

ATTACHMENT 2

UTILITY ADVISOR EVALUATION TEAM

REPORT

ON

CATAWBA NUCLEAR STATION SHIFT ADVISOR PROGRAM

JUNE 6-8, 1984

June 8, 1984

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I. EXECUTIVE SUMMARY

Recent industry efforts have focused on identifying appropriate experience for NTOL plants as a part of a broader program to improve the managerial and technical experience of those involved in the operation of nuclear plants. A special NTOL experience group chaired by H. B. Tucker, Vice President Nuclear Production, Duke Power Company, was asked by Duke Power Company (DPC) to assemble a team to evaluate the Catawba Nuclear Station Shift Advisor Program.

The six member Utility Advisor Evaluation Team (UAET) consisting of representatives from six major nuclear utilities, conducted a comprehensive evaluation of the Catawba Shift Advisor Program on June 6, 7 and 8, 1984. The UAET evaluated all aspects of the program including advisor training, qualifications, responsibilities, interfaces between the shift crews and the advisor, procedures and examinations. The evaluation included documentation reviews, interviews with DPC shift advisors, management and operations staff, direct observation of shift operations, and a simulator visit.

The UAET concludes that DPC has defined an effective Shift Advisor program, has selected qualified individuals and has provided training appropriate for the shift advisors. The DPC Shift Advisor program equals, and in many cases exceeds, the position presented to the NRC by the NTOL Utility Group on February 24, 1984. Additionally, DPC agreed to incorporate the UAET recommendations into their Shift Advisor program which will further strengthen the effort.

The UAET also concludes that these advisors can rapidly and effectively communicate their experience to the Catawba shift crews. It is the UAET's unanimous opinion that DPC's Shift Advisor program provides additional assurance that the Catawba Nuclear Station can be started up and operated safely and in accordance with NRC regulatory requirements.

The UAET members recommended the following improvements:

1. Revise "The Catawba Nuclear Station Shift Advisor Program" approved by G. Vaughn on 5/4/84 by modifying the Duties and Responsibilities section as follows:
 - a) Change the wording of Step B.1 so that it clearly indicates that the Shift Advisor is to participate in the entire Shift Supervisor turnover process as described in the Operations Management Procedure on shift turnovers.
 - b) Delete from Step B.4 the words "at the SS's request" so as to clearly indicate that the Shift Advisor is encouraged to provide advice whenever appropriate.
 - c) Add to the procedure a copy of an organization chart of the Catawba Operations section that will promote a better understanding of the reporting relationships between the Shift Advisor and the rest of the shift organization.

2. Incorporate the revised Catawba Nuclear Station Shift Advisor Program into a station procedure and review this revised procedure with all shift advisors and appropriate shift operating personnel.
3. Establish a structured Shift Advisor Update program to assure that shift advisors assigned to McGuire Nuclear Station remain aware of significant operating events at Catawba Nuclear Station.
4. Assure that all shift advisors are cognizant of significant differences between NRC approved Catawba tech specs and the technical specifications used in the training of each group of shift advisors.
5. Consider assignment of the shift advisors on shift prior to RCS fill and vent so that the benefit of their experience during this and subsequent evolutions may be fully utilized.
6. Assure that each McGuire based shift advisor has reviewed the course final exam prior to assuming shift advisor duties.
7. Assure that each Catawba based shift advisor reviews the Operations Management Procedures prior to assuming shift advisor duties.

II. OBJECTIVE, SCOPE AND METHODOLOGY

The objective was to evaluate the effectiveness of the Catawba Shift Advisor Program including the qualifications of each shift advisor.

The scope of the evaluation consisted of a review of the following:

- a) The training provided the advisors, including the extent of the training, the criteria for the training, the specific procedures (administrative, normal, abnormal and emergency), plant technical specifications, specific plant systems, and the scope, content, and grading of the examinations given.
- b) The program description that defines the specific duties and responsibilities of the shift advisor, the instruction provided to shift personnel to ensure their understanding of the program, the shift advisor's functions, their limitations and access to plant management above the shift supervisor.
- c) A training records review, including the simulator training provided, and observation of on-shift crews performing routine operations including shift turnover.

The team divided into groups and conducted reviews of assigned areas including normal shift operations, shift turnover, discussion of the shift crew/advisor interface, the training program, resumes of the individual shift advisors, interviews with most of the shift advisors, interviews with operations, training and plant management, and a visit to the McGuire/Catawba simulator.

A post evaluation discussion was held with DPC's management to review the team observations and recommendations. The Catawba NRC Senior Resident Operation Inspector was also briefed on the purpose and scope of the UAET visit.

III. EVALUATION RESULTS BY SECTION

A. INTERVIEWS

The UAET interviewed various members of DPC management and operations staff, including shift advisors, shift supervisors and assistant shift supervisors. The McGuire plant NRC Senior Resident Inspector observed interviews of 3 shift advisor candidates.

In summary, the UAET found DPC personnel interviewed to be cooperative, professional and dedicated. The technical knowledge and experience of the shift advisors are considered to be excellent. Knowledge of the duties, responsibilities, and reporting relationships of the shift advisors was evaluated and several recommendations were developed.

With incorporation of the UAET recommendations, the overall training and experience of the shift advisors is adequate to perform their intended function.

B. SHIFT OBSERVATIONS

One shift turnover of Shift Supervisors was observed by UAET members. There was a very detailed and comprehensive transfer of information.

While the Shift Advisor is not yet assigned to shift, his duty to participate in this shift turnover should make him very knowledgeable of plant conditions.

The Shift Advisor will normally be located in the Control Room area including the Shift Supervisor's office. This location facilitates observation of unit status as well as communication with the Shift Supervisor and Control Room personnel.

C. RESUME REVIEW

The resumes of each of the eight prospective Shift Advisors were reviewed. Since all shift advisors were DPC employees, the authenticity of the previous NRC licenses did not need to be verified. All candidates' resumes indicated that they exceeded the industry requirements proposed for the Shift Advisor position. Additional information about the Shift Advisors' experience was obtained by direct interviews with six of the eight candidates.

All of the eight candidates have had prior DPC PWR SRO level experience. Six of the prospective shift advisors hold active SRO licenses and have had extensive operating experience at the McGuire plant, a sister facility to Catawba. The remaining two candidates were previously SRO licensed at the Oconee plant, have considerable experience at the Catawba Station, and are now in the final stages of SRO license training.

D. SHIFT ADVISOR PROGRAM REVIEW

The Duke Power Company General Manager - Nuclear Stations approved a memo that covered the conditions when a shift advisor is required, qualifications, reporting relationships, responsibilities, program effectiveness review and training. This memo covered all the important duties of the Shift Advisor's role and specifically stated the key responsibilities:

"The SA shall advise the SS in safe operations", and

"The SA will work closely with the SS to insure that decisions made and actions taken by the SS are sound and conducive to Nuclear Safety and Station Reliability."

The UAET believes that DPC's description of duties and responsibilities meet the current industry NTOL position. The UAET made recommendations for improving this memo and DPC management agreed to implement these recommendations.

E. TRAINING PROGRAM REVIEW

A training course for the Shift Advisors was developed by the Production Support Department Catawba training staff. The training staff performed a review of applicable duties of the shift advisor, differences between the McGuire and Catawba systems, significant abnormal and emergency procedures, emergency plan and administrative procedures. Subsequently a training plan with terminal and enabling objectives was developed. The course for McGuire-based shift advisors was 7 days duration including lectures, plant walkthroughs, self study and simulator sessions. The UAET reviewed selected lesson plans and training materials used in the course. The lesson plans used described the Catawba systems and procedures and depended heavily on the instructor's knowledge of both plants' system differences. The instructors were adequately qualified to teach the course based on prior experience. This was necessary since lesson plans were not specifically prepared for this course. The course did not cover Catawba technical specifications since training staff did not consider differences from the McGuire technical specifications to be significant.

The training provided to the Catawba based shift advisors consisted of the four phases of the Cold License Training Program, which was appropriate for the background of the two individuals involved. Training also covered the description of the Shift Advisor Program but did not include Operations Department administrative procedures. Recommendations were made in this area. The UAET considered that the Shift Advisor Training Program fulfilled the requirements of the NTOL Utility Working Group.

F. EXAMINATION REVIEW

The UAET reviewed the content and grading of the DPC oral and written examinations which were administered to the McGuire based group of Shift Advisors. The UAET also reviewed the Cold License Training Program test results of the Catawba based Shift Advisors. The Shift Advisor Training Program Final Test evaluated the individual's knowledge of over 30% of the course objectives, which is appropriate based on the prior experience of these individuals. The oral and written examination scope of measured course objectives overlapped. Measurement of additional course objectives could have been covered in the oral examination. All of these individuals are participating either in requalification training or in SRO training. Therefore, they should be able to relate their experience to the Catawba operating staff. The grading of the examinations was considered appropriate. An adequate number of the questions were considered to be at the SRO level.

G. McGUIRE/CATAWBA SIMULATOR VISIT

UAET members visited the McGuire/Catawba simulator control room. Differences between the simulator and the Catawba control boards were explained by a senior simulator instructor. The controls of the NSSS are nearly identical with the major differences being in the non-nuclear areas, primarily electrical, turbine controls and circulating water.

Use of this simulator for training of the shift advisor candidates was considered appropriate by the UAET.

IV. UTILITY ADVISOR EVALUATION TEAM MEMBER EXPERIENCE

JOHN P. LEIDER
SUPERVISOR SAFETY ENGINEERING GROUPS
OFFICE OF NUCLEAR SAFETY
COMMONWEALTH EDISON COMPANY

Mr. Leider has twenty years of power plant experience with Commonwealth Edison Company including over thirteen years of nuclear experience. Mr. Leider received a Cold SRO License on Zion Station in March 1983 and continues to hold this license. Specific job assignments and responsibilities in the nuclear area include Operating Engineer at Zion Station responsible for the performance of operations personnel during Units 1 and 2 startup and operation, Assistant Superintendent at Zion responsible for operations and maintenance activities, Nuclear Division Staff Engineer developed with EPRI a disturbance analysis surveillance system (DASS), and Supervisor of the onsite safety engineering groups in the Office of Nuclear Safety.

JOSEPH A. GONYEAU
MANAGER PRODUCTION TRAINING
NORTHERN STATES POWER COMPANY

Mr. Gonyeau has 14 years of nuclear power plant experience, of which 11 years are commercial. This nuclear experience has included various engineering, supervision and management assignments in shift operations, licensing and training. He has been SRO Licensed on Prairie Island Units 1 and 2 and has served as Vice Chairman of the offsite Safety Audit Committee. Since assignment to his present position, he has been responsible for selection, startup and operation of Northern States Power's BWR and PWR simulators and management of the nuclear and fossil plant training facilities, personnel and programs.

LEE C. HUENNIGER
ASSISTANT SUPERINTENDENT NUCLEAR PROJECTS
FLORIDA POWER AND LIGHT COMPANY

Mr. Huenniger has twenty-four years of nuclear experience including fourteen years at the Turkey Point 750-MWE Pressurized Water Reactor Units. His experience includes initial fuel loading and startup, unit refuelings, outage coordination, and steam generator replacement on both Units 3 & 4. He has been a Shift Supervisor and currently directs the Projects Department providing interface between Engineering, Construction and the plant pertaining to Three Mile Island and plant change modifications.

RICHARD S. LEASE
NUCLEAR OPERATIONS COORDINATOR
- AMERICAN ELECTRIC POWER SERVICE CORP.

Mr. Lease has 36 years of power plant experience with the American Electric Power Operating Companies including 13 years of nuclear experience. Mr. Lease received a Cold SRO License on Donald C. Cook Nuclear Plant and as Production Supervisor as person in charge for the initial startup of both Cook Units. He was promoted to Operations Supervisor January, 1979 and worked in that position until loaned to the Institute of Nuclear Power Operations (INPO) in November of 1980. While with INPO, he participated in 14 nuclear plant evaluations. He returned to Cook Plant as Production Supervisor in November of 1982. Mr. Lease was transferred to the American Electric Power Corporate Office at Columbus, Ohio in December of 1983 in his present capacity.

RAYMOND L. WENDERLICH
SUPERVISOR OPERATIONS QA AUDITING
CALVERT CLIFFS NUCLEAR POWER PLANT
BALTIMORE GAS & ELECTRIC COMPANY

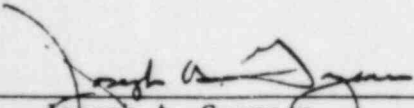
Mr. Wenderlich has eleven years of nuclear power plant experience. In the U.S. Navy, he served as Nuclear Training Officer on the USS Nimitz and as Electrical Officer and Reactor Controls Officer on the USS Mississippi. At the Calvert Cliffs Plant, Mr. Wenderlich has served as: Engineer in the Technical Support Unit; Plant Training Coordinator; Performance Engineer in the Operations Unit; and in his current position as Supervisor - Operations QA Auditing. He has held a Senior Reactor Operator license since 1981. He has stood watches as Shift Technical Advisor (STA) and assisted in the development of the original STA training program at Calvert Cliffs. Mr. Wenderlich is also a qualified Audit Team Leader.

DON J. LOKKER
SUPERVISOR OF COORDINATION
SAN ONOFRE NUCLEAR GENERATING STATION
SOUTHERN CALIFORNIA EDISON CO.

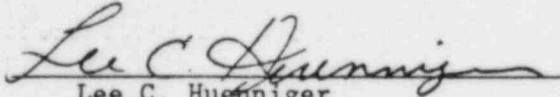
Mr. Lokker has twenty-three years of power plant experience with Southern California Edison Co., over fourteen years of nuclear experience. Mr. Lokker received an RO License on San Onofre Unit 1 in July 1967 and an SRO License on San Onofre Unit 1 in February 1968. This license was maintained through 1978. Mr. Lokker received a Cold SRO License on San Onofre Units 2 and 3 in November 1981. Specific job assignments in the nuclear area include two years as a Control Operator and nine years as a Shift Supervisor. Presently assigned as Supervisor of Coordination responsible for operating procedure preparation, scheduling and review of operational surveillances, and evaluation of all equipment outage requests on San Onofre Units 2 and 3.

V. TEAM ENDORSEMENT

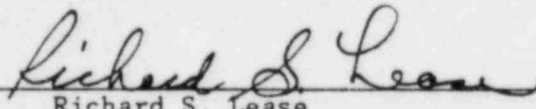
This report reflects my observations and opinions.



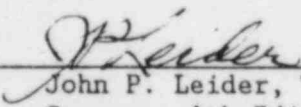
Joseph A. Gonyeau
Northern States Power Company



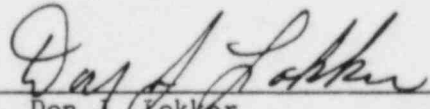
Lee C. Huenniger
Florida Power & Light Company



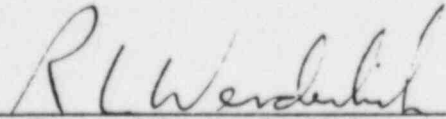
Richard S. Lease
American Electric Power Service Corporation



John P. Leider, Team Leader
Commonwealth Edison Company



Don J. Lokker
Southern California Edison Company



Raymond L. Wenderlich
Baltimore Gas & Electric Company

ATTACHMENT 2

Operations Management Procedure 1-8

Approval CW Bransford

Rev. 4 Date 6/20/84

DUKE POWER COMPANY

CATAWBA NUCLEAR STATION

AUTHORITY AND RESPONSIBILITY OF LICENSED REACTOR OPERATORS AND
LICENSED SENIOR REACTOR OPERATORS

1.0 PURPOSE

- 1.1 To describe the authority of licensed Reactor Operators and the authority of licensed Senior Reactor Operators.
- 1.2 To describe the responsibilities of the licensed Reactor Operators and the responsibilities of licensed Senior Reactor Operators.

2.0 REFERENCES

- 2.1 10CFR50.54, 55.4
- 2.2 Regulatory Guide 1.114, Rev. 1
- 2.3 Administrative Policy Manual For Nuclear Stations
- 2.4 FSAR Chapter 13.0, Conduct of Operation
- 2.5 CNS Technical Specifications
- 2.6 Station Directive 3.1.15
- 2.7 Station Directive 3.1.2

3.0 DESCRIPTION

- 3.1 This procedure identifies the authorities and responsibilities related to the safe operation of a nuclear unit.
- 3.2 Many other duties and responsibilities of licensed operators are described in individual Operations Management Procedures.

4.0 RESPONSIBILITIES

Refer to Sections 7.0, 8.0 and 9.0 of this procedure.

5.0 REPORTING REQUIREMENTS

None

6.0 DEFINITIONS

6.1 Operator at the Controls

The designated licensed Reactor Operator or licensed Senior Reactor Operator who has the responsibility for the operation of a unit from the Control Room. Normally this should be a Nuclear Control Operator.

6.2 Unit Supervisor

An Operations Supervisor who is the designated licensed Senior Reactor Operator that has the overall responsibility for unit operation. Normally this is an Assistant Shift Supervisor.

6.3 Control Room Supervisor

An Operations Supervisor who is the designated licensed Senior Reactor Operator that has the Control Room Command Function responsibility in Modes 1, 2, 3 or 4.

6.4 Controls

When used with respect to a nuclear reactor means apparatus and mechanisms, the manipulation of which directly affects the reactivity or power level of the reactor.

6.5 Control Room Command Function

This function shall be responsible for the supervision of all personnel assigned to the Control Room and all activities performed in the Control Room.

7.0 AUTHORITY AND RESPONSIBILITY OF LICENSED REACTOR OPERATORS

7.1 Authority

- A. To take the appropriate action, including the shutdown or tripping of the reactor, if in their judgement a situation exists requiring prompt action.
- B. To stop fuel loading or fuel movement operations during initial fuel loading or subsequent refueling operations.

7.2 Responsibilities

A. Licensed Reactor Operators

1. A licensed Reactor Operator shall be "at the controls" of each unit when there is fuel in the reactor vessel.
2. When two or more licensed Reactor Operators are assigned to the same unit, one shall assume the duties of the "Operator at the Controls" and the others shall assist in these duties.

3. Licensed Operators cannot delegate the operation of the "Controls" of a unit, but may allow non-licensed Operators to manipulate the "Controls" under the direction of a licensed Operator for training purpose.
 4. All licensed Reactor Operators shall continue their duties until relieved by another licensed Reactor Operator or Senior Reactor Operator per Operations Management Procedure 2-22, Shift Turnover.
 5. All Licensed Reactor Operators shall maintain their licenses by participating in the Catawba Operations Requalification Program.
- B. "Operator at the Controls"
1. Shall operate or direct the operation of equipment associated with his assigned unit.
 2. Shall be responsible for manipulation of the "Controls" for his assigned unit.
 3. Shall be knowledgeable of Unit status at all times.
 4. Shall not leave the Control Room surveillance area without being properly relieved of his duties per Operations Management Procedure 2-22, Shift Turnover.
 5. Shall ensure that entries are made in the Control Room Logbook per Operations Management Procedure 2-17, Control Room and Unit Supervisor Logbooks.
 6. Shall insure that the unit is safely operated in compliance with Technical Specifications and operating procedures.
 7. Shall insure that Control Room instrumentation is routinely surveyed and information from this survey is evaluated to assure safe unit operation.
 8. Shall insure that the "Control Room Supervisor" is notified of all abnormal conditions.
 9. Shall insure that the appropriate follow-up action is taken for all alarms.
 - a. When an alarm is received, he shall insure initiation of prompt corrective action in accordance with procedures.
 - b. He shall notify the "Control Room Supervisor" of all unexpected alarms or alarms received without apparent cause.

- c. He shall verify that the appropriate automatic actions have taken place for the alarm received.
 - d. If the automatic actions associated with an alarm have failed to occur, he shall insure that the actions are initiated manually.
10. Shall insure that the area dispatcher is notified of conditions which could significantly affect station load or other information that the dispatcher may request.

8.0 AUTHORITY AND RESPONSIBILITY OF LICENSED SENIOR OPERATORS

8.1 Authority

- A. The Shift Supervisor or Unit Supervisor has the authority to shutdown or trip any unit, or units, if in his opinion the conditions warrant such action.
- B. The Shift Supervisor has the authority of the Emergency Coordinator until relieved of this duty by the Station Manager per the CNS Emergency Plan.

8.2 Responsibilities

A. Licensed Senior Reactor Operators

- 1. Shall keep themselves informed of operating status and shall direct the activities of licensed Reactor Operators.
- 2. Shall, within their areas of authority, organize, direct and control activities to insure safe, efficient operation in compliance with Technical Specifications and Operating Procedures.
- 3. Shall be cognizant of all maintenance, testing and other activities that could affect unit operation while on duty.
- 4. Shall continue their duties until relieved by another licensed Senior Reactor Operator per Operations Management Procedure 2-22, Shift Turnover.
- 5. Shall maintain their licenses by participating in the Catawba Operations Requalification Program.

B. Shift Supervisor

- 1. Shall be responsible for overall station operation while on duty.
- 2. Shall authorize the removal of any instruments or components from service in accordance with Station Directive 3.1.15, Activities Affecting Station Operations or Operating Indications.

3. Shall be responsible for the "Immediate Notification" of the NRC per Operations Management Procedure 2-15, Notification of the Proper Authority.
4. Shall be responsible for controlling access to containment when the reactor is critical per Station Directive 3.1.2, Access to Containment.
5. Shall be responsible for minimizing the possibility of mistakes due to fatigue, boredom, inattention, or other causes associated with specific job assignments of long duration. This action may be job re-assignments, breaks, or other appropriate action.
6. Shall insure each individual on shift is aware of their responsibility to inform supervision of symptoms of fatigue.

C. Control Room Supervisor

1. Shall supervise Control Room operations for both units. He assumes the "Control Room Command Function". (Except when superceded by the Shift Supervisor during Abnormal or Emergency Conditions.)
2. Shall not leave the Control Room Area (between Column lines AA-EE and 53-60 on Auxiliary Building Elevation 594) until he has been relieved by another licensed Senior Reactor Operator.
3. Shall maintain the following logbooks for each unit in accordance with the controlling OMP listed after each:
 - a. Technical Specifications Action Items Logbook, OMP 2-29
 - b. Test Logbook, OMP 2-30

D. Unit Supervisor

1. Shall be responsible for the overall operation of his assigned unit.
2. Shall maintain the Unit Supervisor's Logbook in accordance with Operations Management Procedure 2-17, Control Room and Unit Supervisor Logbooks.
3. Shall authorize the removal of any instruments or components from service in accordance with Station Directive 3.1.15, Activities Affecting Station Operations or Operating Indications.

9.0 RESPONSIBILITIES DURING EMERGENCY CONDITIONS

9.1 Control Room Supervisor

A. The Shift Supervisor shall report to the Control Room and assume the "Control Room Command Function" during emergency conditions.

B. Shall direct all of his attention to the supervision of any unit operating in an emergency condition. If both units are in an emergency condition the "Control Room Supervisor" shall direct the activities of the unit in the most degraded condition.

C. Should not become involved in the specific details of plant operations, but evaluate overall conditions and ensure the proper actions are being taken.

D. Shall ensure the proper performance of Emergency Procedure (EP) Immediate Actions.

E. Shall ensure that the proper procedures are being used during an emergency.

F. Shall monitor plant conditions and exercise judgement to ensure that the proper actions are being taken for conditions not covered by procedure to ensure plant safety.

G. Shall function as the Station Emergency Coordinator until relieved by the Station Manager or his designee.

H. Shall coordinate the activities of all station groups related to the safety of the plant and the public.

9.2 Assistant Shift Supervisor

A. Shall coordinate plant actions under the direction of the Shift Supervisor.

B. Shall support control room operations as a licensed operator e.g., may have to perform actions and use procedures in the control room if additional manpower support is needed.

9.3 Operator at the Controls (OATC)

A. Shall normally be a Nuclear Control Operator.

B. Shall be responsible for the overall operation of the unit from the Control Room.

C. Shall monitor plant condition.

D. Shall coordinate all unit Control Room functions e.g., assigns procedures to be performed by others such as the Assistant Nuclear Control Operator.

- E. Shall perform or verify that all Emergency Procedure (EP), Abnormal Procedure (AP), or Alarm Response Procedure, Immediate Actions are performed.
- F. Shall use proper procedures e.g., performs or ensures each step in Emergency Procedures or Abnormal Procedures are performed.
- G. Shall perform actions required, in his judgement, to stabilize plant conditions or place the plant in a safe condition.

9.4 Assistant Nuclear Control Operator (ANCO)

- A. Shall monitor plant conditions and take the actions required to place the plant in a safe condition.
- B. Shall use proper procedures as directed by the OATC.
- C. Shall keep the OATC informed of plant conditions and significant changes to plant conditions.

9.5 Nuclear Equipment Operators (NEO)

All Nuclear Equipment Operators shall report to the Control Room immediately upon notification of an emergency condition and await assignments.

ATTACHMENT 4

DUKE POWER COMPANY
 CORPORATE RESOURCES
 TOTAL EMPLOYEES 20,720 (5/31/84)
 ORGANIZATION EFFECTIVE 7-1-84

CHAIRMAN OF
 THE BOARD
 AND CHIEF
 EXECUTIVE OFFICER
 W. S. LEE

PRESIDENT AND CHIEF
 OPERATING OFFICER
 D. W. BOOTH

OPERATING DEPT.	661
TRANSMISSION	1350
DISTRIBUTION	77
SYSTEM PLANNING	24
RETAIL OPER.	4201
OTHER (FINANCE ADMIN. MARKETING ETC.)	1882

EXECUTIVE VICE PRESIDENT
 ENGINEERING, CONSTRUCTION
 AND PRODUCTION GROUP
 W. H. OWEN

PROJECT CONTROL
 J. M. HART

10

VICE PRESIDENT
 DESIGN ENGR.
 L. C. DAIL

1527

VICE PRESIDENT
 CONSTRUCTION
 R. L. DICK

5480

CORP. MANAGER
 QUALITY ASSURANCE
 W. G. GRIER

436

VICE PRESIDENT
 NUCLEAR PROD.
 H. B. TUCKER

2684

VICE PRESIDENT
 FOSSIL PROD.
 W. O. PARKER

1341

VICE PRESIDENT
 PROD. SUPPORT
 R. W. BOSTIAN

1047

NUCLEAR PRODUCTION DEPARTMENT
VICE PRESIDENT AND STAFF

VICE PRESIDENT,
NUCLEAR PRODUCTION
H. B. TUCKER

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	2149	3432	9302	14,883
YEARS EMPLOYED PRE OPERATING STATION	491	1114	2364	3969
YEARS EMPLOYED OPERATING STATION	613	1680	4204	6497
TOTAL NUCLEAR EXPERIENCE	1628	2972	6773	11,373
TOTAL NAVY NUCLEAR EXPERIENCE				610
NUMBER OF EMPLOYEES	381	740	1511	2632

GENERAL MANAGER,
NUCLEAR STATIONS
G. E. VAUGHN

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	1246	3119	8651	13,016
YEARS EMPLOYED PRE OPERATING STATION	441	1076	2325	3842
YEARS EMPLOYED OPERATING STATION	534	1858	4172	6364
TOTAL NUCLEAR EXPERIENCE	1033	2760	6530	10,323
TOTAL NAVY NUCLEAR EXPERIENCE				571
NUMBER OF EMPLOYEES	246	893	1444	2383

VICE PRESIDENT
NUCLEAR PRODUCTION
STAFF **

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	224	43	54	321
YEARS EMPLOYED PRE OPERATING STATION	24	9	13	46
YEARS EMPLOYED OPERATING STATION	25	12	10	55
TOTAL NUCLEAR EXPERIENCE	103	38	43	184
TOTAL NAVY NUCLEAR EXPERIENCE				21
NUMBER OF EMPLOYEES	17	6	8	31

MANAGER, NUCLEAR
OPERATIONS
P. H. BARTON

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	65	27	65	157
YEARS EMPLOYED PRE OPERATING STATION	3	2		5
YEARS EMPLOYED OPERATING STATION	9		7	16
TOTAL NUCLEAR EXPERIENCE	46	13	21	80
TOTAL NAVY NUCLEAR EXPERIENCE				
NUMBER OF EMPLOYEES	10	2	4	16

MANAGER, NUCLEAR
MAINTENANCE
G. W. HALLMAN

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	182	26	347	555
YEARS EMPLOYED PRE OPERATING STATION	11	7	23	41
YEARS EMPLOYED OPERATING STATION	29		1	30
TOTAL NUCLEAR EXPERIENCE	137	23	113	273
TOTAL NAVY NUCLEAR EXPERIENCE				7
NUMBER OF EMPLOYEES	26	5	26	57

MANAGER, NUCLEAR
TECHNICAL SERVICES
W. A. HALLER

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	177	160	91	428
YEARS EMPLOYED PRE OPERATING STATION	2	20	3	25
YEARS EMPLOYED OPERATING STATION	10	10	6	26
TOTAL NUCLEAR EXPERIENCE	120	104	37	261
TOTAL NAVY NUCLEAR EXPERIENCE				
NUMBER OF EMPLOYEES	32	20	13	65

MANAGER, NUCLEAR
ENGINEERING SERVICES
K. S. CANADY

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	255	57	94	406
YEARS EMPLOYED PRE OPERATING STATION	10			10
YEARS EMPLOYED OPERATING STATION	6			6
TOTAL NUCLEAR EXPERIENCE	189	34	29	252
TOTAL NAVY NUCLEAR EXPERIENCE				11
NUMBER OF EMPLOYEES	50	14	16	80

* INCLUDES STAFF AND STATION PERSONNEL
** INCLUDES NUCLEAR SAFETY ASSURANCE

OCONEE NUCLEAR STATION

STATION MANAGER
M. S. TUCKMAN

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	402	1216	4211	5829
YEARS EMPLOYED PRE-OPERATING STATION		11	24	35
YEARS EMPLOYED OPERATING STATION	340	1109	3216	4665
TOTAL NUCLEAR EXPERIENCE	347	1124	3250	4721
TOTAL NAVY NUCLEAR EXPERIENCE				171
NUMBER OF EMPLOYEES	77	223	540	840

SUPERINTENDENT OF STATION SERVICES
J. McINTOSH

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	7	93	183	283
YEARS EMPLOYED PRE-OPERATING STATION			1	1
YEARS EMPLOYED OPERATING STATION	9	87	179	275
TOTAL NUCLEAR EXPERIENCE	9	87	179	275
TOTAL NAVY NUCLEAR EXPERIENCE				6
NUMBER OF EMPLOYEES	1	18	33	52

MANAGER, OCOONE NUCLEAR STATION STAFF

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	45	38	53	136
YEARS EMPLOYED PRE-OPERATING STATION		5		5
YEARS EMPLOYED OPERATING STATION	41	22	42	105
TOTAL NUCLEAR EXPERIENCE	41	27	43	111
TOTAL NAVY NUCLEAR EXPERIENCE				7
NUMBER OF EMPLOYEES	7	3	5	15

SUPERINTENDENT OF TECHNICAL SERVICES
T. BARR

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	148	412	527	1087
YEARS EMPLOYED PRE-OPERATING STATION		2	6	8
YEARS EMPLOYED OPERATING STATION	109	390	453	952
TOTAL NUCLEAR EXPERIENCE	111	392	459	962
TOTAL NAVY NUCLEAR EXPERIENCE				6
NUMBER OF EMPLOYEES	27	88	84	199

SUPERINTENDENT OF MAINTENANCE
J. DAVIS

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	99	412	2576	3087
YEARS EMPLOYED PRE-OPERATING STATION		2	12	14
YEARS EMPLOYED OPERATING STATION	83	380	1789	2252
TOTAL NUCLEAR EXPERIENCE	85	386	1811	2282
TOTAL NAVY NUCLEAR EXPERIENCE				10
NUMBER OF EMPLOYEES	22	63	297	382

SUPERINTENDENT OF OPERATIONS
J. POPE

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	92	261	856	1209
YEARS EMPLOYED PRE-OPERATING STATION		2	5	7
YEARS EMPLOYED OPERATING STATION	89	230	737	1056
TOTAL NUCLEAR EXPERIENCE	91	232	742	1065
TOTAL NAVY NUCLEAR EXPERIENCE				142
NUMBER OF EMPLOYEES	19	51	117	187

SUPERINTENDENT OF INTERGRATED SCHEDULING
L. WILKIE

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	11		16	27
YEARS EMPLOYED PRE-OPERATING STATION				
YEARS EMPLOYED OPERATING STATION	9		16	25
TOTAL NUCLEAR EXPERIENCE	10		15	25
TOTAL NAVY NUCLEAR EXPERIENCE				
NUMBER OF EMPLOYEES	1		4	5

NOTE: SUPERINTENDENT'S ARE INCLUDED IN STATION MANAGER STAFF.
STATION MANAGER IS INCLUDED IN GENERAL MANAGER NUCLEAR STATIONS

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McGUIRE NUCLEAR STATION
NUCLEAR DIVISION

MANAGER McGUIRE
NUCLEAR STATION
M. D. McINTOSH

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	389	971	2487	3847
YEARS EMPLOYED PRE-OPERATING STATION	156	358	964	1488
YEARS EMPLOYED OPERATING STATION	169	501	898	1568
TOTAL NUCLEAR EXPERIENCE	347	866	1863	3076
TOTAL NAVY NUCLEAR EXPERIENCE				143
NUMBER OF EMPLOYEES	74	212	417	703

MANAGER McGUIRE
NUCLEAR STATION
STAFF

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	39		23	62
YEARS EMPLOYED PRE-OPERATING STATION	22		8	30
YEARS EMPLOYED OPERATING STATION	9		3	12
TOTAL NUCLEAR EXPERIENCE	31		11	42
TOTAL NAVY NUCLEAR EXPERIENCE				
NUMBER OF EMPLOYEES	3		1	4

NOTE: SUPERINTENDENTS ARE INCLUDED IN STATION MANAGER STAFF
STATION MANAGER IS INCLUDED IN GENERAL MANAGER NUCLEAR STATIONS

SUPERINTENDENT OF OPERATIONS
G. W. CAGE

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	113	155	749	1017
YEARS EMPLOYED PRE-OPERATING STATION	58	52	383	473
YEARS EMPLOYED OPERATING STATION	50	70	236	356
TOTAL NUCLEAR EXPERIENCE	110	121	600	831
TOTAL NAVY NUCLEAR EXPERIENCE				51
NUMBER OF EMPLOYEES	21	35	98	155

SUPERINTENDENT OF MAINTENANCE
D. J. RAINS

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	99	309	1241	1649
YEARS EMPLOYED PRE-OPERATING STATION	38	137	397	572
YEARS EMPLOYED OPERATING STATION	43	127	441	610
TOTAL NUCLEAR EXPERIENCE	82	265	838	1185
TOTAL NAVY NUCLEAR EXPERIENCE				43
NUMBER OF EMPLOYEES	21	52	220	293

SUPERINTENDENT OF STATION SERVICES
L. E. WEAVER

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	97	158	255	
YEARS EMPLOYED PRE-OPERATING STATION	42	70	112	
YEARS EMPLOYED OPERATING STATION	49	73	122	
TOTAL NUCLEAR EXPERIENCE	95	145	240	
TOTAL NAVY NUCLEAR EXPERIENCE				
NUMBER OF EMPLOYEES	18	22	45	

SUPERINTENDENT OF TECHNICAL SERVICES
T. L. McCONNELL

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	138	410	315	764
YEARS EMPLOYED PRE-OPERATING STATION	48	127	125	301
YEARS EMPLOYED OPERATING STATION	67	255	143	465
TOTAL NUCLEAR EXPERIENCE	118	385	269	772
TOTAL NAVY NUCLEAR EXPERIENCE				49
NUMBER OF EMPLOYEES	26	106	71	206

CATAWBA NUCLEAR STATION

STATION MANAGER
J. W. HAMPTON

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	360	932	1927	3220
YEARS EMPLOYED PRE-OPERATING STATION	255	706	1336	2297
YEARS EMPLOYED OPERATING STATION	16	50	61	127
TOTAL NUCLEAR EXPERIENCE	292	771	1409	2472
TOTAL NAVY NUCLEAR EXPERIENCE				220
NUMBER OF EMPLOYEES	89	258	485	832

SUPERINTENDENT OF STATION SERVICES
A. R. FRANKLIN

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	1	173	386	560
YEARS EMPLOYED PRE-OPERATING STATION	1	118	279	398
YEARS EMPLOYED OPERATING STATION		1	6	7
TOTAL NUCLEAR EXPERIENCE	1	129	285	415
TOTAL NAVY NUCLEAR EXPERIENCE				6
NUMBER OF EMPLOYEES	1	63	166	230

MANAGER, CATAWBA NUCLEAR STATION STAFF

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	23		37	60
YEARS EMPLOYED PRE-OPERATING STATION	12		20	32
YEARS EMPLOYED OPERATING STATION	4			4
TOTAL NUCLEAR EXPERIENCE	16		20	36
TOTAL NAVY NUCLEAR EXPERIENCE				
NUMBER OF EMPLOYEES	2		2	4

SUPERINTENDENT OF OPERATIONS
C. W. GRAVES, JR

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	84	223	404	711
YEARS EMPLOYED PRE-OPERATING STATION	55	169	272	496
YEARS EMPLOYED OPERATING STATION		23	8	31
TOTAL NUCLEAR EXPERIENCE	71	193	288	550
TOTAL NAVY NUCLEAR EXPERIENCE				144
NUMBER OF EMPLOYEES	22	47	85	154

OUTAGE COORDINATION

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	34	13	21	68
YEARS EMPLOYED PRE-OPERATING STATION	27	14	21	62
YEARS EMPLOYED OPERATING STATION	3			3
TOTAL NUCLEAR EXPERIENCE	32	14	21	67
TOTAL NAVY NUCLEAR EXPERIENCE				37
NUMBER OF EMPLOYEES	10	4	6	20

SUPERINTENDENT OF TECHNICAL SERVICES
J. W. COX

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	138	318	248	704
YEARS EMPLOYED PRE-OPERATING STATION	101	233	190	524
YEARS EMPLOYED OPERATING STATION	2	18	15	35
TOTAL NUCLEAR EXPERIENCE	103	253	206	562
TOTAL NAVY NUCLEAR EXPERIENCE				22
NUMBER OF EMPLOYEES	36	91	61	187

SUPERINTENDENT OF MAINTENANCE
G. T. SMITH

	ENGR DEGREE	OTHER DEGREE	NON DEGREE	TOTAL
YEARS EMPLOYED	80	206	831	1117
YEARS EMPLOYED PRE-OPERATING STATION	69	172	554	795
YEARS EMPLOYED OPERATING STATION	7	8	32	47
TOTAL NUCLEAR EXPERIENCE	70	182	591	843
TOTAL NAVY NUCLEAR EXPERIENCE				48
NUMBER OF EMPLOYEES	19	63	165	237

NOTE: SUPERINTENDENTS ARE INCLUDED IN STATION MANAGER STAFF
STATION MANAGER IS INCLUDED IN GENERAL MANAGER NUCLEAR STATIONS

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