

APPENDIX
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APPENDIX 1C

PROJECT STAFF

LIST OF FIGURES

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Figure No.

Title

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Project Organization

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APPENDIX 1C

PROJECT STAFF

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APPENDIX 1CPROJECT STAFF1 THE TOLEDO EDISON COMPANY-PROJECT STAFF1.1 GENERAL AND TRAINING

As outlined in Appendix 1A, The Toledo Edison Company has personnel who have had design, construction and operating experience with the APDA-PRDC Enrico Fermi Project. In addition to the engineers who were assigned to these organizations, ten company engineers participated in Saturday manning of the public information center of Enrico Fermi over a five year period from 1958 through 1963. As a result of this experience, all of these engineers became quite familiar with the design and operation of this nuclear facility.

Commencing in 1967, Toledo Edison initiated a long range program to prepare the engineering, construction and operating supervisory personnel for the nuclear project. In 1967, one engineer attended the Nuclear Reactor Safety course at MIT. In the spring of 1968, an in-house course on nuclear engineering fundamentals was initiated with over 30 engineers from the Power Group and Electrical Engineering Division attending. This course was developed and taught by Dr. W. Kerr, head of the Nuclear Engineering Department, and his associates at the University of Michigan. There were seven sessions taught in 1968 with an additional seven sessions taught in 1969 followed by the Babcock & Wilcox 48 instruction hour course in nuclear engineering and plant design.

In 1968, four engineers attended the four week Nuclear Power Reactor Engineering course at The University of Michigan, two engineers attended a ten day course at The Ohio State University, one engineer attended a five week course given by Gulf General Atomics and three engineers attended a three week Nuclear Fuel Management course at Purdue University. A similar program of participation in selected courses is being carried out in 1969 and will continue in future years, including courses in the areas of health physics, non-destructive testing and instrumentation.

In the fall of 1968, a mechanical engineer, Mr. E. C. Novak, was sent to The University of Michigan to work toward a Master's Degree in Nuclear Engineering, which will be obtained in late 1969. Mr. Novak will work in the Mechanical Engineering Division and other assignments until the plant operating training commences at which time he will be assigned to the plant staff.

The Toledo Edison Company is actively recruiting graduate engineers and expects to have additional employees with formal nuclear education in 1969.

1.2 PROJECT ORGANIZATION

The Mechanical Engineering Division of the Power Group has the overall responsibility for the design and engineering for the Davis-Besse Nuclear Power Station, and the Chief Mechanical Engineer, Mr. L. E. Roe, has been designated as the Project Engineer for the Davis-Besse project. The Electrical Engineering Division of the Electrical Group is responsible for the design and engineering of the electrical portions of Toledo Edison generating stations;

however, for the Davis-Besse Project this responsibility will be under the Project Engineer.

A functional organizational chart for the Davis-Besse Nuclear Power Station Project is shown on Figure 1C-1.

1.2.1 MECHANICAL ENGINEERING DIVISION

In addition to the Chief Mechanical Engineer, the Mechanical Engineering Division consists of nine employees. Five of these employees are graduate engineers who collectively represent an excellent cross section of power station design, construction and operating experience. Mr. Novak will be assigned to this group upon graduation at The University of Michigan in 1969 and additional new employees will be added. Resumes of these engineers are included below.

Mr. L. E. Roe, Chief Mechanical Engineer and Davis-Besse Project Engineer, is a 1948 graduate of The Ohio State University with a BS in Mechanical Engineering. He commenced employment with Toledo Edison in 1948 as a student engineer and then was assigned to the Mechanical Engineering Division. He has held various engineering grades and has worked on a number of economic studies and all phases of four major capacity additions. In 1951 he was recalled for two years of active duty with the U. S. Naval Reserve. In 1956, after completion of the Bay Shore No. 1 unit, he was assigned for five years to the Atomic Power Development Associates (APDA). While at APDA he was responsible for the coordination work with the architect-engineer for the design of APDA component test facility at the Enrico Fermi plant consisting of the reactor vessel, primary pump and associated equipment. For three years he was at the Enrico Fermi Plant for the construction, erection and operation of the Component Test Facility and spent the last year with APDA as head of the Test Operations Section for this facility. This included all calibration tests, hot gas tests, sodium fill and sodium operations. In 1961, he returned to The Toledo Edison in the Mechanical Engineering Division and in 1962 was named Chief Mechanical Engineer. In this capacity he was responsible for the design and engineering of the Bay Shore Station No. 4 unit which went into commercial operation in 1968.

Mr. Roe has attended the Nuclear Fuel Management Course at Purdue University and other University short courses on nuclear engineering. He is a member of the American Society of Mechanical Engineers, American Nuclear Society, National Society of Professional Engineers and is a Registered Professional Engineer in the State of Ohio. He is a member of the Technical and Engineering Committee of the Power Reactor Development Company, a member of the Nuclear Design and Operating Task Force of the Prime Movers Committee of the Edison Electric Institute and is the company representative to the Atomic Industrial Forum.

Mr. J. E. Seward, Design Mechanical Engineer, is a 1941 graduate of Virginia Polytechnic Institute with a BS in Electrical Engineering and a 1942 graduate of the same school with a BS in Mechanical Engineering. In 1943 he joined the Army Air Forces and served three years as an aircraft maintenance officer. He returned to VPI in 1946 and graduated with a Master's Degree in Power and Fuel Engineering in 1947. He began employment with The Toledo

Edison Company, upon graduation, assigned to the Mechanical Engineering Division. He has held various engineering grades and has worked on a number of economic studies and the engineering of four major capacity additions. In January 1953 he was assigned as special projects engineer for four years to the Atomic Power Development Associates engaged in the design and development of the Enrico Fermi Fast Reactor. While at APDA he was section head of the Fuel Handling Equipment Department with the responsibility for the design of fuel handling equipment items and the coordination of these components with other related systems. During this four year assignment at APDA his department finalized the fuel handling concept, established overall elevations and dimensions for all major equipment items including reactor vessel, operating floor elevation and equipment storage areas. Preliminary equipment drawings were completed, bids were obtained and all fuel handling and vessel components for the reactor containment area were ordered during this four year period. In 1957 he returned to The Toledo Edison Company in the Mechanical Engineering Division as Design Mechanical Engineer.

In this capacity he has worked on numerous economic studies involving additions of both fossil and nuclear plants and has also taken part in the engineering of two major capacity additions.

Mr. Seward has attended the two week special summer program in Nuclear Power Reactor Safety conducted at MIT, the four week intensive summer course in Elements of Nuclear Power Reactor Engineering at The University of Michigan, and other University sponsored short courses on nuclear engineering.

He is a member of the American Society of Mechanical Engineering and is a Registered Professional Engineer in the State of Ohio. He is a member of the Technical and Engineering Committee of Atomic Power Development Associates, is a member of the Patent Review Committee of APDA and is the alternate company representative to the Atomic Industrial Forum.

Mr. J. D. Lenardson, Plant Mechanical Engineer, is a 1946 graduate of the University of Illinois, with a BS in Mechanical Engineering. He commenced Toledo Edison employment in 1946 as a junior engineer assigned to Power Plant Construction. He has held various engineering grades, including construction engineer, and has participated in the engineering and construction of six major capacity additions as well as five combustion turbine peaking units and other power plant modernizations. In 1968, he was transferred to the Mechanical Engineering Division to work on the Davis-Besse project.

He is a Special Inspector of Power Piping, certified by the State of Ohio. Mr. Lenardson served for eight years on the Advisory Board under the Industrial Commission of Ohio rewriting the state piping code and continues to review and comment on proposed revisions to Ohio codes covering piping, boilers and pressure vessels. He is currently serving on the ASME "N" Stamp Audit Survey Team inspecting nuclear equipment manufacturers' shops, validating code conformance to allow usage of ASME code stamps on nuclear vessels, piping, valves and other components.

Mr. Lenardson has attended the Nuclear Power Reactor Engineering course at The University of Michigan. He is a member of the American Society of Mechanical Engineers, American Nuclear Society, the American Society for

Testing and is a Registered Professional Engineer in the State of Ohio.

F. R. Miller, Nuclear Fuels Engineer, is a 1949 graduate of The University of Toledo with a BE in Electrical Engineering. He commenced employment with Toledo Edison in 1949 as a junior engineer in the Electrical Engineering Division. He has held various engineering grades and has worked on a number of economic studies. He worked six years in the System Planning Department and was responsible for the transmission planning of the company for three years. He also was responsible for all substation and power station electrical engineering for three years while in the Electrical Engineering Division.

In 1964 he was transferred to the Systems Division of the company, where he was responsible for all computer programming and information systems design for the company.

In May 1968 he was transferred to the Mechanical Engineering Division as the Nuclear Fuels Engineer. He has attended the Nuclear Fuels Management Course at Purdue University and the Nuclear Power Reactor Engineering Course at The University of Michigan. He has made a number of economic studies on alternate fuel proposals from the nuclear fuel suppliers using the CINCAS fuel cost computer program developed by Purdue.

He is a member of the Institute of Electrical and Electronic Engineers, American Nuclear Society and is a Registered Professional Engineer in the State of Ohio.

R. V. Bins, Plant Control Engineer, is a 1954 graduate of The University of Toledo with a BS Degree in Mechanical Engineering. He commenced employment with Toledo Edison in 1950 as a plant helper in station operations and worked part time for three years while obtaining his degree at the University. Upon graduation, he re-commenced full time employment as an engineer in the Results Department working on station instrumentation and control, holding various engineering grades including Results Engineer at Bay Shore Station.

In addition to the normal operating plant work on instrumentation and control, he participated in checkout and startup of three units at Bay Shore Station including operator training in instrumentation and control. In this capacity, he initiated a program on new construction of calibration of controls prior to startup which has permitted safer and more orderly startups.

Mr. Bins was transferred to the Mechanical Engineering Division in 1965 and was responsible for the instrumentation and control design and engineering for the Bay Shore No. 4 unit. He also was responsible for supervising the field installation of instrumentation and control items on this unit.

Mr. Bins has attended a number of courses given by controls manufacturers and has attended the Nuclear Power Reactor Engineering course at The University of Michigan. He is a member of the American Society of Mechanical Engineers, the Instrument Society of America and is a Registered Professional Engineer in the State of Ohio.

Mr. Lawrence A. Haigh, Plant Systems Engineer in the Mechanical Engineering Division, is a graduate of the University of Wisconsin with a BS Degree in

Mechanical Engineering. He commenced employment with Toledo Edison in 1952 in the Mechanical Engineering Division and has participated in the engineering work associated with three of the four latest fossil-fired units.

In 1955 he participated in the checkout and startup of five of the fossil-fired units at the Clifty Creek and Kyger Creek Stations of the Ohio Valley Electric Company.

In 1960 he was assigned to Enrico Fermi Project for over four years as a project engineer with PRDC. In this capacity he worked on the construction, checkout and startup of the reactor auxiliary systems at the Enrico Fermi Plant.

Upon return to Toledo Edison in late 1964, he was involved with the engineering work on the Bay Shore No. 4 unit.

Mr. Haigh holds a Third Assistant Steam and Diesel Engineer License from the U. S. Coast Guard and a Third Class Operating Engineer License from the State of Ohio. He is a member of the American Society of Mechanical Engineers and is a Registered Professional Engineer in the State of Ohio.

Mr. E. C. Novak, Results Engineer Bay Shore Station, is a 1959 graduate of The University of Toledo, with a BS Degree in Mechanical Engineering. After working part time as student engineer beginning in 1957, he commenced full time employment in 1959 in the Power Production Department holding various engineering positions up to Results Engineer at Bay Shore Station. In 1964, he attained a Master's Degree in Industrial Engineering from The University of Toledo.

His duties at Bay Shore Station involved equipment, cycle and station performance reporting and analysis; overseeing station instrumentation and control equipment with respect to safety and optimum performance, and conducting operator and maintenance personnel training sessions on instrumentation, controls and power plant equipment and cycles. His last assignment at Bay Shore involved supervising the checkout and calibration of controls, instrumentation, and interlocks for startup of the No. 4 unit in 1968.

Mr. Novak has attended several controls manufacturer training courses, and has attended the Nuclear Power Reactor Engineering course at The University of Michigan. He is presently attending The University of Michigan full time and will attain his Master's Degree in Nuclear Engineering in December 1969. He is a member of the American Society of Mechanical Engineers, American Institute of Industrial Engineers, American Nuclear Society, and is a Registered Professional Engineer in the State of Ohio.

1.2.2 ELECTRICAL ENGINEERING DIVISION

There are about 90 employees in the Electrical Engineering Division of which 19 are graduate engineers engaged in all phases of the electrical engineering activities for the company. The electrical design and engineering associated with generating stations is under the Station Electrical Engineering Department of the Electrical Engineering Division headed by the Station Electrical Engineer. For the Davis-Besse project, the Station Electrical

Engineer will be responsible to the Davis-Besse Project Engineer for the electrical engineering and design work associated with the Davis-Besse Station.

Resumes of the key electrical engineering personnel involved in the Davis-Besse project included below.

Mr. Leroy E. Smith, Chief Electrical Engineer, is a 1939 graduate of The University of Missouri at Rolla with a BS Degree in Electrical Engineering. During World War II, he served as an Ordnance Officer with the U. S. Army Air Force attaining the rank of Lieutenant Colonel.

He started his employment with Toledo Edison in 1941 after working for Public Service Company of Oklahoma and Westinghouse for two years. From 1946 to 1962 he held positions of Power Plant Electrical Engineer, Power Plant Electrical and Substations Engineer and Electrical System Design Engineer. In 1962, he was promoted to Chief Electrical Engineer.

Mr. Smith has worked with and been responsible for electrical engineering work associated with power plants at Toledo Edison since 1946. During this period, two turbine generator units were installed at the Acme Station and four units were installed at the Bay Shore Station. Since 1962, he has been responsible for all electrical engineering activities concerning power plants, substations as well as the transmission and distribution areas of the company.

He is a member of Tau Beta Pi, Phi Kappa Phi, Institute of Electrical and Electronic Engineers and National Society of Professional Engineers. He is a Registered Professional Engineer in the State of Ohio and is a member of the Electrical System and Equipment Committee of The Edison Electric Institute.

Mr. C. M. Gardam, Station Electrical Engineer, is a 1948 graduate of McGill University, Montreal, Canada with a BE Degree in Electrical Engineering. After six years experience with a manufacturer of industrial and utility electrical equipment in Canada, he was employed by Toledo Edison as an Assistant Engineer in the Power Plant Electrical Section of the Electric System Design Department of the Electrical Engineering Division. After progressing through various grades and assignments in control, system planning and substations, including design and field supervision of electrical installations of three major generating units, he was appointed Station Electrical Engineer on January 1, 1968. In this capacity he is responsible for the design and engineering of all company and customer substations, auxiliary power systems, and electrical controls within power plants.

Mr. Gardam is a member of the Institute of Electrical and Electronic Engineers and is a Registered Professional Engineer in the State of Ohio and the Province of Ontario, Canada.

Mr. M. D. Calcamuggio, Power Plant Electrical Engineer, is a 1954 graduate of The University of Toledo, with a BS in Electrical Engineering. After graduation, he served in the Army Corps of Engineers and the commenced employment with The Toledo Edison Company in 1956 as an Assistant Engineer in the Elec-

trical Engineering Division. He has held various engineering grades and participated in the engineering and construction of two major capacity additions. He received a Masters Degree in Industrial Engineering in 1963 from The University of Toledo. In 1966 he was promoted to the position of Power Plant Electrical Engineer and supervised the electrical engineering and construction portion of the company's recently completed Bay Shore No. 4 unit; including station auxiliary power supply, generator leads, buses and testing of all electrical equipment.

Mr. Calcamuggio has completed the four week intensive summer course in Elements of Nuclear Power Reactor Engineering at The University of Michigan.

He is a member of the Institute of Electrical and Electronic Engineers, the National Society of Professional Engineers and is a Registered Professional Engineer in the State of Ohio.

Mr. R. J. Kuhr, Relaying and Control Engineer, is a 1947 graduate of The University of Toledo with a BE degree in Electrical Engineering. He began employment with The Toledo Edison Company in 1947 and was assigned to the Electrical Engineering Division. He has held various engineering grades, including Power Plant Electrical Engineer, and has participated in the engineering of five major capacity additions and five combustion turbine peaking units. From 1955 to 1968 he had the title of Control Design Engineer where he supervised and coordinated all activities in connection with the design of relaying and control systems for the electrical portion of power plants and for the transmission and distribution substations. In 1968 he was named Relaying and Control Engineer in which he is responsible for all system electric control design as well as all system relaying and protection, including system fault studies and relaying setting calculations.

Mr. Kuhr is a member of the Institute of Electrical and Electronic Engineers.

1.2.3 POWER PLANT CONSTRUCTION DIVISION

The General Superintendent of this Division is directly responsible for the construction of the Davis-Besse Station. On construction of previous units, his staff has been supplemented by engineers and technicians from the engineering divisions and maintenance department for proper job management. On the Davis-Besse Station, Bechtel will be providing most of this staff but there will be additional personnel assigned to the Toledo Edison construction staff primarily in the area of quality assurance. A resume of the General Superintendent is included below.

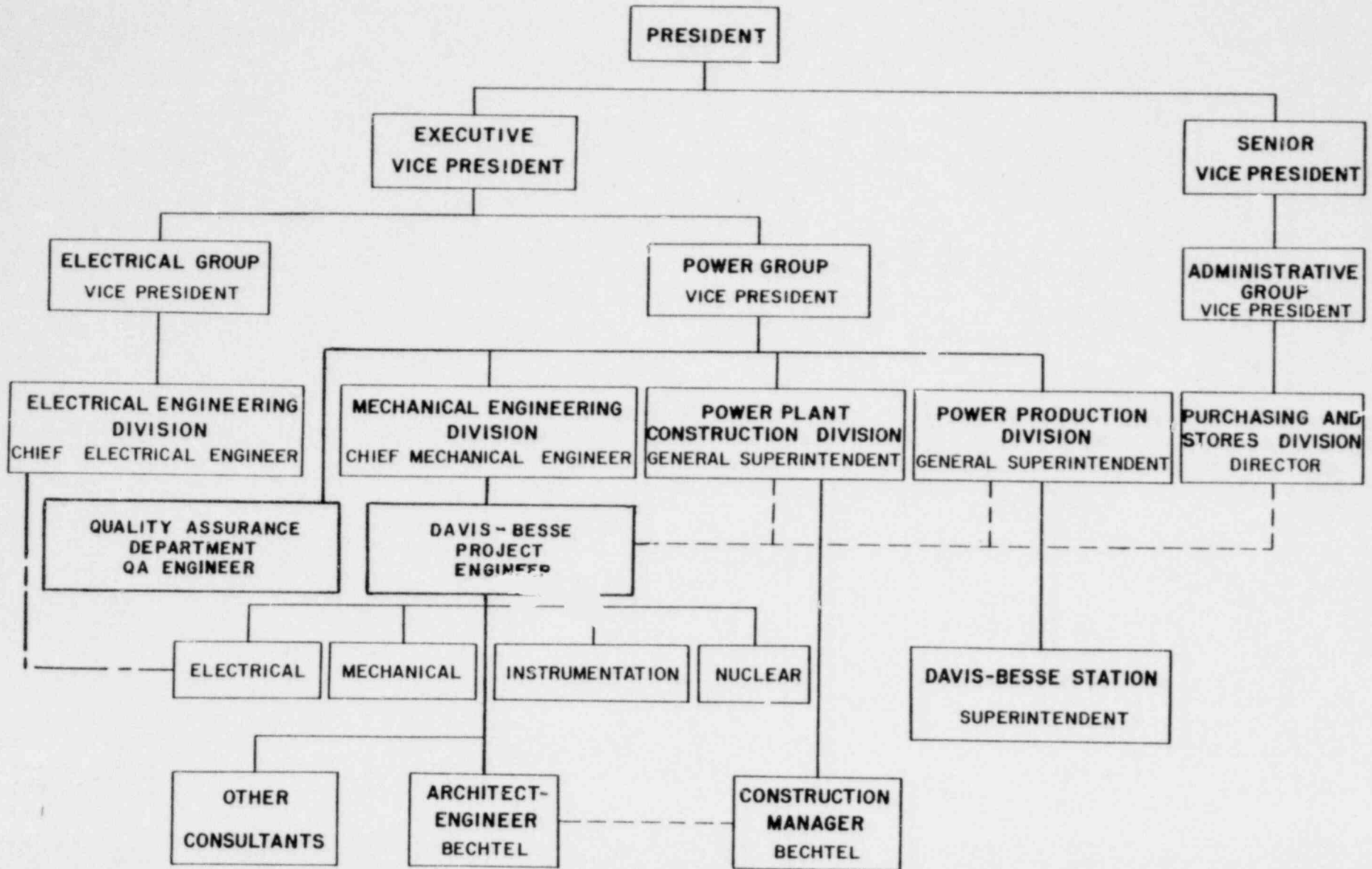
Mr. N. L. Wadsworth, General Superintendent, is a 1935 graduate of Michigan State University with a BS degree in Civil Engineering. He commenced employment with Toledo Edison in 1935 and worked in various construction categories in the power stations and underground steam distribution system. In 1941 he joined the U. S. Navy and served as an officer in the Civil Engineers Corps on public works. In 1947 he returned to Toledo Edison as Construction Engineer in the Power Plant Construction area. He was named Chief Construction Engineer in 1955 and General Superintendent in 1964.

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He has worked in a responsible position during the addition of two major unit additions and has been responsible for the construction of units No. 2, 3 and 4 at the Bay Shore Station together with five combustion turbine peaking units and a number of other construction projects.

Mr. Wadsworth is a Registered Professional Engineer in the State of Ohio.

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 - - - - - ADMINISTRATIVE

DAVIS-BESSE NUCLEAR POWER STATION
 PROJECT ORGANIZATION

FIGURE 1C-1
 AMENDMENT NO. 2

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