

## RELATED CORRESPONDENCE

SUFFOLK COUNTY, 11/28/84

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSIONBefore 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

SUFFOLK COUNTY'S MOTION TO COMPEL

Suffolk County hereby moves that the Board compel LILCO promptly to furnish the County with a section of the crack in the cam saddle area of cam gallery No. 7 (original block of EDG 103) suitable for the County to have the crack surfaces subjected to x-ray diffraction analysis by an independent laboratory.

This motion was first made orally by the County at the hearing on November 15, 1984 (Tr. 26,864; 26,878-89), for the reasons there stated. The motion was renewed orally by the County at the conference of parties on November 20, 1984 (Tr. 26,986), where the Board suggested this motion be made in writing if the parties failed to reach agreement. Tr. 27,003-04.

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add. J. Horn  
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On November 19 LILCO responded to the County's request for the x-ray diffraction analysis (first made on November 14, Tr. 26,863) with a conditional proposal of settlement which the County found unacceptable. See Tr. 26,984-86. On November 27 counsel for Suffolk County informed counsel for the NRC Staff and for LILCO of the substance of this motion. Counsel for LILCO stated that LILCO was not in a position to reach any agreement with the County concerning the x-ray diffraction analysis.

The x-ray diffraction analysis is intended to ascertain whether or not the oxide layer on the crack is comprised of magnetite oxides in amounts of 15% or greater of the entire oxides present. The analysis was discussed by expert witnesses of all parties at the hearing. See, e.g., Tr. 26,528-38; 26,533-38.

LILCO and its consultants did not carry out any tests to determine the type of oxides on the crack surface; they concluded on the basis of its color and thickness that the oxide layer was magnetite, or at least 90% magnetite. Tr. 26,707-8 (Wachob; Rau); 26,711 (Wachob); 26,861 (Rau). Magnetite is a high temperature oxide, formed from 1200° F down to somewhat below 400° F. Tr. 26,853-54 (Rau). The County's testimony was that the oxide layer could have been formed by fretting corrosion or graphitic corrosion, in which case the cam gallery cracks would be shown to be propagating. The County's expert testified that if the oxide

layer is found to be on the order of 10% to 15% magnetite, fretting or graphitic corrosion could be ruled out. Tr. 26,862 (Anderson).

Suffolk County understands that Walter McCrone and Associates in Chicago, Illinois, is an outstanding independent laboratory with considerable experience in conducting x-ray diffraction analyses of the type sought to be performed. Neither the County nor any of its consultants have any relationship with McCrone. In telephone discussions with McCrone, the County has learned that the requested analysis could be performed with reliable results on the 0.2 to 0.5 mils oxide layer. Standards for comparisons are readily available in the catalog published by the International Center for Diffraction Data.

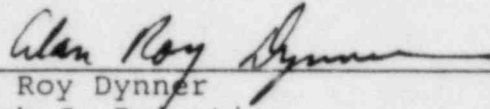
If this motion is granted, the County intends to consult with LILCO and the NRC Staff regarding the details of the x-ray diffraction analysis. If the analysis establishes that at least 15% of the oxide on the surface of the crack is magnetite or wustite, that would indicate that the oxide was formed at high temperatures during the time of the casting process, and was not due to fretting corrosion or graphitic corrosion. This would substantially eliminate the likelihood that the cam gallery cracks in the original block of EDG 103 propagated significantly during and as a result of EDG operation. The evidence justifies the conclusion that the cracks in the cam gallery areas of EDGs 101 and 102 are similar to those in the original block of EDG 103. Accordingly, if the analysis results are as stated above,

the likelihood that the cam gallery cracks in EDGs 101 and 102 propagated significantly during and as a result of EDG operation would also be substantially eliminated, and Suffolk County would so stipulate.

In that case, the County would not seek to disqualify the use of the blocks of EDGs 101 and 102 solely because of the existence of the cam gallery cracks. However, there is no reliable evidence of the accurate depth of the cam gallery cracks in the EDG 101 and 102 blocks and those cracks have not been removed and adequately repaired. Moreover, the preliminary strain gage test results regarding the cam gallery area of the replacement block for EDG 103, showing only compressive stresses in that area, could be altered by residual stresses in that area of the EDG 101 and 102 blocks. Therefore, the County believes that these cracks should in any case be monitored continuously by installing wire strain gages across the repair welds of the cracks. In addition, depth measurements should be taken of all cam gallery cracks before operation and at the first refueling ontage to ascertain any crack depth growth. If the monitoring and depth measurements show crack propagation to a significant degree, the blocks should be replaced.

Respectfully submitted,

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A handwritten signature in cursive script, reading "Alan Roy Dynner", is written over a horizontal line.

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November 28, 1984

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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CERTIFICATE OF SERVICE

I hereby certify that copies of SUFFOLK COUNTY'S MOTION TO COMPEL, dated November 28, 1984, have been served on the following this 28th day of November 1984 by U.S. mail, first class, except as otherwise indicated.

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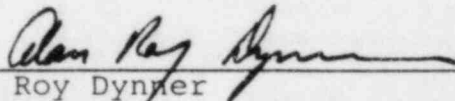
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DATE: November 28, 1984

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# By Federal Express  
\* By Hand Delivery