12/7/81

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket No. 50-155 OLA
CONSUMERS POWER COMPANY	)	(Spent Fuel Pool
	)	Modification)
(Big Rock Point Nuclear Power Plant)	)	

TESTIMONY OF PATRICK M. DONNELLY
CONCERNING O'NEILL CONTENTION IIG(a)

INTRODUCTION

My name is Patrick M. Donnelly. I live in Eveline Township at Route 2, Box 126D, Charlevoix, Michigan. I began working for Consumers Power Company, shortly after graduating from high school, on December 5, 1966, at the Saginaw River Steam Plant in Saginaw, Michigan. After moving through several operating jobs at Saginaw River, I transferred to the Big Rock Point Nuclear Power Plant in March of 1969 as an Auxilliary Operator. In approximately January of 1971, I attained my Nuclear Regulatory Commission ("NRC") Reactor Operator's License. This reactor operator's license was obtained after completion of the Consumers Power Company's Hot License Training Course, which consisted of over a year of formal training and on-the-job experience on all aspects of the operation of the plant. In approximately 1975, I was

promoted to the position of Control Operator II at Big Rock Point. My responsibilities as CO-II included the operation of the reactor and control room during this period. In 1977, I was promoted to the position of Control Operator I. My duties as CO-I included the overall responsibility of the operation of the entire plant. In June of 1979, I was selected by Consumers Power management to participate in the Senior Reactor Operators' Training Program, and in December of 1979, I received my senior reactor operator's license from the NRC. On January 1, 1980, I was promoted to the position of Shift Supervisor at Big Rock Point. I presently still hold the position of Shift Supervisor and am directly responsible for the day-to-day operation of the Big Rock Point plant while on duty at the plant.

In addition to duties as a Shift Supervisor, I was selected by plant management to represent Consumers Power Company on the General Electric Boiling Water Reactor Owners Group (Emergency Procedures Section). My primary responsibility on the GE-BWR Owners Group is to participate in the writing of generic Emergency Operating Procedures for all GE Boiling Water Reactors. The GE-BWR Owners Group was formed shortly after the TMI-2 accident when it was obvious to both the nuclear industry and the NRC that there was a need for better operator guidance during nuclear plant emergencies.

As of this date, I am still an active member of this group. In March of 1981, I was assigned to work with Science Applications, Inc. to work on the Big Rock Point Probabilistic Risk Assessment. I feel my education and my 15 years of operational work experience, and my participation in the BRP-PRA and GE-BWR Owners Group, are a sufficient basis to respond to O'Neill Contention IIG(a), which states:

> Administrative controls proposed to prevent a cask drop over the pool are inadequate. These are mentioned on pages 4-9 of the application. Administrative controls have proved inadequate in the past in preventing incidents and are frequently violated at the plant.

My testimony shows that implementation of administrative controls at Big Rock Point plant has been effective in the past, and that there is reasonable assurance that the plant can implement the specific administrative controls for preventing the cask drops mentioned on page 4-9 of the Company's application.

ADMINISTRATIVE CONTROLS AT BIG ROCK POINT PLANT

Administrative controls are a documented set of rules that guide the operations of the plant to assure that it is operated in accordance with the rules and regulations of the Nuclear Regulatory Commission, the State of Michigan,

and Consumers Power Company Corporate Standards. The guidance provided by administrative controls is essential to the safe and effective operation of a nuclear power plant. Although it is unlikely that any one violation of the administrative controls at Big Rock Point would lead to a significant safety problem, uncorrected violations of administrative controls could very well lead to such a situation. Therefore, it is very important to have the means available to monitor the plant's compliance with administrative controls and to correct dificiencies when they are found. This system, which is available to each and every employee of Consumers Power Company for reporting deficiencies, is the corrective action reporting system. This system is described in detail in the testimony of Edmund Raciborski.

Administrative controls have been violated at Big Rock Point from time to time. However, the assertion in O'Neill Contention IIG(a) that the plant's administrative controls are "inadequate" and "frequently violated" is not true. I believe the following four facts convincingly demonstrate that Big Rock Point plant's administrative controls are not "inadequate" and are not "frequently violated."

(1) In the twenty-year history of Big Rock Point, the plant has never once, to my knowledge, exceeded the release rates listed in Appendix

A, Table II, of the Code of Federal Regulation (10 C.F.R. 20) for radioisotopes in air and water.

(2) In twenty years of operation, there have only been three incidents of occupational exposure in excess of Federal limits.

(3) Big Rock Point has an excellent industrial safety record. The last "lost-time" injury occurred over four years ago in August 1977.

(4) Big Rock Point currently holds the world record for boiling water reactors for continuous uninterrupted operation, 343 days, and currently the plant has operated for 304 days and plans to run for a new BWR world record of 370 days without interruption.

The Institute of Nuclear Power Operation (INPO) based in Atlanta, Georgia, conducted an overall evaluation of the Big Rock Point plant in May of 1981. INPO is an organization created by the nuclear industry in the aftermath of TMI-2 whose function is to maintain a standard of excellence within the industry which is even higher than the NRC-type regulation. INPO is the industry's own "watchdog." INPO's comments in the administrative control area are: "The administrative system is comprehensive and supports the safe operation of the plant."

There are, I believe, several reasons that the Big Rock Point plant has achieved the aforementioned record runs and fine safety record. First and foremost, the staff at Big Rock Point has a very high level of experience. Many of the first-line supervisors have been at the site since the construction stages nearly 20 years ago. Many of the engineers and other members of the staff have also been at the site since the construction stages. Although some of these people have held numerous positions, they gain knowledge and experience at each position and carry it along with them to the next job assignment.

Secondly, the small size and simplicity of design of the Big Rock Point plant make it inherently easy to operate. Examples of this are alarms and systems available for the operator to know and understand. A modern-day Boiling Water Reactor probably has about 2,000 audible alarms in the control room, where Big Rock Point has about 400 alarms. Similarily, the number of plant operating procedures which must be learned is much smaller for Big Rock Point than for the modern-day BWR's. Another decided advantage at Big Rock Point is the ability to enter the containment while at power operation. This fact alone allows the operators the freedom to walk around the containment and find little problems before these problems

become big. For a concluding statement in this area, I would like to say that one of the major reasons I believe that Big Rock Point is a good operating nuclear power plant is that Consumers Power Company has "quality" people employed at Big Rock Point. With the demand in the industry today for experienced nuclear plant employees, most everyone employed at Big Rock Point could move to other companies or even transfer within Consumers Power Company to attain a promotion and/or better position. The reason personnel stay at Big Rock Point is mainly because they enjoy working at Big Rock Point and living in the Charlevoix-Petoskey area. Big Rock Point is composed of a closely knit group of quality working people who enjoy what they are doing.

PAST VIOLATIONS OF ADMINISTRATIVE CONTROLS AT BIG ROCK POINT

Even though Big Rock Point has a highly qualified staff, mistakes are still made and proper corrective action must be taken. In my thirteen years of experience at Big Rock Point, I have seen and am aware of violations of administrative controls. However, significant violations (those which affect public or worker safety or plant operability) have not occurred frequently. Moreover, the violations I have seen and am aware of have been resolved either by the corrective action system or by immediate action by plant

supervisory personnel. A recent example of how the corrective action system works to correct a significant administrative control violation is as follows.

On September 1, 1981, two auxiliary operators were dispatched to the reactor deck fuel pool area to move an irradiated fuel bundle from a spent fuel rack to the fuel pool elevator. The reason the bundle was to be moved was to allow the fuel vendor to inspect and work on the specific bundle being moved. While in the process of moving this bundle, a fellow maintenance employee noticed that the mechanical block was not attached to the fuel pool hoist. Upon noticing this, the person felt that this was probably not correct, and he notified the quality control department. A quality control inspector was immediately dispatched to the fuel pool area to investigate. Upon arriving at the fuel pool area, the quality control inspector verified that the mechanical block was not in place and asked that the operators cease work until this discrepancy could be resolved. The on-duty Shift Supervisor was notified, and the work was stopped and the process of corrective action begun.

The mechanical block used on the fuel pool hoist is a solid cylindrical stainless steel block approximately 6 inches in length. The mechanical block is attached to the end of the fuel pool hoist cable. Attached to the opposite

end of the mechanical block is a cable 12 feet in length to which the fuel grapple is attached. The purpose of the mechanical block is two-fold. First, the block serves as a weight and helps the cable on the fuel pool hoist wind on the drum correctly, and second, it mechanically prevents lifting an irradiated fuel bundle closer than 6 feet from the surface of the fuel pool. (The 6-foot cushion of water more than adequately shields the operator from the high levels of radiation originating from the spent fuel bundle.) It should be pointed out that there is also an electrical cutoff switch associated with the fuel pool hoist. The electrical cutoff switch is designed to stop the hoist approximately 6 to 12 inches before the mechanical block stop is reached. However, the actuation of the electrical cutoff switch is dependent on the fuel pool hoist cable being properly wound on the hoist drum and can be in the wrong position when improperly wound. In the case of the September 1, 1981, error, the quality control inspector noted that the cable was improperly wound on the fuel pool hoist drum and would have made the electrical cutoff switch ineffective. If, while operating the fuel pool hoist without the mechanical block, with the electrical cutoff switch ineffective, and with an irradiated fuel element suspended from the hoist, the operator inadvertently held the raise

button too long, or the raise button became jammed and the operator failed to cutoff the power to the hoist, the fuel bundle could have been raised to a level that could cause serious injury or even death to the operators involved. However, the health and safety of the public would not have been jeopardized, due to the auto isolation of the containment ventilation system on high radiation signal.

I believe the causes of this incident were threefold:

1. Inadequate operator training in fuel handling techniques;
2. Inadequate supervision of inexperienced operators; and
3. Inadequate controls for handling irradiated components within the fuel pool.

The corrective action system was immediately implemented via the event report. The immediate corrective action involved a memorandum from the operations and maintenance superintendent (C. R. Abel) to the operations superintendent, appraising him of the incident and stating that immediate action must be taken. The operations superintendent (A. C. Sevener) investigated the incident and issued a memorandum to all operators and Shift Supervisors appraising them of error and instructing that handling of irradiated components within the pool should be done only

with the mechanical block in place and the electrical cutoff switch operable. (See Attachment 1).

Further investigation, which I and plant staff working under my supervision performed as a part of the longer-term analysis led me to the conclusion that the root cause of the above-mentioned incident is the fact that there are new and inexperienced people being added to the plant staff. The reasons for the addition of these new people are twofold: attrition due to older employees retiring, and the need to expand the plant staff with knowledgeable people as a result of the TMI-2 accident and additional regulation. I believe the above incident caused a new awareness of this situation among the plant staff and stressed the need for additional training and administrative controls to provide guidance for less experienced personnel. As a result of the September 1, 1981, incident, we have drafted a completely new set of procedures for handling irradiated components within the spent fuel pool. These procedures are presently in the process of being reviewed by the plant staff. Also, a training program is being formulated to instruct all auxiliary operators in component handling within the fuel pool. This training program will be performed by a training instructor (H. E. Downing) who was a member of the original plant staff and who has worked in all operating jobs at the

plant. Finally, a requirement has been added to the certification program for new auxiliary operators to require training in fuel pool component handling prior to certification and qualification.

I firmly believe that the actions described above adequately address the September 1, 1981, error, and I also believe that the root cause discussed above is being properly addressed.

THERE WILL BE NO DIFFICULTY IN IMPLEMENTING THE SPECIFIC ADMINISTRATIVE CONTROLS REFERRED TO IN O'NEILL CONTENTION IIG(a)

O'Neill Contention IIG(a) states that the administrative controls proposed to prevent a cask drop over the pool are inadequate. These are mentioned on page 4-9 of the application and are written as follows:

> Administrative controls will be established for casks other than the fuel transfer cask to ensure that: (a) no cask is moved over stored spent fuel, (b) all cask handling operations are limited to the southwest corner of the spent fuel pool, and (c) no spent fuel is stored in the two existing "A" racks adjacent to the cask handling area during cask handling operation.

The purpose of these controls is to prevent the dropping or tipping of a cask onto a fuel rack containing

stored fuel. The fuel transfer cask is provided with additional safety slings to prevent a cask drop and, therefore, the above administrative controls do not apply to its use in the spent fuel pool.

In regards to the above-listed administrative controls, Controls (a) and (b) are in fact already in use and have been used at Big Rock Point since 1974 when the first cask control procedures became effective. Since that time, to my knowledge, these administrative controls have never been violated. As for administrative control (c), it is not an unrealistic or complex administrative control and, as explained by Mr. Blanchard on pages 8 and 9 of his testimony, this control can easily be added to the precautions and limitations section of the existing and future cask handling procedures and also to Standard Operating Procedure 43, Control of Heavy Loads.

If approval of the licensing amendment is granted, I see no difficulty in implementing the above-stated administrative controls.

CONCLUSION:

Contrary to the assertions in O'Neill Contention IIG(a), it is my opinion that the administrative controls at

Big Rock Point are implemented in a very effective manner. The present administrative controls at Big Rock Point have led to nearly twenty years of effective and safe plant operations. The administrative controls regarding cask movements referred to in O'Neill Contention IIG(a) will be safely and effectively implemented.