SHIPPINGPORT STATION DECOMMISSIONING PROJECT - GENERAL ELECTRIC COMPANY (GE), SHIPPINGPORT, PA
1980 - 1984	SENIOR PROGRAM MANAGER, HUMAN FACTORS PROJECTS - GE, SAN JOSE, CA
1978 - 1980	MANAGER, FACILITIES OPERATION - GE, KNOLLS ATOMIC POWER LABORATORY (KAPL), SCHENECTADY, NY
1975 - 1978	MANAGER, FIELD ENGINEERING TRAINING - GE, KAPL, SCHENECTADY, NY
1974 - 1975	MANAGER, RADIATION ENGINEERING OPERATION - GE, KAPL, SCHENECTADY, NY
1973 - 1974	MANAGER, SITE OPERATIONS SUPPORT - GE, KAPL, WEST MILTON, NY
1971 - 1973	MANAGER, S3G PLANT - GE, KAPL, WEST MILTON, NY
1957 - 1971	VARIOUS ASSIGNMENTS IN REACTOR TEST AND OPERATIONS ENGINEERING, DESIGN ENGINEERING AND TESTING - GE, KAPL, SCHENECTADY AND WEST MILTON, NY

EDUCATION

1962	BSME - UNION COLLEGE
1965	NAVAL REACTORS PROGRAM, QUALIFICATION AS ENGINEERING OFFICER OF THE WATCH
1971, 1974, & 1979	MANAGEMENT COURSES - GE AND UNIVERSITY OF MICHIGAN
1981	HUMAN PERFORMANCE AND NUCLEAR SAFETY COURSE - UNIVERSITY OF WISCONSIN

ACTING MANAGER OF NUCLEAR PERSONNEL
RONALD G. WEATHERED

WORK EXPERIENCE

NOV 87 - PRESENT	ACTING MANAGER OF NUCLEAR PERSONNEL, TVA, CHATTANOOGA
SEP 87 - NOV 87	MANAGER, NUCLEAR LABOR RELATIONS, TVA, CHATTANOOGA
OCT 82 - SEP 87	MANAGER, PROJECT LABOR RELATION, BECHTEL CONSTRUCTION, INC., DELTA, UTAH
JUN 81 - SEP 82	MANAGER, PROJECT INDUSTRIAL RELATIONS, BECHTEL GREAT BRITAIN, LIMERICK, IRELAND
JUN 78 - MAY 81	LABOR RELATIONS SUPERVISOR, BECHTEL POWER CORPORATION, ANN ARBOR, MICHIGAN
AUG 74 - MAY 78	SENIOR LABOR RELATIONS REPRESENTATIVE, BECHTEL POWER CORPORATION, MIDLAND, MICHIGAN
OCT 72 - JUL 74	LABOR RELATIONS REPRESENTATIVE, BECHTEL M&M DIVISION, MIAMI, ARIZONA
NOV 71 - SEP 72	STRUCTURAL-CIVIL SUPERINTENDENT, STEARNS-ROGER, TUCSON, ARIZONA
MAY 70 - OCT 71	CRAFT SUPERVISOR, BECHTEL CIVIL AND MINERALS, PHOENIX, ARIZONA
NOV 69 - APR 70	CRAFT SUPERINTENDENT, ARTHUR G. MCKEE, CLEVELAND, OHIO
OCT 68 - OCT 69	TRADES & LABOR GENERAL FOREMAN, STEARNS-ROGER, DENVER, COLORADO

EDUCATION

BACHELOR DEGREE IN BUSINESS ADMINISTRATION FROM UNIVERSITY OF
ARIZONA 1968

CHAIRMAN, NUCLEAR SAFETY REVIEW BOARDS
WILLIAM H. HANNUM

WORK EXPERIENCE

AUG 86 - PRESENT	CHAIRMAN, NUCLEAR SAFETY REVIEW BOARDS, TVA CHATTANOOGA
AUG 82 - AUG 86	DIRECTOR, WEST VALLEY PROJECT OFFICE, U.S. DEPARTMENT OF ENERGY, WEST VALLEY, NEW YORK
1977 - AUG 82	DEPUTY DIRECTOR GENERAL, OECD NUCLEAR ENERGY AGENCY; PARIS, FRANCE
1976 - 1977	DEPUTY MANAGER, IDAHO OPERATIONS OFFICE, ERDA, IDAHO FALLS, IDAHO
1973 - 1976	ASSISTANT DIRECTOR FOR NUCLEAR SAFETY, REACTOR DEVELOPMENT DIVISION, U.S. ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION, WASHINGTON, DC.
1968 - 1973	CHIEF, REACTOR PHYSICS, U.S. ATOMIC ENERGY COMMISSION, WASHINGTON, DC.
1967 - 1968	EXCHANGE SCIENTIST, U.K. ATOMIC ENERGY ESTABLISHMENT, WINFRITH, DORSET, ENGLAND
1963 - 1967	ASSISTANT GROUP LEADER, LOS ALAMOS SCIENTIFIC LABORATORY, LOS ALAMOS, NEW MEXICO
1958 - 1963	SENIOR SCIENTIST, BETTIS ATOMIC POWER LABORATORY, WEST MIFFLIN, PENNSYLVANIA

EDUCATION

1958	PHD PHYSICS, YALE UNIVERSITY
1956	MS PHYSICS, YALE UNIVERSITY
1954	AB PHYSICS, PRINCETON UNIVERSITY

MANAGER, EMPLOYEE CONCERN PROGRAM
TISH B. JENKINS

WORK EXPERIENCE

JUL 87 - PRESENT	MANAGER, EMPLOYEE CONCERN PROGRAM, TVA, CHATTANOOGA
APR 86 - JULY 87	SPECIAL ASSISTANT TO THE MANAGER OF NUCLEAR POWER, TVA, CHATTANOOGA
MAY 83 - APR 86	NUCLEAR RESEARCH PROJECTS BRANCH MANAGER, TVA, CHATTANOOGA
DEC 81 - MAY 83	ASSISTANT MANAGER OF OFFICE OF ECONOMIC AND COMMUNITY DEVELOPMENT, TVA, KNOXVILLE
NOV 79 - DEC 81	DISTRICT ADMINISTRATOR IN OFFICE OF THE GENERAL MANAGER, TVA, CLEVELAND, TENNESSEE
JUL 77 - NOV 79	BOILING WATER REACTOR LICENSING SECTION SUPERVISOR, TVA CHATTANOOGA
MAY 73 - JUL 77	NUCLEAR ENGINEER IN SAFETY AND LICENSING, TVA, CHATTANOOGA

EDUCATION

1972	B.S. PHYSICS AND MATH - WESTERN KENTUCKY UNIVERSITY
1973	M.S. NUCLEAR PHYSICS - WESTERN KENTUCKY UNIVERSITY
1977	EIT CERTIFICATE, STATE OF TENNESSEE

DIRECTOR, NUCLEAR BUSINESS OPERATIONS
S. B. FISHER

WORK EXPERIENCE

SEP 87 - PRESENT DIRECTOR, NUCLEAR BUSINESS OPERATIONS, OFFICE
OF NUCLEAR POWER, TVA, CHATTANOOGA, TENNESSEE

JAN 87 - SEP 87 MANAGER, PLANNING AND FINANCIAL STAFF, TVA,
CHATTANOOGA, TENNESSEE

JAN 85 - JAN 87 PRESIDENT, FISHER SERVICES INC., MANAGEMENT
CONSULTING FIRM, AUGUSTA, NEW JERSEY
UNDER CONTRACT WITH ILLINOIS POWER TO SERVE AS
THE MANAGER OF NUCLEAR SUPPORT, RESPONSIBLE
FOR FINANCE AND BUDGET, PLANNING, SCHEDULING
AND ESTIMATING, PERSONNEL AND DOCUMENT CONTROL.

MAR 80 - JAN 85 DIRECTOR, FISCAL AND INFORMATION MANAGEMENT,
GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION,
PARSIPPANY, NEW JERSEY

SEPT 72 - MAR 80 CONTROLLER AND DIRECTOR OF FINANCE, MARTIN
MARIETTA CORPORATION, DENVER, COLORADO

MAY 68 - SEPT 72 CORPORATE FINANCIAL ANALYST, FAIRCHILD
INDUSTRIES, GERMANTOWN, MARYLAND

SEPT 59 - MAY 68 BUSINESS MANAGER, RESEARCH AND DEVELOPMENT AND
INFORMATION SYSTEMS GROUPS, MARTIN MARIETTA
CORPORATION, DENVER, COLORADO

SEPT 53 - SEPT 59 SUPERVISOR COST ACCOUNTING AND FINANCIAL
ANALYST, GENERAL ELECTRIC, CINCINNATI, OHIO

EDUCATION

1949 B.A. INDUSTRIAL MANAGEMENT - UNIVERSITY OF KENTUCKY

1952 ACCOUNTING STUDIES - UNIVERSITY OF LOUISVILLE

1954 LAW STUDIES - SALMON P. CHASE COLLEGE OF LAW

MANAGER, EMPLOYEE CONCERN TASK GROUP
WILLIAM R. BROWN, JR.

WORK EXPERIENCE

JAN 87 - PRESENT	MANAGER, EMPLOYEE CONCERN TASK GROUP, TVA
OCT 86 - JAN 87	ACTING DIRECTOR, NUCLEAR CONSTRUCTION, TVA
MAR 86 - OCT 86	DEPUTY DIRECTOR, NUCLEAR CONSTRUCTION, TVA
OCT 85 - MAR 86	PROJECT MANAGER, WATTS BAR NUCLEAR PLANT, TVA
MAR 82 - OCT 85	PROJECT MANAGER, BELLEFONTE NUCLEAR PLANT, OFFICE OF ENGINEERING DESIGN AND CONSTRUCTION, TVA
FEB 80 - MAR 82	ASSISTANT MANAGER, OFFICE OF CONSTRUCTION, TVA, KNOXVILLE
AUG 78 - FEB 80	CONSTRUCTION ENGINEER, DIVISION OF CONSTRUCTION, TVA, KNOXVILLE
MAR 77 - AUG 78	ASSISTANT CONSTRUCTION ENGINEER, DIVISION OF CONSTRUCTION, TVA, HARTSVILLE NUCLEAR PLANT
MAY 76 - MAR 77	SUPERVISOR, ELECTRICAL ENGINEERING UNIT, DIVISION OF CONSTRUCTION, TVA, HARTSVILLE NUCLEAR PLANT
APR 73 - MAY 76	SUPERVISOR, INSTRUMENTATION UNIT, DIVISION OF CONSTRUCTION, TVA, BROWNS FERRY NUCLEAR PLANT
JUL 70 - APR 73	ELECTRICAL ENGINEER AND INSTRUMENT ENGINEER, DIVISION OF CONSTRUCTION, TVA, BROWNS FERRY NUCLEAR PLANT
MAR 68 - JUL 70	RESEARCH ENGINEER, THE BOEING COMPANY, CAPE KENNEDY, FLORIDA
NOV 66 - FEB 68	FIELD ENGINEER, CHRYSLER CORPORATION, CAPE KENNEDY, FLORIDA
NOV 65 - NOV 66	FLIGHT TEST ENGINEER, GENERAL DYNAMICS CORPORATION, CAPE KENNEDY, FLORIDA

EDUCATION

B.S. ELECTRICAL ENGINEERING, TENNESSEE TECHNOLOGICAL UNIVERSITY

MANAGER, NUCLEAR MAINTENANCE AND OUTAGE
GENE L. ROGERS

WORK EXPERIENCE

MAY 87 - PRESENT	MANAGER, NUCLEAR MAINTENANCE AND OUTAGE, TVA, CHATTANOOGA (CONTRACT)
79 - MAY 87	PROGRAM DIRECTOR FOR COMMISSIONED (OPERATING) SUBMARINES
68 - 79	PROGRAM MANAGER FOR SHIPYARDS
65 - 68	NUCLEAR POWER SUPERINTENDENT AND NAVAL REACTORS REPRESENTATIVE AT PEARL HARBOR NAVAL SHIPYARD
54 - 65	HELD VARIOUS ENGINEERING SUPERVISORY AND PROJECT ENGINEERING POSITIONS IN NAVAL REACTORS

EDUCATION

1955	OAK RIDGE SCHOOL OF REACTOR TECHNOLOGY - MASTERS DEGREE EQUIVALENT (NUCLEAR ENGINEERING)
1954	B.S., ELECTRICAL ENGINEERING, UNIVERSITY OF KANSAS

DIRECTOR, NUCLEAR QUALITY ASSURANCE
NICHOLAS C. KAZANAS

WORK EXPERIENCE

MAR 87 - PRESENT	DIRECTOR NUCLEAR QUALITY ASSURANCE, TVA, CHATTANOOGA (GPU NUCLEAR)
AUG 86 - MAR 87	DIRECTOR ENGINEERING PROJECTS, GPU NUCLEAR CORPORATION, PARSIPPANY, NEW JERSEY
NOV 81 - AUG 86	DIRECTOR QUALITY ASSURANCE, GPU NUCLEAR CORPORATION, PARSIPPANY, NEW JERSEY
NOV 79 - NOV 81	MANAGER OF QUALITY ASSURANCE FOR THREE MILE ISLAND UNITS 1 AND 2, GENERAL PUBLIC UTILITIES, PARSIPPANY, NEW JERSEY
AUG 79 - NOV 79	TMI PROJECT MANAGER FOR PIPING CORROSION PROBLEMS, THREE MILE ISLAND UNIT 2, GENERAL PUBLIC UTILITIES, PARSIPPANY, NEW JERSEY
MAR 79 - AUG 79	TMI-2 ACCIDENT RESPONSE TEAM, THREE MILE ISLAND UNIT 2, GENERAL PUBLIC UTILITIES, PARSIPPANY, NEW JERSEY
MAR 78 - MAR 79	MANAGER OF QUALITY ASSURANCE, GPU SERVICE CORPORATION FOR FORKED RIVER NUCLEAR STATION, GENERAL PUBLIC UTILITIES, PARSIPPANY, NEW JERSEY
NOV 74 - MAR 78	QUALITY ASSURANCE PROGRAM MANAGER, PERRY NUCLEAR POWER PLANT UNITS 1 AND 2, GILBERT/Commonwealth, READING, PENNSYLVANIA
JUN 74 - NOV 74	QUALITY ASSURANCE ASSISTANT PROGRAM MANAGER, PERRY NUCLEAR POWER PLANT UNITS 1 AND 2, GILBERT/Commonwealth, READING, PENNSYLVANIA
JAN 74 - JUN 74	OPERATIONS MANAGER - GENERAL ATOMICS - GULF NUCLEAR FUELS COMPANY, NEW HAVEN, CONNECTICUT
SEP 72 - JAN 74	PRODUCTION MANAGER - GENERAL ATOMICS - GULF NUCLEAR FUELS COMPANY, NEW HAVEN, CONNECTICUT
1970 - SEP 72	CHIEF METALLURGIST/ENGINEER IN CHARGE OF METALLURGY - UNITED NUCLEAR FUELS, NEW HAVEN, CONNECTICUT

1962 - 1967

MATERIALS ENGINEER/PROJECT ENGINEER - PRESSURE
VESSELS/APPLIED RESEARCH METALLURGIST - UNITED
AIRCRAFT CORPORATION, HAMILTON STANDARD
DIVISION, WINDSOR LOCKS, CONNECTICUT

EDUCATION

1962 B.S. METALLURGICAL ENGINEERING, LAFAYETTE COLLEGE

1969 M.B.A. PRODUCTION MAJOR, UNIVERSITY OF HARTFORD

DIRECTOR OF NUCLEAR LICENSING AND REGULATORY AFFAIRS
RICHARD L. GRIDLEY

WORK EXPERIENCE

OCT 87 - PRESENT DIRECTOR OF NUCLEAR LICENSING AND REGULATORY
AFFAIRS, TVA, CHATTANOOGA (RLG, INC.)

JAN 86 - OCT 87 DIRECTOR OF NUCLEAR SAFETY AND LICENSING, TVA,
CHATTANOOGA (GE)

AUG 79 - JAN 86 MANAGER, FUEL AND SERVICES LICENSING, NUCLEAR
ENERGY BUSINESS OPERATION; GENERAL ELECTRIC
(GE), SAN JOSE, CALIFORNIA

MAR 77 - AUG 79 MANAGER, OPERATING REACTOR LICENSING, BWR
PROJECTS DEPARTMENT, GE

NOV 74 - MAR 77 MANAGER, BWR TRAINING SERVICES, BWR PROJECTS
DEPARTMENT, GE

DEC 69 - NOV 74 MANAGER, BWR TRAINING, ATOMIC POWER EQUIPMENT
DEPARTMENT, GE

DEC 67 - DEC 69 MANAGER, BWR TRAINING CENTER, ATOMIC POWER
EQUIPMENT DEPARTMENT, GE, MORRIS, ILLINOIS

JAN 65 - DEC 67 SPECIALIST, CUSTOMER TRAINING, ATOMIC POWER
EQUIPMENT DEPARTMENT, GE, SAN JOSE, CALIFORNIA

JAN 62 - JAN 65 REACTOR OPERATIONS ENGINEER, ATOMIC POWER
EQUIPMENT DEPARTMENT, GE, SAN JOSE, CALIFORNIA

JAN 61 - JAN 62 ENGINEER, NEW PRODUCTION REACTOR, HANFORD
ATOMIC POWER OPERATION, GE, RICHLAND,
WASHINGTON

JAN 57 - JUN 61 REACTOR ENGINEER, REACTOR SPECIALIST, SHIFT
SUPERVISOR REACTOR OPERATIONS, HANFORD ATOMIC
POWER OPERATIONS, GE, RICHLAND, WASHINGTON

FEB 51 - APR 53 U.S. ARMY - KOREA

EDUCATION

1957 B.S. GENERAL ENGINEERING, UNIVERSITY OF PORTLAND

NUCLEAR SITE DIRECTOR, BROWNS FERRY NUCLEAR PLANT
H. P. POMREHN

WORK EXPERIENCE

JUN 86 - PRESENT NUCLEAR SITE DIRECTOR, BROWNS FERRY NUCLEAR
 PLANT, TVA (BECHTEL)

1985 - JUN 86 PROJECT MANAGER, WESTERN POWER DIVISION,
 KOREAN NUCLEAR PROJECTS UNITS 5, 6, 7, AND 8 -
 BECHTEL POWER CORPORATION

1982 - 1985 DEPUTY MANAGER, BUSINESS DEVELOPMENT AND
 BUSINESS DEVELOPMENT MANAGER - BECHTEL POWER
 CORPORATION

1975 - 1982 PROJECT ENGINEER AND DIVISION CHIEF PLANT
 DESIGN ENGINEER - BECHTEL POWER CORPORATION

1967 - 1975 ASSISTANT CHIEF NUCLEAR AND ENVIRONMENTAL
 SYSTEMS ENGINEER, ENGINEERING SUPERVISOR, AND
 SENIOR ENGINEER - BECHTEL POWER CORPORATION

1964 - 1967 PROJECT SCIENTIST, NUCLEAR POWER REACTOR
 OPERATION - HOLMES AND NARVER

1960 - 1964 NAVAL REACTORS BRANCH - U.S. NAVY

EDUCATION

1960 B.S., MECHANICAL ENGINEERING, UNIVERSITY OF SOUTHERN CALIFORNIA

1965 M.S., ENGINEERING, GEORGE WASHINGTON UNIVERSITY

1969 M.S., INDUSTRIAL ENGINEERING (OPERATIONS RESEARCH), UNIVERSITY
 OF SOUTHERN CALIFORNIA

1975 Ph.D., ENGINEERING, UNIVERSITY OF SOUTHERN CALIFORNIA

NUCLEAR SITE DIRECTOR
WATTS BAR NUCLEAR PLANT
GEORGE TOTO

WORK EXPERIENCE

AUG 86 - PRESENT	NUCLEAR SITE DIRECTOR, WATTS BAR NUCLEAR PLANT, TVA WESTINGHOUSE WATER REACTOR DIVISION (WRD)
FEB 85 - AUG 86	MANAGER OF REACTOR MECHANICAL PROJECTS, WESTINGHOUSE (WRD)
AUG 79 - FEB 85	MANAGER, ADVANCED ENGINEERING, WESTINGHOUSE ELECTRIC CORPORATION (WRD)
FEB 78 - AUG 79	MANAGER, AIW SHUTDOWN PROGRAM, NRF PROJECT, WESTINGHOUSE BETTIS ATOMIC POWER LABORATORY (WBAPL), WEST MIFFLIN, PA
FEB 74 - FEB 78	MEMBER OF GENERAL MANAGER'S STAFF, DUQUESNE LIGHT COMPANY, SPECIAL ASSIGNMENT, (WBAPL)
FEB 72 - FEB 74	MANAGER, FIELD ENGINEERING AND REFUELING OPERATIONS, NAVAL REACTORS PROGRAM, (WBAPL)
SEP 71 - FEB 72	MANAGER, FIELD ENGINEERING, NAVAL REACTORS PROGRAM, (WBAPL), WEST MIFFLIN, PA
JAN 69 - SEP 71	RESIDENT MANAGER, FIELD ENGINEERING, SUBMARINE CONSTRUCTION, OVERHAUL & REFUEL, (WBAPL), BRMO, NEWPORT NEWS, VA
OCT 66 - JAN 69	RESIDENT MANAGER, FIELD ENGINEERING, SUBMARINE CONSTRUCTION, OVERHAUL & REFUEL, (WBAPL), BRMO, PUGET SOUND
DEC 62 - OCT 66	SR. ENGINEER (TEST), FIELD ENGINEERING, REACTOR PLANTS FOR SUBMARINES, (WBAPL), BRMO GROTON, CONN
JUL 61 - DEC 62	SR. ENGINEER, PLANT ANALYSIS, REACTOR PLANTS FOR SUBMARINES, (WBAPL), WEST MIFFLIN, PA
DEC 59 - JUL 61	TEST ENGINEER, FIELD ENGINEERING, REACTOR PLANTS FOR SUBMARINES, (WBAPL), BRMO GROTON, CONN

MAY 56 - DEC 59

ENGINEER, S5W POWER PLANT, PLANT ANALYSIS,
REACTOR PLANTS FOR SUBMARINES, (WBAPL)

SEP 53 - APR 56

STARTUP & SHIFT SUPERVISOR, GASEOUS DIFFUSION
PLANT, ENRICHED URANIUM, GOODYEAR ATOMIC
CORP., PORTSMOUTH, OH

SIJMMERS OF
49, 50, 51, & 52

STUDENT ENGINEER, TESTING W J-34 JET ENGINE,
CERTIFICATION OF COMPONENTS, U.S. NAVY YARD,
PHILADELPHIA, PA, AERO ENG LAB

EDUCATION

SEP 49 - JUN 53

B.S. ELECTRICAL ENGINEERING, UNIVERSITY OF
PENNSYLVANIA, PHILADELPHIA, PA

LICENSES AND REGISTRATIONS

REGISTERED PROFESSIONAL ENGINEER, STATE OF OHIO, NO. E27514

Required Completion
 O - Ongoing Activity
 R - Restart of Sequoyah
 L - Long Term programs
 C - Complete by TVA but not necessarily closed by NRC

APPENDIX B

Status of Corporate Nuclear Performance Plan
 (Vol. 1) Commitments

Commitment Item	Vol. 1 Rev. 5 Page		Required Completion	Progress Applicable to Sequoyah Restart
<u>III. Hiring and Development of Senior Nuclear Managers</u>				
1	53	IVA will continue the recruitment of experienced managers as well as other experienced professionals from the nuclear industry to serve as permanent TVA employees.	O	From October 1985, to October 31, 1987 there have been 255 managers hired (M5 and above).
2	55	ONP plans to develop experienced nuclear managers from within its own organization.	L	<p>A Chief of Nuclear Management Training has been hired to implement an ONP Management Training Program which consists of the following three core courses, as well as, other management training courses given on an "as needed" basis:</p> <p>The three-day course, "Orientation to Nuclear Supervision," (OTNS) for all supervisors in the Office of Nuclear Power (ONP) addresses the role of the supervisor, requirements and expectations, intimidation and harassment, and management/supervisor practices.</p> <p>As of October 1, 1987, 523 individuals out of a target audience of 2,125 M-schedule employees have received this training.</p> <p>A three-day course, "Supervisory Development Course," for all supervisors M-5 and below (which may include "representative" levels) addresses the skills to establish trust, confidence, set goals, and manage effectively.</p> <p>As of October 1, 1987, 549 individuals out of a target audience of 2,134 have received this training.</p> <p>An extended program (three 2-day sessions), "Managing for Excellence," for M-6 through M-8 managers addresses managing in cultural change, motivation, teamwork, planning and goal setting, and integration across organization lines. The first class began in July with 14 participants. As of October 1, 1987, 28 managers of a target audience of 506 have received this training.</p>

Required
Completion

Progress Applicable to Sequoyah Restart

There are 1,100 supervisory employees from corporate staffs and Sequoyah Nuclear Plant that have received training in intimidation and harassment in the workplace. This is the condensed version of what is normally presented in the OTMS module.

Programs for management performance appraisal, succession planning, skills assessment, and a skills inventory data bank are under development to provide improvements in management development. These programs are scheduled to be implemented over the next 6-18 months.

As part of the process, the Manager of Nuclear Power, his deputies, and the Manager of Nuclear Personnel meet periodically to identify high potential performers in the mid to senior level management group for rotational assignments in various operational and plant management positions. In doing so, the group assesses the performances and progress of those individuals previously placed.

In addition, ONP has initiated a Top-Performance Assistance Program. Individuals selected for development in this area are identified and assigned to assist key managers in ONP where they will be given special tasks and coached and trained by the manager to whom they are assigned.

This effort is part of the long-term program as identified in commitments 5 and 15. The ONP Standard establishing administrative requirements for Interoffice Agreements was approved in March 1987. The development of draft Interoffice Agreements in accordance with the Standard was completed in July 1987. Approval of the Interoffice Agreements is expected to be completed by the end of 1987.

IV. Restructuring of L.A.'s Organization

3	73	ONP will develop standard procedures to control interfaces with support organizations.	L
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Commitment
 Item

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 Page

Required
 Completion

Progress Applicable to Sequoyah Restart

4 79 Position descriptions will be written for each of TVA's nuclear directors, duties and responsibilities for which an individual will be held accountable and against which performance will be measured. These descriptions will be reviewed and subject to approval by a review team composed of senior TVA and consultant personnel who will report to the Manager of Nuclear Power.

C

Position descriptions have been written and issued for all management positions. Because of organizational changes and the addition of managers, these position descriptions are in the process of being revised and enhanced. Although the original commitment has been met, the revisions will continue through FY 88.

5 79 The Manager of Nuclear Power is providing guidance to the organization through the issuance of a Policy and Organization Manual that sets forth policy in major areas and defines the organizational structure (in command chart format) together with the charter for each key functional component of the organization.

C

The Policy and Organization Manual (P&OM) was issued 12/31/86 to reflect the organization in effect at that time. This commitment is complete.

E. Improvements in Specific Functional Areas

1. Quality Assurance

6 82 The long-term program will result in a standardized Nuclear Quality Assurance Program for TVA.

L

The interim NQAM was approved and issued in November 1986. The Topical Report Rev. 9 was released for NRC approval November 14, 1986 and subsequently approved by the NRC on January 30, 1987. The Corporate NQAM will be developed and approved by December 31, 1987. However, implementation will be consistent with a transition plan to ensure that present NQAM details are integrated into the Nuclear Procedures System.

7 83 Where required, additional QA or QC procedures will be written to cover new functions.

C

All QA and QC procedures identified for SQN startup have been written, issued, and implemented.

8 83 DNQA internal QA and QC procedures will be consolidated into a single set of procedures. Functions that will be performed uniformly throughout DNQA will be identified and the multiple procedures that now exist will be replaced by a single procedure applicable to all organizations.

L

Most of the DNQA internal procedures have been consolidated into a single set, and have been approved, issued and implemented. However, several procedures have been identified for inclusion in the set, three of which are for SQN. These are not required for SQN restart. Full implementation of the consolidated set will be completed by December 31, 1987. Functions that will be performed uniformly throughout DNQA will be identified, and the multiple procedures that now exist will be replaced by a single procedure applicable to all organizations by September 30, 1988.

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Required
 Completion

Progress Applicable to Sequoyah Restart

9 84 As new procedures are developed throughout the ONP, the DNQA will review and concur in those that implement quality assurance requirements.

C

ONP Directive 4.4 Rev 0 was approved on 11/5/86. It establishes the responsibility for DNQA to review and concur with new ONP procedures. QA Topical Report IVA-TR75-1A, Rev. 9 lists all manuals covering quality related activities during design, construction, and operation. This commitment is complete.

V. Restoring Employee Confidence in TVA Nuclear Management

1. Special Program at Watts Bar for Resolving Employee Concerns

10 104 After the review group identifies a generic condition, the appropriate site department will perform a root cause analysis of each such condition and will require TVA line management to evaluate the condition and recommend action to remedy the root cause of the condition.

L
 R (For
 Potential
 Safety
 Significant
 Conditions)

This is an ongoing item. This has been completed for SQO restart items and the anticipated completion date is 11/87 for total program closure (all plants).

11 106 TVA plans to make the results of the Watts Bar Employee Concern Special Program (WBECSPP) available to all present TVA nuclear employees. The summary report will be available as requested to interested parties as well as to former TVA nuclear employees who left the nuclear program between March 31, 1985, and the date the summary report is issued.

L

This will be completed once the WBN ECSP is completed. Anticipated completion date is 01/88 for total program closure (all plants).

12 106 The Office of General Counsel or the Inspector General will investigate and report separately on cases involving wrongdoing, misconduct, intimidation, or harassment.

C

TVA Code of Conduct XIII and TVA Instruction, PM-7, defines the investigative role of the OIG. OGC has no investigative role in IM and wrongdoing. This commitment is complete.

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Required
Completion

Progress Applicable to Sequoyah Restart

11A, B 106-111 IVA will review the WHECSP concerns and the DNPECP to identify any trends and the collective significance of the concerns, to identify the root causes of any adverse trends, and to develop appropriate corrective action.

0

The ECIQ has reviewed and identified all concerns for generic applicability to SQN. These trends have been evaluated for SQN restart and will be included within the ECIQ and Category Reports. Anticipated completion date is 11/87 for total program closure (all plants). For the "new" Employee Concern Program (ECP), total data volume reached a point in August 1986, whereby meaningful trends were analyzed. These trends were reported on a monthly basis beginning in August 1986 to TVA higher level management, ECP site representatives, and the NRC. The enhanced computerized data base was made available to all ECP personnel on January 22, 1987. The data base is used for tracking and trending of employee concern information.

11C 104 The Site Representative will periodically determine employee understanding of and satisfaction with the ECP.

0

This activity is ongoing. Various means have been utilized to determine employee understanding of and satisfaction with the program. Selected interviews have been conducted, mini surveys have been conducted. Formal survey was released November 1986. Audit reports concerning the program have demonstrated employee understanding. Employee Concern Program Instruction 1, sec. 5.1, requires the subject activity.

VI. Improvements in TVA's Nuclear Management Systems and Programs

C. Improving Management Systems and Controls

1. Improvements in Programs and Procedures

14 126-127 In the short term, TVA will prepare standards for developing directives and procedures for each of the headquarters departments and sites and will assure that those corporate-level nuclear procedures required to control corporate-level activities which support the safe operation of each nuclear plant are in place. Also in the short-term, the existing nuclear procedures at each site will be revised to correct documented deficiencies, reflect the new organization and reflect installed plant modifications.

R

- (1) An interim directive defining the interim procedure system for SQN was approved and issued September 5, 1986. Additionally the Administrative Standards for developing Directives, Standards, Procedures, and Instructions for each of the headquarters departments and sites have been approved.
- (2) A list of corporate-level procedures that are required for SQN startup has been compiled and is maintained by the Nuclear Procedures Staff. The list identifies corporate level procedures requiring revision before SQN unit 2 startup.
- (3) SQN site procedures were reviewed to identify those required for the restart of SQN unit 2. A total of 1,512

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Required
 Completion

Progress Applicable to Sequoyah Restart

- 15 128 In the long term, TVA is developing an integrated Nuclear Procedures System to aid the administration of the ONP activities. The restructured ONP procedure hierarchy will consist of five (5) levels of documentation designated as Policies, Directives, Standards, Procedures, and Instructions. L
2. Improvements in Planning and Integration of Nuclear Activities

- 16 132 The Division of Nuclear Business Operations provides the overall direction to nuclear sites and headquarters departments in the execution of planning, scheduling, and financial activities of TVA's nuclear activities. L

site procedures (as of 10/6/87) are presently identified for SQN Unit 2 restart. Out of this identified total, 22 site procedures (as of 10/13/87) remain to be revised.

- (1) Status of policies is reported under commitment item 5.
- (2) The Policy and Directive governing the new Nuclear Procedures System have been approved and issued. The administrative Standards for Directives, Standards, Procedures, and Instructions have also been approved and issued. Other program Directives and Standards are being developed.

The Long Range Planning Branch and Nuclear Budget and Cost Control Branch have been formed under the Division of Nuclear Business Operations to provide overall direction for ONP in planning, scheduling, and budgeting activities. The Nuclear Budget and Cost Control, responsible for budgeting activities and financial direction is essentially staffed. The Long Range Planning Branch, responsible for planning, scheduling, and cost engineering, is now being managed fully by TVA personnel. Formal reporting requirements of startup schedules from sites to the Manager of Nuclear Power are being implemented. While key standards and directives are being defined and developed the staff will be working with sites and divisions to ensure a consistent approach to cost and schedule activities. The Directives and Standards are scheduled to be issued in June 1988, which will complete this activity.

Commitment	Vol. 1
<u>Item</u>	Rev. 5
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17	134

Required
Completion

L

The Division of Nuclear Services will establish a system of data bases that can be utilized by the responsible ONP department using the concept of sharing computer-stored data among cooperating organizations.

Progress Applicable to Sequoyah Restart

General

The Information Management Program is being restructured within Management Systems to improve control of corporate information systems, based on experience during the past year. This activity is expected to be completed in November 1987.

Personnel

Candidates for top level managerial positions in this organization have been interviewed. The Manager of Management Systems has been hired.

ADP

Centralized control of acquisition of software and equipment has been established, and the responsibility for software change control has been identified and instituted.

NQAM Part I, Section 2.2.1, Rev. 1, QA for Computer Software Systems has been implemented.

Additional personnel resources have been identified and are being acquired.

Responsibility for defining the integration plan has been assigned to the Planning Staff. Initial high-level studies are complete and a project proposal is underway to scope the needed data bases and identify their interfaces.

By the end of March 1987 a plan was to be in place to identify the consensus strategy for this long term project. The plan was completed on time; however, execution of the plan has been deferred, pending restructuring of the Information Management Program.

The first implementation milestone is the creation of a list of TVA computer applications currently used to supply ONP's information needs. The initial list was created on schedule.

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Required
 Completion

Progress Applicable to Sequoyah Restart

D. Improving IVA's Nuclear Corrective Action Program

1. Assuring Timely Corrective Action

18 141 The Tracking and Reporting of Open Items (TROI) computer system is being implemented as the single corporate system for tracking CAQs.

C

Implementation is complete.

19 142 The analysis of trend data will be the responsibility of line managers. DNQA will identify QA trend indicators and perform a corporate-wide QA trend analysis on an ongoing basis.

C

Implementation is complete. QA is preparing monthly reports. The trend analysis program now includes all CAQs. Adverse trends based on these CAQs will be evaluated to determine their root cause, and recommendations made to remedy the problem. This commitment is complete.

2. Identification of the Root Cause of Problems

20 143- Each significant CAQ will be individually
 144 analyzed to determine its root cause and to recommend action to remedy that cause. CAQs will be categorized, such as, responsible group for cause, type of condition, type of matter or item which is deficient and if the CAQ is significant the root cause of the condition. Adverse trends will be evaluated to determine their root cause and to recommend action to remedy that cause, to enable management to perform its own assessment and ensure that appropriate remedial action is implemented.

C

A new CAQ procedure has been approved and issued and implementation throughout ONP is complete. NOAM, Part I, Section 2.16, Rev. 1, Corrective Action, was issued 11/10/86. The program is in place and CAQs have been entered for trending. This commitment is complete.

3. Identification of Problems Applicable to More than One Plant

21 145 Licensing personnel, under the direction of the Director of Nuclear Licensing and Regulatory Affairs, will be responsible for managing the IVA Nuclear Operating Experience Review program system for internally and externally identified problems or events. This system will be used to develop experience review reports, screen information for applicability

C

Existing NER program being managed by DNLR is being upgraded and restaffed. Information meetings have been held with IIRC to include their methods and screening criteria into our program where feasible. Corporate and site schedules are being revised to strengthen the program by defining responsibilities and interfaces and developing a feedback mechanism for recommendations. Procedures for NER were issued in January 1987. This commitment is complete.

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to TVA, and develop corrective recommendations or positions to be provided to sites, engineering and training personnel to take immediate corrective action if necessary.

The TVA NER Program has developed the interim procedure PMP 0601.01, Nuclear Experience Review. Division procedure DNSL-DVP-6.1-2, Rev. 0, has been written and approved (1/13/87). Job descriptions and personnel interviews have been completed. PMP 0601.01 and DNSL-DVP-6.1-2, Rev. 0 were implemented March 30, 1987. As of July 20, 1987, all personnel were in place except for the secretarial position which was being filled on a temporary basis. This job was filled on 10/13/87.

22 146- A corporate nuclear operating experience
147 data base to interface with all facets
of the TVA nuclear organization will provide
the management tool to track all experience
review items and to establish a feedback
mechanism to ensure recommendations are
factored into respective programs of
operations, design, construction, and
training.

L

See progress on commitment item 21. Presently there is a corporate data base which includes most (but not all) of the items described in PMP 0601.01. As experience is gained, enhancements will be made. Plans are to merge the NER data base into the singular data base being developed for TVA. The NER data base software is being developed with a projected completion date of 12/1/87. The total changeover will be from 6 months to 1 year after the software is implemented.

E. Programmatic Improvements

1. Improvements in Operations

23 149 TVA's nuclear management will monitor
for procedural noncompliance when
conducting plant performance assessments.
Procedures will specify progressive
disciplinary action for failure to
follow procedures.

C

QA policy issued. This commitment is complete.

24 149 TVA has made plant-specific improvements
in operator training.

C

Plant-specific improvements for startup have been incorporated and the item is complete for SQN.

25 150- The ONP headquarters organizations will have
151 personnel with expertise in operations,
maintenance, chemistry, health physics,
planning, scheduling, and other disciplines
relevant to the overall operation and
maintenance of nuclear plants. These
personnel will assist management with the
development of TVA policy, goals and

L

Division of Nuclear Engineering

Operations Engineering Services (OES) is providing plant assistance and expertise in addressing their short-term specific problems as well as long-term programmatic maintenance needs. OES will provide support to the Nuclear Maintenance Manager and his staff in providing corporate direction of maintenance activities.

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objectives for operation and maintenance activities, will monitor implementation of policy through onsite assessments of plant programs and observation of work activities, and assess site performance through review of performance data.

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Nuclear Maintenance and Outage Manager

Maintenance Directive 10.3 has been approved by S. A. White and is in the distribution process.

The corporate Nuclear Maintenance and Outage Manager is on board, and his staffing plan and organization have been approved. Initial actions to staff this organization will start in early September 1987, and most of the positions should be filled by the end of January 1988. The NMM will provide corporate direction in the area of maintenance, provide onsite assistance to the plants, assist the sites in obtaining contractor support when needed, and perform onsite assessments of implementation and performance of maintenance activities toward achieving goals.

DNS

The organizational structure has been identified, and individuals have been assigned to assist in the development of directives and standards.

Candidates for permanent headquarters staff positions not yet filled are being interviewed.

DNS has staffed personnel with expertise in health physics. All key management positions and most other positions are filled. These personnel are assisting management in the development of TVA radiological control policies, goals, and objectives. They monitor policy implementation and assess site performance through onsite observation of work activities and review of performance data. Vacancies that currently exist reflect normal attrition and are not considered key positions in meeting our commitment. The health physics aspect of this action is complete.

DNS is staffing its corporate chemistry organization. In addition to the manager, three program managers, two project managers and one secretarial position have been filled. Fourteen people have been interviewed for the remaining vacancies.

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Nuclear Business Operations

TVA has put in place a contract administrator who is responsible for administering all engineering services contracts that provide expertise in assisting the nuclear plants in resolution of problems. In order to carry out these responsibilities, the following positions were filled.

TITLE	POSITIONS
Senior Contract Administrator	2
Contract Administrator	5

The position of Manager, Estimating, has been filled. This position reports to the Chief, Nuclear Long-Range Planning Branch. The function of this position is to establish standardized procedures for all sites in the area of project scheduling and estimating.

A status of this commitment relative to the Planning and Financial Staff is given in commitment item 16 above.

The corporate-level performance report has been revised to include the INPO-suggested performance parameters and to include not only generation data but also data on compliance, health physics, safety, and cost. The performance reporting staff at SQN has been reorganized to allow it more convenient and ready access to pertinent performance data. This commitment has been completed.

The Systems Engineering Section at SQN has been initially manned with approximately ten engineers prior to restart. To date, SQA-168, RO, "Systems Engineering" is approved but full implementation of the system engineering concept is not yet complete. Presently the systems engineering concept has been implemented on the ERCW and Unit 2 RHR systems.

26	151	An expanded corporate nuclear performance reporting system is being developed to collect key performance indicators for trending and analysis	C
27	151	TVA will implement a system engineer program at each nuclear site.	L

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During the 2 years following unit 2 restart, SQN will complete implementation to cover the 33 systems identified in Phase I, Design Baseline and Verification Program.

2. Improvements in Maintenance

28 153- The NMRG was charged with the responsibility
154 of conducting a comprehensive review of corrective and preventive maintenance at Sequoyah, Browns Ferry, and Watts Bar Nuclear Plants.

C

The Nuclear Manager's Review Group (NMRG) completed work on a comprehensive review of maintenance at SQN, WBN, and BFN. The report of review results was submitted to NRC on Sept. 30, 1986. Report was resubmitted 12/27/86 with action items assigned. Findings from the report were evaluated and a comprehensive corrective action plan was submitted to S. A. White on April 28, 1987. All findings and corrective actions are being tracked on TROI. In an NRC exit meeting on July 31, 1987, all maintenance-specific findings with identified restart actions were closed for restart with the balance of corrective actions having long-term solutions. This commitment is complete.

29 154 Improvements are being made in the nuclear site preventive maintenance. These improvements emphasize reducing recurring corrective maintenance requirements, improving use of predictive maintenance, and adherence to established preventive maintenance routines. Analysis of equipment performance history and maintenance history, including reliability and availability information from NPRDS and TVA sources, will be used, together with vendor recommendations, to develop optimum preventive maintenance routines.

L

A contract has been awarded for upgrade of the Sequoyah Nuclear Plant (SQN) Preventive Maintenance (PM) Program, and the contractor has begun mobilization. The work effort is being structured to provide a comprehensive, efficient method for selecting equipment for PM and identifying, evaluating, and documenting PM activities. The equipment will be systematically evaluated to determine appropriate activities and frequencies based on commitments, vendor recommendations, maintenance history, contribution to risk and availability, and engineering judgment. Activities will be identified for all equipment conditions; stored, operating, and laid up. The results of the evaluation shall be documented in a concise format and maintained in controlled files along with copies of reference materials used for the evaluation. The output of the process will describe actions necessary to ensure preservation of equipment.

For SQN, the PM upgrade for critical equipment is scheduled to be complete by the end of June 1989 and the balance of the upgrade efforts finished by the end of June 1990.

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| 30 | 155 | The planning and scheduling process for maintenance activities is being upgraded so that the full scope of significant maintenance activities will be defined in advance of performing the activity, will be coordinated with the appropriate organizations, including operations and quality assurance, and will be completed prior to closeout of the activity. | C | The plant maintenance planning organization has been established and has daily coordination meetings with appropriate interface organizations to plan, schedule, and coordinate maintenance activities for the following day. The maintenance planning organization interfaces with Planning and Scheduling organizations to establish a priority for work, integrate the maintenance activities, and coordinate scheduling and tracking to completion. This commitment is complete for SQN. |
| 31 | 155 | Training of nuclear maintenance personnel is being upgraded at all sites. Accreditation of instrument technician, electrical, and mechanical maintenance training is being pursued. This long-term program will result in a system where maintenance activities which require specialized skills will be identified and only those personnel evaluated as possessing the required skills will be assigned responsibility for performing the work. | L | Onsite planning and scheduling activities will continue to improve as additional improvements are made to the computerized data handling systems.

Sequoyah's I&C, Electrical, and Mechanical Maintenance training programs have been accredited by INPO. This commitment is complete for SQN. |
| 3. <u>Improvements in Welding</u> | | | | |
| 32 | 158 | The Welding Project will determine the adequacy of the nuclear welding program to control welding and identify any deficiencies in the program and propose corrective actions or improvements. | C | The Phase II Welding Project report for Sequoyah has been submitted to and reviewed by NRC. NRC's final Safety Evaluation Report for SQN is complete. Response to SER, which completed this item, was submitted to NRC 1/30/87. This commitment is complete for SQN.

Inspection Report 50-327 and 50-328/87-21 documents closure of open welding issues for Sequoyah including programmatic improvements. |
| 33 | 159 | IVA is initiating appropriate changes to programs as the changes are identified by the welding projects at each site. | L | No further actions necessary for SQN restart. |

APPENDIX 9

TVA RESPONSES TO NRC'S REQUEST FOR ADDITIONAL INFORMATION DATED APRIL 22, 1987

The NRC in its letter from Mr. James G. Keppler to Mr. S. A. White, dated April 22, 1987, requested responses to five questions regarding Revision 4 to the Corporate Nuclear Performance Plan (CNPP) as submitted by TVA on March 26, 1987. This appendix provides TVA's response to those specific requests.

The following responses are provided to directly respond to the question and to assist with location of revised text in Revision 5 of the CNPP.

1. The Plan does not provide for a transitional organization structure. Specifically, what steps are being taken to prepare for the transition in the organizational structure which will occur when the current Manager of Nuclear Power and other contract individuals leave their positions? Also provide the time schedule in which the Management Development Program will be implemented.

Response

No transitional organization structure is necessary when the current Manager of Nuclear Power and other contract individuals leave their positions. The Revised Corporate Nuclear Performance Plan describes the action TVA is taking to improve its nuclear program. This plan includes the revised organizational structure developed to successfully function in the long term. The organizational structure was not developed as a

short-term plan but as the long-term organization to be in place to improve the TVA nuclear program.

Sections III.A.3 and III.C have been expanded to address the transitional organization question.

With respect to management development, TVA is implementing a Management Development and Training Program, as outlined in Section III.B.2, with the goal being to prepare managers in sufficient numbers and with sufficient skills to assume responsibility at all levels in the Office of Nuclear Power.

Section III.C has been expanded to address the question on management development.

2. There are areas of the CNPP that refer to long-term activities, scheduled to be completed after restart of Sequoyah, without providing a timeframe for these activities to be completed. For example, Section VI C1a(2) of Revision 4 to the CNPP describes a long-term program for developing an integrated nuclear procedures system. However, milestones for the program are not provided. In addition, Section VI C2 describes tasks designed to make improvements in planning and integration of nuclear activities but does not provide a schedule for implementing the proposed information system. We request that a major programmatic implementation schedule for each long-term activity in the CNPP be provided.

Response

Section VII has been expanded to address the long term activity issue.

3. The Manager of Engineering Assurance reports to the Director of Nuclear Engineering on all matters other than quality assurance. Provide a description of the functions or matters other than quality assurance for which the Manager of Engineering Assurance is responsible.

Response

Section IV.E.2 has been expanded to address this question.

4. Procurement functions are not under the Office of Nuclear Power. Provide a comprehensive discussion addressing the interaction between the procurement office and the Office of Nuclear Power to ensure that the regulatory requirements such as Appendix B are properly implemented in procurement actions for TVA's nuclear plants.

Response

Section IV.B.2 has been expanded to address this question.

5. Provide a description on the specific interactive relationships between various organizational entities (e.g., NMRG, NSRB) responsible for performing safety review functions.

Response

Section IV.E.5 has been added to address this question.