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U.S. Nuclear Regulatory
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U.S. Nuclear Regulatory
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Washington, D. C. 20555

In the Matter of
The Cincinnati Gas & Electric Company, et al.
(William H. Zimmer Nuclear Power Station)
Docket No. 50-358

Gentlemen:

In accordance with the schedule established by the Licensing Board, enclosed is testimony relating to Contentions 14, 15 and 16, and the professional qualifications of Messrs. Schwiers, Banta and Pence who will join the panel on these contentions.

Sincerely,

Troy B. Conner, Jr.

Troy B. Conner, Jr.
Counsel for the Applicant

Enclosure

cc: Per Service List

APPLICANTS' TESTIMONY RELATING TO CONTENTION 14
CABLE TRAYS

Cable trays at Zimmer are not Class 1 safety equipment. Accordingly, there is no requirement for "certification" of welders as is required by the ASME Code Section 3, for pressure vessels for example. However, each Husky welder was required to have a qualification test to establish his competence for the type of welds made on Zimmer Cable Trays.

The cable trays were manufactured in accordance with design specification requiring steel having a minimum yield of 30 KSI. Design specification further required the cable trays to sustain a working load of 40# per square foot plus a load equivalent to 200 pounds at the mid-point of a 10 foot span with a minimum load (safety) factor of 2.0, when treated in accordance with NEMA Standard VM-1-3.01. When this material is received at Husky, the receiver documentation is inspected to verify that the shipment meets these specifications.

Any cable tray which did not meet specifications was rejected following quality assurance visual inspections at Husky such that only trays meeting specifications were shipped to Zimmer. Additional inspection was made upon receipt at the Zimmer plant to assure that there was no damage in shipment.

A point is suggested that the production welding techniques were not identical to the test welding techniques. It is not known what is meant by a "technique" in this context. However, the welding procedures used in the

qualification for Husky welders are identical to the welding procedures used in production of the cable trays for Zimmer. The weld procedures refers to the physical steps that are taken to complete a weld. The type of weld refers to the physical configuration of an actual weld. The qualification tests administered to Husky welders required completion of horizontal or vertical groove welds. ASME Boiler and Pressure Vessel Code, Section IX, which was followed here, specifically provides that successful qualification to perform horizontal or vertical groove welds automatically qualifies a welder to perform horizontal or vertical fillet welds, respectively, as well as flat groove and fillet welds. The welds employed in production of the cable trays provided to the Zimmer project are flat fillet welds.

A point is made that "meaningful" inspections of certain welds was made impossible because the trays were galvanized. In fact, visual inspection at Husky as to acceptability of welds was made prior to galvanizing.

Following Mr. Hofstadter's complaint to the NRC and others, the NRC conducted an exhaustive inspection at the site as well as destructive testing to verify tensile strength and weld acceptability and prepared a report which was forwarded to the Board and parties by the Applicant in response to MVPP's interrogatory No. 9 which is hereby incorporated by reference herein. In essence, this report established that the NRC verified the material strength and

weld acceptability referred to above and subjected sample parts to destructive testing. It is important to emphasize that the trays were all manufactured to the same specification. Therefore, contrary to intervenors' argument, it would not matter whether the specimen trays happened to be vertical or horizontal in use.

APPLICANTS' TESTIMONY RELATING TO CONTENTION 15
MANUFACTURE OF CONTROL RODS

In Contention 15, the Miami Valley Power Project asserts that the size specifications for control rods were not met. As demonstrated below, there is no basis for such assertion.

The control rods are described in detail in Section 4.2 in the FSAR beginning on Page 4.2-31 (See Figures 4.2-11 and 12 for specific dimensions). The control rods were manufactured at General Electric's plant in Wilmington, North Carolina. All quality assurance procedures at the manufacturing facility were satisfied. Control rods were inspected pursuant to General Electric's quality assurance procedures to assure that design specification requirements are met before being released for shipment to the Zimmer site.

Control rods were packed and shipped according to special requirements which have been established to maintain the integrity and configuration of the rods and thus assure delivery to the site in the same condition as when they were packed at Wilmington.

After the control rods were uncrated at the reactor site, and before installation into the reactor, they were inspected for possible shipping and handling damage. As a result of this inspection, six control rods did not meet

General Electric's inspection criteria and were returned to Wilmington and replaced. Six other control rods had minor dimensional variations. After an engineering analysis and subsequent inspections, these six were accepted for use.

As a part of the inspection at the reactor site, gages were used to check envelope requirements. A forty pound spring clamp was used with these gages to remove normal sheath waviness. The forty pound load removed waviness of the sheath without permanently deforming the sheath. While certain damage such as significant dents or bent rods could be a reason for rejection, normal waviness, which is overcome by the clamp, is acceptable. The control rod is designed to operate with substantial rubbing friction between the control rod and the fuel bundles which is substantially in excess of forty pounds. Therefore, the forty pound inspection clamp load has no effect on safety or normal operation. The NRC's Office of Inspection and Enforcement has verified the acceptability of the rods and has witnessed certain of the inspections.

In January 1979, during initial fuel loading at the Fukushima 6 reactor, it was noticed that several fuel channels hit the small ledge that exists in the corner of the control rod wings at the top of the velocity limiter just before the fuel bundle seated on the orificed fuel support.

Under maximum material tolerance conditions, this ledge could nick the corner of a fuel channel. While nicking does not affect fuel channel or control rod life or reactor safety, the ledge was chamfered to eliminate the possibilities of nicking. This chamfering was done with a handheld high speed air motor containing a small milling tool (burr). The ledge nicked the fuel channel only at maximum material tolerance conditions. Therefore, a gage was utilized which duplicated the fuel channel corner. If the gage hit the ledge, the ledge was chamfered. If the gage did not hit the ledge, no action was taken. The result was that all corners of all control rods had to pass the gage before the control rod was accepted. As the result of this operation, all control rods which have been installed in the Zimmer reactor meet all requirements for operation.

APPLICANTS' TESTIMONY RELATING TO CONTENTION 16
CONTROL ROD SEALS

Miami Valley Power Project charges that the seals on the control rods which prevent radioactive water from leaking out when the reactor is shutdown for maintenance do not meet minimum specifications for smoothness. As demonstrated below, there is no basis for such assertion.

Under normal conditions, the primary seal which retains water in the reactor is that created by the mating surfaces of the control rod drive and control rod drive housing flanges. The seal noted in Contention 16 is the velocity limiter to guide tube backseat. These seals are shown in FSAR Section 4.2 in Figures 4.2-12, 13 and 14. The only function that these control rod seals in question serve is to limit the leakage of water from the reactor vessel during the time when the drive mechanism is disassembled for maintenance. Therefore, these seals would only see the pressure caused by the head of water in the vessel and are not subject to operating pressure. They serve no other function. The specifications for the seals, which are AISI Type 304 stainless steel, are a 63 RMS finish and dimensional constraints in size and shape.

To determine that these specifications were met, control rod seals were subjected to visual inspection with a comparator and a dimensional check in a special inspection fixture.

These inspections are performed at Wilmington as a planned part of General Electric's Quality Assurance program.

After the control rods were shipped to the site, the seals were inspected for possible damage in shipment. The visual inspection was conducted with a comparator. One control rod was returned to General Electric and replaced because of a scratch across the seal surface. All control rod seals installed at the Zimmer reactor meet design specifications for operation.

W. W. SCHWIERS

PRINCIPAL QUALITY ASSURANCE & STANDARDS ENGINEER

THE CINCINNATI GAS & ELECTRIC COMPANY

My name is William W. Schwiers. I am employed by The Cincinnati Gas & Electric Company whose principal offices are located at 139 E. Fourth Street, Cincinnati, Ohio, 45202.

I am Principal Engineer of the Quality Assurance and Standards Section of the General Engineering Department in which capacity I am responsible for the establishment and implementation of The Cincinnati Gas & Electric Company Quality Assurance Program for the Wm. H. Zimmer Nuclear Power Station. I function as the primary contact with the Office of Inspection and Enforcement of Region III of the Nuclear Regulatory Commission.

I graduated from the University of Southern California in 1946 and received a Bachelor of Engineering Degree in Mechanical Engineering. I have attended specialized courses in Welding Inspection, Nondestructive Examination, and a comprehensive course provided by NUS Corporation titled "Introduction to Nuclear Power". The NUS course covered 16 weekly sessions of four hour duration and included subjects such as Introduction to Nuclear Physics, Reactor Thermal Hydraulic and Control Characteristics, Chemistry and Radiation Safety, and Nuclear Power Plant Operation.

Prior to employment with The Cincinnati Gas & Electric Company, I worked for one and one-half years as a Design Engineer at the Wm. Powell Company designing high pressure steam and specialty type valves. I have been employed by The Cincinnati Gas & Electric Company since June, 1948, working in the Mechanical Section of the General Engineering Department, the Plant Accounting Division of the General Accounting Department, and in 1970, was assigned to the Quality Assurance and Standards Section of the General Engineering Department.

My experience in Quality Assurance consists of assistance in preparation of The Cincinnati Gas & Electric Company Quality Assurance Program, conduct of audits of facilities of manufacturers supplying safety related equipment, and for two years, I functioned as Field Quality Assurance Engineer during the early construction of the Wm. H. Zimmer Nuclear Power Station. I represented The Cincinnati Gas & Electric Company as its Senior Field Project Engineer providing liason between The Cincinnati Gas & Electric Company and the Architect Engineer, Constructor and various subcontractors providing equipment and construction services at the Zimmer Project. In September, 1976, I was assigned the responsibility of Principal Engineer for the Quality Assurance and Standards Section of the General Engineering Department.

I am an affiliate member of ASME/NSPE since 1972. I am a member of the Engineering Society of Cincinnati, the American Welding Society and have been a member of ASME for 20 years. I represent Cincinnati Gas & Electric Company as an organizational member of ASTM.

PROFESSIONAL QUALIFICATIONS
FRED L. BANTA
MANAGER
ENGINEERING-INSPECTION AND DEVELOPMENT
HUSKY PRODUCTS, INC.
DIVISION OF BURNDY CORPORATION

Education: Bachelor of Science in Electrical Engineering, University of Cincinnati, 1975.

Bachelor of Business Administration, University of Cincinnati, 1967.

Employment: Burndy Corporation
District Sales Engineer, June 1967 - December 1968.

1968 - 1970 - two years leave of absence to serve in the U.S. Army.

Husky Products, Inc.
Cable Bus Specialist, 1970-71
Marketing Manager, 1971-1976
Marketing-Engineering Manager, 1976-78
Engineering-Inspection and Development Manager, 1978-79.

Husky's principal business is the design, manufacture and sale of electrical cable trays for industrial applications.

I have been personally involved in each and every phase of the design, manufacturing and marketing of cable trays and cable tray accessory devices. In my present position, I personally participate on a daily basis in the operations involved in designing and manufacturing cable trays. I personally observe welders and welding operations daily in the normal course of my employment in connection with design evaluations and quality assurance operations. I personally perform welding operations for various limited purposes in connection with testing and design of Husky cable trays.

PROFESSIONAL QUALIFICATIONS
VERNON W. PENCE
MANAGER
DRIVE LINE COMPONENTS
GENERAL ELECTRIC COMPANY

My name is Vernon W. Pence. My business address is 175 Curtner Avenue, San Jose, California 95125. I am Manager, Drive Line Components for the Boiling-Water Reactor Systems Department of the General Electric Company. In this position I am responsible for the design, manufacture and field service of major components such as the control rods, hydraulic control units, control rod drive system hardware, and other components associated with the control rod drive system.

I have a Bachelors Degree in Mechanical Engineering from California Polytechnic State University, a Masters Degree in Engineering from University of Santa Clara and a Masters Degree in Business Administration, also from the University of Santa Clara.

I was employed for approximately six years by Lockheed Corporation in Sunnyvale, California as a design engineer where I was responsible for design of aircraft and missile components.

In 1968, I joined General Electric Company as a Design Engineer responsible for design and manufacture of components for boiling water reactors, including stress evaluation and

compliance with applicable codes. As stated above, since 1976 I have been Manager of the drive line components where I supervised the design, manufacture and field service of control rod and other components for boiling water reactors.

I am a Professional Engineer in the State of California.