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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
DUKE POWER COMPANY, et al.	)	Docket Nos. 50-413
	)	50-414
(Catawba Nuclear Station, Units 1 and 2)	)	

TESTIMONY OF LEWIS E. ZWISSLER

Q. STATE YOUR NAME AND YOUR BUSINESS ADDRESS.

A. My name is Lewis E. Zwissler, and my business address is Management Analysis Company, 11095 Torreyana Road, San Diego, California 92121.

Q. DESCRIBE THE NATURE OF YOUR EMPLOYMENT.

A. I am a Vice President of Management Analysis Company (MAC), and I serve as a consultant in the areas of quality assurance, project management, and research and development.

Q. WOULD YOU DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND QUALIFICATIONS.

A. I have set forth in detail my professional qualifications and experience in a resume which is Attachment 1 to my testimony. I have had over 40 years of experience in quality assurance, project management, and research and development, including 20 years of active management in quality assurance in the nuclear and aerospace industries. I have spent 8 1/2 years as Director of Quality Assurance for Argonne National Laboratory and served as QA Manager on the Polaris, Titian III, Gemini and Apollo programs for Aerojet General Corporation. I have a Bachelor of Science degree in Civil Engineering from Illinois Institute of Technology, a Master of Science degree in Applied Mechanics from Rutgers University,

and I have completed the academic requirements for a PhD in Applied Mechanics. I am a Registered Professional Engineer, a Fellow in the American Society for Quality Control, and a Senior Member of the American Nuclear Society.

Q. WOULD YOU DESCRIBE YOUR EXPERIENCE IN MANAGEMENT EVALUATIONS OF NUCLEAR POWER PLANT CONSTRUCTION PROJECTS.

A. I have been involved in consultation projects at seven nuclear power plant construction projects. At the South Texas Project, I served as consultant to the architect-engineers, construction company, and utility in developing a quality assurance corrective action program in response to an NRC Show Cause Order. I have also worked at the South Texas Project as Site Construction QA Manager and later as Senior QA Consultant to the utility on the project. I have worked as a consultant to a number of utilities on various aspects of quality assurance for operating reactors, and construction projects.

I have participated as a member of a management diagnostic team in the area of quality assurance and project management at Susquehanna and Wolf Creek. I have served as a member of the INPO Self Evaluation Team at Marble Hill and as team leader for the evaluation of the Midland construction project.

At Consumers Power Company, I reviewed the Operations QA audit activity for the Big Rock, Palisades and Midland reactors and made recommendations concerning the implementation of their audit program. I have also served as Senior Consultant to the Midland Project QA management, participated in the Midland independent

Biennial QA Management Audit, and worked as a consultant to the site construction management to develop the construction completion plan. Finally, at the Callaway project, I was involved in a management diagnostic project pertaining to evaluation of their documentation program.

Q. DESCRIBE THE CIRCUMSTANCES OF YOUR INITIAL EMPLOYMENT BY DUKE, INCLUDING WHO CONTACTED YOU AND WHAT WAS INITIALLY REQUESTED OF YOU.

A. The Management Analysis Company office was contacted on January 21, 1982, by Mr. J. R. Wells, who at that time was Corporate Quality Assurance Manager for Duke. I was assigned to work with Duke on this matter.

I was advised that Duke management had become aware of a number of concerns expressed by the welding inspectors at the Catawba plant regarding the quality of the work. I was advised that Duke had undertaken an internal investigation of the concerns, and as a result of this initial internal investigation, a Task Force was established to investigate the concerns to assure that all quality requirements had been met and/or to recommend actions to resolve any open items.

It was my initial understanding that MAC was retained to review the activities of the Task Force, and to provide an independent, outside overview to assure that all reasonable actions were being taken to assure the safety of the Catawba plant.

Q. WHAT DID DUKE REQUEST YOU TO DO WITH RESPECT TO THE WELDING INSPECTOR CONCERNS AND THE WORK OF THE TECHNICAL TASK FORCE.

A. Duke appointed a Task Force to perform the initial investigation in December 1981. This Task Force is now referred to as Task Force I. This Task Force concluded that the quality assurance and quality control programs at Catawba were working and that there was no evidence to confirm that unacceptable craftsmanship or unsafe conditions existed at the plant. This initial Task Force did report a lack of communication between the inspectors, the supervisors, and quality assurance management.

After this initial Task Force made its report, Duke appointed another Task Force, which is now referred as the Technical Task Force, to investigate all of the concerns expressed by welding inspectors to evaluate how they were previously addressed, including a reevaluation of the technical resolutions of all Non Conforming Items Reports (NCI's) associated with the concerns, and to make recommendations of further corrective action that might be added.

Duke retained MAC to specifically review the approach and methods used by the Technical Task Force to assure that it obtained a complete list of all of the concerns; to review the approach and methods used by the Technical Task Force to review and determine resolution of the concerns; to review the qualifications of those individuals involved in the review of these resolutions to be sure these individuals were qualified to make these kinds of determinations; to audit the resolutions to ensure completeness and quality of work; to prepare a written report covering the entire process and report independently to Duke's Management; and to be prepared, if necessary, to testify in the

licensing proceedings, or in any other forum, concerning my opinion of the work performed by the Technical Task Force and those involved in resolution of the welding inspector concerns.

I performed the services requested by Duke and submitted my report dated April 26, 1982, which is included in my testimony as Attachment 2.

Q. WHAT DID YOU DO AFTER YOU WERE RETAINED BY DUKE.

A. I felt I needed to get familiar with the people involved at Duke, and to fully understand the concerns that had been expressed. Initially I met with Duke Management to discuss the status of the matter, and the past actions taken to investigate the allegations. I met initially with Mr. Owen and Mr. Wells to discuss these matters. Mr. Owen and Mr. Wells provided me with some background information, which included the notes that had been prepared by Mr. Owen concerning the investigation of the concerns, the Gail Addis memo to Mr. Owen which outlined the concerns, and the report issued by Task Force I. I reviewed these documents to gain a thorough understanding of what had transpired prior to my becoming involved in the matter.

I also met with other Duke personnel, including Mr. Wayne Henry and Mr. Larry Davison, as well as the members of the Technical Task Force. These initial meetings were primarily to meet with the personnel involved and to get acquainted with the organizational structure and personnel at Duke. I also reviewed the statement of concerns expressed by each welding inspector as a part of this effort to get familiar with what had transpired.

Q. WHAT DID YOU DO AFTER YOU WERE FAMILIAR WITH THE BACKGROUND INFORMATION.

A. After becoming familiar with the background information, I interviewed the Task Force members and reviewed their qualifications and experience to determine if they were qualified to participate as Task Force members. The overall objective of this Technical Task Force was to assure that all concerns and allegations voiced by welding inspectors regarding quality of work were collected and reviewed to assure that the technical resolutions questioned by the inspectors were indeed valid, and that there was no adverse impact on the safety of the Catawba plant. It was very important that the Task Force members be qualified to do the job requested of them.

Q. DID YOU REACH ANY CONCLUSIONS CONCERNING THE EXPERIENCE AND QUALIFICATIONS OF THE TASK FORCE MEMBERS TO PERFORM THE WORK REQUIRED BY THE TASK FORCE.

A. Yes. I determined with respect to each Task Force member that he was qualified to carry out the work of the Technical Task Force by virtue of his education and experience. Along this same line, I interviewed 12 quality assurance personnel and 14 management and construction personnel in an effort to determine the degree of Duke's sincerity in conducting the Task Force review. Based on these interviews, I concluded that the Task Force effort was being taken seriously by all Duke personnel who were involved, and that there was a clear commitment to quality that went beyond the requirements to assure a safe plant. The only factor identified that

might influence the acceptability or cast doubt on the objectivity of the results of the Technical Task Force investigation was the prior involvement of Task Force members in the resolution of some of the stated concerns. This was remedied by appointing a new Chairman of the Technical Task Force and initiating a completely independent review of each resolution to confirm or deny the initial finding by the Task Force.

Q. MR. ZWISSLER, WE HAVE TALKED ABOUT YOUR EFFORTS TO BECOME FAMILIAR WITH THE BACKGROUND, AND YOUR EFFORTS TO ASSESS THE QUALIFICATIONS OF THE TASK FORCE MEMBERS AND THE SINCERITY OF THE TASK FORCE EFFORT, WHAT WAS THE NEXT PHASE OF YOUR EVALUATION.

A. The Technical Task Force had established a plan for evaluating the welding inspector concerns, which has been described by Mr. Cobb, Chairman of the Technical Task Force. My purpose was to make an independent evaluation of the quality of the work of the Task Force. In order to evaluate their work, I reviewed the written concerns expressed by the welding inspectors; reviewed the Technical Evaluation-Individual Concerns form prepared for each concern; evaluated the technical adequacy statement and reasons; and performed a detailed technical evaluation of the recommendations. This review included reference to various quality assurance and construction procedures and the QA manual cited in the concern or the evaluation to ensure that the Task Force proceeded based on valid interpretations of these procedures.

During this phase of my work, I worked directly with the Task Force members, reviewed each set of completed documentation

and commented on the quality of their evaluation, particularly in the areas of technical adequacy and reasons, and in the area of recommendations. In situations where additional work was required or where I felt that the recommendations failed to completely address the actions needed to resolve the concerns, I made comments directly to the Task Force members. This kind of interface with the Task Force members permitted me to evaluate their attitude, persistence, and desire to determine the actual or potential impact of the welding inspector concerns on the safety of the plant.

Q. WHAT CONCLUSIONS DID YOU REACH DURING THIS TECHNICAL EVALUATION PHASE OF YOUR WORK.

A. I concluded that the Technical Task Force was dedicated to evaluating each concern to assure that each of these concerns voiced by the inspectors was reviewed, and that the technical resolutions were valid, and that there was no adverse impact on the safety of the Catawba plant. It is my opinion that the Task Force members performed their technical evaluations in a professional and technically competent manner to satisfy all NRC and Duke QA program requirements. I believe that the technical evaluation phase was conducted in an objective and unbiased manner. There was an independent review of prior resolutions of NCIs associated with the concerns, which was followed by a second independent review to assure the objectivity of the final Task Force determinations.

Q. EXPLAIN WHAT YOU MEAN WHEN YOU SAY THAT THERE WAS A SECOND INDEPENDENT REVIEW TO ASSURE THE OBJECTIVITY OF THE FINAL TASK FORCE DETERMINATIONS.

A. Each individual concern was assigned to Task Force members who were not involved in the prior resolution of the NCI associated with the concern, for review to assure that the previous technical resolution was acceptable, or prescribe actions to be taken to achieve an acceptable resolution. The documented result of this review was then assigned for a second, independent review by another Task Force member who was not involved in the earlier resolution, or in some cases, review by other persons who provided technical support to the Task Force. The second independent review was to assure the Task Force determinations were objective and accurate.

Q. THE TECHNICAL TASK FORCE ISSUED A FINAL REPORT WHICH HAS BEEN DESCRIBED BY MR. COBB. DID YOU PERFORM ANY EVALUATION RELATING TO THIS FINAL REPORT.

A. Yes. I reviewed the specific and programmatic recommendations included in the Task Force report to assure that the summaries were valid. I concluded that the Task Force results were an accurate portrayal of their evaluations; that the Task Force recommendations were derived from their analysis of these results and that the recommendations adequately addressed the specific and programmatic actions to resolve the concerns expressed by the welding inspectors; and that the general recommendations should improve the day-to-day work environment for the welding inspectors.

Q. WHAT WAS THE NEXT PHASE OF YOUR REVIEW OF THE TECHNICAL TASK FORCE EFFORTS.

A. The next phase of my work was an evaluation of the Duke management's review of the Task Force report, results and

recommendations. The Task Force met with members of Duke management to review the report. Duke management reviewed the Task Force activities, results and recommendations, and immediately undertook a program to complete the corrective actions identified by the Task Force. A management implementation plan was prepared and a coordinator was appointed to be responsible for the corrective action plan and activities and for follow-up to assure completion of the corrective action plans. This Management Implementation Plan was reviewed and approved by the department heads in Quality Assurance, Construction and Design Engineering.

Q. DID YOU REACH ANY CONCLUSIONS CONCERNING THE ADEQUACY OF THE MANAGEMENT IMPLEMENTATION PLAN.

A. Yes. Based on my discussions with Duke management officials, and my ongoing evaluation of the Task Force efforts, I concluded that the Management Implementation Plan was adequate to resolve the concerns expressed by the welding inspectors; that successful completion of the Management Implementation Plan would satisfactorily resolve the technical concerns related to plant safety; and, that successful completion of the Plan's provisions addressing general and programmatic recommendations should improve the day-to-day work environment for welding inspectors at Catawba.

Q. WHEN DID YOU ARRIVE AT THESE CONCLUSIONS CONCERNING THE ADEQUACY OF THE MANAGEMENT IMPLEMENTATION PLAN.

A. During April of 1982.

Q. HAVE YOU PERFORMED ANY OTHER EVALUATIONS TO DETERMINE WHETHER THE MANAGEMENT IMPLEMENTATION PLAN WAS SUCCESSFULLY IMPLEMENTED.

A. Yes. During August of 1982, I performed an audit of the documentation supporting the completed corrective actions implementing the Management Implementation Plan. The purpose of the review was to determine if there was any generic type problems in the implementation of the Plan, correction of which could lead to a more complete set of corrective actions. My review was not considered a complete and exhaustive analysis of the total implementation results. Recommendations to improve the documentation supporting completion of corrective actions were made, such as: Duke should clearly document the action taken, or if none, provide valid reasons; document the content of all training given; evaluate effectiveness of actions taken; review new procedures and changes to assure adequacy; and review the specific technical resolutions to assure that every item is addressed. Within the context of my review of the Task Force effort and the documented resolutions of the concerns expressed by the welding inspectors, every concern that was expressed was adequately resolved from a technical standpoint, and in my opinion, no residual quality related problems remain in the construction of the plant.

I submitted a letter report of findings and recommendations resulting from this review to Duke Power Company on August 24, 1982. That report is attached to my testimony as Attachment 3.

Q. MR. ZWISSLER, THE CONCERNS EXPRESSED BY WELDING INSPECTORS WERE INITIALLY CHARACTERIZED AS CONCERNS AFFECTING THE QUALITY OF THE WORK OR THE SAFETY OF THE CATAWBA PLANT. DID THE CONCERNS EXPRESSED AFFECT THE QUALITY OR SAFETY OF THE CATAWBA PLANT.

A. Based on my review of the concerns expressed by the welding inspectors, my interviews with Duke personnel, and my evaluation of the thorough and objective work of the Technical Task Force, I would not agree with the characterization that the welding inspectors expressed concerns which indicated that there are safety-related or quality problems at Catawba. However, I do agree with the assessment of Task Force I that there was a serious problem involving lack of communication between the inspectors, their supervisors, and QA management. I believe that this problem could have potentially reduced the effectiveness of the QA program had steps not been taken to address the concerns.

Q. HOW WOULD YOU DESCRIBE THE PRIMARY CONCERN OF THE WELDING INSPECTORS.

A. The primary concern of the inspectors was that they did not have the support of their supervision and management. The concerns expressed were related to failure to follow procedures; minor violations of procedures which were excused or accepted and not documented as NCI's; and that resolution of NCI's did not address failure to follow procedures, but did address technical acceptance of work actually done. The real concern was that inspectors were required to identify failure to follow procedures and when they did this, a technical evaluation by their supervisors accepted the work, but nothing was done to correct the generic problem of violations of procedures. The technical evaluations indicated there were no residual quality problems, however, aggressive action was not being taken to "call the craft to task" for minor variations from procedures. This led to the allegations by the inspectors that management was not supporting them.

In addition, the inspectors did not understand their role in the resolution of nonconforming items. They questioned the acceptance of work where they did not understand or agree with the resolution of the NCI, particularly where there were departures from construction and quality assurance procedures.

Q. DID THESE DEPARTURES FROM PROCEDURE EVIDENCE A FAILURE TO FOLLOW QA AND QC PROCEDURES AND THEREFORE INDICATED A BREAKDOWN IN THE QA PROGRAM AT CATAWBA.

A. I agree with the findings of both task forces that the QA program at Catawba was working, and that there are no residual safety-related problems identified by the welding inspector concerns. The expression of the concerns by welding inspectors demonstrated that the quality assurance program was working. The welding inspectors identified construction deficiencies or procedure variations which were corrected or a valid technical resolution of the nonconformance was made. The problem identified by the concerns of the inspectors was in the manner of resolution of nonconformances. The rationale or justification for resolution of NCI's was not communicated to the inspectors. The inspectors felt very strongly that their job was to require strict adherence to procedures, and that their management failed to take aggressive action against the identified craft violators. The point at issue was not failure of the QA system to identify departures from procedures. This was done properly by the inspectors. The concerns revealed that the inspectors perceived that aggressive action was not being taken to reduce the number of occurrences.

In my view, the welding inspectors perceived that they did not receive the proper support from QA management because in their view, QA was not insisting on compliance with procedures and these noncompliance were not addressed in the corrective actions called for in the resolutions of NCI's.

I hereby certify that I have read and understand this document, and believe it to be my true, accurate and complete testimony.

Lewis E. Zwissler

Lewis E. Zwissler

Sworn to and subscribed before me
this 22nd day of September, 1983.

Dexana G Drieslein

Notary Public

OFFICIAL SEAL
DEXANA G DRIESLEIN
NOTARY PUBLIC - CALIFORNIA
SAN DIEGO COUNTY
My comm. expires DEC 13, 1985

Commission Expires 12-13-85

LEWIS E. ZWISSLER

PROFESSIONAL QUALIFICATIONS

Mr. Zwissler has had over 40 years experience in quality assurance, project management, and research and development. He has over 20 years active management of quality assurance in the energy and aerospace fields, including 8 1/2 years as Director of Quality Assurance for Argonne National Laboratory and as QA Manager on the Polaris, Titan III, Gemini and Apollo Programs for Aerojet General Corporations. He held responsible management positions in testing, manufacturing, project management, and engineering research and development. He has acted as a consultant during his industrial experience and with MAC.

EXPERIENCE

1980 - Present — MANAGEMENT ANALYSIS COMPANY

Vice President - Participated in management evaluations of major nuclear power plant construction projects. Served as consultant to A/E, constructor and utility in developing QA corrective action programs to lift NRC show cause order on nuclear plant construction project. Served as site construction QA manager and later as senior QA consultant to utility on project. Acted as consultant to utilities on various aspects of QA for operating reactors. Served both as team leader and team member for INPO self evaluations of construction projects. Performed consulting services for utility in QA and construction site management.

1971 - 1980 — ARGONNE NATIONAL LABORATORY

Quality Assurance Division Director - Director of quality assurance activities for Laboratory, including operation of Liquid Metal Cooled Fast Breeder Reactor at Idaho Nuclear Engineering Laboratory. Developed and implemented QA program satisfying requirements of NRC and DOE quality programs covering design, procurement, construction, major modifications, operating reactors, research and development, testing and manufacturing, for laboratory engaged in research and development of nuclear power generation technology and basic research.

1966 - 1971 — AEROJET GENERAL CORPORATION, ELECTRO SYSTEMS DIVISION

Manager, MK-46 Torpedo Operations - Directly responsible for all activities required to operate highly technical program as separate, autonomous burden center within the Electronics Division. Sales volume on program was approximately $100 million per year. Number of people involved ranged from 500 to 2,350.

Manager of Manufacturing - Operations included fabrication of machine components, assembly and testing of sophisticated electronic equipment, and assembly of electro-optical mechanical devices. Major products were infrared sensing devices, underwater anti-submarine warfare devices, and others. Supervised 400-800 people.

1958 - 1966 AEROJET GENERAL CORPORATION, SACRAMENTO PLANT

Manager, Quality Control - Overall functional responsibility for quality control in the Sacramento Plant. Directly responsible for quality control activities associated with manufacturing, testing and field support to all Liquid Rocket Motor Programs. Quality Control activity totaled approximately 800 people.

Manager, Reliability and QC Division - Responsible for management of reliability and quality control activities required to support propulsion subsystem of Polaris program. Division totaled approximately 620 people.

Associate Manager, Polaris Manufacturing and Material Division - Responsible for management of the Polaris production program, including inert parts manufacturing, manufacturing engineering, production and material control, motor processing, and final motor assembly. Division totaled approximately 1,750 people.

Head, Applied Studies Department, Polaris Engineering Division - Responsible for initiating and completing research and development programs directed toward utilization of new materials and fabrication techniques in manufacture of Polaris rocket motor cases and inert components.

1956 - 1958 FORD MOTOR COMPANY

Administration Manager, Styling Office; Central Product Planning Office; and Staff Assistant to the Executive Vice President, Car and Truck Divisions.

1951 - 1955 GENERAL ELECTRIC COMPANY, AIRCRAFT GAS TURBINE DIVISION, AIRCRAFT ACCESSORY TURBINE DEPARTMENT

Progressed through various assignments of manufacturing engineer, project engineer, Manager of Operations Analysis reporting to manager of division. Performed special assignments related to component development, manufacturing studies to select product lines, programming, scheduling, cost control, and establishing procedures, budgets and schedules.

1946 - 1952 M. W. KELLOGG COMPANY

Production Design Engineer - Special Project Department - Responsible for quality production practices in original designs; design changes, and development or use of new manufacturing methods. Department engaged in development of liquid propellant rocket engines and boosters, and solid propellant rocket cases.

Manager, RATO Fabrication Department - Fabricated Products Division - Responsible for pilot line and prototype production of ATO liquid rocket engines and booster rockets.

Division Head of Operating Division - Responsible for development testing for Special Projects Department and all fabrication, including subcontracted as well as internal development shop work; operation of high-speed rotating machinery testing, rocket test pits, inspection, coordination with design groups in layout design of new test stands, and estimating activities on new jobs.

1945 - 1946 SELF-EMPLOYED

Established Associated Consultants, with three other men. Performed several small jobs in Chicago and Detroit areas.

1942 - 1945 ELLIOTT COMPANY

Research Engineer, Research and Development Department - Responsible for design, erection and operation of test stands for compressor and turbine machinery. Developed method of milling rotor for small Lysholm compressors, and responsible for planning of research laboratory building for gas turbine development.

1941 - 1942 ARMOUR RESEARCH FOUNDATION

Research Engineer in Applied Mechanics - Worked on analytical and experimental investigations.

EDUCATION

B.C., Civil Engineering - Armour Institute of Technology
M.S., Applied Mechanics - Rutgers University
Illinois Institute of Technology - Completed academic requirements for Ph.D. - did not complete thesis because of WW II.

REGISTRATIONS/CERTIFICATIONS

Registered Professional Engineer, Illinois
Certified Nuclear Auditor to ANSI 45.2.23

PROFESSIONAL AFFILIATIONS

Member, Tau Beta Pi; Sigma Xi; Chi Epsilon honorary fraternities
Member, American Society for Quality Control, Fellow
Member, American Nuclear Society

fmac

TASK FORCE EVALUATION

WELDING INSPECTOR CONCERNS

Prepared For:

DUKE POWER COMPANY
422 South Church Street
Charlotte, North Carolina 28242

26 April 1982

Prepared by:

Lewis E. Zwissler
Vice President
Management Analysis Company
11095 Torreyana Road
San Diego, CA 92121

Project Number: MAC-82-F093

mac

EXECUTIVE SUMMARY

Duke Power Company's (Duke) management became aware of a number of concerns regarding the quality of work expressed by the welding inspectors at the Catawba plant. Immediate action was taken to investigate the allegations to assure that the Catawba plant would meet the Nuclear Regulatory Commission's (NRC) and Duke's quality requirements.

As a result of the initial findings, a Task Force was established to investigate all expressed concerns and to re-evaluate the technical resolutions to assure that all quality requirements had been met or to recommend actions to resolve any remaining open items.

Duke retained Management Analysis Company (MAC) to review the activities of the Task Force and provide an outside, independent overview to assure that all reasonable actions were being taken to assure the safety of the Catawba plant.

MAC'S CONCLUSIONS

- The Task Force members were technically qualified to perform their assigned task.
- The approach and methods used by the Task Force were adequate to assure a complete list of concerns and to provide technical resolutions for these expressed concerns.
- The Task Force completed the evaluation and prepared a report of the results and recommendations for corrective actions that meets or exceeds normal technical and professional standards for completeness and quality of work.
- Successful completion of the recommended corrective actions will maintain safety and improve the day-to-day work activities at Catawba.

TABLE OF CONTENTS

1.0 INTRODUCTION

Duke Power Company (Duke) was informed of a number of allegations and inferences by several quality control inspections regarding the quality of work being performed at the Catawba Nuclear Station. Duke's management immediately began to investigate the allegations to assure that the Catawba Plant met the Nuclear Regulatory Commission's (NRC) and Duke's quality requirements.

On December 4, 1981, a Task Force was directed to investigate the allegations at Catawba, including the McGuire and Oconee Plants. The Task Force concluded that the quality assurance (QA) and quality control (QC) programs at Catawba were working and there was no evidence to confirm that unacceptable craftmanship or unsafe conditions existed at the plant. It did report, however, a lack of communication between the inspectors, their supervisors and QA. This problem could have potentially reduced the effectiveness of the QA program, relative to welding inspection, if not firmly resolved (reference: Report by the Task Force on QC Inspection, Catawba Nuclear Station; December 29, 1981; Earl Hollen, Ted McMeekin, and Al Homesley).

Subsequently, Duke appointed a Task Force to investigate all expressed concerns to assure that they were addressed and to re-evaluate the technical resolutions to assure they met NRC and Duke's quality requirements.

2.0 INVESTIGATION SCOPE

Duke retained Management Analysis Company (MAC) to perform the following:

- Review the approach and methods used by the Task Force to assure a complete list of concerns;
- Review the approach and methods used by the Task Force to review and determine resolution of allegations;
- Review qualifications of those involved in the resolution;
- Audit resolutions to insure completeness and quality of work;
- Be prepared to report independently to Duke's President or Senior Vice President for Engineering and Construction;
- Prepare a written report covering the entire process; and

- Be prepared to testify, as needed, with regard to his opinion of work performed by the Task Force and those involved in the resolution.

3.0 QUALIFICATIONS OF TASK FORCE MEMBERS

3.1 LARRY COGGINS (Quality Assurance Engineer - Technical Support Group)

Education

BS Materials Engineering, North Carolina State University, 1970

Professional Activities

Registered Professional Engineer, North Carolina

- Currently completing last semester for MBA, University of North Carolina.

Experience

- Duke Power Company - nine years

  Quality Assurance Engineer Technical Support Group - one year
  Supervises five engineers and two QA specialists.

  Quality Assurance - six months
  Review welding program, approval of procedures, technical review of construction procedures, review and approval of welder qualifications; ASME Code Section IX.

  Design Engineering - seven-and-one-half years
  Specify and order materials and fabricated piping and penetrations. Field interpretation of ASME Code, Section III.

- Reynolds Metals - three years
  Materials Engineering and Operating Engineer
  Supervised four technicians and one secretary.

Conclusion

Larry Coggins is qualified by virtue of his education and experience to perform as a member of the Task Force.

3.2 STEPHEN VAN MALSSEN (Construction Staff Engineer)

Education

- BS Engineering Operations, North Carolina State University, 1971
- Numerous courses in welding, metallurgy, and management

Professional Activities

- Member of American Welding Society
- Member of American Nuclear Society
- Authorized Inspector - NBBPVI
- Level II Welding Inspector and Examiner (1979 - 1981)
- Member, Utilities Advisory Committee, Welding Research Council
- Alternate Representative - ASME Section III, Sub-committee on Nuclear Power

Experience

- US Army - two years
  Cartographic Draftsman

- Kemper Insurance Company - two-and-one-half years
  Authorized Inspector, QA/QC Functions, Construction

- Duke Power Company - five-and-one-half years

  Construction Staff Engineer - one year
  Coordination of construction department welding program
  Coordination with QA, Engineering and construction site welding personnel
  McGuire Nuclear Station, Welding

  Welding Technical Support Supervisor - two-and-one-half years
  Lead Welding Engineer
  McGuire Nuclear Station, Construction

  Technical Specialist Welding - two years
  McGuire Nuclear Station, Construction

Conclusion

Stephen Van Malssen is qualified by virtue of his education and experience to function as a member of the Task Force.

3.3 ROYCE L. WILLIAMS

Education

BS Engineering Physics, North Carolina State University, 1961

Professional Activities

- Member of American Welding Society
- Member of American Society of Mechanical Engineers
- Member of ASME - B31.1 Code for Power Piping
- Member of ASME - B&PV Code Section I, Power Boilers
- Member of Piping Sub-Group, ASME Section I
- Registered Professional Engineer, North Carolina

Experience

- Industrial Piping Division, ITT Grinnell - fourteen years

  Draftsman - two years

  Piping Engineer - six years
  Estimating, material ordering, construction in process and power piping

  Department Engineer - four years
  Supervised one engineer and three to four draftsmen, piping to ANSI 1331.7 and B31.1 nuclear applications

  Project Engineer - two years
  Supervised one engineer and two draftsmen, prepared orders for special material, interfaced with shop on fabrication, and with A/E, piping to ASME Section III and B31.1

- Duke Power Company - nine years

  Analytical Engineer II (present position)
  Supervised two to four engineers, prepared specifications for procurement and installation of piping for ASME Section III and B31.1; resolved non-conformance reports relating to materials and code problems; coordinated with other groups on code questions related to materials, fabrication, examination and testing.

Conclusion

Royce Williams is qualified by virtue of his education and experience to function as a member of the Task Force.

3.4 ALTON PARKS COBB, JR.

Education

- BSME North Carolina State University, 1964
- Graduate work - 33 hours to MS Engineering Mechanics
- Numerous company technical and management training courses

Professional Activities

- Eleven technical papers, author or co-author.

Experience

- Boeing Company - nine years

  Associate Engineer - five-and-one-half years

  Engineer - three years

  Senior Engineer - six months
  Structural Dynamics; load and stress analysis of aerospace structures

- Duke Power Company - nine years

  Assistant Design Engineer - three years
  Dynamic load; stress; seismic; and vibration analyses for nuclear power plant design.

  Design Engineer - three years
  Supervisor of group responsible for special stress and vibration analyses and for managing consultant contracts engaged in piping analyses

  Senior Engineer - two-and-one-half years
  Group Head, Stress Analysis and Support Restraint Group

  Principal Engineer - six months
  Section Head, Civil Support Section
  Responsible for civil design for all operating stations.

Conclusion

Parks Cobb is qualified to lead the Task Force by virtue of education, work and management experience.

3.5 ROBERT W. McAULEY, JR.

Education

- BSCE North Carolina State, 1975
- MS Engineering (Structural), University of South Carolina, 1981
- Registered Professional Engineer, in North and South Carolina

Professional Activities

- American Society of Civil Engineers

Experience

- Duke Power Company - six years
  - Supervisor, piping support design, Catawba Plant
  - Civil structures design
  - Coordinating and monitoring civil construction work

Conclusion

Robert McAuley, Jr. is qualified to participate as a member of the Task Force by virtue of education and experience.

4.0 TASK FORCE OBJECTIVE

The Task Force objective was to assure that all concerns and allegations voiced by the inspectors regarding quality of work at Catawba were collected and reviewed to assure that the technical resolutions were valid and that no impact on the safety of the Catawba Plant existed.

5.0 TASK FORCE - PROCEDURES AND METHODS

The Task Force Plan is included as Appendix A. It is the purpose of this report to comment on the acceptability of the efforts conducted in each phase of the Plan.

5.1 DATA COLLECTION AND REVIEW

5.1.1 Duke's Activities

Larry Davison, Quality Control Project Manager, met with the inspectors at Catawba on January 14, 1982. The inspectors were asked to submit a list of their safety concerns for review by the Task Force.

Mr. J. R. Wells was directed to retain an outside consultant to assure members of the Task Force were qualified and that the procedures and methods they utilized would achieve the desired objectives.

Subsequent to the appointment of J. R. Wells to the Institute for Nuclear Power Operations (INPO) February 8, 1982, and the appointment of George Grier as Corporate Manager of Quality Assurance, Parks Cobb and George Grier met with the welding inspectors at Catawba and explained the activities of the Task Force. The inspectors were again encouraged to submit any and all concerns they had for review and resolution.

The Quality Assurance Department undertook the task of collecting the pertinent data and back-up information available for each concern expressed by the welding inspectors. Where necessary, the inspectors and others were interviewed and the notebook records retained by the inspectors were examined.

5.1.2 MAC's Activities

MAC interviewed 12 quality assurance personnel and 14 management and construction personnel. The interviews were to determine the degree of Duke's sincerity in conducting the Task Force review. The names of the interviewees are listed in Appendix B.

The interviews were conducted using a checklist to obtain a complete review of factors influencing the individuals' participation in the Task Force activities. The checklist is attached as Appendix C.

5.1.2.1 Task Force Member Interviews

- The Task Force members are qualified to perform the task of collecting and reviewing the data and making the initial re-evaluation of the technical aspects of concerns identified by the welding inspectors.

- The Task Force members prepared a plan for their activities and were acquainted, in detail, with the task assigned to them.

- There were no factors identified by the Task Force members that would constrain them from satisfactorily completing the investigation and resolution of the technical concerns related to safety and quality.

- In all cases, the individuals interviewed affirmed their personal belief that Duke was committed to meeting or exceeding all quality requirements of the NRC and Duke's Quality Assurance Program.

- There was agreement that the Task Force would be successful in completing its task.

- The only factor identified as influencing the acceptability of the results of the investigation was the previous involvement of some of the Task Force members with resolutions of the stated concerns. This was immediately remedied by appointing a new chairman, Parks Cobb, and initiating a completely independent review of each resolution to confirm or deny the initial finding of the Task Force.

5.1.2.2 Interviews with Other Duke Personnel

- There was a general understanding that a problem existed, identified with the concerns expressed by the welding inspectors. The consensus was that the recent downgrading of welding inspectors classifications provided the motivation and the mechanism (Management Procedure Number 8030-0003, Involving Difference of Opinion) to draw attention to their situation.

- The feeling was that the technical aspects would be handled by the Task Force.

- There was unanimous agreement that Duke was clearly committed to quality and went above and beyond the requirements to assure a safe plant.

- The questions regarding support, upward and downward, were answered positively except for the welding inspectors. The inspectors felt that they did not have the support of their supervision and management. They questioned the continued acceptance of work even though departures from construction and quality procedures occurred.

- The day-to-day operations were regarded as satisfactory. There were comments that the procedures were getting too long and complex due to the insistence that every possible contingency should be covered by a procedure. This was regarded by some as an undesirable trend.

- The welding inspectors were very vocal regarding their perception that departure from procedures was being permitted, as evidenced by acceptance of work completed. They were willing to accept an engineering evaluation of the acceptability of work, but felt QA management was not supporting them. QA was not insisting on compliance with procedures and non-compliances were not addressed in the corrective actions called for in the resolutions of NCI reports.

- A few of the welding inspection personnel felt that individuals making decisions to accept work (called out by inspectors as non-conforming) were not as technically qualified as the inspectors. Welding inspectors with many prior years of welding experience felt they were qualified to judge acceptability of work and their decisions should not be questioned.

5.1.3 MAC's Conclusions

- The Task Force and Duke's management took action to inform the inspectors, particularly the welding inspectors, of the investigation and were urged to communicate any concerns to the Task Force for evaluation and resolution.
- It is MAC's conclusion that all reasonable efforts were made to provide the inspectors the opportunity to make known any and all concerns which they may have with regard to actions or events that would impact the safety or acceptable quality of the construction work at the Catawba Nuclear Power Plant.
- It was unanimous that Duke was committed to producing quality work and went beyond the requirements of the NRC and Duke's own quality program to insure a safe power plant.
- There were no factors or influences identified that would inhibit the Task Force from completing their assignment.

5.2 TECHNICAL EVALUATION

5.2.1 Duke's Activities

The activities of the Task Force were pursued in accordance with the plan. There was specific effort expended to assure that the technical adequacy of the resolutions addressed the acceptability of completed work with regard to safety and compliance with the QA program requirements. The results of these efforts were to develop:

- General recommendations regarding policy and administration of department activities.
- Specific actions to correct identified technical deficiencies.
- Programmatic recommendations related to improving procedures and practices in technical and administrative activities.

5.2.2 MAC's Activities

MAC reviewed each file folder for the concerns identified to make an independent evaluation of the quality of the work of the Task Force. The review consisted of:

- Reading the concern expressed by the inspector.
- Complete review of the Technical Evaluation - Individual Concern (Appendix A, Attachments I and II).
- Detailed evaluation of the technical adequacy statement and reasons.
- Detailed evaluation of the recommendations.

The review included reference to the various QA and construction procedures and the QA manual cited in the concern and the evaluation to assure valid interpretations.

MAC worked directly with the Task Force during the technical evaluation phase by reviewing each completed file folder and commenting on the quality of the evaluation, particularly in the areas of "technical adequacy and reasons" and "recommendations". In cases where additional work was needed or where it was felt that the recommendations failed to address completely the actions needed to resolve the concern, comments were made directly to the Task Force. This method of operation permitted MAC to evaluate the attitude, persistence and desire of the Task Force members to determine the actual or potential impact on the safety of the plant.

5.2.3 MAC's Conclusions

- The Task Force was dedicated to evaluate every concern to assure that the quality of work at Catawba voiced by the inspectors was reviewed, that the technical resolutions were valid, and that no impact on the safety of the Catawba Plant remained.
- It is MAC's opinion that the Task Force performed their technical evaluations in a professional and technically adequate manner to satisfy all NRC and Duke QA program requirements.
- The practice of performing an independent review of previous resolutions followed by a second independent review resulted in assuring that no bias existed in the final Task Force determinations.

5.3 RESULTS AND RECOMMENDATIONS

5.3.1 Duke's Activities

The results and recommendations of the Task Force are given in "Final Report of Task Force Effort to Evaluate Technical Concerns of Catawba Welding Inspectors, Volume I - Task Force Program Summary", revision 1, dated March 30, 1982.

The concerns were classified into nine generic technical areas. The recommendations for specific and programmatic actions were tabulated for each generic area (Table I, Task Force Report). In addition, two general recommendations were made to improve the procedures and practices at the department level.

The plan for feedback to the inspectors consisted of a general meeting to explain the Task Force results and recommendations to the inspector group. Additionally, individual reviews were planned with the inspectors who had submitted concerns.

5.3.2 MAC's Activities

The specific and programmatic recommendations included in Table I (Task Force Report) were reviewed to assure that the summaries were valid. In as much as each file had been previously reviewed, no further review was considered necessary.

5.3.3 MAC's Conclusions

- The Task Force results were an accurate portrayal of their evaluations.
- The Task Force recommendations were derived from their analysis of the results and adequately addressed the specific and programmatic actions to resolve the concerns expressed by the welding inspectors.
- The two general recommendations should improve the day-to-day work activities.

5.4 MANAGEMENT REVIEW/IMPLEMENTATION OF RESULTS

5.4.1 Duke's Activities

The Task Force met with members of Duke's management to review their activities, results and recommendations on March 23, 1982. Those present were W. H. Owen, R. L. Dick, R. B. Priory, W. L. Bradley, A. P. Cobb Jr., L. M. Coggins, S. H. Van Malssen, G. Grier and L. E. Zwissler (MAC).

The consensus was that the Task Force Report, Volume I, was acceptable with respect to documenting the Task Force activities and recommendations. The Task Force stated their intent to prepare a management implementation plan and include that in a revision to the Task Force Summary Report (Volume I).

W. L. Bradley was identified as the individual responsible for coordinating the corrective action plan and activities. He was also responsible for follow-up to assure completion of the action plans.

5.4.2 MAC's Activities

The MAC representative attended the management review meeting and participated in the discussions.

5.4.3 MAC's Conclusions

- Responsible members of Duke's management performed an adequate review of the Task Force activities, results and recommendationns.
- Duke immediately undertook a program to complete, as necessary, the corrective actions identified by the Task Force.

5.5 MANAGEMENT IMPLEMENTATION PLAN

5.5.1 Duke's Activities

A management implementation plan was prepared and included as Section 9.0 of the Task Force Report.

W. L. Bradley (Corporate Quality Assurance Department) was assigned as the implementation coordinator to assure that the recommended actions were planned, completed and documented.

The plan for resolving the general and programmatic recommendations was structured by identifying objectives which corrective action programs should meet to correct the problems.

The completion of the implementation plans are to be reviewed and approved by the department heads of Quality Assurance, Construction and Engineering.

5.5.2 MAC's Activities

The Task Force Report Summary, Volume I, Revision 1 was reviewed in its entirety.

5.5.3 MAC's Conclusions

- The management implementation plan is adequate to resolve the stated concerns of the welding inspectors at the Catawba plant.
- Successful completion of the management implementation plan will resolve satisfactorily the technical concerns related to plant safety.
- Successful completion of plans addressing general and programmatic recommendations should improve the day-to-day work activities at Catawba.

APPENDIX A

TASK FORCE PLAN - CATAWBA WELDING INSPECTOR CONCERNS

I. DATA COLLECTION AND REVIEW (2/10/82)

A. Identify inspector concerns.

1. Obtain copy of statement of each concern submitted originally.

2. Obtain statement of any additional concerns (1/29/82 letter).

B. List, index, and classify all concerns.

C. Establish file for each technical concern.

D. Establish file for each generic area of technical concern.

E. Review each technical concern for sufficient information.

1. Conduct additional interviews with inspectors as needed.

2. Collect data from within and outside Task Force as needed.

II. TECHNICAL EVALUATION (2/24/82)

A. Divide and assign technical concerns to Task Force members based on expertise.

B. Perform technical evaluation.

1. Develop response to concern.

a. State Task Force concurrence that concern is valid (or not) based on available, substantiating information and give reason(s).

b. Cite any violations of Design, Construction, or QA Procedures that have or could occur as result of concern (regardless of answer to Item a).

c. State if item or generic area of concern is technically adequate at present, based on Items a. and b. above and other pertinent data available. State reason(s).

2. Cite recommendations (if any) for additional review, program or procedure changes, hardware changes, etc. as judged appropriate to fix existing inadequacies, prevent problems in the future, and/or prevent concerns in the future.

C. Document technical evaluation on form Technical Evaluation - Individual Concern (Attachment 1).

1. Document statement of concern (paraphrased) and attach a copy of the handwritten concern as obtained from the originator.

2. Document technical response and recommendations.

3. Attach any pertinent information used in the technical evaluation.

4. Sign and date the form after evaluation is complete.

D. Verify technical evaluation by independent review by another qualified member of the Task Force or a qualified person outside the Task Force.

1. Review the documented technical evaluation.

2. Make determination as to technical accuracy and completeness of evaluation.

3. Perform separate data collection, fact-finding, and analysis as necessary.

E. Document verification on form Verification - Individual Concern (Attachment II)

1. Document any separate data collection, fact-finding, and analysis conducted.

2. Document pertinent comments or items that contributed to verification to indicate general process used, as deemed appropriate.

3. Sign and date the form after verification is complete.

F. Where two members of the Task Force were previously involved in basis of the concern (such as NCI resolution), only one may participate in the evaluation and verification process.

G. When necessary, expertise outside the Task Force and Duke Power in general shall be used to provide complete and accurate evaluation and verification of concerns.

III. RESULTS AND RECOMMENDATIONS (2/24/82)

A. Develop statistical summary of responses to technical concerns.

1. Number of concerns with concurrences versus non-concurrences.

2. Number of concerns involving design or construction requirement violations (actual, potential, none).

3. Number of concerns involving technical inadequacies (actual, potential, none).

B. Compile recommendations by generic area; note the number of occurrences of each recommendation.

C. Develop overall recommendations.

1. Technical recommendations related to concerns.

2. Recommended plan for feedback of Task Force effort to inspectors.

IV. MANAGEMENT REVIEW/IMPLEMENTATION OF RESULTS (3/4/82)

A. Develop draft reports.

1. Volume I - Task Force Program Summary

2. Volume II - Technical Evaluation and Verifications - Individual Concerns

B. Review technical recommendations and obtain management - implementation plan.

C. Review plan for feedback to inspectors and obtain management input on implementation.

D. Incorporate management implementation plan for Task Force recommendations into Volume I report.

V. INSPECTOR FEEDBACK (3/11/82)

A. Conduct presentation of Task Force Program to inspectors as a group.

1. Review overall Task Force effort.

2. Review results of technical evaluations (summary).

3. Review technical recommendations and management implementation plan.

4. Document questions, answers, and comments.

B. Review evaluation of each technical concern with originating inspector in separate discussion. Include others in discussion, as appropriate, such as inspector's supervisor, other Task Force members. Document pertintent comments.

C. Summarize results of group and individual discussions.

VI. FINAL REPORT AND DATA DISPOSITION (3/18/82)

A. Finalize and publish report to management.

1. Incorporate inspector feedback results in Volume I.

2. Print and distribute reports (Volume I and II).

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B. Close out files of individual concerns and generic areas of concern.

1. Collect file material in binder(s).

2. Transmit to file with Final Report originals.

C. Conduct review with Nuclear Regulatory Commission.

Attachment I

TECHNICAL EVALUATION - INDIVIDUAL CONCERN

STATEMENT OF CONCERN

FILE NO. _____

(Paraphrase Concern and/or attach clipping of copy of original version as obtained from inspector; include statements as necessary to clarify stated concern.)

TECHNICAL RESPONSE

CONCURRENCE STATEMENT AND REASON(S):

(State if concern is or was substantiated by specific physical evidence, such as paperwork, in-place item or procedure, etc. and cite such evidence.)

SPECIFIC CRITERIA VIOLATED OR MISUSED:

(Specifically list procedures involved)

TECHNICAL ADEQUACY STATEMENT AND REASONS:

(State if in-place item, procedure, etc. is technically adequate at present and state reason(s).)

OTHER COMMENTS:

(Note any additional data gathered, investigations made, etc. in support of evaluation.)

RECOMMENDATIONS

(State recommendations as deemed appropriate for immediate and future changes or activities to remedy or improve technical adequacy in area of concern, regardless of present state of the concern.)

SIGN-OFF

EVALUATION

PERFORMED BY: _____

DATE: _____

Attachment II

VERIFICATION - INDIVIDUAL CONCERN

FILE NO. _____

(State any comments as deemed appropriat to note logic used in verifying evaluation; document any additional data gathered, discussions held, or investigations performed.)

SIGN-OFF

EVALUATION

PERFORMED BY: _____

DATE: _____

APPENDIX B

DUKE POWER COMPANY INTERVIEWEES

Task Force Members

Parks Cobb	-	Principal Engineer
Larry Coggins	-	Quality Assurance Engineer
Steve Van Malssen	-	Construction Staff Engineer
Royce Williams	-	Analytical Engineer II

Quality Assurance Personnel

Larry Davison	-	Quality Assurance Manager, Projects
Robert Morgan	-	Project Quality Assurance Engineer
Rob Atkins	-	Staff Quality Assurance Engineer, Welding/NDE
Charles Baldwin	-	Supervisor Welding Inspection
Joe Shopshire	-	Supervisor Quality Assurance Technical Welding/NDE
Richard Childers	-	Lead Inspector, Welding
Charley Farrell	-	Senior Welding Inspector
Beau Ross -	Supervisor, Technical Welding Inspector	
John Rockholt	-	Welding Inspector
Richard Irby	-	Welding Inspector
Dennis Wright	-	Welding Inspector
John Bryant	-	Welding Inspector

Construction Personnel

John Rogers	-	Construction Project Manager
Sam Dressler	-	Senior Construction Engineer
Dave Llewelbyn	-	Welding Support Group
Charley Aycock	-	General Superintendent
Ken Webber	-	Mechanical Superintendent
Bill Rogers	-	General Superintendent, Welding

Construction Personnel (Continued)

Billy Smith	-	General Foreman, Welding
Herschel Brewer	-	Foreman, Welding
Ed B. Henlien	-	Welder
Wayne Garvin	-	Welder
Keith Kirby	-	Welder
Tom Mills	-	Mechanical, Technical Support
Tom Robertson	-	Construction, Technical Support Civil/Welding
Robert Dick	-	Vice President, Construction

APPENDIX C

CHECKLIST FOR INTERVIEWS

Task Force Members

1. Credentials:
   - Education
   - Experience
   - Present position
2. Perception of Task Force charter
3. Plan to implement actions to discharge your responsibility on the Task Force
4. Factors influencing ability to do your job on the Task Force:
   - Understanding inspectors position
   - Can all concerns be identified
   - Any constraints upon you
   - Desire to help inspectors resolve their problem
5. Duke's commitment to quality
6. Your perception of probable success of the Task Force
7. Any situations or factors you do or do not like regarding the Task Force

Other Interviews

1. Credentials:
   - Education
   - Experience
2. Present job - responsibility
3. Perception of problem
4. Opinion of approach to resolution
5. Duke's commitment to quality
6. Support from your management
7. Your personnel support
8. Opinion of day-to-day operations
9. Comments you want to make
   - Things you like
   - Things you do not like

REVIEW OF DOCUMENTATION OF COMPLETED CORRECTIVE ACTIONS RESULTING FROM TASK FORCE EFFORTS TO EVALUATE TECHNICAL CONCERNS OF CATAWBA WELDING INSPECTORS FOR DUKE POWER COMPANY

August 18-19, 1982

Management Analysis Company
Project Number: MAC-82-F093

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The documentation of completed actions taken to implement the "Management Implementation Plan", Section 9.0, Final Report of Task Force Effort to Evaluate Technical Concerns of Catawba Welding Inspectors, Volume I - Task Force Program Summary, March 30, 1982, was reviewed during the period by August 18 and 19, 1982.

As a result of the evaluation, several recommendations are made. The detail findings are included in the balance of this report.

Recommendations

1. The documentation supporting each action taken to answer a specific recommendation should clearly state what was done in a manner equivalent to answering a direct question relating to the recommended action (Finding 9.3.d). The documentation should be such that under cross-examination by an attorney the supporting evidence is readily available. If a review was made and the decision was that no action was taken for valid reasons, it should be so stated and documented.

2. Document the content of all training given to inspectors with particular emphasis on Welding Inspection Programmatic Recommendation #6 and NCIR Recommendation #2. Document specific answers given in training to all actions recommended throughout the Programmatic Recommendations.

3. Evaluate anticipated or demonstrated effectiveness of actions taken (Finding 9.3.d).

4. Review new procedures and procedural changes to assure they are adequate to meet objectives (Finding 9.3.1 and 9.3.a.1, 2 and 3 and 9.3.d).

5. Review specific technical resolutions to assure every item is addressed (Finding Project Control #10 and Quality Assurance Procedure #4). This might occur as the result of answering the specific action concern, Table IX, without reference to the specific concern, Technical Evaluation Sheet R-63.

6. Interview Duke personnel; including inspectors, craft and supervisors, to evaluate their perception of the success of the Task Force effort.

Findings

The review was a quick look to determine if there was any evidence of generic type problems whose corrections could lead to more complete and acceptable set of corrective actions. The findings which support the recommendations for improvement are detailed in this section. They should not be considered a complete and exhaustive review of the acceptability of the implementation of the Task Force recommendations but are indicative of areas where improvements can be made.

Finding 9.3.a.1, 2 and 3

The Inspector Resource Procedure QA-007, establishes a method whereby inspectors may seek technical resolution of questions which they consider wrong or inadequate. There are no provisions for Duke management to assure that all submittals are resolved or the inspector informed that he has been given a final answer by Duke Quality Assurance and his next step is the Corporate Resource. That is, there is no tracking procedure to ensure that a concern is not lost in the system which could lead to an inspector perceiving that he had raised a quality question and Duke had not acted. The responsibility is left to the inspector to pursue final resolution. It appears that Duke management should play an aggressive role to assure every reasonable action is taken to resolve concerns regarding quality

Finding 9.3.d

> "Process Control Recommendation 3 states; Review the adequacy of tracking methods for monitoring Process Control procedural and documentation problems. Review methods for feeding back results from such monitoring into procedures and personnel performance evaluations."

These two items were not specifically addressed in the response or resolution of Item 9.3.d.

In addition Item 9.3.d states:

> "Put in place an appropiate discrepancy tracking and feedback program. Including review sessions for non-NC1R discrepancies."

The first action is not addressed. The second item is answered by a memorandum from Sam Dressler setting up the meetings. Documentary evidence does not demonstrate that this is an effective method of satisfying the requirements stated in Dessler's memo.

Meeting schedules were not available to support quarterly schedule of meetings of same groups. Also, based on quarterly schedule, the time lag between discovery of problem, reporting and resolution could take almost 6 months. This appears to be too long for a construction problem related to process control problems.

The meeting minutes did not include the names of attendees so documentation of attendance by group leaders is not available.

QA was assigned responsibility for "taking notes and monitoring action items". There is no indication of a QA procedure for handling this or other indication of how this action will be implemented.

Finding 9.3.1

The resolution of Item 9.3.1 was accomplished by writing QA-107, Procedure for Issuing Temporary Changes to Procedures. There are several apparent weaknesses in this procedure:

1. Distribution of QA-107A is not required to all manual holders; hence, an individual manual may not be up to date.
2. No requirement stated for time limit, invalidation or incorporation into QAP for a QA-107A.
3. Accounting is related to those no longer in effect or incorporated in QAP, not those that are in effect; hence, no active list is available.
4. No statement in QA-107 that "Memo to File" is not to be used in issue clarification or direction for procedural deficiences.
5. No provision to review outstanding "Memos to File" for need to issue QA-107A's to formalize existing directions, i.e., see July 1, 1982, memo to file, Method of Handling NCIs returned to Design or QATS.

Finding Process Control #10

The specific action recommendations of Process Control #10, references concerns, J-5, R-13 and H1 which require hardness checks to be made on specific welds in question. There is no documentation available in the file to indicate this action was taken.

Finding QA Procedures #4

This specific action refers to concern R-63 which requires verfication of filler material for a number of specified welds. There is no documentation in the files to indicate this action was taken.