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ROOT,L.D. Iowa Electric Light & Power Co.
RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation

SUBJECT: Responds to 790629 ltr re corporate capabilities,Outlines responsibilities & personnel,Encls withheld (ref 10CFR2.790). (see report)

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Iowa Electric Light and Power Company

July 30, 1979
LDR-79-130

LARRY D. ROOT
ASSISTANT VICE PRESIDENT
NUCLEAR GENERATION

Mr. Harold Denton, Director
U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D.C. 20555

Subject: Corporate Capabilities
Reference: Harold Denton Letter Dated June 29, 1979, Same Subject
Attachments: See Attached List

Dear Mr. Denton:

This is in response to your referenced letter. Management and technical responsibility for operation of the Duane Arnold Energy Center (DAEC) resides in the Nuclear Generation Division. This division is responsible for integration of licensing, technical support, and operation of the DAEC.

Iowa Electric does depend upon consultant assistance from specialized consulting companies. Consulting agreements include such organizations as General Electric, Bechtel, Nutech and EDS. Work activities are authorized by the Assistant Vice President, Nuclear Generation, or his designated alternate. Work may be authorized by purchase order or letter.

Offsite senior management resources are readily available due to the close proximity of the DAEC to the Iowa Electric corporate offices. A management level organization chart is attached to this letter (Chart A). You also requested descriptions of senior management functions and backgrounds. Requested descriptions are Table 1 to this letter.

Plant staff professional level personnel are shown on Chart B. Plant staff functions are shown in Table 2 and Table 3.

Offsite technical resources are available from corporate headquarters. Offsite organization charts are attached to this letter (Charts C, D, and E). Educational and professional backgrounds are described in the attachments to these charts. Other technical resources are available as shown in Tables 4 and 5.

We trust that this information satisfactorily fulfills your request. We are available to discuss this matter with you and your staff at your convenience.

Very truly yours,

Larry D. Root

Larry D. Root
Assistant Vice President
Nuclear Generation

LDR/ms
Attachments as shown on next page
cc: D. Arnold
S. Tuthill
L. Liu
E. Hammond
H. Rehrauer

Iowa Electric Light and Power Company

July 30, 1979
LDR-79-130

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Attachments as shown on next page
cc: D. Arnold
S. Tuthill
L. Liu
E. Hammond
H. Rehrauer

ATTACHMENTS TO LDR-79-130

CHART A	IOWA ELECTRIC LIGHT AND POWER COMPANY MANAGEMENT ORGANIZATION
TABLE 1	MANAGEMENT AND TECHNICAL RESOURCES
CHART B	DAEC ORGANIZATION CHART
TABLE 2	PLANT STAFF JOB FUNCTIONS
TABLE 3	DAEC PLANT STAFF POSITIONS
CHART C	NUCLEAR GENERATION DIVISION ORGANIZATION CHART AND ATTACHED EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS
	SECTION A -- IOWA ELECTRIC EMPLOYEES
	SECTION B -- CONTRACT EMPLOYEES
CHART D	MECHANICAL/NUCLEAR ENGINEERING DEPARTMENT ORGANIZATION CHART AND ATTACHED EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS
CHART E	ELECTRICAL ENGINEERING DEPARTMENT ORGANIZATION CHART AND ATTACHED EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS
TABLE 4	TECHNICAL RESOURCES AVAILABLE FROM CENTRAL REGION, IOWA ELECTRIC LIGHT AND POWER COMPANY
TABLE 5	TECHNICAL RESOURCES AVAILABLE FROM EASTERN REGION, IOWA ELECTRIC LIGHT AND POWER COMPANY

CHART A

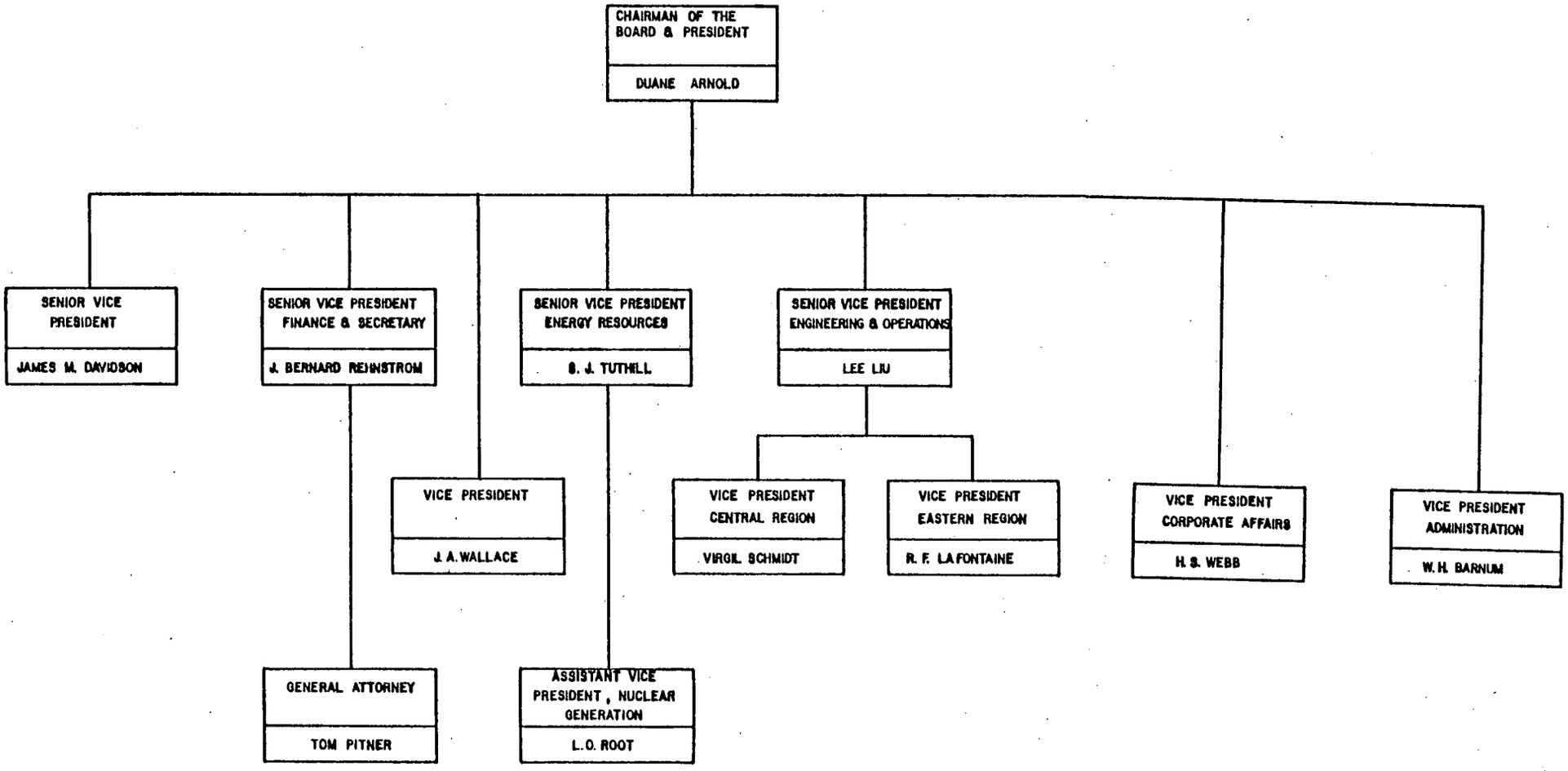

CHAIRMAN OF THE BOARD & PRESIDENT
DUANE ARNOLD
SENIOR VICE PRESIDENT
JAMES M. DAVIDSON
SENIOR VICE PRESIDENT FINANCE & SECRETARY
J. BERNARD REINSTROM
VICE PRESIDENT
J. A. WALLACE
GENERAL ATTORNEY
TOM PITNER
SENIOR VICE PRESIDENT ENERGY RESOURCES
S. J. TUTHILL
ASSISTANT VICE PRESIDENT, NUCLEAR GENERATION
L. O. ROOT
SENIOR VICE PRESIDENT ENGINEERING & OPERATIONS
LEE LIU
VICE PRESIDENT CENTRAL REGION
VIRGIL SCHMIDT
VICE PRESIDENT EASTERN REGION
R. F. LAFONTAINE
VICE PRESIDENT CORPORATE AFFAIRS
H. S. WEBB
VICE PRESIDENT ADMINISTRATION
W. H. BARNUM

TABLE 1

MANAGEMENT AND TECHNICAL RESOURCES

A. Management Positions

1. Chairman of the Board and President -- Duane Arnold	A. Chairman of the Board and President
	B. Grinell College, Grinnel, Iowa BA Degree; International Correspondence School, Utility Engineering Course; American Management Association, Management Course;
	C. Employed in various positions at Iowa Electric since 1947. Named Director in 1960, President in 1961 and Chairman of the Board and President in 1969.
2. Senior Vice President -- James M. Davidson	A. Responsible to Board of Directors and/or Chairman of the Board and President and for the following activities: Manages the rate development and application departments, including all state and national regulatory activities in this respect to improve rate of return to the Company. Supervises and prosecutes all rate matters with other utilities and suppliers. Develops programs of integrated operation with other utilities to assure optimum use of the Company facilities, and practices and procedures relating thereto. Responsible for Corporate growth planning and program development including marketing and sales programs to improve plant use and profitability. Represents the Company in all regional or state organizations designed to coordinate, operate and plan for expansion between other utilities in this region or state including pooling and mutual expansion efforts.
	B. Iowa State University, BS Degree; Industrial Engineering, June 1957

C. Iowa Electric 1957 to present, Rate Engineer 1964, Vice President 1969, Senior Vice President 1973.

3. Senior Vice President - Finance and Secretary -- J. Bernard Rehnstrom

A. Responsible to the Board of Directors and/or the Chairman of the Board and President and for the following activities: As Chief Financial Officer of the Company he is responsible for the development of the financial program in a manner to support the needs of the Company, both present and future. This includes the planning of and execution of program coordinated with and supporting all functions of the Company. Responsible for all regulatory agencies and stock exchange matters and reports pertaining to the financing and accounting activities, including projections as required or requested. Manages the Corporate Services Department, the Purchasing Department, the Real Estate Department and the Legal Department.

B. University of Iowa, Bachelor of Science in Commerce - 1951

C. 1951-1953 - U.S. Army Finance Corps; 1953-1959 - Senior Accountant, Utility Staff, Arthur Anderson & Co.; 1959-Present various positions at Iowa Electric.

4. Senior Vice President, Energy Resources and Utilization - Research and Environment -- Samuel J. Tuthill

A. Responsible to the Board of Directors and/or the Chairman of the Board and President and for the following activities: Manages the acquisition and delivery of all fuels; Fuels Quality Assurance and Testing (manages boiler water programs, performs and/or manages all environmental testing and monitoring, manages the research efforts of the Company and correctly deals with all of the chemical exposure health and safety issues within the Company. Manages the Production Department, in all requirements that arise within the Department excepting large construction projects. Corporate Quality Assurance reports directly to this Vice President. Coordinates environmental matters that affect the company. Acquisition of resources such as coal reserves, water and special purpose land.

4. Continued

B. A.B. English Literature, Drew University 1951; M.S. General Science, Syracuse University, 1960; M.A. Paleontology/ Geology, University of North Dakota, 1963; Ph.D. Geology, University of North Dakota, 1969.

C. 1977 to present, Iowa Electric in present position; 1977-1976 Assistant Administrator for Energy Conservation and Environment, Federal Energy Administration, Washington, D.C.; 1976-1975 Science Advisor to Secretary of the Interior, Washington, D.C.; State Geologist and Director of the Iowa Geological Survey and Science Advisor to the Governor of Iowa 1969-1975; Chairman of the Task Force on Energy and the Environment of the Midwestern Governors' Conference, Iowa City, Iowa, 1972-1974; National Science Foundation Science Faculty Fellow, Grand Forks, North Dakota 1979-1968; Assistant Professor of Geology, Muskingum College, New Concord, Ohio, 9/64 - 7/68; Leader of three expeditions funded by the National Science Foundation during the summers of 1965, 1967, and 1968; Geologist, North Dakota Geological Survey, Grand Forks, North Dakota, 9/63-8/64; Scientist, University of North Dakota, Expeditions funded by National Science Foundation during summers of 1962, 1963 and 1964; National Science Foundation Fellow, General Science, Syracuse University, Syracuse, NY, 7/59 - 8/60; Master, The Manlius Academy, Manlius, NY, 9/57-6/59; Teacher, Mayville Central School, Mayville, NY, 9/54-6/57; District Executive, Chautauqua County Council, Boy Scouts of America, Mayville NY, 10/53-8/54; Field Scout Executive, Morris-Sussex County Council, Boy Scouts of America, Morristown, NJ, 7/51-8/53; Student at Drew University, Madison, NJ and Laboratory Assistant, Bakelite Corp., Bloomfield, NJ, and News Desk, The March of Time, Time-Life, Inc., New York City, NY from 9/47 - 10/49; S/Sgt., B-17 Combat Crew Member, 15th Army Air Force, United States Army, 9/43 - 10/45.

5. Senior Vice President - Engineering and Operations -- Lee Liu

A. Responsible to the Board of Directors and the Chairman of the Board and President and for the following activities: The development and expansion of all physical plant facilities and the design and planning of all electric, gas, heat and generating facilities. Divisional operations, including both electric and gas, and commercial and operating facilities are under his jurisdiction, with Vice Presidents of the Central and Eastern Region and the Western Region Manager reporting directly to him. He manages the activities of the Electric and Gas Engineers. Interfaces with NRC on licensing, provides engineering expertise to support nuclear operation. Performs the duties of the President in the event of the latter's absence.

B. 1953-57 Iowa State University, Ames, Iowa, B.S. in Electrical Engineering. Specialty Courses:
   1958 - Graduate Course in Symmetrical Components
   1959 - System Stability Course
   1962 - Advanced Power System Analysis
   1968 - Nuclear Engineering
   1969 - General Electric BWR Operations
   1970 - General Electric BWR Training Center
   1972 - Executive Management Program
   1976 - Zero Base Budgeting
   1977 - Fundamentals of Finance and Accounting

C. June 1957 to present, various positions at Iowa Electric Light and Power Company in the Electrical Engineering field; including Manager, Electrical Engineering in 1970, Assistant Vice President - Engineering in 1974, Vice President - Engineering in 1975, Senior Vice President - Engineering in 1978. Directly-related nuclear experience included instrumentation and control system work including design, specifications, equipment and computer system application. Plant licensing - NRC and other state agencies. Developed SCADA computer system for the DAEC, and other DAEC plant electrical systems. Was a member of the DAEC Safety Committee.

6. Vice President - Administration -- W. H. Barnum

A. Responsible to the Board of Directors and the Chairman of the Board and President for the following functions, responsibilities and authority: Purchasing and Stores, Personnel, Security, wage administration, management training, management information budgeting.

B. Business College, AMA Courses, Public Accounting Schools

C. Property Accounting Clerk; Iowa Public Service Co., 1939-1941; 1942-1946 Senior Accountant at Arthur Anderson & Co.; 1946-1948 self employed as Property and Systems Consultant; 1948 to present Iowa Electric Light and Power Company in various positions, including: 1971 Assistant to the President; 1975 Acting Director of Purchasing; 1976 Vice President, Administrative.

7. Vice President - Corporate Affairs -- Horace S. Webb

A. Responsible to the Board of Directors and the Chairman of the Board and President for the following activities: Media relations - Authority to release information about the company to the general public through the media. Also in the event of an emergency involving the Duane Arnold Energy Center, responsible for giving news briefings.

B. Bachelor of Science Degree, Chemistry, Howard University, Washington, D.C. 1961. Graduate studies in Business Administration, Babson College, Wellesley, Massachusetts, American University, Washington, D.C.

C. Deputy Director of Public Information, U.S. Department of Justice (1972-1974); Deputy Director of Communications, U.S. Department of the Interior (1974-1975); Director of Communications, U.S. Department of Commerce (1975-1976); Vice President for Public Relations, Sportsystems Corp., (1977); Vice President for Corporate Affairs for Potomac Electric Power Company with similar corporate responsibilities as above. The compny however, was non-nuclear. (1977-1978); Vice President, Corporate Affairs, Iowa Electric Light and Power Company, 8-78 to present. Served as company spokesman during major outage at the DAEC which involved a complex pipe crack repair procedure, (1978-1979).

8. Vice President -- J. A. Wallace

A. Responsible to the Board of Directors and the Chairman of the Board and President for the following activities: Responsible for design and construction of new fossil plants, including staffing, recruiting, training, method developments, etc. Responsible for analyzing and revising present reporting practices, procedures and efficiency studies to assure the most economical operation of our existing fossil generating stations.

B. Bachelor of Science in Mechanical Engineering, Iowa State College, Ames, Iowa, 1941.

C. January, 1942 to present, various positions at Iowa Electric Light and Power Company, including General Production Manager 1956, Assistant Vice President, Generation 1974 and Vice President, Generation 1975. Actively involved in the design, construction, startup and initial operation of the DAEC.

9. Vice President - Eastern Region -- R. F. LaFontaine

A. Reports to and is responsible for activities assigned to him by the Senior Vice President-Engineering and Operations. Manages and is responsible for the supervision of the operating, maintenance, planning and commercial activities of the Eastern Region.

B. B.A. and B.S. 1943 - Coe College, Cedar Rapids, Iowa

C. U.S. Navy (Officer, Pacific Theatre) 1943-1946; Iowa Electric Light and Power Company 1946 to present in various positions of supervision and administration, primarily in operating functions.

10. Vice President - Central Region -- V. J. Schmidt

A. Reports to and is responsible for activities assigned to him by the Senior Vice President-Engineering and Operations. Manages and is responsible for all areas of activities within the Central Region.

B. High School Diploma

10. Continued

C. U.S. Navy (Machinist Mate 1st Class); Iowa Electric Light and Power Company 1948 to present in various positions of supervision and administration of field operations.

11. Assistant Vice President - Nuclear Generation -- L. D. Root

A. Reports to and is responsible for activities assigned to him by the Senior Vice President, Energy Resources and Utilization - Research and Environment. Responsible for all operational aspects of the DAEC, including nuclear engineering, licensing and fuel management.

B. Bachelor of Science in Mechanical Engineering, Iowa State University, 1959; Master Business Administration, University of Santa Clara, 1967; Professional Engineer, Nuclear Engineering in the State of California, 1977.

C. Design Engineer, Lockheed Missles & Space, Sunnyvale, California 6/59-5/61; Design Engineer, Martin Marietta Corporation, Baltimore, Maryland, 5/61-3/62; Design Engineer, United Technology Center, REQ Engineer Sunnyvale, California, 4/62-4/65; General Electric Atomic Power Division, San Jose, California, 4/65-5/70; various positions at Iowa Electric Light and Power Company 1970 to present, including: Assistant Project Manager, DAEC, 1970, Manager, Mechanical/Nuclear Engineering 1975; Director of Engineering 1978; and Assistant Vice President, Nuclear Generation 6/79.

12. General Attorney -- Tom Pitner

A. Reports to and is responsible for activities assigned to him by the Senior Vice President, Finance and Secretary. Responsible for the supervision of the Legal Department and for retaining, directing, and coordinating activities of outside counsel as may be required to assist in litigation and other matters which are the responsibility of the Legal Department. Responsible for informing management and others concerned of decisions and rulings of courts, administrative and legislative bodies which could impact the company's operations.

12. Continued

B. Bachelor of Science in Business, University of Kansas, Lawrence, Kansas, 1963; Juris Doctorate from the University of Kansas Law School, 1966; Masters Public Administration from the University of Kansas, 1976.

C. Lawyer in the firm of Baldwin, Paulsen, Gibson & Buechel, Concordia, Kansas, 1966-1971; Private law practice from 1971-1975; Chief Attorney, Department of Administration, State of Kansas, Topeka, Kansas 1975-1977; General Counsel, State Corporation Commission, State of Kansas, Topeka, Kansas 1977-1978; General Attorney for Iowa Electric Light and Power Company, 1978 to present.

CHART B

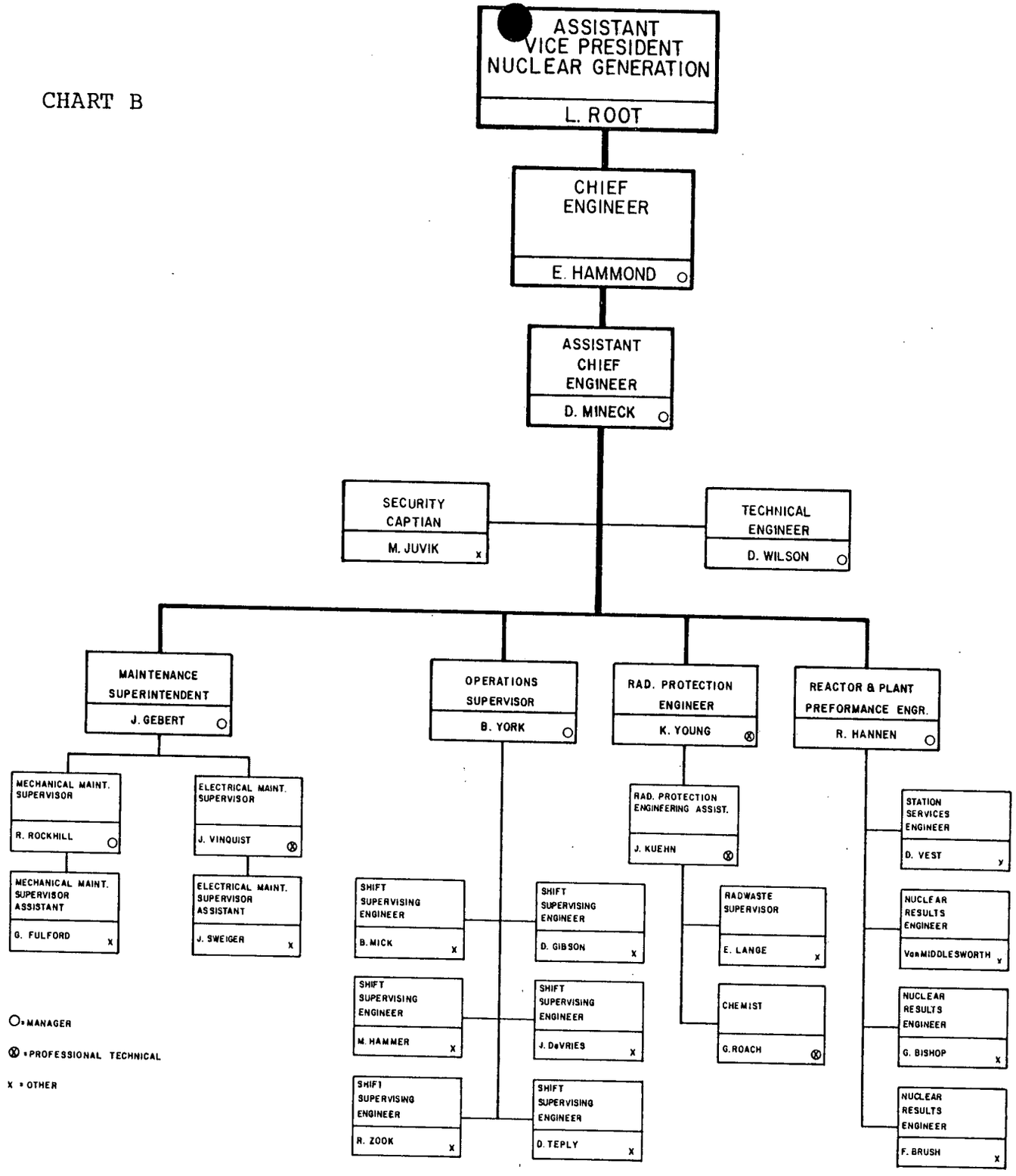

ASSISTANT VICE PRESIDENT NUCLEAR GENERATION
L. ROOT
CHIEF ENGINEER
E. HAMMOND O
ASSISTANT CHIEF ENGINEER
D. MINECK O
SECURITY CAPTIAN
M. JUVIK X
TECHNICAL ENGINEER
D. WILSON O
MAINTENANCE SUPERINTENDENT
J. GEBERT O
OPERATIONS SUPERVISOR
B. YORK O
RAD. PROTECTION ENGINEER
K. YOUNG ⊗
REACTOR & PLANT PREFORMANCE ENGR.
R. HANNEN O
MECHANICAL MAINT. SUPERVISOR
R. ROCKHILL O
ELECTRICAL MAINT. SUPERVISOR
J. VINQUIST ⊗
MECHANICAL MAINT. SUPERVISOR ASSISTANT
G. FULFORD X
ELECTRICAL MAINT. SUPERVISOR ASSISTANT
J. SWEIGER X
SHIFT SUPERVISING ENGINEER
B. MICK X
SHIFT SUPERVISING ENGINEER
D. GIBSON X
SHIFT SUPERVISING ENGINEER
M. HAMMER X
SHIFT SUPERVISING ENGINEER
J. DeVRIES X
SHIFT SUPERVISING ENGINEER
R. ZOOK X
SHIFT SUPERVISING ENGINEER
D. TEPLY X
RAD. PROTECTION ENGINEERING ASSIST.
J. KUEHN ⊗
RADWASTE SUPERVISOR
E. LANGE X
CHEMIST
G. ROACH ⊗
STATION SERVICES ENGINEER
D. VEST X
NUCLEAR RESULTS ENGINEER
VanMIDDLESWORTH X
NUCLEAR RESULTS ENGINEER
G. BISHOP X
NUCLEAR RESULTS ENGINEER
F. BRUSH X
O = MANAGER
⊗ = PROFESSIONAL TECHNICAL
X = OTHER

TABLE 2

PLANT STAFF JOB FUNCTIONS

A. MANAGERS

A.1 Chief Engineer and Assistant Chief Engineer

The Chief Engineer and Assistant Chief Engineer will exercise managerial and supervisory responsibility for the safe and efficient operation of the reactor and associated equipment. The Assistant Chief Engineer will be the alternate Plant Fuel Custodian.

A.2 Operations Supervisor

The Operations Supervisor directs and coordinates the activities of the five Shift Supervising Engineers in the operation of the station. He is responsible for maintaining station operating records in accordance with the facility license and will direct the training and retraining of the station operations personnel. He will participate in the review of operating manuals and instructions for the startup, operation, and shutdown of the facility. He shall participate and contribute to the planning and scheduling of work and shall be familiar with all maintenance and refueling activities. He will act for the Chief Engineer and Assistant Chief Engineer in their absence.

A.3 Maintenance Superintendent

The Maintenance Superintendent is responsible for the overall activities of the mechanical, electrical and instrumentation maintenance of the facility. In addition to these duties, he

A.3 Continued

will train and maintain in conjunction with the Radiation Protection Engineer a fire-fighting group to promote safety and make inspections for fire hazards.

A.4 Technical Engineer

The Technical Engineer is responsible for all activities related to the facility's reporting requirements to NRC and other agencies, maintaining a commitment control list and related documents. In addition to the reporting aspects, he is responsible to coordinate all facility training programs required for operators, security, maintenance and administrative personnel in order to insure compliance with NRC regulations.

B. PROFESSIONAL-TECHNICAL

B.1 Reactor and Plant Performance Engineer

The Reactor and Plant Performance Engineer will be responsible for plant efficiency, engineering and technical studies to secure the maximum economic benefits from the facility, and will specify the manner of reactor operation within the operating license requirements. He will research and advise on improvements in reactor technology and operation, and will be responsible for planning, directing, and managing fuel technology. He will participate in the review of operation and maintenance manuals for startup, shutdown, and normal and abnormal operations. He will advise and assist all technical, operation and maintenance

B.1 Continued

groups in the areas of reactor physics, coolant chemistry, radiation chemistry, instrumentation and control, and radiation protection. He will be responsible for all movement and storage of fuel and will assist in the training of personnel. He is designated as the Plant Fuel Custodian.

B.2 Electrical Maintenance Supervisor

The Electrical Maintenance Supervisor is responsible for directing the maintenance, calibration, alteration, overhaul and repair of electrical equipment, and instrumentation and controls associated with the facility. He will participate and be responsible for personnel training and review of operating and maintenance manuals for his area of responsibility. He will also be knowledgeable and competent on the subject of radiation and radiation shielding.

B.3 Chemist

The Chemist will keep record of radiation levels for the plant and perform chemical and radiochemical analyses of waste materials. He will organize and administer radiation protection, decontamination, and waste chemistry procedures for the protection of all personnel in accordance with regulatory requirements. He will participate in review of operation and maintenance manuals for the startup, operation, and shutdown of the plant and any abnormal situation.

B.3 Continued

He will be able to recommend immediate action to limit spread of contamination, to clean up, install shielding, and restrict access where any radiation levels exceed established limits.

B.4 Radiation Protection Engineer

He will supervise chemical and radiological activities to assure plant and environmental radiation safety and waste disposal monitoring within regulations. He will be in charge of the laboratory, plant chemical equipment, and chemical and radiological analyses, and will provide technical advice to plant personnel. He will participate in the review of operation and maintenance manuals for startup, operation, shutdown and abnormal situations. He will audit and review all operating records and charts, and from these records and other information, develop recommendations and procedures for the betterment and safety of the facility. He will work closely with the instrument and control group to insure accurate measurement and monitoring of reliable data and other information. He will train and give instruction to plant personnel regarding radiation safety and chemical analyses.

C. OTHER PERSONNEL

C.1 Mechanical Maintenance Supervisor

The Mechanical Maintenance Supervisor is responsible for directing the maintenance, alteration, overhaul and repair of mechanical equipment associated with the facility. He will participate and

C.1 Continued

be responsible for personnel training and the review of operating and maintenance manuals for his area of responsibility. He will also be knowledgeable and competent on the subject of radiation and radiation shielding.

C.2 Nuclear Results Engineer

The Nuclear Results Engineer will, under indirect and intermittent supervision, collect data and test information relating to plant efficiency, performance and reliability of the facility. He will be able to make necessary calculations, diagnose and interpret results, and make recommendations for the betterment of the operation. He will work closely with the Instrument and Control group to insure accurate measurements and monitoring of reliable data and information. He will review all daily operating records and from these records and other information and related calculations, locate, correct and point out any improvement in procedure or defective equipment that may be lowering the efficiency of the plant. He will also participate in training and the review of operation and maintenance manuals. He is authorized to act as Reactor and Plant Performance Engineer in his absence.

C.3 Station Services Engineer

The Station Services Engineer will be responsible for the operation and maintenance of the plant computer and its peripheral equipment, including development of computer functions. He will coordinate his work with the Operation, Maintenance and Technical groups,

C.3 Continued

and train the Operation and Technical personnel in the use of the computer.

C.4 Shift Supervising Engineer

The Shift Supervising Engineer is in charge of the shift and as such supervises personnel and equipment operation for the safe, efficient and reliable operation of the plant. He is responsible for radiation safety and chemistry, tests and results on his shift. He will participate in personnel training and the review of operating manuals and instructions for the startup, operation, and shutdown of the facility. He shall be familiar with all maintenance and refueling activities.

C.5 Electrical Maintenance Supervisor Assistant

The Electrical Maintenance Supervisor Assistant is responsible for implementation of the duties (listed in B.2) of the Electrical Maintenance Supervisor. He is authorized to act as the Electrical Maintenance Supervisor in his absence.

C.6 Mechanical Maintenance Supervisor Assistant

The Mechanical Maintenance Supervisor Assistant is responsible for implementation of the duties (listed in C.1) of the Mechanical Maintenance Supervisors. He is authorized to act as the Mechanical Maintenance Supervisor in his absence.

C.7 Assistant Radiation Protection Engineer

The Assistant Radiation Protection Engineer is responsible for implementation of the duties (listed in B.4) of the Radiation Protection Engineer. He is authorized to act as the Radiation Protection Engineer in his absence.

C.8 Radwaste Supervisor

The Radwaste Supervisor is responsible for the operation and maintenance of the radwaste facility. He reports directly to the Assistant Radiation Protection Engineer on all matters concerning radioactive releases to the environment via the radwaste system.

C.9 Security Captain

The Security Captain is responsible for the implementation of the Security Plan at the facility, review of NRC regulations, updating of procedures, training in accordance with NRC regulations and supervision of the guard force. The Security Captain reports directly to the Assistant Chief Engineer and has an interface channel to the Corporate Security Director.

TABLE 3

DAEC PLANT STAFF POSITIONS

1.	Chief Engineer -- Ellery Hammond	A. BSME, Northeastern University, 1959; MSME, Northeastern University, 1961; One year for MBA, Northeastern University, 1962: GE, Fundamentals Boiling Water Reactor, 1971; GE, BWR Technology, 1972; GE, Operation of a BWR, 1972; RO license at Yankee Rowe (PWR); SRO license at DAEC (BWR)
		B. Reactor Engineer at Yankee Rowe (PWR); Seabrook N.H. design effort, one year; Iowa Electric Light and Power Company, Mechanical/Nuclear Design Engineer in the General Office Engineering Department, 1970; 1971, Assistant Chief Engineer at Iowa Electric; 1977 to present, DAEC Chief Engineer.
2.	Assistant Chief Engineer -- D. L. Mineck	A. BSME, Iowa State University, 1971; GE BWR Observer Training, 1972; NUS Corporation, Introduction to Nuclear Power, 1971; GE BWR Technology, 1972; GE Operation of a BWR, 1972
		B. Various positions at Iowa Electric Light and Power Company, including: Junior Engineer, 1971; DAEC Shift Supervising Engineer, 1972-1977; Assistant Chief Engineer, 1977 to present.
3.	Technical Engineer -- D.L. Wilson	A. BSME, University of Iowa, 1969; GE Boiling Water Reactor Technology Course, 1972; NUS, Introduction to Nuclear Power, 1971; Reactor Operator Hot License Training, 1976; Reactor Operator License at DAEC.
		B. Various positions at Iowa Electric Light and Power Company, including: 1966, Engineering Student in the Operating Department; 1969, Junior Engineer; 1973, Results Engineer in the General Office Production Department; 1975 to present, Technical Engineer.

4. Security Captain -- Mary Juvik

A. Luther College, Bachelor of Arts Degree (major in Sociology and Psychology), 1973;

B. 1974-1977, Security Officer at the Security Facilities at Oakdale, Iowa; 1977, Security Guard, Iowa Electric Light and Power Company; 1978, Security Captain at Iowa Electric Light and Power Company; (Past and present employment involved training in firearms, security control systems, communications equipment and medical treatment of personnel)

5. Maintenance Superintendent -- J. Gebert

A. Boone Junior College (math and chemistry courses, two years, 1949; 1970, International Correspondence School, Mechanical Engineering, including Thermodynamics; GE PAX computer maintenance and software course, 1971 and 1972; U.S. Army course on A Bomb and Sabotage, 1972; GE Nuclear Instrumentation and Control, 1972; GE BWR Technology, 1972; NATLSCO, Fire Protection in Nuclear Power Plants; Eberline Instrument Corp., Radiation Protection Instrumentation, 1973; GE, Alterrex Excitation Systems, 1973; Senior Reactor Operator License at DAEC

B. Various positions at Iowa Electric Light and Power Company since 1957, including: District Superintendent, Boone District, 1965; Electrical Maintenance Supervisor, DAEC, 197I, Maintenance Superintendent, 1974 to present.

6. Operations Supervisor -- B. York

A. Two years college in pre-engineering; Air Force Technical School, Electronic Technician (Nuclear Weapons Fusing Systems); Operator Licensing Programs (Hallam, Sodium Cooled-licensed; Cooper, left before being licensed; DAEC, BWR Licensed Senior Reactor Operator; Miscellanous courses in electronics and math

B. U.S. Air Force, Nuclear Weapons Fusing System Spec. 1956-1960; Unlicensed operator, fossil and nuclear, two years; Licensed operator at Hallam Nuclear Station (operated nuclear and fossil from same control room); Decommissioning Crew Leader, Hallam Nuclear Station, one year; Shift Supervisor, Cooper Nuclear Station, three years; Operations Supervisor, DAEC, Iowa Electric Light and Power Company, 1972 to present.

7.	Radiation Protection Engineer -- K. Young	A. Navy Nuclear Power Program, 1964 - 1972 B. U.S. Navy as Mechanical Operator and Engineering Lab Tech, 1964-1972; Iowa Electric Light and Power Company, 1973 to present, including: 1973, Radiation and Chemical Technician; 1974, Radiation Protection Assistant; 1975 to present, Radiation Protection Engineer
8.	Reactor and Plant Performance Engineer -- R. Hannen	A. BSEE, Iowa State University, Ames, Iowa, 1967; One year graduate work in Electrical Engineering, 1968; Masters Degree in Nuclear Engineering, Iowa State University, Ames, Iowa, 1972; Process Computer School, Honeywell; GE Nuclear Engineering School; GE LSTG, Turbine Performance School; SRO License Training Program, 1976; SRO License at DAEC. B. Worked as Electronic Engineer for U.S. Navy in the field of Avionics, 1968-1971; Iowa Electric Light and Power Company, 1972 to present, including: 1972, Nuclear Engineer, DAEC; 1975 to present, Reactor and Plant Performance Engineer.
9.	Mechanical Maintenance Supervisor -- R. Rockhill	A. Radio School,U.S. Navy; B & W Boiler School; Two courses in Welding, Fisher Valve School B. U.S. Navy, 1952-1955; Iowa Electric Light and Power Company, 1955 to present, including: Marshalltown Production Department 1955; 1974 to present, Mechanical Maintenance Supervisor, DAEC.
10.	Mechanical Maintenance Supervisor Assistant -- G. Fulford	A. Flordia Institute of Technology, one year of chemistry and calculus, 1966; Machinist Mate "A" School, U.S. Navy; Nuclear Power School, U.S. Navy; Submarine School, U.S. Navy B. U.S. Navy, 1967-1974; Iowa Electric Light and Power Company, 1974 to present, including: Auxiliary Operator, DAEC, 1974; Apprentice Nuclear Station Mechanical, 1976; Assistant Mechanical Maintenance Supervisor, DAEC, 1977 to present.

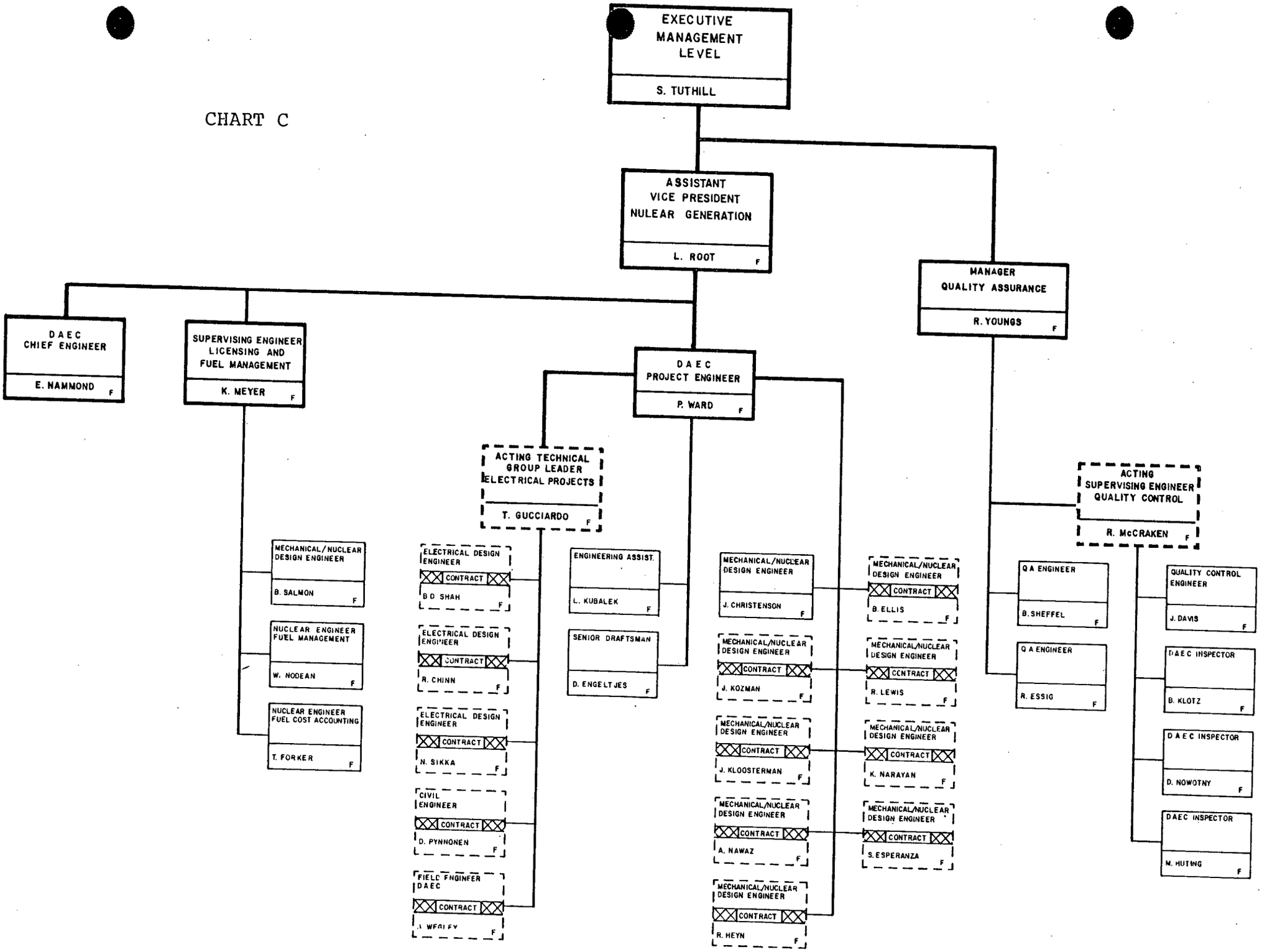
11.	Electrical Maintenance Supervisor -- J. Vinquist	A. U.S. Air Force Electronics Schools, 1961-1962; BSEE, Michigan Technical University, Houghton, Michigan, 1979;
		B. 1961-1965 U.S. Air Force, Technician on airborne electronics systems, radar and analog computers; 1969-1973, Westinghouse Electric Corporation, Field Service Engineer, startup of controls and fossil control systems; 1973 to present, Iowa Electric Light and Power Company, including: 1973, General Office Engineering; 1974 to present, Electrical Maintenance Supervisor. Over the course of years at DAEC, he has provided technical information in assisting plant operatins to identify and resolve problems encountered during plant transients and unplanned shutdowns (SCRAMS).
12.	Electrical Maintenance Supervisor Assistant -- J. Sweiger	A. Two years Electrical Technical School at Central Technical Institute, Kansas City, Missouri, 1961; Three years at St. John's University, Collegeville, Minnesota, business and math, 1958
		B. Crew member and Crew Chief on Tracking Radar System, VITRO Services, 1961-1965; Lab Tech in Research and Development Dept. of Avionic Equipment, Collins Radio, Cedar Rapids, Iowa, 1965-1972; 1972 to present at Iowa Electric Light and Power Company, including: 1972, Trainee; 1972, Nuclear Station Control System Tech. Apprentice; 1973, Journeyman, Nuclear Station Control System Tech; 1976, to present, Electrical Maintenance Supervisor Assistant
13.	Shift Supervising Engineer - B. Mick	A. GE BWR Observer Training, 1972; Iowa Electric Nuclear Power Preparatory Training, 1972; GE BWR Technology, 1972; GE Operation of a BWR, 1972; Senior Reactor Operator, DAEC
		B. Fossil plant experience from 1964 to 1971; Nuclear training in 1971, DAEC Plant Startup Program, Rx Operator, 1977 to present, Shift Supervisor at Iowa Electric Light and Power Company

14.	Shift Supervising Engineer -- M. Hammer	A. NUS Nuclear Training courses; GE License Training courses; Licensed Reactor Operator at DAEC
		B. U.S. Air Force, 1957-1958, Korea, Communications Center Specialist; Started Iowa Electric Light and Power Company in 1960 in fossil operations; DAEC Trainee in 1971; Operating Engineer, 1973; Shift Supervising Engineer, 1977 to present.
15.	Shift Supervising Engineer -- R. Zook	A. One year of Electrical Engineering, Indiana Institute of Technology, 1973; U.S. Navy, MMA School, Nuclear Power School, and Nuclear Power Training Unit; Senior Licensed Operator, 1973 to present
		B. U.S. Navy, 1964-1970; Iowa Electric Light and Power Company, 1971 to present
16.	Shift Supervising Engineer -- D. Gipson	A. Iowa Electric Basic Nuclear Preparatory Course, 1962; GE BWR Technology, 1972; GE BWR Observer Training, 1972; GE Operation of a BWR, 1972, Senior Licensed Operator, 1973 to present.
		B. U.S. Marine Corps, 1965-1969; Iowa Electric Light and Power Company, 1971 to present, including: 1971, Trainee; 1972, First Assistant Operating Engineer; 1973, Operating Engineer; 1975 to present, Shift Supervising Engineer.
17.	Shift Supervising Engineer -- J. DeVries	A. U.S. Navy, MMIA School, Basic Nuclear Power School, Nuclear Power Proto-type School; GE BWR Technology, 1972, GE Operating BWR, 1973; Licensed Reactor Operator, 1974-1976; Senior Licensed Operator, 1976 to present
		B. U.S. Navy, 1964-1972; Iowa Electric Light and Power Company, 1972 to present, became Shift Supervising Engineer in 1979.
18.	Shift Supervising Engineer -- D. Teply	A. Armored School (track vehicle maintenance), U.S. Army, 1953; Introduction to Atomic Energy, IBEW, 1970; Conference Leadership Training, 1965, Iowa Electric; Nuclear Power Plant Orientation, 1972, Iowa Electric; Basic Nuclear Course, NUS, 1972; Research Reactor Training, NUS, 1972; GE BWR Technology, 1972; GE BWR Operator Training, 1972 ; Senior Reactor Operator, DAEC

18.	Continued	B. U.S. Army, 1953 to 1955; Iowa Electric Light and Power Company, 1951 to present, including: Various positions at the Prairie Creek Station (235,000 KW fossil) from Utility Man to Head Operating Engineer; DAEC Operator Trainee, 1971-1973; Shift Supervising Engineer, 1973 to present.
19.	Chemist -- G. Roach	A. B.S. Chemistry, Iowa State University, Ames, Iowa, 1975; GE BWR Chemistry Course, Vallecitos Nuclear Center, 1978; Radiation Protection Short Course, Georgia Tech, 1977;
		B. 1972-1974, Process Control Technologist, Chemplex Company, Clinton, Iowa (Operator in ethylene plant); 1974-1977, Radiation Chemistry Technician at Quad Cities Nuclear Power Station, Cordova, Illinois; 1977 to present, Plant Chemist, DAEC, Iowa Electric Light and Power Company
20.	Radwaste Supervisor -- E. Lange	A. Navy Nuclear Power Training, 1970; Kirkwood Community College, Cedar Rapids, Iowa, 67 credits in math and science;
		B. Qualified Engineer Room Supervisor and Leading Laboratory Tech on SSBN 640 for three years; Qualified Mechanical Operator and Crew Leading Engineering Laboratory Technician as an instructor at SSG site, NPTU Idaho for 2½ years; 1977 to present, Iowa Electric Light and Power Company as Radwaste Supervisor at DAEC
21.	Nuclear Results Engineer -- G. Bishop	A. Old Dominion University, Norfolk, Virginia, Engineering courses, 1969-1970; Virginia Polytech Institute, BSAE, 1973; Navy Nuclear Power Training, 1974; EOOW qualified on DIG and S3G reactors
		B. 1973-1977, U.S. Navy; 1977 to present, Iowa Electric Light and Power Company as Nuclear Results Engineer
22.	Nuclear Results Engineer -- F. Brush	A. Naval Nuclear Power Basic School (Bainbridge); Naval Nuclear Power Training Unit (D1G); Bachelor of Applied Science, Boston University, computer science major; Honeywell Process Assembly Language School; Honeywell RTMOS School; GE "Station Nuclear Engineer" School

22. Continued	B.	Qualified Operator on Naval D1G and C1W Propulsion Plants; Associate Engineer at Stone & Webster Engineering Corp working on Millstone 3, Beaver Valley 1; Joined Iowa Electric Light and Power Company in 1977 as a Nuclear Results Engineer
23. Nuclear Results Engineer -- G. Van Middlesworth	A.	BSME Mechanical Engineering, University of Missouri, Columbia, Missouri, 1971; Nuclear Power School, U.S. Navy; GE Balance of Plant Performance (LSTG)
	B.	1971-1977, U.S. Navy, Machinist Mate; 1977 to present, Iowa Electric Light and Power Company, Nuclear Results Engineer
24. Station Services Engineer -- D. Vest	A.	BSEE, Iowa State University, Ames, Iowa, 1956; Station Nuclear Engineers Course, 1977; Process Computer School, Honeywell, 1972; Kirkwood Community College, Cedar Rapids, Iowa, IBM 360 Fortran Programming
	B.	1964-1967, Cherry Burrell, Cedar Rapids, Iowa, Project Engineer, Materials Handling; 1968 to present, Iowa Electric Light and Power Company, including: 1968, Engineer, General Office Engineering; 1972 to present: Station Services Engineer.
25. Radiation Protection Engineering Assistant -- J. Kuehn	A.	Bachelor of Science, General Science, State University of Io wa, 1973; Navy Nuclear Power School, 1963
	B.	U.S. Navy, 1960-1969, Electrician; Iowa Electric Light and Power Company, 1973 to present: Radiation/Chemistry Technician, 1973-1975; Assistant Radiation Protection Engineer, 1975 to present.

CHART C


EXECUTIVE MANAGEMENT LEVEL
S. TUTHILL
ASSISTANT VICE PRESIDENT NULEAR GENERATION
L. ROOT F
DAEC CHIEF ENGINEER
E. NAMMOND F
SUPERVISING ENGINEER LICENSING AND FUEL MANAGEMENT
K. MEYER F
DAEC PROJECT ENGINEER
P. WARD F
MANAGER QUALITY ASSURANCE
R. YOUNGS F
ACTING TECHNICAL GROUP LEADER ELECTRICAL PROJECTS
T. GUCCIARDO F
ACTING SUPERVISING ENGINEER QUALITY CONTROL
R. McCRAKEN F
MECHANICAL/NUCLEAR DESIGN ENGINEER
B. SALMON F
NUCLEAR ENGINEER FUEL MANAGEMENT
W. NODEAN F
NUCLEAR ENGINEER FUEL COST ACCOUNTING
T. FORKER F
ELECTRICAL DESIGN ENGINEER
CONTRACT
B.D. SHAH F
ELECTRICAL DESIGN ENGINEER
CONTRACT
R. CHINN F
ELECTRICAL DESIGN ENGINEER
CONTRACT
N. SIKKA F
CIVIL ENGINEER
CONTRACT
D. PYNNONEN F
FIELD ENGINEER DAEC
CONTRACT
J. WEGLEY F
ENGINEERING ASSIST.
L. KUBALEK F
SENIOR DRAFTSMAN
D. ENGELTJES F
MECHANICAL/NUCLEAR DESIGN ENGINEER
J. CHRISTENSON F
MECHANICAL/NUCLEAR DESIGN ENGINEER
CONTRACT
J. KOZMAN F
MECHANICAL/NUCLEAR DESIGN ENGINEER
CONTRACT
J. KLOOSTERMAN F
MECHANICAL/NUCLEAR DESIGN ENGINEER
CONTRACT
A. NAWAZ F
MECHANICAL/NUCLEAR DESIGN ENGINEER
CONTRACT
R. HEYN F
MECHANICAL/NUCLEAR DESIGN ENGINEER
CONTRACT
B. ELLIS F
MECHANICAL/NUCLEAR DESIGN ENGINEER
CONTRACT
R. LEWIS F
MECHANICAL/NUCLEAR DESIGN ENGINEER
CONTRACT
K. NARAYAN F
MECHANICAL/NUCLEAR DESIGN ENGINEER
CONTRACT
S. ESPERANZA F
Q A ENGINEER
B. SHEFFEL F
Q A ENGINEER
R. ESSIG F
QUALITY CONTROL ENGINEER
J. DAVIS F
DAEC INSPECTOR
B. KLOTZ F
DAEC INSPECTOR
D. NOWOTNY F
DAEC INSPECTOR
M. HUTWG F
F = Full Time
FILLED Ie POSITIONS
OPEN Ie POSITIONS

NUCLEAR GENERATION

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

CHART C

SECTION (A)

IOWA ELECTRIC LIGHT & POWER COMPANY EMPLOYEES

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Larry D. Root
Assistant Vice President - Nuclear Generation
Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company since 1970. I am presently responsible for all operational aspects of the Duane Arnold Energy Center, including nuclear engineering, licensing, and fuel management. My previous positions with Iowa Electric include Director of Engineering, Manager, Mechanical/Nuclear Engineering, and Assistant Project Manager for the DAEC during construction and startup.

I graduated from Iowa State University in 1959 with a Bachelor of Science Degree in Mechanical Engineering. I also received a Masters Degree in Business Administration from the University of Santa Clara in 1967. I have been employed in the nuclear power industry for the past 14 years. Prior to my nuclear experience, I was employed in the aerospace industry for six years. I am a member of the American Nuclear Society and a Registered Professional Nuclear Engineer in the State of California.

During the period of 1959 to 1965, I held various mechanical and structural design positions in the development of large rocket motors. My last position in the aerospace industry was with United Technology Center, Sunnyvale, California, where I was the Senior Engineer in charge of design and fabrication of pressure vessels.

In 1965, I joined General Electric Company's Atomic Power Equipment Department and specialized in the design of reactor containment systems. My work on containments involved the development of logical and consistent containment sizing methods, using Bodega Bay test data.

I then moved into General Electric's Requisition Engineering Group to become Requisition Engineer on Boston Edison's Edgar Station project. This plant was to be a metropolitan plant, with heavy emphasis on a special containment design. Responsibilities included integration of core cooling and auxiliary systems with the reactor and the new primary containment concept. In 1966, I was appointed as General Electric's Requisition Engineer for Philadelphia Electric Projects. From 1966 until 1970, I had responsibility for all General Electric engineering activities on first, Philadelphia Electric's Peach Bottom Atomic Power Station, Units 2 and 3, and, subsequently, Philadelphia Electric's Limerick Generating Station, Units 1 and 2. These duties included assisting Philadelphia Electric and Bechtel Corporation in total plant integration, and in presentations to State and Federal Regulatory Agencies. During the detailed design phase of the Peach Bottom Atomic Power Station, Units 2 and 3, I led General Electric's participation in the development of the main control room design and layout. This included the building of a full size mockup, the examination of the function of every instrument, and final placement of each instrument, for proper operability and human engineering. Finally, I participated in simulated plant startups, with Philadelphia Electric Engineering and Operations personnel.

During the course of the design of Peach Bottom and Limerick sub-systems, I maintained responsibility for design reviews, within General Electric. This responsibility included the formal approval of all technical documentation generated for these projects. It also included interfacing with Philadelphia Electric, Bechtel and regulatory agencies to assure compatibility with their needs.

During my years with General Electric Company, I completed several in-house training courses in instrumentation and control. I taught customer training courses in reactor containment and systems design. I successfully completed General Electric's course in "Fundamentals of BWR Power Plant Operation", at the Morris, Illinois Training Center in 1969.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Philip D. Ward
Mechanical Engineer - Technical Group Leader
(Project Engineer - DAEC)

Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company since 1973. My present assignment is Project Engineer for the Engineering support of the DAEC, within the Nuclear Generation Division of Iowa Electric. From 1973 through 1978, I was assigned to Iowa Electric Light and Power Company's Mechanical/Nuclear Engineering Group with responsibilities for system design review, system design change initiation and implementation, and review of technical documents related to the nuclear systems, during the startup phase at the Duane Arnold Energy Center, and assistance during DAEC startup activities. I was assigned the Lead Engineer for one of three Preoperational Test Review Boards to support initial startup of the DAEC. The Review Board was responsible for the review, evaluation and approval of pre-operational test results and documentation deficiencies of systems, subsystems, or components, and the certification of their status (operable or not operable) as defined by Section 1.5 of the Technical Specifications.

I completed the required courses for the Bachelor's Degree majoring in Mechanical Engineering at Iowa State University in 1972. I am a member of the American Nuclear Society and the American Welding Society.

Upon being graduated in 1972, I was employed for 1½ years as an Engineer, responsible for planning, fabrication, and installation of nuclear equipment at the Ames Laboratory, USAEC, in the Reactor Division at Ames, Iowa. Responsibilities included reactor system modification and design initiation of nuclear research equipment. I was directly responsible for the design and construction of major modification to the Reactor Helium System and Double-axis Neutron Diffractomer at Ames Laboratory, USAEC.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Karl A. Meyer
Supervising Engineer
Licensing and Fuel Management

Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company since 1971. My present assignment is Supervising Engineer, Licensing and Fuel Management in the Nuclear Generation Division of Iowa Electric. From February 1979 to July 1979 I was Supervising Engineer, Power Plant Licensing, responsible for Corporate Licensing for The Duane Arnold Energy Center and new fossil construction. From September 1975 to February 1979 I was Nuclear Licensing Administrator/Mechanical Nuclear Group Leader, responsible for Corporate Nuclear Licensing and various engineering tasks. From October 1971 to September 1975 I was a Mechanical/Nuclear Design Engineer.

Prior to my employment at Iowa Electric, I was an officer for 10 years in the US Navy. Most of this time was spent in the nuclear submarine field, which included a tour as Engineer Officer on a nuclear submarine. I have been a qualified operator on 4 Navy PWR plants and trained operators at a Navy prototype for 2 years. I have also been Chief Engineer on one fossil fueled ship.

I received a Bachelor of Arts Degree in History from Ohio State University in 1961. I have three years of undergraduate work in Aeronautical Engineering at Ohio State. I was commissioned in the US Navy upon graduation. I attended US Navy Submarine School, Nuclear Power School and Nuclear Prototype from September 1962 through April 1964.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Terry A. Gucciardo
Electrical Design Engineer

Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company since January 1975. My present assignment is Electrical Design Engineer in the field of Electrical and Instrumentation Support in the Nuclear Generation Division of Iowa Electric. My past assignments included responsibilities as an Electrical Design Engineer in the Mechanical/Nuclear Engineering Group. This included, but not limited to, design, review, preparation and supervision of design change request packages issued to the Duane Arnold Energy Center, Project Coordinator for the DAEC Security Modification Effort. Contract coordinator on various fossil projects, which included all phases of design review and construction interfaces with all disciplines.

I completed the required courses for the Bachelor of Science Degree in Electrical Engineering with an option in power from The University of Missouri, Rolla in 1971.

Upon graduation, I was employed by the Bechtel Power Corporation from January 1972 to January 1975 as a Field Engineer at the Duane Arnold Energy Center. My responsibilities included electrical construction surveillance and testing of various NSSS and balance-of-plant systems.

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EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

James Christenson
Mechanical/Nuclear Engineer

Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company since March 1978. During this period to the present, I have been primarily engaged in activity related to the Combustion Turbine Installation Project and the installation of stack emission monitoring systems for coal burning power plants.

I received a Bachelors Degree in Marine Engineering from The University of New York in 1954. From 1955 to 1971, I was employed as a Development and Test Engineer for the Aerojet General Corp., Sacramento, California. My responsibilities included the setup and testing of liquid chemical rocket engines and I was also assigned as a Facilities Test Engineer on the Nuclear Rocket Test Program at The Nuclear Rocket Development Station, Nevada. During the period 1971 - 1975 I was employed by The Bechtel Corporation. From 1971 - 1973, I was assigned as a Field Mechanical Engineer in the Piping Group at the DAEC Plant construction project. In 1973 I was transferred to the Peach Bottom #3 Mechanical Plant Startup Group and participated in that plant startup activity until 1974 when I was assigned to the Davis-Besse #1 Plant Startup. My duties at Davis-Besse primarily consisted of the preparation of procedures for pre-operational cleaning and flushing of piping systems.

EDUCATION AND PROFESSIONAL QUALIFICATIONS

Walter C. Nodean
Nuclear Engineer

Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company since 1972. My position is Nuclear Engineer in the Nuclear Fuel Group of the Nuclear Generation Division of Iowa Electric. My major responsibilities are in the areas of in-core nuclear fuel management and nuclear fuel design.

In 1962 I received the B.A. Degree with a double major in Physics and Mathematics from the University of Omaha (now the University of Nebraska at Omaha). In 1965 I received the M.S. Degree in Nuclear Science and Technology from the University of Iowa. In 1969 I received the Ph.D. Degree in Nuclear Engineering from Iowa State University.

From 1969 to 1972 I was employed by the Toledo Edison Company as a Nuclear Engineer. I have held A.E.C. operator licenses at the TRIGA research reactor at the Veteran's Administration Hospital in Omaha, Nebraska and at the Nuclear Engineering Department research reactor at Iowa State University. In 1977 I successfully completed the station nuclear engineer course for boiling water reactors conducted by General Electric.

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EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Thomas L. Forker
Mechanical/Nuclear Engineer

Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company since 1973. My current position is Mechanical/Nuclear Engineer, Nuclear Fuel Group, Nuclear Generation Department. My current responsibilities include analysis of nuclear fuel requirements, nuclear fuel procurement, and nuclear fuel cost analysis. Prior to 1976 I was also involved in in-core physics analysis.

In 1973, I successfully completed the courses required for a Bachelor of Science Degree in Mechanical Engineering at Iowa State University. In 1974 I received training by Nuclear Associates International in the use of their in-core physics analysis computer programs. In 1977 I successfully completed a station nuclear engineer course taught by General Electric Company.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Richard A. Youngs
Manager, Quality Assurance

Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company since 1976. My present assignment is Manager, Corporate Quality Assurance. From 1976 to 1979 I was a Quality Assurance Engineer. Responsibilities included internal and external auditing, and development and implementation of the Iowa Electric vendor evaluation program. In February 1979 I was appointed supervisor of the Quality Control group at DAEC. My primary objective was to reorganize the group's function. I was appointed to my current position in July 1979.

I attended California State Polytechnic University at San Luis Obispo, California. I am a registered Professional Quality Engineer.

From 1959 to 1972 I was employed by various contractors at Vandenberg Air Force Base, California in various capacities of the inspection, quality control and quality assurance expertise on various military space applications systems. In 1972 I entered the nuclear quality assurance consultant field and served in various capacities from quality assurance engineer to nuclear division vice president until joining Iowa Electric.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Bruce J. Sheffel
Quality Assurance Engineer
Iowa Electric Light and Power Company

I have been employed with Iowa Electric Light and Power Company as a Quality Assurance Engineer since Aug. of 1978. During this period I have been responsible for directing the approved vendor program including vendor audit and surveillance and source inspection activities. Further responsibilities include review of design documents, nonconformance reports and purchasing documents for quality criteria and conformance to corporate policy and procedures. In addition I have developed and implemented Q.A. Procedures for corporate Q.A. and provided overall Q.A. planning for plant modifications and maintenance activities. I have also served as lead auditor for both vendor and plant audits. The above activities have involved supervising of Q.A. personnel and subcontracted Q.A. services and interfacing with various department managers to carry out Q.A. objectives.

I am a graduate of Schalmont High School and have attended Syracuse University and Hudson Valley Community College. Recent courses and seminars have included Financial Analysis, Purchasing and Materials Management, Q.A. Codes and Standards Liquid Penetrant and magnetic particle inspection and Radiography. I am a certified AWS welding inspector and a level II magnetic particle and liquid penetrant inspector. I am a member of the AWS and ASNT Societies.

I was retained for a period of one year by Stone and Webster Eng. Corp. at Corporate Headquarters in Boston, MA. as a quality assurance engineer. I was responsible for Q.A. procedure development applicable to all S&W projects. Procedures developed were in compliance with required codes, Federal Regulations and Corporate policy and involved all quality aspects of various jobs such as Nine Mile 2, Shoreham, North Anna, Riverbend, Jamestown and others. The accomplishment of this charge required close interface with S&W construction, engineering and FQC disciplines as well as special client considerations.

I served as Quality Assurance Manager for Cives Corp. - Mid Atlantic Div. for a period of four years. As such I was responsible for developing, implementing, and administering a quality assurance program in compliance with 10 CFR 50 App. B and ANSI N45.2 requirements. Responsibilities included: performing audits on the capabilities of vendor, developing in-house capabilities for NDT, training and managing inspection and quality control personnel, contributing technical advice to production forces on welding methods and design, preparing welding, NDT, and various test procedures and developing and maintaining a system for Q.A. documentation and control for various nuclear related projects.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Robert D. Essig
Quality Assurance Engineer
Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company as a Quality Assurance Engineer since 1971. Initial assignments included construction surveillance at the DAEC, QA surveys and audits of vendors of material, equipment and services, and QA surveillance of preoperational testing activities. Recent responsibilities have included the planning of quality system audits and serving as Lead Auditor for both internal audits of Iowa Electric functional organizations and audits of DAEC vendors. A current prime responsibility is principal engineer for organizing and conducting quality audits of the manufacturing of nuclear fuel for the DAEC.

I am a graduate of the University of Michigan, having received the Bachelor of Science in Electrical Engineering in 1944. I am a Registered Professional Engineer (Electrical Engineering in the State of Iowa and Quality Engineering in the State of California). Recent courses and seminars have included Basic Radiographic Interpretation, Ultrasonic Testing, Lead Auditor Training, Quality Assurance for Nuclear Fuels, QA for ASME Code Compliance and Engineer's Fundamental Exam Refresher Course.

After graduation in 1944 I served as an officer in the U.S. Army Signal Corps. In 1947 I joined the Collins Radio Company and over a period of years held responsible positions in engineering, marketing and quality assurance.

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EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Harry W. Shearer
Supervising Engineer-Mechanical

Iowa Electric Light and Power Company

I have been Project Manager of a special Iowa Electric/General Electric Task Force since April 1, 1979. The charter of the Task Force is to develop recommendations to restore and maintain the operation of the DAEC at full rated output capacity. This includes deliniation of schedules, estimated costs and the required level of General Electric support.

I was employed by Iowa Electric in 1971 as an Instrumentation and Control Engineer and was responsible for the coordinated efforts of our instrumentation and control consultant, our engineer/constructor, and our instrumentation and control suppliers during the design and construction phases of the Duane Arnold Energy Center. I then spent two years on site as a Project Startup Engineer during the DAEC testing and startup phases. After fuel load I was assigned the responsibility under the direction of the Project Engineer, of establishing and maintaining an in-house design document control system. In July 1973 I was appointed as a member of the DAEC Safety Committee, in August 1974 I was appointed as alternate Chairman and in February 1975 I was appointed a Vice Chairman. In October 1975, I was named DAEC Project Engineer. In this position I was responsible for providing and coordinating technical support for the DAEC. This technical support included preparation and coordination of design changes, design document control, material specification and procurement support and coordination of activities of outside consultants.

I was graduated from the State University of Iowa in 1958 with a

NUCLEAR GENERATION

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

CHART C

SECTION (B)

CONTRACT EMPLOYEES

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Roger H. Heyn
Mechanical/Nuclear Design Engineer

Bechtel Power Corporation

I have been employed by Bechtel Power Corporation since 1973. I am presently on temporary assignment to Iowa Electric Light and Power Company. My assignment at Iowa Electric is providing Duane Arnold Energy Center engineering support within the Nuclear Generation Department. From 1973 to 1978 I was assigned to the Mechanical/Nuclear design group within the project engineering team for the Susquehanna Steam Electric Station. Responsibilities during that time were for engineered safety features systems design, design coordination/preparation for inservice inspection, fire protection design review and project design interface coordination between the NSSS vendor (G.E.) and Bechtel. For one year (1978/1979) I was assigned to the Mechanical/Nuclear design group within the project engineering team for the Greenwood Energy Centers Units 2 and 3. Responsibilities included making the initial radwaste systems conceptual design and preliminary design required in support of the Greenwood Energy Centers licensing effort and preparation of various sections of the Greenwood PSAR and Environmental Report.

Prior to my employment by Bechtel Power Corporation, I received my Bachelors Degree, majoring in Nuclear Engineering from The University of Wisconsin.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Sol R. Esperanza
Mechanical Engineer

Bechtel Power Corporation

I have been employed by Bechtel Power Corporation since 1966. My present assignment is Mechanical Engineer working for the Nuclear Generation Division of Iowa Electric Light and Power Company. From 1966 to 1975 I was HVAC Engineer in the Refinery and Chemical Division of Bechtel. Responsibilities during that time were design, engineering and start-up of HVAC systems. From 1975 to 1979 I was Plant Facilities System Engineer in the Power Plant Division. Responsibilities during that period were System Engineer in two nuclear plant projects and Lead Engineer on PSAR Amendment 14 Greenwood 2 and 3.

I completed the required course for the Bachelors Degree majoring in Mechanical Engineering at National University, Philippines, in 1963, also, obtained a diploma in Stationary Engineering at Philippine School of Arts and Trade in 1956. Upon being graduated in 1956, I was employed for three years as a millwright in an industrial construction firm. From 1959 until 1966, when I came to The United States, I worked in fossil power plants operations as a turbine operator, boiler operator, control board operator, shift supervisor engineer and start-up operation engineer.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

William D. Ellis
Senior Mechanical Engineer

Bechtel Power Corporation

I have been employed by Bechtel Power Corporation since June 1969. At present, I am permanently assigned to work in the Iowa Electric Light and Power Company Nuclear Generation Division. My position is acting Technical Group Leader, Mechanical Design. I have been on assignment at Iowa Electric for the past 1 year performing engineering support activities for the Duane Arnold Energy Center.

I received the Bachelor of Science Degree (cum laude) in Mechanical Engineering from The University of California, Berkeley in 1969 and the Master of Science Degree in Mechanical Design from the same institution in 1970.

During the summers of 1969 and 1970 and from December 1970 to November, 1975 I was assigned to the Arkansas Nuclear One Project at Bechtel for both Unit 1 and later Unit 2. As a Systems Engineer in the Mechanical Group I performed the following activities: heat transfer studies, liquid and gaseous radwaste systems design, reactor vessel support analysis, specifying and procuring a vacuum degasification system, a demineralizer system and main steam safety valves.

From November, 1975 to January, 1977, I performed, with a project team, a condenser survey of the electric utility industry for EPRI. In addition to guiding and directing the collection and categorization of data, I assisted in the derivation of conclusions and preparation of the report to EPRI.

Just prior to my assignment at Iowa Electric, I was a member of the Mechanical Group of the Colstrip Project* at Bechtel. During those 18 months, including 2 months resident at the power plant, I developed and coordinated engineering solutions to design, operation and maintenance problems at the two operating units including the following areas: steam air heaters, condenser, bottom ash system and raw water system. I also conducted a pump testing program.

I am a registered, Professional Mechanical Engineer in The State of California (#M16186).

*(Coal-fired electric generating station)

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Roger M. Lewis
Startup Engineer

Bechtel Power Corporation

I have been employed by the Bechtel Power Corporation since 1976. I am currently on rotation to the Operating Services Division providing engineering support of the Duane Arnold Energy Center. My responsibilities are the design and design review of various modifications ranging from water treatment to fire protection. From 1976 to 1978 I was a Design Engineer on the Skagit Nuclear Project, a BWR for Puget Sound Power and Light Company. My responsibilities for that period were to design and review the auxiliary systems for the project.

I completed the required courses for a Bachelors Degree in Mechanical Engineering at Oregon State University in 1976. My major course of study was in Power Plant Design.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Arshad Nawaz
Senior Mechanical Engineer

Bechtel Power Corporation

I have been employed by Bechtel Power Corporation since 1974. My present assignment is to provide Iowa Electric Light and Power Company engineering support in the Nuclear Generation Division. My responsibilities include preparing design change packages in accordance with Iowa Electric porcedures, evaluating and analyzing design of systems for adequacy, acceptability and cost effectiveness and to communicate these designs in terms of procedures and specifications. My work has involved responsibility for design, generating calculations, system descriptions, specifying and procuring equipment, supervising crafts and contract administration.

I completed the required courses for the Bachelor's and Master's Degrees, majoring in Mechanical Engineering at the George Washington University in Washington D.C. in 1972 and 1974. Upon graduation I was employed by Bechtel Power Corporation and I worked on the SNUPPS Project in the facilities group where I was involved with the design of power plant HVAC systems from 1974 to 1976. I was assigned to the Engineering Offices of Iowa Electric from 1976 to 1978 to provide engineering support. From January 1978 to July 1978 I was assigned as a Start Up Engineer for Presque Isle Units 7 and 8 in Marquette, Michigan. There I was involved with velocity flushing/chemical cleaning, start up and trouble shooting of mechanical systems and supervision of crafts and technicians. I was assigned to Three Mile Island from April 1979 to May 1979 to assist in their recovery efforts. I worked in the waste management group (gas) and was responsible for analyzing the plants ventilation systems and their relationship to new supplementary filtration systems being installed.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Robert S. Chinn
Engineer - Electrical Design

Bechtel Power Corporation

I have been employed by Bechtel Power Corporation since 1970. My present assignment is Electrical Design Engineer on the Duane Arnold Nuclear Plant. From 1977 to the present, I have been Scheme Design Engineer on two nuclear facilities: FFTF in Richland, Washington and the DAEC in Palo, Iowa. Responsibilities during that time included start up activities at FFTF and operating plant improvement modifications and fire protection at DAEC.

In 1972, I received a BS in EE at the University of Washington in Seattle. While at that University, I also completed several courses in Nuclear Engineering as part of my undergraduate work.

Upon being graduated in 1972, I was employed for five years, working on fossile power plant electrical design. The duties included circuit scheduling, plant layout, lighting, grounding, and logic and schematics.

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EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Narindra N. Sikka
Senior Engineer, Electrical

Bechtel Power Corporation

I have been employed by Bechtel Power Corporation, Ann Arbor, Michigan, since 1977. My present assignment is at Cedar Rapids, Iowa, providing DAEC engineering support, within the mechanical/nuclear engineering department of Iowa Electric. From 1977 to 1978, I was senior engineer, electrical with Bechtel, and my responsibilities were planning, supervision, and design of electrical systems. Responsibilities also included design reviews and interface with clients and vendors.

I completed my Bachelor's degree (B.S. Elect.), majoring in electrical engineering, from the University of Rajasthan, Jaipur, India, in 1962. I have also completed a Master of Business Administration (MBA), majoring in management science, from Pace University, New York, in 1976.

After my graduation in 1962, I was employed by Heavy Electricals (India) Ltd., Bhopal, India, for seven years as an electrical engineer. My responsibilities were design of switchgear, load centers, and motor control centers. From that time until 1973, I was employed by Consultants & Designers, Inc.,

New York, as a designer. My responsibilities were design of electrical systems for switchyard. From 1973 to 1977, I was employed by Stone & Webster Engineering Corporation, New York. My responsibilities included, planning, supervision, and design of electrical systems for power plants.

EDUCATIONAL AND PROFESSIONAL QUALIFICATION OF

B. D. Shah
Senior Electrical Engineer

Bechtel Power Corporation

I am employed by Bechtel Power Corporation since 1970. I have been assigned to the Electrical Design Group of Iowa Electric since August 1977 and presently I am working as an Electrical Design Engineer in the Nuclear Generation Division of Iowa Electric.

I have completed the requirements of the Master of Science Degree (M.S.E.E., 1966) in Electrical Engineering at West Virginia University and Bachelor of Science Degree (B.S.E.E., 1964) in Electrical Engineering from India. I am a registered Professional Engineer in the State of Maryland since 1975.

My professional background consists of the following:

Assignment at Iowa Electric (August 1977 to present):

Preparation of specifications, purchase requisitions, calculations, design change packages and design reviews. Performed an audit on behalf of the safety committee, provided licensing support to respond to NRC's bulletins and circulars and provided technical guidance to engineers within electrical department on "as and when" needed basis.

Bechtel Power Corporation - December 1970 to August 1977

Systems Group Leader and Senior Electrical Engineer, Discipline Quality Engineer for Electrical Group. Work experience at Bechtel is associtated with engineering work for Alabama Power Company's J. M. Farley Nuclear Plant Units 1 and 2 and includes the following: Auxiliary Power Systems Studies such as load flow, short circuit and voltage drop calculations. Equipment sizing and specifications, economic and feasibility studies,

procurement related activities including bid evaluations, preparation of engineering requisitions and change orders. Review of design criteria, vendor's drawings and documents. Participation in QA audits and special assignments. Review of inter-discipline coordinated drawings, specifications and documents. Preparation of Single Line Diagrams. Routine surveillance of Electrical Group personnel and their work for adherence to established project procedures.

For Bechtel's client Cliffs Electric Service Company (Presque Isle Station, Units 7, 8 & 9): Systems Group Leader and Senior Electrical Engineer for Electrical Group. Responsible for electrical systems design, preparation of single line diagrams, load studies, short circuit calculations, voltage drop calculations, equipment sizing, selection, specifications, bid evaluation, preparation of engineering requisitions and change orders.

Union Carbide Corporation - January 1966 to October 1970

Project Electrical Engineer at Union Carbide Corporation's South Charleston, West Virginia, Technical Center. Five years of experience in Industrial-Electrical Power Systems Design, equipment specifications and selection, economic and feasibility studies, electrical design reports, technical investigations and reports.

S. M. Shah & Co., Bombay, India. July 1963 to August 1964

Management Business Training (part time) while in school.

Bharat Bijlee Ltd., Bombay, India. May 1962 to June 1962

Summer training in manufacturing of motors and transformers.

Bharat Nut-Bolts Industries, Bombay, India. June 1957 to May 1959

Practical training in operating manufacturing company. (part time while in school).

EDUCATION AND PROFESSIONAL QUALIFICATIONS

David J. Pynnonen
Civil/Structural Design Engineer

Iowa Electric Light and Power Company

I have been with Iowa Electric Light and Power Company, under contract from Bechtel Power Corporation, since February of 1978. My primary assignment since coming to Iowa Electric has been to support the contract management of the Security Project. This has involved minor engineering design revisions in the areas of foundations, pre-cast panel connection details, wall design, and architectural details during the construction of the DAEC (Duane Arnold Energy Center) Security Building, hiring soil consultants and surveyors, inspecting vendor shops, reviewing vendor shop drawings, reviewing contract specifications and reviewing the Contractor's progress on the job. Other assignments have included reviewing the DAEC flood protection program, reviewing the seismic analysis of the High Density Spent Fuel Pool Racks, preliminary design and cost estimating on the Chemical Tank Foundation and preliminary layout work on drilling a new well onsite.

I received my B.S.C.E. Degree from Michigan State University in December of 1972. I have completed 4 hours of Master's work at the University of Michigan in Civil Engineering. I have completed a short course sponsored by the A.I.S.C. in 2-20 story building design. I am a registered Professional Engineer in the State of California No. 28565.

Upon graduation, I was employed by Bechtel in Ann Arbor, Michigan, Gaithersburg, Maryland and San Francisco, California until May of 1976. My work assignments involved the design of structural steel, design of reinforced concrete and analysis of piping systems per ASME Section III and ANSI B31.1.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Joseph R. Kozman
Engineer

Bechtel Power Corporation

I have been employed with Bechtel Power Corporation since October of 1973 and assigned to Iowa Electric Light and Power Company since March of 1978. My responsibilities presently include the design and review of various modifications to the Duane Arnold Energy Center mechanical system.

From 1973 to 1978, I was primarily assigned to the Mechanical Staff through Bechtel. I was responsible for thermal hydraulic analyses and radiation protection details for plant design activities.

From 1970 to 1973, I was employed by McDonnell-Douglas Corporation. I worked in the thermal and environmental control analysis group.

I completed the required courses for a Bachelor's and Master's degree in Aeronautical Engineering at Ohio State University in 1970.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Hiremaglur K. Narayan (Kris)
Mechanical Engineer

Bechtel Power Corporation

I have been employed by Bechtel Power Corporation, San Fancisco since February 1974. Presently, I have been loaned to Iowa Electric Light and Power Company by Bechtel under an agreement between Iowa Electric and Bechtel. My present assignment is to coordinate and provide technical assistance to the Duane Arnold Energy Center which is in the process of replacing anchor bolts, on supports for Seismic Category I Systems which is in response to NRC, IE Bulletin 79-02.

I have a Bachelors Degree in Mechanical Engineering (1964) from University of Mysore, India and a Masters Degree in Mechanical Engineering (1966) from the Indian Institute of Technology, Kanpur, India. The Indian Institute of Technology was funded by The United States Aid India Development Program and nine U.S. consortium universities participated in developing the engineering curriculum.

After my graduation in 1966, I was employed by Tata Electric Power Company, Bombay, India (1966 to 1967 and 1972 to 1973) and was assigned to the design office. I was involved in water system's design for thermal power, fertilizer plants.

In 1972 I received my Masters Degree in Management Sciences from the University of Waterloo, Waterloo, Ontario, Canada.

In Bechtel, my experience is in the Mechanical Group of Skagit Nuclear Power Project and Greenwood Power Project. My involvement was in systems design, preliminary safety analysis report, environmental report, NPDES report.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

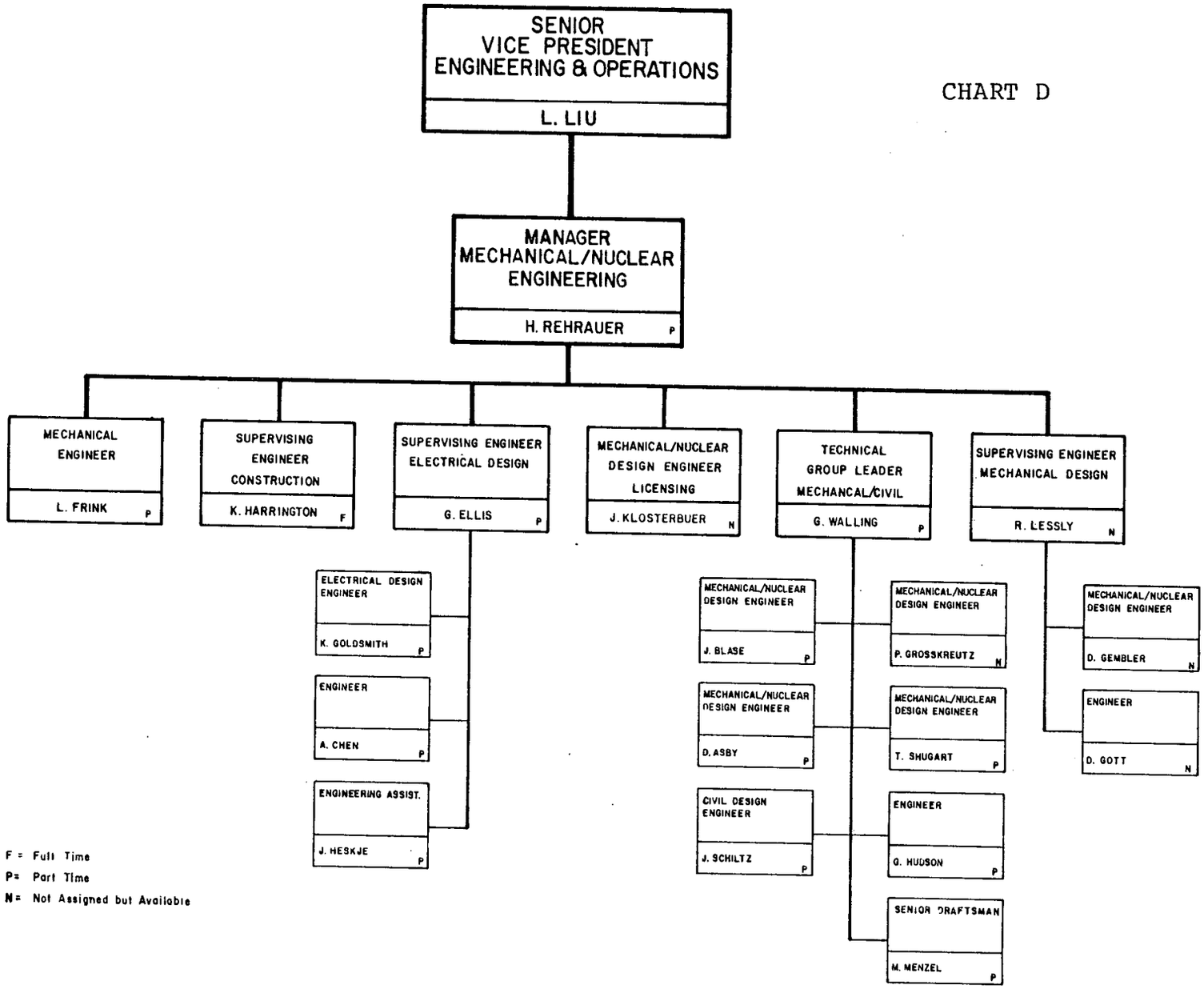
James D. Kloosterman
Mechanical/Nuclear Design Engineer

Bechtel Power Corporation

I completed the required course for the Bachelor's Degree majoring in Nuclear Engineering at The University of Michigan in 1974. Part of the credit received for this degree was achieved at Alma College, Alma, Michigan where I studied for two years with a major in Physics.

I have been employed by Bechtel Power Corporation and Bechtel Associates Professional Corporation since my graduation from the University of Michigan. My responsibilities at Bechtel have been in the area of Systems Design Engineering for nuclear safety related systems. From 1974 to 1977 I was a Systems Engineer in the Nuclear Group working on Consumers Power Company's Midland Units 1 and 2 project. From 1977 to 1978 I was on assignment to Iowa Electric Light and Power Company where I worked in engineering support to operations of DAEC. From 1978 to 1979 I was an Engineer in the Nuclear Group working on Detroit Edison's Greenwood Units 2 and 3 project where my responsibilities indluded systems design and technical coordination between Bechtel and the NSSS vendor (B&W). In addition, I was on special assignment for two weeks in April, 1979 to assist General Public Utilities in the recovery effort following the incident at Three Mile Island Unit 2. At TMI I was assigned to work in GPU's on-site technical support group and my responsibilities included evaluation of plant conditions and development of tests and procedures used in bringing the reactor to cold safe shutdown. I am currently assigned to Iowa Electric Light and Power Company where I work in Engineering Support to operations of DAEC.

CHART D



F = Full Time
P= Part Time
N= Not Assigned but Available

CHART D

MECHANICAL/NUCLEAR ENGINEERING DEPARTMENT

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Harold W. Rehrauer
Manager Mechanical/Nuclear Engineering

Iowa Electric Light and Power Company

My name is Harold W. Rehrauer. I have been employed with the Iowa Electric Light and Power Company since 1972. I am Manager of the Mechanical and Nuclear Engineering Department.

I graduated from the University of Hartford, Evening School Division, Hartford, Connecticut, in 1967 with a Bachelor of Science degree in Mechanical Engineering. I also attended the University of Wisconsin, School of Engineering, from 1955 through 1958. I have been employed in the nuclear power industry for the past twelve years. Prior to my nuclear experience, I was employed as an Engineering Technician in the aircraft and utility products industry for six years.

During the period of 1961 to 1966 I was employed as an engineering technician at the United Aircrafts Pratt & Whitney Divisions facilities at West Palm Beach, Florida and East Hartford, Connecticut. My job responsibilities included the conducting of destructive tests on gas turbine and liquid fueled rocket component materials. These tests involved elevated temperature evaluation of material resistance to corrosion, erosion and low cycle fatigue to appraise component design, machining practices and material selection.

During the period of 1966 to 1967 I was employed by Combustion Engineering Incorporated at Windsor, Connecticut as an Engineering Technician and was assigned to a test group in

which I was responsible for the conduction of heat transfer and boiler water corrosion tests under the sponsorship of the ASME. In addition, I was also assigned model tests of coal burner models for design modification studies.

In 1967 I joined the Northeast Utilities Service Company's Mechanical and Nuclear Engineering Group at Hartford, Connecticut. My initial work involved economic studies for fossil, nuclear, hydro and gas turbine electric power plants. I was also involved in the design document review of Millstone Unit No. 1, a BWR. During the period of 1968 to 1969 I was assigned to the Yankee Atomic Power Company's Boston office for an assignment with the Maine Yankee Project Engineering Staff. In this capacity I was directly involved with all project activities for this PWR, with emphasis on the reactor system auxiliaries and control room and control board arrangement. In 1969 I returned to the Northeast Utilities Service Company's Nuclear System Group and was responsible for the reactor system auxiliaries for the Millstone Unit No. 2. These activities included the design and procurement document review for this PWR. In 1970 I was assigned to the Connecticut Yankee Atomic Power Plant to assist in the first refueling of this PWR and during this period my responsibilities included supervision of fuel handling and in-service inspection. Upon completion of this assignment I was appointed Project Engineer for the Connecticut Yankee Plant and responsible for the evaluation, design, engineering and procurement for plant modifications and AEC required backfitting while maintaining close liaison with the plant to provide engineering support as required for proposed design and

technical specification changes in addition to the continuing updating of plant reference design documents. Particular emphasis was applied to the auxiliary systems modifications required for compliance with the proposed "as low as practible" criteria being developed, in addition to the preparation of the Environmental Report required for the full-term license application. Responsibilities also included coordination of engineering support for the operating plants quality control and assurance program. In addition, I was required to maintain close support with the project groups associated with nuclear plants under construction so as to assure the incorporation of the Connecticut Yankee Plant operating experience.

In 1972 I joined Iowa Electric Light and Power Company as a Nuclear Design Engineer in support of the Duane Arnold Energy Center (DAEC) a BWR. My responsibilities included design and design document reviews of this facility's Nuclear Steam Supply System and auxiliary systems. In addition I was assigned to the construction site in preparation for plant start-up and in 1973 I was promoted to Group Leader responsible for the coordination of engineering personnel assigned to the support of the facility start-up. I was assigned Chairman of the Independent Review and Audit Committee (DAEC Safety Committee) in 1973 and assigned the responsibility to develop the Committee Charter and organize membership to support the Committee's responsibility to the facility's initial start-up.

In 1975 I was promoted to Project Engineer for the DAEC with the responsibility to organize the technical organization required to support the facility operation.

In 1976 I was promoted to Supervisor Project Engineering of the Mechanical and Nuclear Engineering Department. In this capacity I was responsible for all power plant engineering projects within the Corporate Engineering offices.

In 1978 I was promoted to Manager of the Mechanical and Nuclear Engineering Department and in that capacity responsible for all power plant engineering support and coordination of design philosophy. I have since been additionally assigned the position of Project Manager for a 650 MWe coal fired generating station to be operational in 1984.

In addition to the duties assigned as Chairman of the DAEC Safety Committee, I am one of two members of the Corporate 10CFR Part 21 Evaluation Committee.

I am a member of the American Nuclear Society, the American Society of Mechanical Engineers, the American Society of Testing Materials and the Corporate representative on the Edison Electric Institute's Prime Movers Nuclear Power Subcommittee.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Roger E. Lessly
Supervising Engineer - Mechanical Design

Iowa Electric Light and Power Company

I have been employed as Nuclear Design Engineer in the Project Engineering Group for the Duane Arnold Energy Center of Iowa Electric Light and Power Company since 1971. I am responsible for mechanical and nuclear systems design. My duties included system design review, assisting in QA audits and review of technical documents related to the nuclear systems. During final construction and plant startup my duties included field engineering related to review of systems acceptability for startup and pre-operational testing.

I graduated from Iowa State University in 1969 with a Bachelor of Science degree in Engineering Operation. I continued my education in Engineering and received a Bachelor of Science degree in Mechanical Engineering in 1971. I have been employed in the nuclear power industry since September, 1971. Prior to September, 1971 I had been employed in the nuclear research industry for approximately eight years. Prior to my nuclear experience I was employed in the consumer product type manufacturing industry. During the period of 1958 to 1963 I worked for Tuttle and Bailey Pacific, Inc., City of Industry, California performing various functions related to the manufacturing of air distribution equipment. My last position with this company was Supervisor of Manufacturing Equipment, responsible for the supervision of machine shop personnel, machine maintenance, scheduling equipment and tool and die design.

In 1963 I joined Ames Laboratory Reactor Division, Ames, Iowa a[illegible] Mechanical Technician performing duties related to the assembly and testing of research equipment. In 1965 I joined the Operations Group and completed

EDUCATIONAL & PROFESSIONAL QUALIFICATIONS

GARY A. WALLING

Technical Group Leader, Power Plant Design

I was graduated from the University of Missouri-Columbia in January, 1970 with a Bachelor of Science in Mechanical Engineering. After graduation I went to work for Babcock and Wilcox Company, Barberton, Ohio, in the Technology and Standards Section of the Nuclear Equipment Engineering Department. That department was responsible for the design of nuclear steam supply systems for manufacture and delivery to the United States Navy. My responsibilities included the development of design standards and calculation of heat transfer and fluid flow performance of nuclear equipment.

In November, 1973, I came to Iowa Electric as a Nuclear Design Engineer. My duties included involvement in the startup test program at the DAEC providing design and engineering review function. My responsibilities included engineering support and general design responsibilities for a number of systems at the DAEC.

Currently my title is Technical Group Leader, Power Plant Design with primary responsibilities to supervise the design review functions for mechanical and structural engineering activities in power plant design.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Loren H. Frink
Mechanical Engineer

Iowa Electric Light and Power Company

My name is Loren H. Frink. I am employed by the Iowa Electric Light and Power Company as Mechanical Engineer.

Following employment as a draftsman with the Kansas State Highway Commission during 1938 and 1939, I graduated in January, 1940, from the University of Kansas with a Bachelor of Science degree in Mechanical Engineering. Immediately following graduation, I was employed by the Wright Aeronautical Corporation in Paterson, New Jersey, as an Experimental Department Test Engineer in the manufacture of aircraft engines. Progress within Wright Aero included Liaison Engineer in the Service Department, and Supervisor in the Publications Division for the preparation of instruction books and service manuals, which position I held until October, 1945.

Also during this period, I was night-school instructor for Rutgers University for five semesters of the course "Theory of Internal Combustion Aviation Engines."

For the next thirteen months, I was employed as a draftsman by the Stearns-Roger Manufacturing Company, Denver, Colorado, on utility projects.

From November, 1946, until June, 1957, I was employed by Black and Veatch, Consulting Engineers, Kansas City, Missouri, the first six years of which were in the power plant Mechanical Department as Design Engineer, Checker, and Specification Writer for the mechanical section for utility generating stations. The last five years with Black and Veatch were spent as Mechanical Engineer in the Valuation and Rate Study Department, conducting evaluations for rate studies and preparing feasibility reports for proposed projects.

From June, 1957, to March, 1968, I was employed by Iowa Electric Light and Power Company as Mechanical Design Engineer, through the design and construction of two fossil-fueled power plant additions and assisted in the siting study for an additional new plant until the decision was made changing it to nuclear power.

From March, 1968, to April, 1970, as Quality Assurance Manager with Iowa Electric, I participated in the preparation of the Quality Assurance portion of the Preliminary Safety Analysis Report and the various revisions required to keep its content current. My work also included preparation of the Quality Assurance Manual, the QA audit checklists, and the Quality Assurance portions of the Engineering Department Procedures Manual. I also was responsible for and participated in all Iowa Electric Quality Assurance audits conducted during that period.

From April, 1970, to April, 1974, I was the sole source of engineering review and approval for the mechanical

discipline at Iowa Electric pertaining to "Balance of Plant" equipment (that part of a power plant not directly relating to the reactor and its auxiliaries) for the Duane Arnold Energy Center. This period also included provision of input, as required, for the Final Safety Analysis Report and the Environmental Report. I also coordinated the approval of Preoperational Test Procedures.

Since that time I have been utilized in an advisory capacity as required and requested to rectify operational upsets in the balance of plant portion of Duane Arnold Energy Center. Specific items of concern have included equipment such as condenser, condensate pumps, circulating water pumps, flow control valves, river water supply system, emergency water storage system, and cooling towers, as well as maintenance of historical records pertaining to flows in the Cedar River.

Since May, 1974, to date, my work has been associated with fossil-fueled equipment almost exclusively. My present assignment is Staff Engineer - Mechanical pertaining to a new generating station.

I am a member of the American Society of Mechanical Engineers and also am a Registered Professional Engineer in the State of Iowa.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Kenyon V. Harrington

Supervising Engineer, Construction

Iowa Electric Light and Power Company

I am employed by the Iowa Electric Light and Power Company. Initially, I was the Site Construction and Quality Assurance Engineer for the Duane Arnold Energy Center. In this position I was responsible for following all construction and quality assurance activity at the site, including coordinating site efforts of the Headquarters Technical staff. From mid 1970 through start-up in 1975 I was Site Construction Manager for Iowa Electric at the Duane Arnold Energy Center. After start-up of the DAEC plant and to the present, my job has been Supervising Engineer, Construction for Iowa Electric. During this time I have directed the In-Service Inspection Program and all non-destructive testing work at DAEC. Also, I prepared a Special Process Procedure Manual for use at DAEC and have been responsible for development and qualification of welding procedures and provided surveillance for qualification of welders at DAEC.

I received a Bachelor of Science degree in Mechanical Engineering from the University of Missouri, Rolla, in 1942. Prior to entering college and during vacations, I was employed by the Midwest Piping and Supply Co. as a welder and operator of their physical testing laboratory. After graduation, I worked as a piping engineer for Midwest Piping until I enlisted in the Air Force. Following World War II service I was a partner and Manager of Leonard Welding and Manufacturing Company in St. Louis, Missouri, producing ASME code qualified unfired pressure vessels and process piping.

From 1951 to 1968 I was associated with Sverdrup and Parcel, Consulting Engineers, St. Louis. My responsibilities included Resident Engineer during the construction of a 216,000 H.P. propulsion wind tunnel; Resident Mechanical Engineer during construction of 250 mw Meramac Power Plant for the Union Electric Company, St. Louis, Missouri.

Following this assignment, I was Assistant Project Manager for Engineering Surveillance during construction of Titan I ICBM launchers located near Denver, Colorado. Later I was Project Manager for Engineering Surveillance during construction of Titan I launchers near Boise, Idaho. From 1962 to 1968, I worked with NASA and the Corps of Engineers in planning for construction and as the resident engineer on the NASA Mississippi Test Facility for static testing the Saturn V rockets for the Apollo Program.

In 1968 I joined Argonne National Laboratory, in the Quality Assurance Management Group, and provided technical quality assurance supervision for the 12-foot bubble chamber and CP-5 Reactor Rehabilitation project. Through the experience gained with these positions, I am completely familiar with all methods of non-destructive testing, welding methods and procedures, methods and procedures for heavy construction, and recognized codes and standards, including their application to nuclear systems.

I am a member of the American Welding Society, American Society for Non-destructive Testing, and am a Registered Professional Engineer in Missouri, Colorado and Idaho.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Don Gott
Engineer

I have been employed by Iowa Electric Light and Power Company since 1957. During this time I have worked on the design of various systems of power plants including piping systems, instrumentation and structural steel design.

I began my career as an engineering draftsman and spent 5 years in radio and communication work, the next 5 years as a draftsman in material handling work. I became an Engineering Assistant in 1976 and was promoted to Engineer in 1978. My educational background includes work thru I.C.S. on Civil Engineering, Kirkwood College on Computer systems for Management.

My present duties at Iowa Electric include design and construction responsibilities on various phases of power plant work including steam systems, electrostatic precipitators, and gas regulator facilities.

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EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

James C. Heskje
Engineering Assistant

Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company since May, 1978. I have worked on design changes and have used a computer as data storage and acquisition related to design changes.

I completed the required courses for a Bachelors and Masters Degree in Mechanical Engineering at The University of Iowa in 1968 and 1969 respectively.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Paul Raymond Grosskreutz
Mechanical/Nuclear Design Engineer

Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company since October, 1978. My present assignment is in the Power Plant Design Technical Group supporting our proposed new fossil fuel plant. We are presently reviewing various design documents presented to us by our consulting firm.

I completed the required courses for the bachelor's degree, majoring in mechanical engineering, at Rose-Hulman Institute of Technology in 1973. I have taken additional courses in Psychology and Sociology at Indiana University Southeast, and attended Management Seminars at Purdue University.

After graduation in 1973, I was employed in an operating fossil fired plant in the Engineering and Services Department for four years. My responsibilities included equipment testing, construction and maintenance project liaison, some design and equipment retrofitting. I then spent fourteen months working construction management on two 650 MW fossil fired supercritical units. My responsibilities included following the piping erection, various hydros, assisting in chemical cleaning, blow out, and various equipment start-ups.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

David E. Gembler
Mechanical/Nuclear Design Engineer

Iowa Electric Light and Power Company

I have been employed by the Iowa Electric Light and Power Company since January 2, 1972. My present assignment is Mechanical/Nuclear Design Engineer as a staff assistant to the Managing Project Engineer for a 650 MW net fossil fuel generation plant being constructed by the Company. From January 1972 to October 1975 I was a Quality Assurance Engineer with duties primarily involving quality assurance of construction of a 550 MW net nuclear fuel generation plant being constructed by the Company. From October 1975 to January 1979 I was the Supervising Quality Assurance Engineer supervising the activities of vendor evaluation and Quality Assurance audits of the operating nuclear power plant and supporting departments. In January 1979 I was assigned to my present duties.

I graduated from Milwaukee School of Engineering in 1951 with a Bachelor of Science Degree in Electrical Engineering (Electronics Major). I also completed twenty-eight semester hours of graduate work in Industrial Engineering from 1954 to 1959 at the University of Iowa. I discontinued my graduate work to become involved in U.S. Army correspondence courses that were essential to my being promoted in the Army Reserve. I completed 511 hours of correspondence courses, and was branch qualified in the Corp of Engineers, Medical Service Corp, and Signal Corp from 1958 to 1966 and retired as a Captain. In 1966 I returned to my graduate studies at the University of Iowa, this time in Business Administration, and graduated with a MBA degree in 1974.

During my current employment I also completed the following training/seminars.

August 1974:	Industrial Radiographic Interpretation
August 1975:	Operational Quality Assurance and Audits for the Nuclear Power Industry
September 1977:	Quality Assurance Codes and Standards
May 1978:	Nuclear Quality Records Management

Prior to employment by Iowa Electric Light and Power, I was employed by Collins Radio Company, also in Cedar Rapids, from March, 1953 to September, 1971. My duties/positions at Collins Radio Company included in part:

March 1953:	Test Equipment Design Engineer
October 1954:	Test Methods Engineer
December 1957:	Test Equipment Control Engineer
September 1959:	Pilot Production Coordinator (X-15)
June 1960:	Pilot Production Material Control Supervisor
September 1962:	Inspection and Test Foreman (Gemini)
October 1963:	Inspection Foreman (Apollo)
June 1964:	Quality Control and Material Review Supervisor (Apollo)
August 1966:	QC Engineer (Microelectronics)
May 1970:	Component Evaluation Engineer

Subsequent to getting my BS degree in 1951 and prior to being employed by Collins Radio Company in 1953, I was a Naval Material Inspector for the Office of Naval Material in Milwaukee, Wisconsin.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

David K. Asby
Mechanical/Nuclear Design Engineer

Iowa Electric Light and Power Company

I have been employed as Mechanical/Nuclear Design Engineer by Iowa Electric Light and Power Company since January 1975. My present assignment is in Mechanical Design support of the Fossil Generating Plants. My assignment until June, 1979 was in Mechanical Design Support on the D.A.E.C. and documentation on Design Changes on D.A.E.C.

Prior to this I was employed by Bechtel Corporation in September 1971 as an Engineer Technician working on the construction of Duane Arnold Energy Center. My work consisted of layout surveying for the first three months, then Design Change Notice Draftsman for two months. In February, 1972 I became a Field Engineer for Bechtel Corporation as an Instrumentation Piping Designer until October 1973. Then I became the Engineer in charge of bringing the secondary containment into complaince with the FSAR and Tech. Specs. In March 1974 I worked directly with Iowa Electric Light and Power Company helping to convert construction records into meaningful information in Iowa Electric Light and Power Company's record system. I worked in this capacity until I came to work with Iowa Electric in January 1975.

I have spent all of my working career since 1955 in construction related engineering work. I have had 1½ years college education in engineering.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Timothy B. Shugart
Mechanical/Nuclear Design Engineer

Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company since 1976. My present assignment is Mechanical/Nuclear Design Engineer in the field of DAEC engineering support in the Mechanical/Nuclear Engineering Department of Iowa Electric.

In 1967, I completed the required courses for an Associate of Arts degree at Marshalltown Community College.

Upon graduation in 1967, I enlisted in the United States Navy for six years under the Nuclear Power Program. During this six-year tour of duty, I received six months of classroom training at the U.S. Navy Basic Nuclear Power School in Bainbridge, Maryland, followed by six months of practical operational training and maintenance at Knolls Atomic Laboratory in West Milton, New York, and two months of training for emergency nuclear welding at Groton, Connecticut. Additional education was received ranging from machine tool, lathe operation, gas burning and cutting schools to maintenance of generator throttle controls on Westinghouse and General Elec-

tric turbine generators. In addition to these naval schools, for three years I was mechanical operator of a nuclear reactor on a nuclear submarine.

Following my six-year tour of duty in the United States Navy, I was employed at Stone & Webster Engineering Corporation in Boston, Massachusetts for approximately three years and employed as a Systems Design Engineer working on the Shoreham Nuclear Power Plant Unit #1. While employed with Stone & Webster, I was responsible for design and construction of mechanical piping systems relating to that plant. At night I attended school at Central New England College of Technology, Worcester, Massachusetts, and earned my Bachelor's degree in Mechanical Engineering.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Andrew Chen
Electrical Engineer

Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company since 1976. My present assignment is Electrical Engineer in the Mechanical/Nuclear Engineering Department. During these three years, my responsibilities include the design modification of the electrical and control systems at Duane Arnold Energy Center and other fossil power plant. From 1975 to 1976, I worked for the University of Missouri as a research assistant to search for the alternative power sources--solar, wind, and fuel cells.

I obtained my M.S. degree in electrical engineering at the University of Missouri in 1976. I have also obtained an M.S. degree in physics at the University of Wisconsin and a B.S. degree in physics at the National Taiwan Normal University.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Andrew Chen
Electrical Engineer

Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company since 1976. My present assignment is Electrical Engineer in the Mechanical/Nuclear Engineering Department. During these three years, my responsibilities include the design modification of the electrical and control systems at Duane Arnold Energy Center and other fossil power plant. From 1975 to 1976, I worked for the University of Missouri as a research assistant to search for the alternative power sources--solar, wind, and fuel cells.

I obtained my M.S. degree in electrical engineering at the University of Missouri in 1976. I have also obtained an M.S. degree in physics at the University of Wisconsin and a B.S. degree in physics at the National Taiwan Normal University.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

Kenneth A. Goldsmith
Electrical Design Engineer

Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company since January 8, 1979. My present position is Electrical Design Engineer for DAEC engineering support as well as fossil generation engineering support.

I completed the necessary work for a Bachelor of Science Degree in Electrical Engineering at Iowa State University in 1975.

From 1975 until 1979 I was employed as a Design and Field engineer for new coal fired generating stations. My duties included detailed design work as well as monitoring construction progress while on site.

Since coming to Iowa Electric I have taken the Health-Physics class to be qualified to enter the DAEC.

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EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

John J. Blase
Mechanical/Nuclear Design Engineer

Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company since October, 1977. During that time my responsibilities encompassed the design and modification of power plant fluid systems including the resolution of operational anomalies.

From 1973 through 1977, I was employed by Bechtel Power Corporation, Gaithersburg, Maryland, in the capacity of system design engineer for two years and analysis engineer for one year. My primary responsibilities included the design of power plant systems, specification of equipment and bid-analysis and recommendation. As an analysis engineer I was responsible for determining pressure temperature transients in reactor containment structures resulting from postulated loss of coolant accidents.

From 1970 through 1972 in the employ of the Environmental Protection Agency, I was assigned to the state of Missouri with primary responsibilities in air pollution regulations and enforcement.

From 1967 through 1969, I was employed by Grumman Aerospace Corporation where my main duties involved the resolution of design-manufacturing discrepancies on the Lunar Module.

The following is a brief summary of academic credentials:

B.S. Aerospace Engineering
Parks College/St. Louis University

M.S. Nuclear Engineering
University of Missouri - Rolla

M.S. Engineering Management
University of Missouri - Rolla

Professional Registration:

Registered Professional Engineer in the state of Maryland (#PE10485) and Iowa (#08476P.E.)

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

James A. Klosterbuer
Mechanical/Nuclear Design Engineer

Iowa Electric Light and Power Company

Beginning in January, 1979, I have been employed at Iowa Electric Light and Power Company as a Mechanical/Nuclear Engineer in the Power Plant Licensing Group of the Mechanical and Nuclear Engineering Department. My current responsibilities are for fossil-fuel plant engineering licensing activities.

From July, 1974, to January, 1979, I was employed as a Nuclear Engineer on the technical staff of Adm. H. G. Rickorer with the U.S. Department of Energy, Division of Naval Reactors. My responsibilities included the design, development, procurement, maintenance and repair of U.S. Navy nuclear primary pressurizers.

From September, 1968, to August, 1972, I was assigned as a Research Physicist in the High Pressure Physics/Ultrasonics Group at the U.S. Air Force Weapons Laboratory. I conducted experimental measurements to characterize material properties of selected composite materials in support of U.S. Air Force survivability/vulnerability studies.

My formal education includes: (1) Certificate of Completion (1975) from the Bettis Reactor Engineering School,

Bettis Atomic Power Laboratory; (2) Master of Science in physics (1974), University of Illinois; and (3) Bachelor of Science in physics (1966), South Dakota State University.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

James H. Schiltz
Civil Design Engineer

Iowa Electric Light and Power Company

I have been employed by Iowa Electric Light and Power Company since May, 1978. My present assignment is Civil Engineering support in the Mechanical/Nuclear Engineering Department.

I completed the required courses for the Bachelor of Science degree in Civil Engineering which I received from the University of Iowa, Iowa City, Iowa, in June, 1951.

From January, 1957, to May, 1978, I was employed by Iowa Steel and Iron Works, Inc., Cedar Rapids, Iowa. My responsibilities included (1) the design of structural steel systems and foundations for buildings; (2) estimating quantities of structural steel, reinforcing bars, mesh, steel joists, steel roof deck, centering and wall panels; and (3) pricing the various items, writing the proposal and dealing directly with customers.

From September, 1954, to January, 1957, I was employed by the Atchison, Topeka, and Santa Fe Railway, Chicago, Illinois. My responsibilities included design projects in the Bridge Department and field inspection.

From June, 1951, to September, 1954, I was employed by the Illinois Central Gulf Railroad, Waterloo, Iowa. My responsibilities included surveying and preparing associated engineering drawings.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

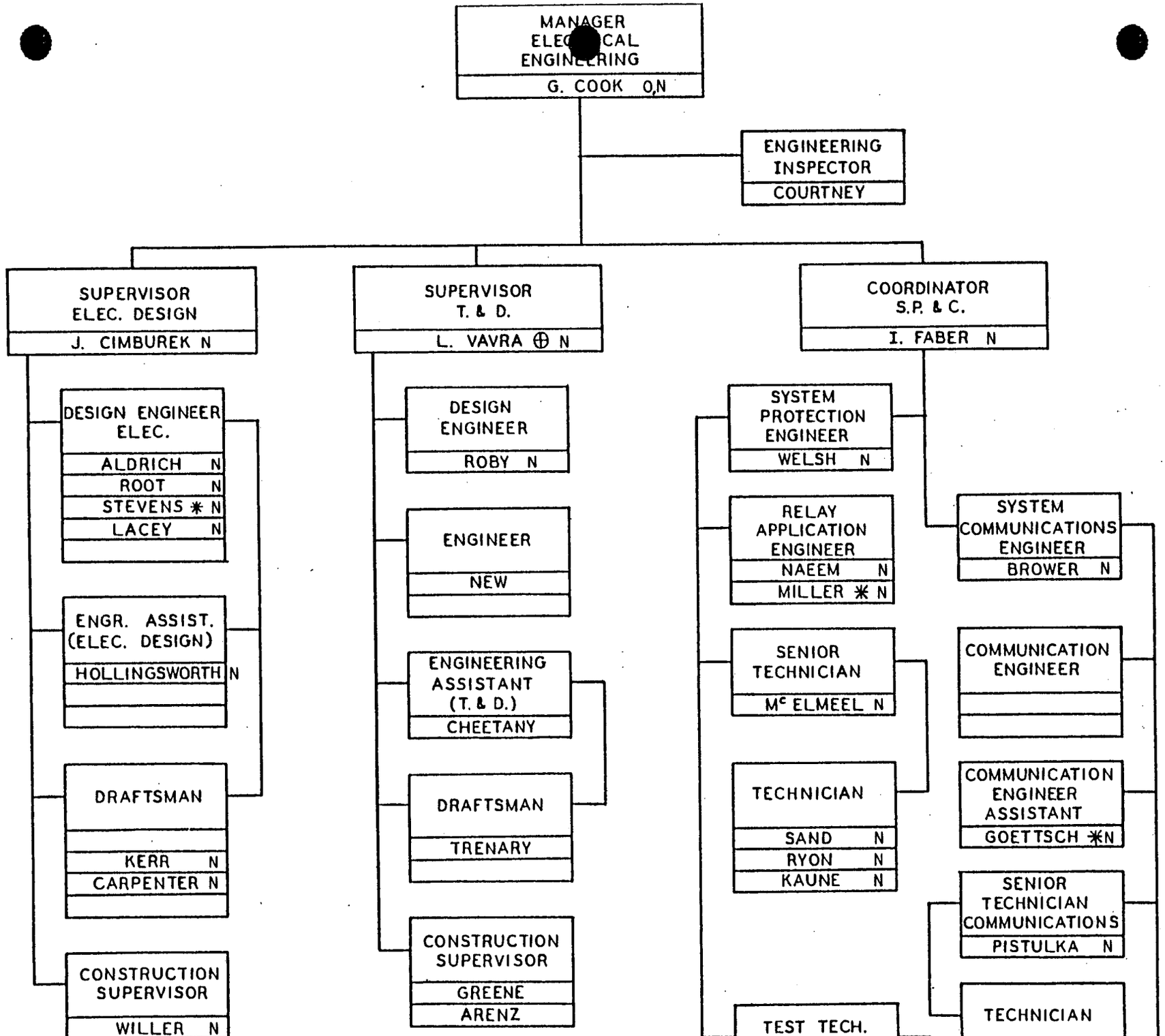
Greg R. Hudson
Engineer

Iowa Electric Light and Power Company

I have been with Iowa Electric Light and Power Company since August of 1978. My present assignment is Engineer in the field of Fossil Power Plant Maintenance and Balanced Draft Conversion. My responsibilities include construction schedule coordination, drawing and design review, cost accountability and liaison between Iowa Electric Engineering and all major contractors and consulting firms.

I completed the required courses for a Bachelors Degree, majoring in Mechanical Engineering at Wichita State University in 1978.

During my time in college, I was employed at various times by Kansas Gas & Electric Company. I served in many different departments of the company including plant maintenance, plant operations, distribution and transmission line construction, and plant engineering.



O REPORTS TO SENIOR VICE PRESIDENT ENGINEERING & OPERATIONS

⊕ ACTING

✱ TEMPORALLY ASSIGNED TO SCC RELOCATION GROUP

N - NOT ASSIGNED BUT AVAILABLE

ELECTRICAL ENGINEERING ORGANIZATION FOR 1979

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ELECTRICAL ENGINEERING ORGANIZATION

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

EDUCATION AND PROFESSIONAL QUALIFICATIONS

Gordon A. Cook
Manager, Electrical Engineering
Iowa Electric Light and Power Company

I graduated from Iowa State University in 1948 with a BSEE and have been employed by Iowa Electric Light and Power Company since then. I have had experience in the Operating Department and in the T&D Section of the General Office Engineering Department. From 1964 to 1969 I was Transmission and Distribution Engineer.

In January 1969 I assumed the duties of Assistant Project Engineer on the DAEC Project. In June 1970 I assumed the duties of Manager, Quality Assurance for the DAEC Project. In March 1975 the duites of Manager, Electrical Engineering were added. I was relieved of the QA duties in June 1979.

I have participated in various Computer courses and a Nuclear Engineering Fundamentals course and Basic BWR Design Principals course presented by the Company.

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Educational and Professional Qualifications

John Cimburek
Supervising Engineer - Electrical Design

John was graduated from Iowa State University in 1949 with a B.S.E.E. From July 1949 to Nov. 1950 he worked as a civilian for the Air Force at Wright-Patterson Air Force Base as an Installations Engineer. From April 1951 to July 1954 he worked for Collins Radio Company as a Radio Test Technician. He joined Iowa Electric August 1954. Since that date, he has worked in District Operations in Boone, the System Protection and Communication Group and the General Office Engineering Department.

His areas of experience included Electric System Distribution Engineering, High Voltage Transmission Protection, System Engineering and Substation and Power Plant Design and Construction.

In early 1969 he was assigned to the DAEC Project Engineering Group doing plant Electrical Systems Engineering. He participated in DAEC start-up, being stationed at the site. In 1974 he returned to the General Office as part of the DAEC Engineering support team.

In March 1976 he assumed the duties of Supervising Engineer - T. & D. in the Electrical Engineering Section of the General Office Engineering Dept. In February 1979 he assumed the duties of Supervising Engineer - Electrical Design in the same Section where he supervises design and construction of High Voltage Substations.

He has participated in various Company sponsored courses relating to utility engineering and economics. He completed a Nuclear Engineering Fundamentals and Basic BWR Design Principles courses presented by the Company.

Resume' of Ervin D. Root, P.E.

May 1971 - Graduated Iowa State University, Ames, Iowa, B.S.E.E.

June 1971 to November 1973 - Employed as Electrical Field Engineer, Bechtel Power Corporation at construction site of Duane Arnold Energy Center. Inspection and coordination activities as well as preliminary systems checkout of Nuclear Power Plant.

November 1973 to June 1976 - Employed as Electrical Design Engineer, Bechtel Associates Professional Corporation, Ann Arbor, Michigan. Assigned to various projects in the design office, including Midland Units 1&2 (Nuclear), Greenwood Unit 1 (Oil fired), Belle River #1&2 (Coal), Palisades Litigation (Nuclear). Also spent three months at Davis Besse Nuclear Plant conducting Electrical Q.C. inspections and five months at Iowa Electric Light and Power Company, assisting in Design Change preparation.

June 1976 to Present - Employed by Iowa Electric Light and Power Co. as Communications Engineer and presently as Project Engineer in Electrical Design Section of Engineering Dept. Responsible for complete design as well as managing construction of Substations from 34.5 KV through 345 KV. Installations are both new as well as additions to existing locations.

Additional Information - Hold Professional Registration in States of Iowa and Michigan.

Member National Society of Professional Engineers and Iowa Engineering Society.

Resume' of W. T. Aldrich July 24, 1979

Education: B.S.E.E. received from Iowa State University, 1968. Emphasis was on Computer design, Switching theory, and Communications.

Post graduation courses include:

1) Fortran.
2) Business Calculus.
3) Protective Relaying theory.
4) Engineering refresher for "Engineering In Training" exam.

Experience:

I. Eight years and continuing with Iowa Electric Light and Power Company in the Electrical Design Section. Emphasis is on all phases of Substation design and construction for substations of 36 KV and higher. Design efforts include:

1) Electrical design for protective relaying circuits.
2) Mechanical design for site development, foundation design, and steel layout.
3) Development of specifications of electrical equipment and construction practices.
4) Supervision of project drafting, materials procurement, and construction progress.

II. Two years were invested in general plant engineering which included lighting design, building inspection, machine repair and design, drafting, supervision of maintenance crews, estimating and reporting for a Craft efficiency program, and Electrical layout design for plant expansion.

III. One year was spent in a military systems communications group. A Secret Clearance was required. Areas of responsibility were Supervision of testing of military devices, liaison between design and labor, and project engineering for device modifications and drawing revisions.

IV. One year was spent in test equipment design for production. Efforts were in design and materials specification for a box that would perform certain test functions on aviation and computer equipment.

W. T. Aldrich

ELECTRICAL ENGINEERING/SUBSTATION DESIGN

John Lacey ASS/Electronics & Power

Experience Record

Graduated from High School in 1955, worked for my father until joining the United States Air Force in 1956.

My duties in the Air Force were aircraft electrical repair; received an honorable discharge in 1960.

Employed by the Agriculture Department in 1961 at the National Animal Disease Lab in Ames, Iowa as an Electrician Helper with the duties of assisting the Electrician in construction and maintenance of the electrical systems of the lab.

Joined Collins Radio in 1964 on the radio assembly line, promoted to inspector on the finished product.

Entered Boone Junior College in 1966 in Pre-engineering; in 1967 entered Iowa State University in Electrical Engineering. In 1968 transferred into the Technical Institute at Iowa State in Electronics Technology, taking the power courses offered. Graduated in 1970 with an Associate of Applied Sciences Degree.

Accepted a position with Black & Veatch Consulting Engineers in Hanson City, Missouri. My position was Engineering Assistant in power plant design, special projects for the U.S. Government and Substation design, duties consisted of drafting and drafting supervision.

In February 1973 joined Iowa Electric as a Senior Draftsman in the Electrical Engineering Department/Substation Design, with the duties of Substation design and drafting. In 1976 I was promoted to Engineering Assistant with the duties of drafting supervision and assignments by the Engineer. Promoted to Electrical Engineer/Substation Design in May 1979 with full responsibilities of Project Supervisor.

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DRS 7/24/79

Educational and Professional Qualifications

Donald R. Stevens
Software Engineer
Iowa Electric Light and Power Company

Employed at Iowa Electric Light and Power Company since 1972. My present assignment is Software Engineer for a new Electrical System Control Center. I am responsible for: Coordination of programmers efforts, coordination of Data Base compiling and all CRT Display design, Software review, dispatchers training and custom software development. From 1972 to 1975, I was a Relay Engineer responsible for preparing and running short circuit studies on Iowa Electric's transmission facilities (studies were run on a digital computer) and calculating protective relay settings to protect major substations and transmission lines. From 1975 to 1976 I worked six months in the Planning Department and developed special digital computer programs for the Electrical Engineering Department.

I received my Bachelor's degree in Electrical Engineering from State University of Iowa in 1957. I have completed 21 hours of graduate work in mathematics and electrical engineering at New York University.

From 1958 to 1972 I was employed in design and development at Collins Radio Company. For the first five years I was involved in all aspects in the design of automatically tuned high frequency radio transmitters and antenna couplers. From 1964 to 1972 I was involved in the design and development of full size, (real time, message switching), computer hardware.

Responsibilities included conceptual design of major subsystem units, design of these units, development of these units, system integration and system testing. My responsibilities also included: supervising, on an average, eight electrical engineers in performing design, testing, system integration, and system testing.

Educational and Professional Qualifications

Irwin E. Faber
System Protection and Communications Coordinator

Irwin graduated from the University of Iowa in 1959 with B.S.E.E. In July 1958 he joined Iowa Electric and worked part time during his senior year in school. In June 1959 he joined the System Protection and Communication Group full time as a Communications Engineer. In 1970 he assumed the duties of Group Coordinator. In that position he coordinates the design, application and maintenance of system protective schemes and equipment. His duties also include design, installation and maintenance of all forms of communications used by the Company. He also supervises indication and control functions necessary for the operation of the System Control Center.

MAURICE H. WELSH System Protection Engineer, 1976 to date.

Education:

Bachelor of Electrical Engineering - Cornell University - 1945
USNR Midshipmans School - Cornell University - 1945
Course Requirements for MS in EE - University of Pittsburgh - 1958
Courses for Business and Management Certificate - University of Pittsburgh - 1960

Work Experience:

U.S. Navy Reserve, Lieutenant Commander, 1943-1946 and 1950-1952
Design Engineer - Westinghouse Electric Corp-Large Rotating Apparatus - 1946-1950
Senior Engineer - Duquesne Light Company-Power Stations Dept. - 1953-1956
Electric Utility Sales - Westinghouse Electric Corp. - 1956-1961 and 1969-1972
Product Engineer - Westinghouse Electric Corp-Computer Division - 1961-1965
Product Engineer - Westinghouse Electric Corp-Distribution Apparatus - 1965-1969
Product Engineer - Westinghouse Electric Corp-Relay Division - 1972-1976

Name - Malik Mohammad Naeem.

Designation - Relay Application Engineer.

Education - B.E.E. 1967, Peshawar University (Pakistan).

Experience -

(a) 9/67 - 9/70 - Started my career as field engineer in WAPDA (Pakistan) for testing & protection department. Testing calibration & Trouble shooting for protective relays & allied equipment for Power system were carried out by me.

(b) 10/70 - 12/1973. Transferred to System Protection Department of WAPDA (Pakistan). Work included specification of relay, evolvement of schematic, setting calibration, short-circuit study and fault analysis.

(c) 1/1974 - 3/1975. Promoted to Senior Engineer and posted in the Head office of WAPDA (Pakistan). Duties included overall system protection planning & co-ordination evaluation. Study of fault reports & technical correspondence with field staff.

(d) 8/1975 - 10/1976. After immigration to U.S.A. joined Powell Electrical Manufacturing Co. in Houston, Texas. Worked as Electrical designer desponsible for designing of switchgear & control panels.

(e) 11/1976 - to date. Moved to Cedar Rapids, Iowa, to join Iowa Electric Light and Power Co. in Nov. 1976 as Relay Application Engineer. Duties include relay setting calculation, schematic drawing review, fault study, fuse coordination & fault analysis for I.E. power System.

Educational and Professional Qualifications

Russell L. Miller
Relay Application Engineer
Iowa Electric Light and Power Company

I have been an employee of Iowa Electric Light and Power Company since 1972. Presently, I am temporarily assigned to the project team for relocation and modernization of our System Control Center as a hardware integrator. Previously, I worked as an Engineering Assistant in the System Protection Department where my responsibilities included relay setting calculations, fault studies, control system checkout, substation equipment checkout and protective equipment application.

My most recent education has been toward completion of requirements for a Bachelor's degree in Electrical Engineering. To date I am enrolled in the final course and expect to fulfill all requirements by 8/1/79. Iowa Electric has formally given me the position of Relay Application Engineer as of 6/1/79.

Other education I have received includes two years at Kirkwood Community College where I received an Associates degree in Electronics Technology in June 1972. I presently hold a first class F.C.C. license which I received in 1973.

I began working for Iowa Electric after I graduated from Kirkwood as a Relay Technician in 1972, where I was responsible for calibration, testing and repair of protective relays as well as maintenance of control systems and substation equipment. I was involved in this capacity in D.A.E.C. substation checkout and start-up.

7/79

H. PAUL BROWER, Iowa Electric System Communications Engineer

Received a Bachelor of Science degree in Electrical Engineering from Oregan State University in 1948.

Graduate credits were obtained in patent law and industrial electronics before graduation.

Additional graduate courses in transmission lines and transformer design were taken during employment on the Graduate Training Course at Allis-Chalmers in Milwaukee, Wisconsin where permanent employment was on high-energy betatrons for industrial radiography and cancer therapy.

During the years 1950-1956, was employed at Los Alamos Scientific Laboratory, Los Alamos, New Mexico in atomic weapons development.

Work experience during this period included materials testing, polonium-beryllium neutron source development, high-pressure (30,000 psi) tritium gas handling and purification system development, special measurement techniques and instrumentation and considerable practical experience in handling radioactive materials and radiological safety procedures.

Graduate courses taken during this period included advanced mathematics, servomechanisms, microwave theory and nuclear reactor technology. The latter course was taught on a classified basis by Dr. Samuel Glasstone, a prominent pioneer radio-chemist.

From 1956 to 1972, was employed in Engineering Development Division of Collins Radio Company (now a part of Rockwell International) in Cedar Rapids, Iowa. Work included early development work on an "atomic clock" and high-stability oscillators. Later assignments included heading a development group working on automatic test equipment. Graduate courses during this period included solid state physics, transients in linear systems and digital logic design.

In 1972, was one of four founders of a consulting firm (Spectra Associates) dealing primarily in public safety communications.

Joined Iowa Electric as Communications Engineer in 1977.

7/24/79

Educational and Technical Qualifications

Donald M. Goettsch
Communications Engineering Assistant/Hardware Engineer
System Control Relocation and Modernization

I have been employed by Iowa Electric Light and Power Company since Feb. 1970, in the System Protection and Communications Department. My present assignment is Hardware Engineer for the System Control Center Relocation and Modernization Project. My responsibilities in this position are for the engineering and installation of the equipment needed for the relocation of the Dispatch Control Center. From 1976 until the present I've done the engineering for new additions to our existing SCADA system, including both hardware and software, and also the equipment additions to our microwave system. I have also held the positions of Communication Technician and Senior Technician. Responsibilities included installation and maintenance of Telemeter, Telephone, microwave, carrier, supervisory, event recorder, oscillograph, SCADA and protective relay equipment. Senior Technician duties also included the supervision of the maintenance activities and other Communication Technicians.

I have one year of college, and I completed two years of Technical schooling in Electronics at the Radio Engineering Institute at Omaha, Nebr. in 1959. I have also completed night courses in Fortran Programming and Analytic Geometry at Kirkwood Community College. A home study course in Electronic Engineering Technology from Capitol Radio Engineering Institute of Washington, D.C. was completed in 1967.

From 1959 until 1970 I was employed as an Electronic Technician in the aerospace industry. This job involved Testing and Troubleshooting a wide range of electronic navigation and communications equipment which was used in the aircraft and aerospace industry.

I have a First Class F.C.C. License.

TABLE 4

TECHNICAL SERVICES available from the Central Region.

V. J. Schmidt
Vice President, Central Region Manager

Chris Contard, Superintendent Technical Services

Jack Kenison, Central Region Engineer

Clay Conard, Electric Technician

Dale Hanus, Supervisor Substation and Metering

Jim Connley, Supervisor Facility Planning
(Experienced in distribution and transmission line work, load management and supervision.)

John Sagar
Regional Superintendent, Electric Operations

(BS I.Ad. from Iowa State. Held various engineering jobs from Student Engineer to Regional Engineer. Operations Superintendent since 1964.)

Jim Ziegenbusch
Regional Gas Superintendent

(Complete responsibility of the Central Region Gas Operations.)

Jim Ziegenbusch, Regional Gas Superintendent

George Greiner, Gas Supervisor-Marshalltown

(George is experienced in piping and welding supervision)

People available - 2-Foremen
1-Sub-Foreman
4-Gas Serviceman Welder
7-Gas Serviceman
2-Gas Serviceman Appr.
2-Gas Meterman
2-Gas Meter Repairman
1-Gas Meter Repairman Appr.
1-Gas Meter Utilityman

Larry Rush, Gas Supervisor-Iowa Falls

(Larry is experienced in piping, welding testing and supervision)

People available - 2-Foreman
1-Gas Serviceman Welder
1-Gas Serviceman Welder Appr.
3-Gas Serviceman
3-Gas Serviceman Appr.
2-Gas & Electric Serviceman

Larry Lariviere, Gas Supervisor-Boone

(Larry is experienced in piping & welding supervision)

People available - 3-Foreman
3-Sub-Foreman
6-Gas Serviceman Welder
17-Gas Serviceman
4-Gas Serviceman Appr.
1-Storekeeper
1-Meterman

Knoxville Area - supervised by Gene Lang(Commercial Manager) and Leonard Walters (Foreman)

People available - 1-Foreman
2-Sub-Foreman
5-Gas Serviceman
4-Gas Serviceman Welder
1-Gas Serviceman Appr.
1-Appliance Serviceman

Central Region Vehicles (gas department) available.

38 - Pickups

15 - 1-Ton Truck

2 - Vans

5 - 2-Ton Trucks

4 - Cars

Electric Distribution Supervisor - Boone (position open at this time)

People available - 2-Foreman
1-Sub-Foreman
11-Lineman
2-Lineman Appr.
2-Gas & Electric Serviceman
1-Electric
2-Truck Driver
1-Storekeeper
1-Load Analyst
1-Electric Technician
1-Radio/Clerk
1-Substation Foreman
1-Substation Electrician
2-Substation Electrician Appr.
1-Meterman
1-Meterman Appr.

Gary Brindle, Electric Distribution Supervisor -- Britt

(Has a 2 year degree in electrical technical from Iowa State. Experienced in engineering of coordination, construction and maintenance of distribution systems, and in supervision.)

People available - 1-Foreman
5-Lineman
1-Lineman Appr.
1-Gas & Electric Serviceman
1-Truck Driver

Frank Grupe, Electric Distribution Supervisor - Iowa Falls

(Experienced in distribution and transmission line work and supervision.)

People available - 1-Foreman
1-Sub-Foreman
8-Lineman
3-Lineman Appr.
3-Gas & Electric Serviceman
2-Truck Driver
1-Storekeeper
1-Load Analyst
1-Substation Electrician Technical
1-Radio/Clerk
1-Substation Foreman
2-Substation Electric.
1-Substation Electric. Appr.
2-Meterman

Ray Zmolek, Electric Distribution Supervisor - Perry

(Experienced in distribution and transmission line work and supervision.)

People available - 4-Foreman
1-Sub-Foreman
13-Lineman
1-Gas & Electric Serviceman
1-Electric Serviceman
3-Truck Driver
1-Storekeeper
1-Substation Electrician Technical
1-Meterman

Bob Nott, Electric Distribution Supervisor - Marshalltown

(Experienced in distribution and transmission line work and supervision.)

People available - 3-Foreman
3-Sub-Foreman
17-Lineman
6-Lineman Appr.
3-Gas & Electric Serviceman
1-Electric Serviceman
4-Truck Driver
1-Storekeeper
1-Load Analyst
1-Substation Electrician Technical
3-Radio/Clerk
1-Substation Foreman
3-Substation Electrician
1-Meterman
1-Meterman Appr.
1-Groundman
1-Material-Truck
2-Garage Mechanic
1-Asst. Mechanic
1-Stores Clerk
2-Estimator
1-Office Supervisor

(Note: 7 people are supervised by Reg. Substation and Meter Supr.)

Central Region Vehicles (electric department) available

28 - Pickups

16 - Lifts

27 - Digger Derricks

5 - Vans/Suburbans

8 - Cars

2 - 4-Wheel Drive Pickups

2 - Flat beds

5 - Trenchers

2 - 1-Ton Trucks

TABLE 5

The following is a brief descriptive outline of the logistic support force which is available from the Eastern Region for the various duties that may be assigned in the event of a nuclear accident at DAEC.

Most of the personnel of the Region who would be of assistance are under the direction of the two regional operating superintendents, Mr. Ernest Tippie in the electric department, and Mr. Edward Lange in the gas department. These men have, respectively, twenty-four and twenty-nine years of experience in the company. Under their supervision are ten supervisors who plan and direct the operation of the operating crews in the Region. Included in these ten are two graduate electrical engineers, Gerald Bair who is also a registered professional engineer with twenty-one years of service in the company, and Steve Baker with six years of company experience.

The supervisory group directs and manages 198 employees who, under direction, are capable of performing logistic support, including manual evacuation of personnel and animals, direction of traffic, and reading and recording monitoring devices, and such other duties as may be necessary. They all have access to adequate transportation that is fully equipped with mobile radio communication.