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RELATED CORRESPONDENCE

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

In the Matter of)	
)	
METROPOLITAN EDISON COMPANY)	Docket No. 50-289 <i>OLA</i>
)	(Steam Generator Repair)
(Three Mile Island Nuclear)	
Station, Unit No. 1))	

AFFIDAVIT OF DR. GEORGE C. SIH

I, Dr. George C. Sih, being duly sworn do depose and state that:


1. I am Director of the Institute of Fracture and Solid Mechanics, Lehigh University. A copy of my professional qualifications is attached.
2. During the week of March 19, 1984, I was requested by Joanne Doroshov of Three Mile Island Alert to examine pages 27-32 of "Licensee's Motion for Summary Disposition on Each of TMIA's and Joint Intervenors' Contentions," dated February 24, 1984, and if said document contained facts or opinions with which I professionally disagreed, to furnish Three Mile Island Alert with comments on said document.
3. I prepared such comments, which are set forth in the attached "Comments on Response by TPR and the Staff: Ref: pp. 27-32", which makes reference to the pages within Licensee's Motion for Summary Disposition on Each of TMIA's and Joint Intervenors' Contentions, dated February 24, 1984, and sent them to Three Mile Island Alert on March 27, 1984.

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4. I certify that I have personal knowledge of the matters set forth in the above-referenced comments, and in the attached "Statement to Hearing on TMI Restart: Steam Generator Tube Repair" which I presented in testimony before Senator Arlen Specter during U.S. Senate hearings held in Harrisburg on December 16, 1984.

3. I certify that the statements made in the above-referenced attachments are true and correct to the best of my knowledge and belief.



Dr. George C. Sih

Subscribed and sworn to before me
this 14th day of May, 1984.



Notary Public

My Commission expire: **MARIANNE T. DEUTSCH**
~~NOTARY PUBLIC OF PENNSYLVANIA~~
NORTHAMPTON COUNTY
My Commission Expires NOV. 20, 1987

Biography
of
Dr. George C. M. Sih

Professor of Mechanics and Director of the
Institute of Fracture and Solid Mechanics

Dr. Sih is currently Professor of Mechanics and Director of the Institute of Fracture and Solid Mechanics at Lehigh University, Bethlehem, Pennsylvania. He also holds the appointment of Adjunct Professor at The Hahnemann Medical College and Hospital of Philadelphia since 1972. He received his B.S. at the University of Portland, Oregon, 1953; his M.S. at New York University, 1957; and Ph.D. at Lehigh University, 1960; all of these degrees in Mechanical Engineering.

Dr. Sih has engaged in research in the interaction of mechanical deformation and heat flow (1960) supported by the Koppers Foundation, in Fracture Mechanics (1960 and 1961) for the Boeing Company Transport Division and (1962 to 1965) for the National Science Foundation, and as a member of the Technical Staff, Bell Telephone Laboratory (Summer 1961). He has been engaged as Principal Investigator in more than fifty projects at Lehigh University sponsored by the Office of Naval Research, Naval Research Laboratory, the National Aeronautics and Space Administration, the Air Force, the Army, etc., all of which are concerned with optimizing the use of high performance material with design, a discipline that has been frequently referred to as "Fracture Mechanics". Much of his work has been concerned with estimating the remaining life of material and structural components damaged by yielding and/or fracture. He specializes in developing computer software for predicting the mechanical behavior of structures and the stability of objects moving through fluid media. His more recent activities are concerned with the influence of moisture and temperature in composite materials, laser glazing techniques and non-destructive testing methods involving high-voltage electrophotography.

From 1953 to 1957, Dr. Sih was employed by Radio Corporation of America as a project and research engineer. He worked on the research and development of input and output devices for the first generation "Bizmark" computer system. Among the significant patents he obtained were:

1. Adjustable optical system for line printing.
2. Automatic magnetic disc printing device for the Xerox process.

In 1957 and 1958, Dr. Sih returned to the academic life and served at the City College of New York as Lecturer in Mechanical Engineering. He came to Lehigh University in 1958 as Instructor in Engineering Mechanics and was appointed Assistant Professor after completion of his doctorate. From 1965 to 1966, Dr. Sih held the position of Visiting Professor in Aeronautics at the California Institute of Technology and participated in an Air Force research project on the dynamics of crack propagation and size effects in the fracture of plates.

Dr. Sih assumed in 1970 the duties of Regional Editor, International Journal of Fracture Mechanics, and the responsibilities of soliciting and reviewing papers in the field of Fracture Mechanics. From 1971 to 1975, he served as an Associate Editor of the ASME Journal of Applied Mechanics. He is also on the Editorial Advisory Board of the Journal of Engineering Fracture Mechanics. He is also Editor-in-Chief of an International Journal of Theoretical and Applied Fracture Mechanics. Dr. Sih is a Fellow of the American Society of Mechanical Engineers and Honorary Fellow of the International Congress of Fracture. He is also a founding member of the International Cooperative Fracture Institute, an organization established to promote the interchange of ideas and information among active researchers in fracture mechanics.

Dr. Sih is also a member of the following societies:

1. Society of Sigma Xi
2. ASTM Committee E-24 on Fracture Testing of Materials
3. International Society of Engineering Science
4. American Society of Civil Engineering
5. American Society of Mechanical Engineering
6. International Society for the Interaction of Mechanics and Mathematics

Dr. Sih is the Editor of three book series. Seven volumes on the Mechanics of Fracture series have been or are about to be published:

- Volume I - Methods of Analysis and Solutions to Crack Problems, 1973
- Volume II - Three-Dimensional Crack Problems, 1974
- Volume III - Plates and Shells with Cracks, 1976
- Volume IV - Elastodynamic Crack Problems, 1976
- Volume V - Stress Analysis of Notch Problems, 1976
- Volume VI - Cracks in Composite Materials, 1980
- Volume VII - Experimental Evaluation of Stress Concentration and Intensity Factors, 1980

The two other series are Fatigue and Fracture:

- Volume I - Fatigue and Fracture, S. Kocanda, 1978
- Volume II - Fracture Micromechanics of Polymer Materials, V. S. Kukshenko and V. P. Tamuzh, 1980

and Engineering Application of Fracture Mechanics:

- Volume I - Fracture Mechanics Methodology: Evaluation of Structural Components Integrity, edited by G. C. Sih and L. Faria

- Volume II - Mixed Mode Crack Extension by E. E. Gdoutos
- Volume III - Fracture Mechanics of Concrete: Material Characterization and Testing, edited by A. Carpinteri and A. Ingrassia
- Volume IV - Fracture Mechanics of Concrete: Numerical Analysis and Structural Application by G. C. Sih and A. DiTommaso
- Volume V - Bonded Repair of Aircraft Structure by A. A. Baker and R. Jones
- Volume VI - Crack Growth and Material Damage in Concrete: Limit Load and Brittle Fracture by A. Carpinteri

Dr. Sih has also served as principal organizer and editor of proceedings of several conferences:

1. International Conference on "Dynamic Crack Propagation", (1972), Lehigh University
2. International Conference on "Prospects of Fracture Mechanics", (1974), The Netherlands
3. Conference on "Linear Fracture Mechanics", (1975), Lehigh University
4. International Conference on "Fracture Mechanics and Technology", (1976), Hong Kong
5. 14th Annual Meeting of the Society of Engineering Science, (1977), Lehigh University
6. First USA-USSR Symposium on "Fracture of Composite Materials", (1978), USSR
7. International Conference on "Fracture Mechanics in Engineering Applications", (1979), India
8. International Conference on "Analytical and Experimental Fracture Mechanics", (1980), Italy
9. International Conference on "Defects and Fracture", (1980), Poland

10. International Conference on "Mixed Mode Crack Propagation", (1980), Greece
11. International Conference on "Absorbed Energy and/or Specific Strain Energy Density Criterion", (1980), Hungary
12. International Conference on "Defects, Fracture and Fatigue", (1982), Canada
13. International Conference on "Fracture Mechanics Technology Applied to Material Evaluation and Structure Design", (1982), Australia
14. International Conference on "Application of Fracture Mechanics to Materials and Structures", (1983), Germany

Dr. Sih has approximately two hundred publications principally in the area of solid and fracture mechanics. He has authored and co-authored a total of three books.

1. Handbook of Stress Intensity Factors, 1973
2. Three Dimensional Crack Problems (with M. K. Kassir), 1974
3. Cracks in Composite Materials (with E. P. Chen), 1980

Dr. Sih received the 1975 Achievement Award from the Chinese Institute of Engineers in the United States and the 1984 Achievement Award from the Chinese Engineers and Scientists Association of Southern California for his accomplishments in research and teaching in fracture and solid mechanics.

Dr. Sih has also been active in serving as members of national committees. Among them are the National Materials Advisory Board concerning with the Dynamic Response of Materials Subjected to High Strain Rate Loading; Ship Materials Fabrication and Inspection; and other committees concerning Nuclear Reactor Components.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of)
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METROPOLITAN EDISON COMPANY, ET AL.) Docket No. 50-289-OLA
) ASLBP 83-491-04-OLA
(Three Mile Island Nuclear) (Steam Generator Repair)
Station, Unit No. 1))

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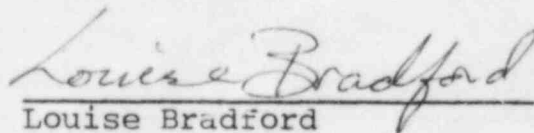
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CERTIFICATE OF SERVICE

I hereby certify that copies of the attached Affidavit of
of Dr. George Sih and Statement of Qualifications dated
May 8, 1984, were served this 8th day of May, 1984, by
deposit in the U.S. Mail, first class, postage prepaid
to those on the attached service list.


Louise Bradford

May 8, 1984