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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

4 February 1985 *

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD
Glenn O. Bright
Dr. James H. Carpenter
James L. Kelley, Chairman

In the Matter of CAROLINA POWER AND LIGHT CO. et al. (Shearon Harris Nuclear Power Plant, Unit 1)	Docket 50-400 OL ASLBP No. 82-468-01 OL

Diesel Generator Contentions and Information

In response to past order of the Board, Wells Eddleman provides the following information and new contentions. I have obtained the expert assistance of Dr. Robert N. Anderson, Professor of Materials Engineering at San Jose State University. (A copy of Dr. Anderson's overview of his qualifications from Shoreham case is attached; having the flu prevented me from getting his Attachment 1 in hand, but his qualifications are well known to the NRC Staff and Applicants and the Board can readily verify them. Attachment 1 will follow when I get it.) Dr. Anderson will review the test results from Applicants' diesel generator functional testing and teardown/inspection, assist me in preparing a critique and cross-examination, and if necessary and feasible he will be available as a witness. Dr. Anderson assisted in preparing the following contentions.

Diesel Generator Contentions

178-AA: CP&L has not established by appropriate operational

*Extension of time from 1 February approved orally by counsel for Staff and Applicants, and by the Board

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testing, and analysis of the results thereof (including results of inspections after teardown after testing, analysis of tested engine oil, and other appropriate tests) that the TDI DSRV-16 diesel engines at Shearon Harris have the capability to meet the loads they will be called on to meet in emergencies. Without emergency power available on a reliable basis, the health and safety of the public against serious nuclear accidents resulting from loss of offsite power or other failures cannot be assured. (Harris diesels untested for operation, see Attachment 1 of CP&L letter to NRC NLS 84-522, 1/15/85, item 2, p.1; requirement of appropriate testing to assure the diesels can meet required loads is the expert opinion of Dr. Robert N. Anderson.)

179-AA. CP&L's vendor (and other) inspection and QA is inadequate to assure that the TDI DSRV-16 diesels at Shearon Harris have the requisite quality and operability characteristics to perform their required functions. This is because variability of individual castings and tolerances effectively makes each DSRV-16 a custom unit. Any quality review or analysis based on other engines is therefore inadequate to assure the quality and operability of the Harris DSRV-16s. For use of information based on other engines, see TDI Owner's Group submissions. The inadequacy of such analysis and the ~~xxiqxx~~ variability of the DSRV 16s are opinion of Dr. Robert N. Anderson.

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Five factors. These contentions are timely because they comply (under extension of time) with the Board's order. There are no other means whereby my interest in these matters will be represented , and no other parties are pursuing diesel generator contentions. These contentions are somewhat narrower than the original contentions 178 & 179; if they broaden the issues it is not to any great extent, and this extent is obviously outweighed by the vital importance of having functional emergency power for the Harris plant. If there is doubt

as to the reliability and function of the diesels (and Dr. Anderson shows such doubt because the diesels of this type are effectively custom units, i.e. the reliability of one unit does not assure the reliability of another; testing is required in any case to establish the reliability and operability of the emergency diesels and Applicants have not done that yet), then positive findings on the issue are required for an operating license. The diesel issues were raised about 1 year ago, and are only one of numerous safety issues, most of which have already been heard.

The potential for delay on these issues is not great. Hearings on emergency planning are already scheduled in summer 1985, and fuel load is not scheduled until March 1986. If these contentions were admitted by 1 March with the normal 65 days for discovery, and Applicants accomplish their testing on schedule, any summary disposition motions could be filed in May and heard by the end of June, and hearings could be held by August. This is not a significant delay and should not impact fuel load which the Applicants have slipped.

If there is no record, there is not a sound record. With the assistance of Dr. Anderson, an expert who has participated in a case before the NRC involving another TDI diesel engine, I should be able to develop information discerning the main known flaws in CP&L's DSRV-16 diesel generators after they have been tested. To the extent that these flaws are significant, we can provide cross examination and appropriate information on those issues. At this point no more detail can be advanced because the requisite information has not been developed by CP&L by testing of the diesels. Dr. Anderson's expertise is well known to the parties and Staff, or should be.

For the above reasons, contentions 178-AA and 179-AA should be admitted for litigation.

Wells Eddleman

Wells Eddleman 4 February 1985

EXHIBIT 2

SUFFOLK COUNTY, 7/31/84

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of LONG ISLAND LIGHTING COMPANY (Shoreham Nuclear Power Plant, Unit 1).	Docket No. 50-322-OL

JOINT DIRECT TESTIMONY OF DR. ROBERT N. ANDERSON, PROFESSOR STANLEY G. CHRISTENSEN, G. DENNIS ELEY, ANEESH BAKSHI, DALE G. BRIDENBAUGH AND RICHARD B. HUBBARD REGARDING SUFFOLK COUNTY'S EMERGENCY DIESEL GENERATOR CONTENTIONS

INTRODUCTION

Q. Dr. Anderson, please state your name, address and occupation.

A. My name is Robert N. Anderson, and my business address is Department of Materials Engineering, San Jose State University, San Jose, California. I am a Professor of Materials Engineering at San Jose State University.

Q. Please describe your qualifications and experience which are relevant to the matters you address in this testimony.

A. I have a doctoral degree in metallurgy, a masters of science degree in chemical engineering and a bachelor of science degree in chemistry. My duties as Professor of Materials Engineering include teaching courses in casting and nuclear materials. I am a licensed metallurgical engineer and nuclear engineer in the State of California, and I have qualified in court as an expert witness in metallurgy. I have actively consulted in the field of failure analyses for 10 years. During that time, I have served as consultant to a wide range of businesses, research facilities and local, State and Federal agencies and commissions, including the California Public Utilities Commission, Brookhaven National Laboratories, IBM, Memorex, Lawrence Livermore Laboratory, the California State Energy Resources and Development Commission, the Executive Office of the President of the United States, Council on Environmental Quality and Office of Science and Technology Policy, and the Office of Technology Assessment of the United States Congress. I have published over 50 articles and I have had numerous patents issued to me in the field of materials science, including fuel cycle patents and a nuclear reactor patent. I am actively involved in professional activities, holding membership in the American Nuclear Society, the American Institute of Chemical Engineers, the American Chemical Society, the

American Society of Metals and the National Society for Professional Engineers, among others. I am also a member and past Chairman of the Northern California Section of the American Institute of Metallurgical Engineers. A further statement of my professional qualifications is attached to this testimony as Attachment 1.

Q. What parts of this joint testimony have you especially sponsored?

A. I am particularly sponsoring all of the testimony pertaining to metallurgical science, including the properties of materials, crack initiation, propagation and arrest, details of the casting process followed by Transamerica Delaval, Inc.("TDI"), and analyses of the various methodologies applied by Failure Analysis Associates to matters of crack initiation and growth. I have not provided testimony regarding the functions or NRC regulatory requirements for emergency diesel generators.

Q. Professor Christensen, please state your name, address and occupation.

A. My name is Stanley G. Christensen. I am a Professor at the U.S. Merchant Marine Academy, Kings Point, New York.