UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

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

SUFFOLK COUNTY MOTION TO SUPPLEMENT WITNESS PANEL ON SUFFOLK COUNTY CONTENTIONS 12-15, QUALITY ASSURANCE/QUALITY CONTROL

Suffolk County has previously filed direct testimony on Contentions 12-15 concerning LILCO's compliance with NRC Quality Assurance/Quality Control ("QA/QC") requirements. This testimony was authored by Richard B. Hubbard.

The County now moves to supplement sponsorship of the County's QA/QC testimony by adding Mr. George W. Inskeep, Jr. and Mr. William M. Bland, Jr. to the County's QA/QC witness panel. Copies of the professional qualifications of Messrs. Inskeep and Bland are attached hereto.

Briefly, the County's reasons for adding these gentlemen to its witness panel are as follows. Messrs. Bland and Inskeep became County consultants on QA/QC matters in late July, 1982. Since that time, they have reviewed QA/QC materials for the County, with particular emphasis on matters which are being addressed in the NRC QA/QC hearing. Thus, Mr. Bland has reviewed

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LILCO's engineering assurance audits, the NRC Staff CAT inspection, the LILCO Operating QA program, and the Teledyne core spray design program. Mr. Inskeep has focused particularly on LILCO field quality control audits, the Torrey Pines inspection program, and the LILCO Operating QA program. Both have also reviewed the NRC inspection program for Shoreham and the need for QA/QC programs to extend to systems, structures and components important to safety.

Messrs. Bland and Inskeep, as reflected in their attached resumes, have substantial experience in quality assurance and quality control matters. Of recent importance, the County notes that Messrs. Inskeep and Bland were both members on the President's Commission investigating the accident at Three Mile Island, serving on that portion of the technical staff which addressed QA/QC matters and the inspection program of NRC Region I. Accordingly, the County believes that they will bring substantial, relevant expertise to this proceeding and will assist the County in presenting its views on this matter. They have reviewed Mr. Hubbard's prefiled testimony and agree to adopt it as their own.

Respectfully submitted,

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September 30, 1982

Attorneys for Suffolk County

PROFESSIONAL QUALIFICATIONS

G. W. Inskeep, Jr. P.E., President
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My name is George W. Inskeep, Jr. My business address is P.O. Box 505, Pineville, MO 64856. I am semi-retired. At present my firm has a contract with Suffolk County, Long Island, N.Y. to furnish consulting services in the area of Quality Assurance.

I obtained a degree in Industrial Engineering from Long Beach College in 1972. My major was Quality Control I successfully completed selected management courses at the California Institute of Technology during the time I was employed at the Jet Propulsion Laboratory. I am a Registered Professional Quality Engineer, California Certificate No. QC2652.

My employment career began in 1929 as a Plant Department employee of the Illinois Bell Telephone Company, Chicago, Illinois. In 1934 I was employed as an Operating Engineer by various construction firms. In 1939 I moved to California and was employed by the Douglas Aircraft Company. From 1939 to 1947 I was a Field Service Mechanic in Experimental Flight. During World War II I was Field Service Representative on Combat Aircraft and was assigned to Wright Patterson Field, Eglin Field and other military fields.

In 1948 I transferred to the Quality Assurance Group and in succession held the positions of Quality Representative, Quality Engineer and Group Leader. In 1960 I was made Assistant Foreman, Quality Control responsible for Electronic Laboratories and Production on all phases of missile and spacecraft assemblies. This included administrative and supervisory duties of testing and inspection personnel on both Production and R & D hardware with the Systems Integration, Environmental Vibration and Printed Circuit Laboratories; also in Harnesses, Wire Harnesses, Telemetry Units, Consoles, Guidance Controls, Missile Trailers and all associated Ground Support equipment for Thor, Thor Delta, Sky Bolt, Genie, Honest John and Saturn IV.

In January, 1964, I was employed by the California Institute of Technology at their Jet Propulsion Laboratory (JPL) in Pasadena, California, as a Quality Assurance Engineer, Supervisor of Space Science Division.

From 1965 to 1967 I was a member of the Quality Management Team assigned to Hughes Aircraft Company Surveyor Project.

1967 through 1975, I transferred to the Ground Support and Deep Space Network Section Quality Assurance, assigned to many large contracts covering a large and varied type of electronic and mechanical hardware.

1975 through 1978, was Senior Quality Assurance Engineer, Supervisor Electronics Section. Responsible for supervision of all in-house and source Quality Engineers and Inspectors, covering monitoring of hardware being built for the Jet Propulsion Laboratory.

1978 through 1980, I was Senior Staff Quality Assurance Engineer reporting to the Section Manager, Quality Assurance for Ground Support and Deep Space Network Operations.

As Staff Engineer I was responsible for coordinating the efforts of the Supervisory Heads of all Divisions of the Section.

Additional duties included supervising the Quality Procurement Activities and as a Quality Representative of a Special Selection Committee which included development of criteria and engineering requirements, surveys of the microprocessor industry; meetings with experts in the microprocessor field, culminating in selection of a standard microprocessor and support equipment for JPL's next generation computers.

In April of 1979 I was asked by NASA Headquarters to perform their yearly audit of JPL in the areas of Calibration, Mechanical Inspection, Receiving Inspection, Cable and Electronics Fabrication and Quality Assurance Records for flight experiments. It was considered one of the most comprehensive and stringent audits ever performed at JPL.

In July of 1979 I was specifically appointed at the request of NASA Headquarters, to assist the NASA Quality Team in evaluating the procedures used by the Operating Utility and the Nuclear Regulatory Commission and to conduct Audits and Surveys of Metropolitan Edison and the facilities at Three Mile Island. I retired from JPL on December 30, 1980.

PART 2

The operational characteristics of the Jet Propulsion Laboratory are such that the large majority of equipment used in flight programs and ground support equipment is purchased from outside contractors. The Quality Assurance engineer assigned to large contracts must of necessity operate in autonomous fashion being completely in charge and responsible for all phases of their quality program. The following is the scope of my responsibilities as a Quality Assurance engineer when assigned to any procurement.

A. The quality engineer must participate in design reviews of all engineering documents and specifications and generate a quality statement of work in compliance with the Laboratory Charter.

The review of product design requires the examination of drawings and specifications in the light of past experiences and with the knowledge of new developments, methods or techniques in the field of manufacturing and quality. The reviewer must look for situations that have a potential for creating quality or manufacturing problems. Such an examination serves to eliminate situations that carry quality risks. A careful analysis must be made relating each quality characteristic to all other characteristics and applicable process.

B. Negotiate quality requirements of the contract prior to and after release.

A detailed delineation of quality requirements for each product, its parts, components, and subassemblies, is a necessary technique in the attainment of the necessary quality in the finished product.

The functions expected from the product, the environment and conditions under which it is to be used, the expected life and product reliability are all used in determining the required quality information, records, equipment, specifications and quality control procedures which must be used.

C. Subsequent to the award of contract the quality engineer must review the contractors quality program, inspection and test procedures, process controls and workmanship standards for compliance to contract requirements.

Prior review, as outlined in (A) above, of the product function, design and manufacturing processes leads to the determination of which quality characteristics should be measured. Analysis of the contractors quality program, inspection and test procedures, process controls, workmanship standards and inspection flow charts should indicate where and how these measurements will be made.

D. Quality System surveys must be made of the contractors facilities to ensure implementation of an adequate quality system, plan, records and manuals.

Prior to any award of contract or purchase order it is extremely valuable to make a vendor's facility evaluation. This will determine probability of the vendor being able to deliver the required quality, on schedule, at the quoted price.

Such an evaluation takes into account the vendors quality system, whether his past experience has included products similar to those being ordered, and the research and engineering skills and also manufacturing facilities available in the vandors organization. This technique has its application in the selection of vendors on the basis of their respective quality and manufacturing capabilities.

A check system is used which evaluates the following factors:

1. Provision for a maintenance of adequate tools, gauges, and test equipment.
2. Provision for control of subcontracted materials and supplies.
3. Quality Assurance instructions and procedures.
4. Inprocess quality controls.
5. Quality record keeping and reporting.
6. Drawing and specification control.
7. Control of special processes and non-destructive testing methods.
8. Substandard or nonconforming material control including adequate corrective action and follow-up.
9. Acceptability status control.
10. Control of preservation, packaging, and packing processes.

E. The quality engineer under the terms of the contract is a senior member of all material review boards with accept/reject authority for all nonconforming material. Decisions are made for rework/scrap dispositions. Analysis/diagnosis of all failures, including recommendations for corrective action and follow-up, to prevent recurrence.

F. The quality engineer is responsible during the life of the contract to constantly monitor the contractor at all stages of manufacture.

He must analyze and review inspection methods, techniques, equipment, forms, systems, records, reports, procedures, data analysis, and recommend improvements and changes, as indicated from economic and practical standpoints to maintain or improve product quality. He identifies critical quality characteristics and classifies them according to seriousness. He specifies quality levels and methods of sampling for control and acceptance.

G. Conduct progress reviews and record analysis.

The quality engineer must review all inspection reports for rejections which may establish trends, analyze failure reports of system, subsystem and component failures to assure no impact on predicted reliability goals. Conduct special studies of manufacturing and processing quality problems as they may arise. He must have a system for feeding back information on results of his analysis and studies. He must prepare weekly and monthly reports written and graphically, when necessary, to reflect his management of the quality disciplines and disburse copies to appropriate cognizant personnel.

The foregoing outline is a brief resume of my duties as a quality engineer employed by the Jet Propulsion Laboratory.

September 1982

Engineering Qualifications

of

William M. Bland, Jr., P.E.
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Summary - More than 36 years of engineering experience in areas such as aerodynamics, aircraft, audits, bioengineering, contract services, data analyses, health services, non-metallic materials, nuclear operations, problem (failures, accidents, deficiencies) reporting and corrective action, quality assurance, reliability, safety, and spacecraft testing. Emphasis has been on establishing requirements and evaluating conformance to requirements and conducting investigations and analyses of failures and accidents to determine causes and corrective actions. Particularly experienced with design, verification and operation of spacecraft and industrial facility systems, and most hardware types used in these systems including mechanical, pneumatic, electrical and combination hardware. Experienced in use of reliability analyses, safety analyses, failure modes and effects analyses and sneak circuit analyses.

Publications - Author or coauthor of sixty substantial reports related to aeronautical research, manned spacecraft performance evaluations, equipment failure and accident analyses, contractor evaluations, personnel capability assessment, design criteria and techniques, and nuclear power operations. Also performed investigations and analyses and generated reports on about two dozen accident events involving property damage and, in some cases, injuries.

Background - Currently serving as consultant-member of the Technical Advisory Group to a Governor's Blue Ribbon Citizen's Committee that is assessing the potential sociological impacts of an operating nuclear processing plant subjected to certain events. Also serving as a consultant to Suffolk County, N.Y., on QA/QC matters related to the Shoreham Nuclear Power Station. Have served as consultant to a committee of the National Academy of Science that assessed the FAA certification process of commercial passenger aircraft. Served on the Technical Staff of the President's Commission on the Accident at Three Mile Island; during this assignment, performed studies that resulted in the reports on TMI noted in the attachment. Currently continuing to provide consulting investigative engineering services to members of the insurance and legal professions.

Worked for 32 years as research scientist, aerospace manager/director of engineering function, and investigator/analyst of significant problems/accidents for NACA/NASA. During these years with NACA/NASA, implementation of safety, reliability and quality assurance was strongly promulgated. From 1966 to 1972, provided

the main focus for reliability and quality assurance on the Apollo spacecraft and its equipment. From 1972 through 1979, was the deputy director of safety, reliability and quality assurance line function for manned flight equipment and industrial and test operations at the NASA Johnson Space Center.

Education - North Carolina State College - BSME (Aeronautical Option) 1947; Graduate studies - University of Virginia - Aeronautical Engineering

January 1982

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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CERTIFICATE OF SERVICE

I hereby certify that copies of "SUFFOLK COUNTY MOTION TO SUPPLEMENT WITNESS PANEL ON SUFFOLK COUNTY CONTENTIONS 12-15, QUALITY ASSURANCE/QUALITY CONTROL," dated September 30, 1982, have been served to the following this 30th day of September, 1982 by U.S. Mail, first class.

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DATE: September 30, 1982