EXHIBIT 4

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

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

AFFIDAVIT OF T. FRANK GERECKE
REGARDING SHOREHAM'S CONSTRUCTION QA/QC PROGRAM

T. Frank Gerecke, being duly sworn, states as follows:

1. I am Quality Assurance Manager of Long Island Lighting Company. A statement of my professional qualifications is attached to this affidavit on page A-1.

Timeliness of Construction QA/QC Program

2. Criterion 2 of 10 CFR Part 50, Appendix B states in part as follows:

> The applicant shall establish at the earliest practicable time, consistent with the schedule for accomplishing the activities, a quality assurance program which complies with the requirements of this appendix.

Even before LILCO, Stone & Webster (Shoreham's architect

engineer), and General Electric (Shoreham's NSSS supplier) were required by Appendix B to implement quality assurance programs, each company initiated and implemented a program that followed the proposed version of Appendix B, as published in the Federal Register on April 17, 1969 (AEC Press Release M-94.1). Thus, in the Shoreham PSAR, Appendix E, as revised August 15, 1969, LILCO, S&W, and GE all committed to meeting the QA criteria of proposed Appendix B.

3. Both GE and S&W had already implemented QA programs that largely met the proposed requirements. The GE "Blue Book," which was issued August 20, 1968, and described the GE quality assurance program then in effect, responded to essentially all aspects of the eighteen proposed Appendix B criteria. Accordingly, adoption of the Appendix required no major changes in the GE QA Program; primarily required were revisions to QA documentation so as to categorize it in accordance with the eighteen criteri

4. Also prior to publication of proposed Appendix B, S&W was implementing quality procedures that met the intent of many of the Appendix B criteria. For example, S&W had in effect, (1) as early as February 1969, Shop Inspection Procedures that subsequently evolved into the present Procurement Quality Assurance Program; (2) by March 1968, Field Quality Control Procedures that evolved into the present Field Quality Control Procedures; and (3) by June 1969, Engineering Assurance

Procedures that developed into the present Engineering Assurance Program. All of these programs are still in effect for Shoreham.

5. The LILCO Quality Assurance Program Manual was initially issued on January 9, 1970, incorporating the requirements of proposed Appendix B. The manual defined quality assurance policy, assigned responsibilities, and imposed on all of Shoreham's major contractors and their suppliers the necessity to satisfy proposed Appendix B. Contractors who subsequently performed long-term safety-related work at Shoreham were required to have their own quality programs and procedures to ensure that they functioned in accordance with the requirements of Appendix B. Contractors performing more limited safety-related work were controlled under the existent quality program and implementing procedures at Shoreham. All on-site contractors have been and continue to be audited by LILCO Quality Assurance.

6. 10 CFR Part 50, Appendix B was formally adopted by the NRC on June 27, 1970. LILCO, GE and S&W quality assurance programs were then revised as necessary in light of the final regulations. The LILCO manual (later retitled the Engineering Quality Assurance Manual) was further revised on February 1, 1973, primarily to restructure its format to track the eighteen QA criteria.

7. The Atomic Safety and Licensing Board in Shoreham's construction permit proceeding expressly held that:

> The Board finds that the Applicant's quality assurance program and its proposed implementation comply with Commission criteria.

In the Matter of Long Island Lighting Co. (Shoreham Nuclear Power Station), LBP-73-13, 6 AEC 271, 280, aff'd, ALAB-156, 6 AEC 831, 848-50 (1973). In short, Shoreham's construction QA program was begun in a timely fashion as contemplated by 10 CFR Part 50, Appendix B.

Authority

8. Persons and organizations performing quality assurance functions at Shoreham have had, and continue to have, sufficient independence from cost and schedule considerations, and adequate "stop work" authority.

9. Upon the establishment in 1969 of the LILCO quality assurance organization under the Quality Assurance Administrator (QAA), the QAA reported to the Shoreham Project Manager who, under the Vice President of Engineering, was responsible for all management aspects of the Shoreham program. During a brief period from June 1972 until February 1973, when most Shoreham design, procurement and construction activities temporarily ceased, the QAA reported to the Assistant Shoreham Project Manager. After designation of the quality assurance organization as a Division of LILCO on February 6, 1973, the

Quality Assurance Manager (QAM) reported to the Manager of Nuclear Projects, who had overall responsibility for the Shoreham Project; the QAM, however, also had access to the Vice President of Engineering when a higher level of management was required to resolve quality-related problems. On July 17, 1973, to further assure the independence of the quality assurance organization, the QAM began to report directly to the Vice President, Engineering, and beginning on May 15, 1974, he reported directly to the Senior Vice President, Engineering and Project Management. Since October 1, 1980, the QAM has reported to the Vice President, Engineering. Shoreham's cost and schedule considerations are the responsibility of a different LILCO officer, the Vice President-Nuclear.

10. Since their inception, the S&W QA/QC organizations have been independent of S&W employees primarily responsible for cost and scheduling considerations. In response to proposed Appendix B, S&W created a QA Department independent of the S&W construction organization. Beginning in May 1969, the Manager-QA reported to the Senior Vice President-Production. On January 1, 1970, the Construction Department Quality Control Division was transferred to the QA Department and became the Field Quality Control Division. Then the Purchasing Inspectors joined the QA Department on September 1, 1970, and in May 1972, the current organization came into existence when S&W created a separate Vice President-Quality Assurance, to whom the QA Department reports.

11. General Electric's QA/QC organization has been in existence since GE's entry into the commercial nuclear energy business, well prior to the beginning of the Shoreham project. The quality assurance manager's responsibilities have always been separate and independent from those of other managers responsible for manufacturing engineering, materials (including production control and purchasing) and shop operations. This independence has been enhanced by subsequent changes that have resulted in the current Product and Quality Assurance Operation (P&QAO). It has quality assurance managers in every division of the Nuclear Energy Business Group (NEBG), each independent from people with cost and schedule responsibilities. In addition, the P&QAO operates independently from the other NEBG Divisions. The Manager of P&QAO reports directly to the Vice President and General Manager, NEBG. This resulting QA organization has the authority and organizational independence to make audits throughout the Nuclear Energy Business Group, to expose quality problems, and assure that they are appropriately resolved.

12. Independence of other on-site contractors' quality assurance personnel from cost and schedule considerations is depicted on the organization charts attached on pages A-2 to 7 below. These pages include:

PDM:	QA Manual, Page 0.2
NISCO:	Project QC/QA Program, Job 144 Organization, Page 1 of 1
RCI:	QA Manual, Section 1
NES:	QA Manual, Section 1, Figure 1.1A
Courter:	Nuclear Quality Assurance Manual, ASME III, Division 1, Issue 2, Section 15, Revision 1, Exhibits 15.1 and 15.3

13. LILCO, its major contractors, and the on-site contractors performing quality activities have all been authorized to identify quality problems, to resolve nonconformances and, whenever necessary, to hold equipment or stop work. LILCO as well as each contractor organization has policies and procedures which identify those quality managers or their designees who are responsible to implement this authority. LILCO's stop work procedure (QAP 1.2) is attached on pages A-8 to -12 below; those of other relevant organizations are considered proprietary by their originators.

Qualification and Training

14. LILCO has assured and is continuing to assure that on-site QA/QC personnel have been indoctrinated and trained as necessary to achieve and maintain proficiency commensurate with the quality-related activities being performed. The LILCO Engineering Quality Assurance Manual, Section 2, requires the appropriate indoctrination and training of LILCO QA personnel, imposes requirements upon S&W to provide indoctrination and

training, as appropriate, for their personnel performing quality-affecting activities and requires them, in turn, to impose these requirements upon their subvendors to a degree consistent with the safety-related importance of the materials, equipment or services provided.

15. General indoctrination and training requirements for QA personnel and training and qualification requirements for audit personnel are defined in LILCO Quality Assurance Procedures 2.1 and 2.3, respectively (attached on pages A-13 to -29 below), and both are applicable to LILCO's on-site QA personnel. Before LILCO QA personnel perform independent quality assurance activities, Procedure 2.1 requires them, by training and/or experience, to become familiar with nuclear quality assurance as required by 10 CFR Part 50, Appendix B, and related regulatory guides, codes and standards, and in particular, with the LILCO QA Program. Procedure 2.3 requires auditors to be qualified in accordance with ANSI/ASME N45.2.23. Prior to the formal publication of ANSI/ASME N45.2.23, LILCO used ANSI N45.2, N45.2.12 and N45.2.23 (Draft) as the bases for qualification of LILCO auditors.

16. Training and qualification of other on-site QA/QC personnel are carried out in accordance with policies and procedures and are verified by LILCO quality assurance through audit and surveillance. The following, considered proprietary by their originators, are typical:

S&W: Quality Assurance Directive 2.5, Qualification and Certification of Personnel Performing Quality Assurance Activities

NES: Procedure 80A9037, Qualification and Training of QA/QC Specialists

Procedure 80A9032, Procedure for Qualification of Inspectors

Procedure 80A9026, Specification for Qualification of Quality Assurance Program Audit Personnel

NISCO: Engineering Specification ES116, Inspection & Nondestructive Examination Personnel Qualification and Certification Program

Engineering Specification ES-117, Inspection & Nondestructive Examination Personnel Training Program

Courter: Nuclear Quality Assurance Manual, Section 14, Indoctrination and Training

Quality Assurance Procedure 14.1, Qualification and Training of Field QA/QC Personnel

Process Control

17. LILCO has established measures to assure that the special processes of welding, heat treating, brazing, nondestructive testing and cleaning are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, standards, specifications, criteria and other special requirements imposed by LILCO on its contractors, agents or consultants. The initial LILCO QA Manual required, and the Manual still requires, that special processes performed on safety-related structures, systems and components be performed by qualified personnel in accordance

with approved procedures. This requirement was imposed on S&W and GE and they, in turn, were required to impose the requirement on subvendors and contractors, as appropriate. Special process procedures are required to be reviewed by S&W or GE, as appropriate.

18. Although LILCO itself does not carry out special processes during construction, it does provide for qualification of Level III NDE personnel in accordance with SNT-TC-1A and Quality Assurance Procedure 2.5, attached on pages A-30 to -43 below. Training and qualification of on-site special process personnel and qualification of special process procedures are carried out in accordance with approved procedures and verified by LILCO quality assurance through audit and surveillance. The following procedures are typical:

S&W: FQC Procedure QC-3.3, Qualification Testing- Personnel

Quality Assurance and Control Manual, ASME-Section III, Division 1, Section 10, Welding and Brazing Control

Quality Assurance and Control Manual, ASME-Section III, Division 1, Section 12, Heat Treatment and Special Operations and Repairs

FQC Procedure QC-19.1, Housekeeping

NES: Procedure 80A9069, Procedure for Certifying Visual Examination Personnel

Procedure 80A9084, Procedure for Qualification of Nondestructive Examination Procedures

NISCO: Engineering Specification ES 116, Inspection & Nondestructive Examination Personnel Qualification and Certification Program

Engineering Specification ES 117, Inspection & Nondestructive Examination Personnel Training

Engineering Specification ES 144-1, Stress Relief Heat Treatment

Courter: Nuclear Quality Assurance Manual, ASME Section III, Division 1, Section 7, Welding and Brazing

Quality Assurance Procedure 7.1, Welding Control

Quality Assurance Procedure 7.2, Welder/Brazer Qualification Testing

Quality Assurance Procedure 7.4, Welding and Brazing Procedures

Construction Procedure FEP 7.2, Welder Qualification

Nuclear Quality Assurance Manual, ASME Section III, Division 1, Section 10, Heat Treatment

Nuclear Quality Assurance Manual, ASME Section III, Division 1, Section 3, Nondestructive Examination

Quality Assurance Procedure 8.1, NDE Control

Quality Assurance Procedure 14.3, Qualification and Training of NDE Personnel

RCI: Quality Assurance Manual, Section 6, Control of Fabrication and Field Erection

Quality Assurance Manual, Section 7, Nondestructive Examinations and Tests

Quality Assurance Manual, Section 11, Qualification of Welding Procedures, Welders and Welding Operators

PDM: Quality Assurance Manual, Section 5, Welding Quality Assurance

Quality Assurance Manual, Section 8, Heat Treatment or Post Weld Heat Treatment

Quality Assurance Manual, Section 9, Nondestructive Examination (NDE)

Quality Assurance Specification for Level II
Radiography, Magnetic Particle and Liquid Penetrant

Construction Verification

19. Measures have been provided and implemented for the control of material, parts or components that do not conform to requirements in order to prevent their inadvertent use or installation. The LILCO EQA Manual, Section 15 requires that all organizations performing construction, installation or testing of safety-related items identify, segregate, document and disposition nonconforming items in accordance with established procedures. These procedures have been reviewed and approved and contain the required controls to prevent inadvertent use or installation of nonconforming items.

20. Contractors without their own QA programs are required to comply with S&W's procedures for the control of nonconformances. Contractors with their own QA programs maintain policies or procedures for control of nonconformances. Therefore, the control of nonconformances on site is carried out in accordance with approved procedures and verified by LILCO quality assurance through audit and surveillance. The following policies and procedures, considered proprietary by their originators, are typical:

S&W: Quality Assurance Shoreham Program Manual, Appendix V, Preventive Action Program

FQC Procedure QC 6.1, Nonconforming & Disposition Reports

Courter: Quality Assurance Procedure 12.1, Control of Nonconformances

RCI: Quality Assurance Manual Section 12, Nonconforming Items & Corrective Action

NISCO: Project QA/QC Program Manual Chapter 15, Nonconforming Material, Parts or Components & Corrective Action

PDM: Quality Assurance Manual Section 3.2, Receiving Inspection

Quality Assurance Manual Section 6.0, Nonconformities "CAR" Procedure

NES: Quality Assurance Manual Section 15, Nonconforming Items

Corrective Action

21. Measures have been provided and implemented to assure that significant conditions adverse to quality are determined and that corrective actions are taken to preclude their repetition. The LILCO EQA Manual, Section 16 requires that all organizations performing safety-related activities implement corrective action systems to identify, correct and document all conditions requiring correction. Generally, the requirements pertinent to corrective action to preclude repetition have been included in the procedures for the control of nonconformances by contractors performing their activities in accordance with their own QA programs. Contractors without their own QA programs are required to comply with the S&W corrective action procedures. LILCO QA has performed and continues to perform audits to assure that all contractors comply with their

corrective action procedures and the S&W procedures, as appropriate. The procedures referenced in paragraph 20 above are typical.

Follow-up Audit

22. Timely actions have been taken and continue to be taken by LILCO to follow up and verify the correction of deficiencies identified in audits. Such activities are, and have been, required by the LILCO QA Manual to assure that satisfactory corrective action has been taken. This may be accomplished by review of documents, by surveillance or by scheduling follow-up audits specific to the subject or area of the original audit or by including such verification requirements in the next scheduled audit regardless of the primary audit area. LILCO Quality Assurance Procedures 18.1 and 18.2, attached on pages A-44 to -65 below, discuss LILCO's audit program requirements in more detail.

T. Frank Gerecke
Manager of Quality Assurance
LONG ISLAND LIGHTING COMPANY

July 10, 1981

T. FRANK GERECKE
Manager, Quality Assurance Department
Long Island Lighting Company

My name is T. Frank Gerecke. My business address is Long Island Lighting Company, 175 East Old Country Road, Hicksville, New York. I am Manager of the Quality Assurance Department reporting administratively and functionally to the Vice President, Engineering. My responsibilities include development and direction of the overall quality assurance program for the Company's nuclear power program.

I graduated from the Georgia School of Technology in 1945 with a Bachelor of Science Degree in Electrical Engineering. I received a Master of Science Degree in Physics from the U.S. Navy Postgraduate School in 1955, and from 1967-1970 I completed the academic requirements for a Master of Science Degree in Nuclear Engineering at C. W. Post College of Long Island University.

From 1945 to 1965 I served in the U.S. Navy as a Commissioned Line Officer, retiring as a Commander in August 1965. Navy assignments included 3 years as a Research Assistant at the Lawrence Radiation Laboratory, Livermore, California and 3 years as Head of the Nuclear Weapons Development Technical Section in the Office of the Chief of Naval Operations.

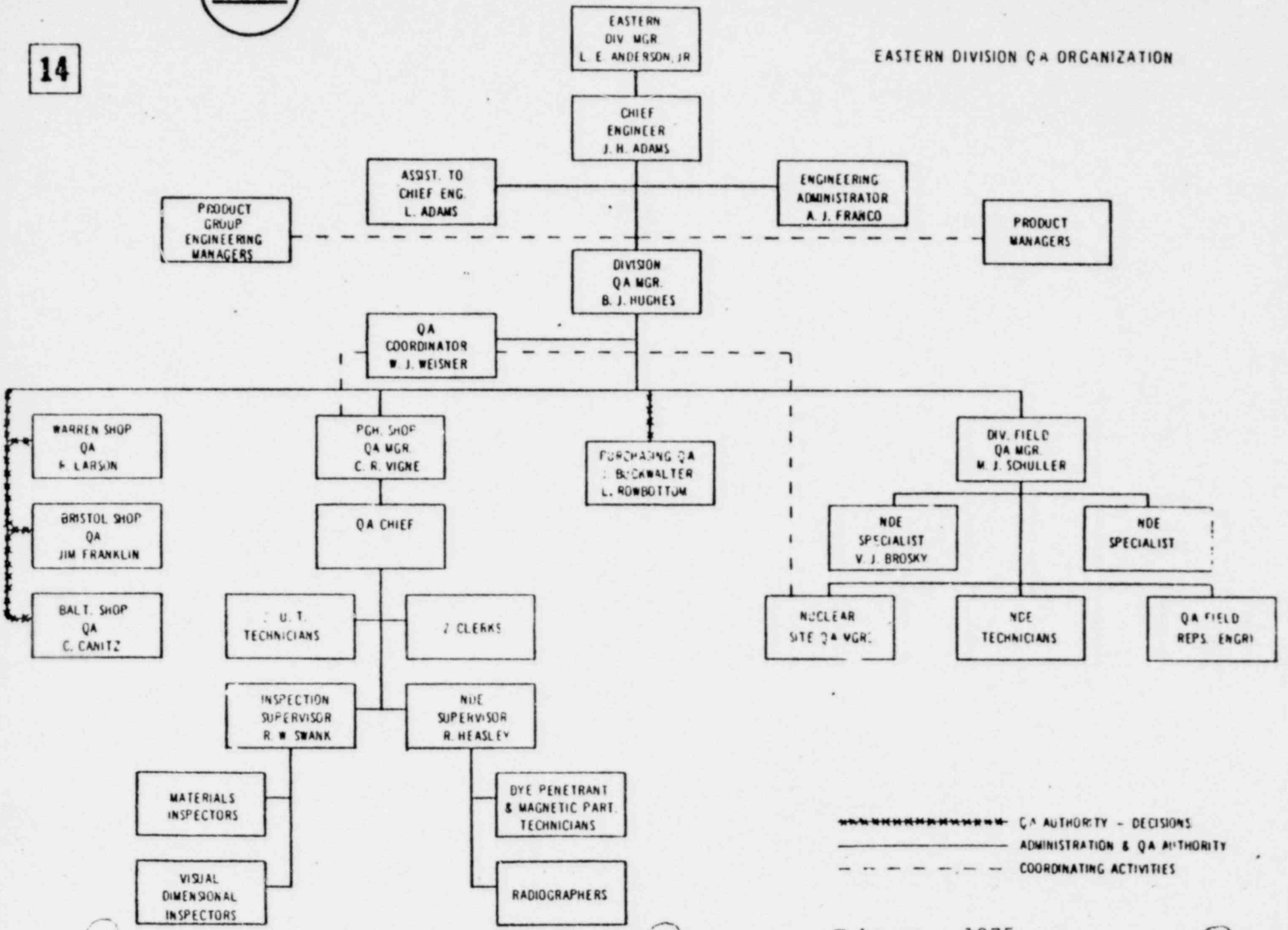
I have been employed by the Long Island Lighting Comany since December 1965. From 1965 to 1972 I held the position of Engineer in the Gas Engineering Organization. My responsibilities included preparation of specifications and procurement documents, drawing review, vendor inspection and surveillance of prime contractor performance during the installation of high pressure gas mains and the construction of a liquefied natural gas plant.

Since June 1972, I have been Administrator and Manager of the LILCO quality assurance organization as it developed to its present status as the corporate Quality Assurance Department. I am presently responsible for the overall quality assurance program from the initial design through the operational phase of the nuclear power station.

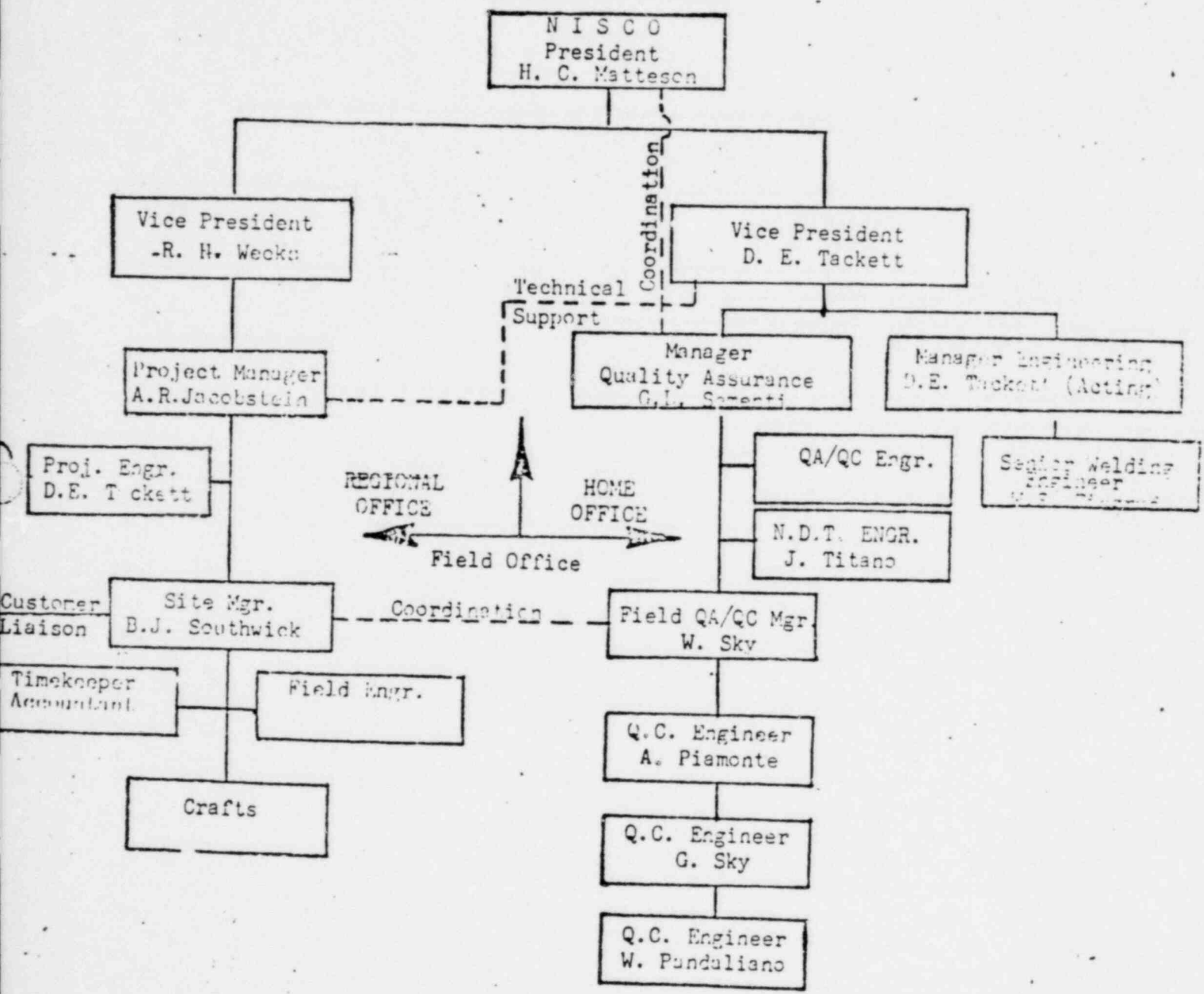
I am a registered Professional Engineer in Quality Engineering in the State of California.

14

EASTERN DIVISION QA ORGANIZATION

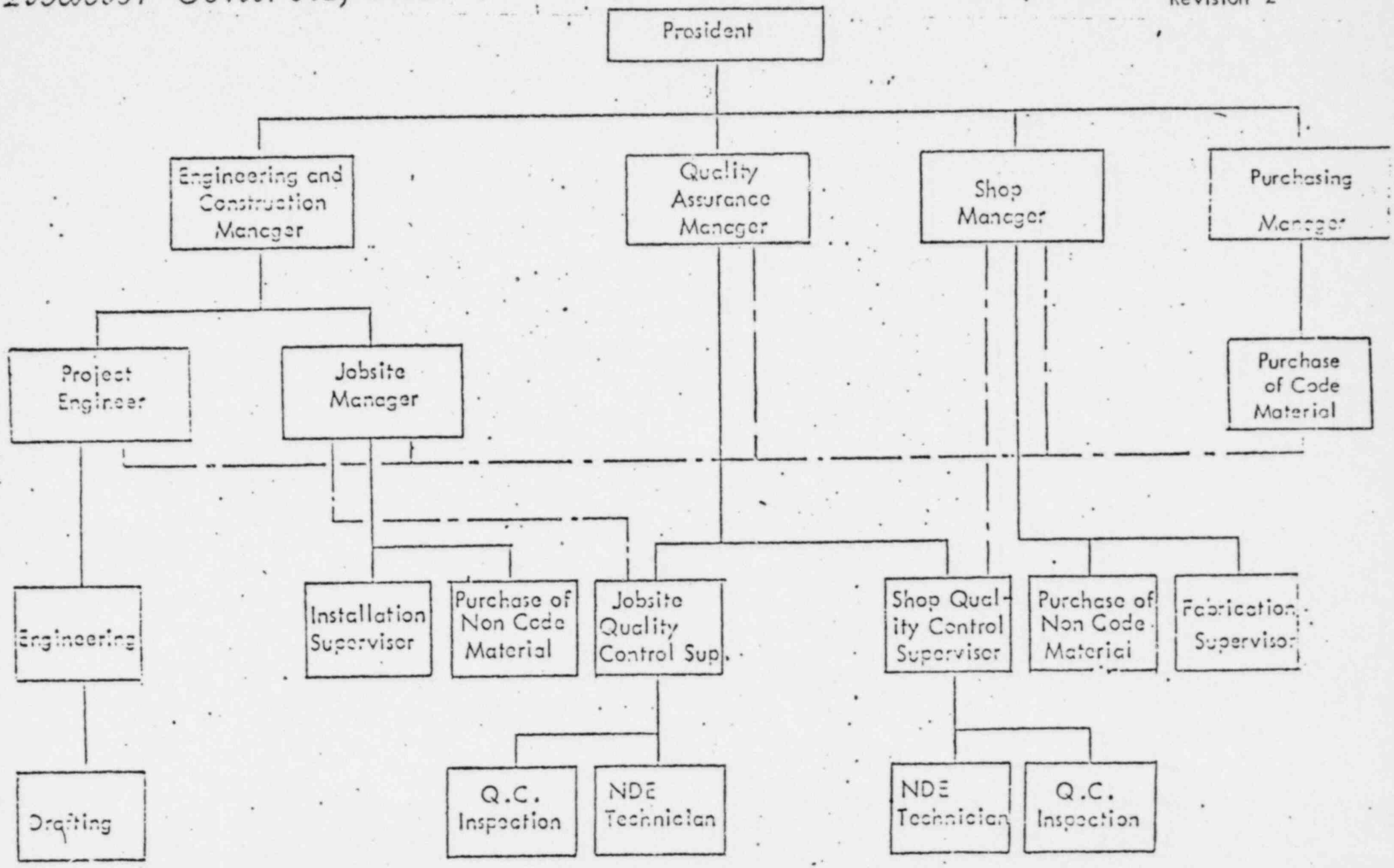


February, 1975


N I S C O
President
H. C. Matteson
Vice President
-R. H. Weeks
Coordination
Vice President
D. E. Tackett
Technical
Support
Project Manager
A.R.Jacobstein
Manager
Quality Assurance
G.L. Sorenti
Manager Engineering
D.E. Tackett (Acting)
Proj. Engr.
D.E. Tackett
REGIONAL
OFFICE
HOME
OFFICE
Field Office
QA/QC Engr.
Welding
Engineer
N.D.T. ENGR.
J. Titano
Customer
Liaison
Site Mgr.
B.J. Southwick
Coordination
Field QA/QC Mgr
W. Sky
Timekeeper
Accountant
Field Engr.
Q.C. Engineer
A. Piamonte
Crafts
Q.C. Engineer
G. Sky
Q.C. Engineer
W. Pandaliano

Reactor Controls, Inc.

20 July 1977
Revision 2

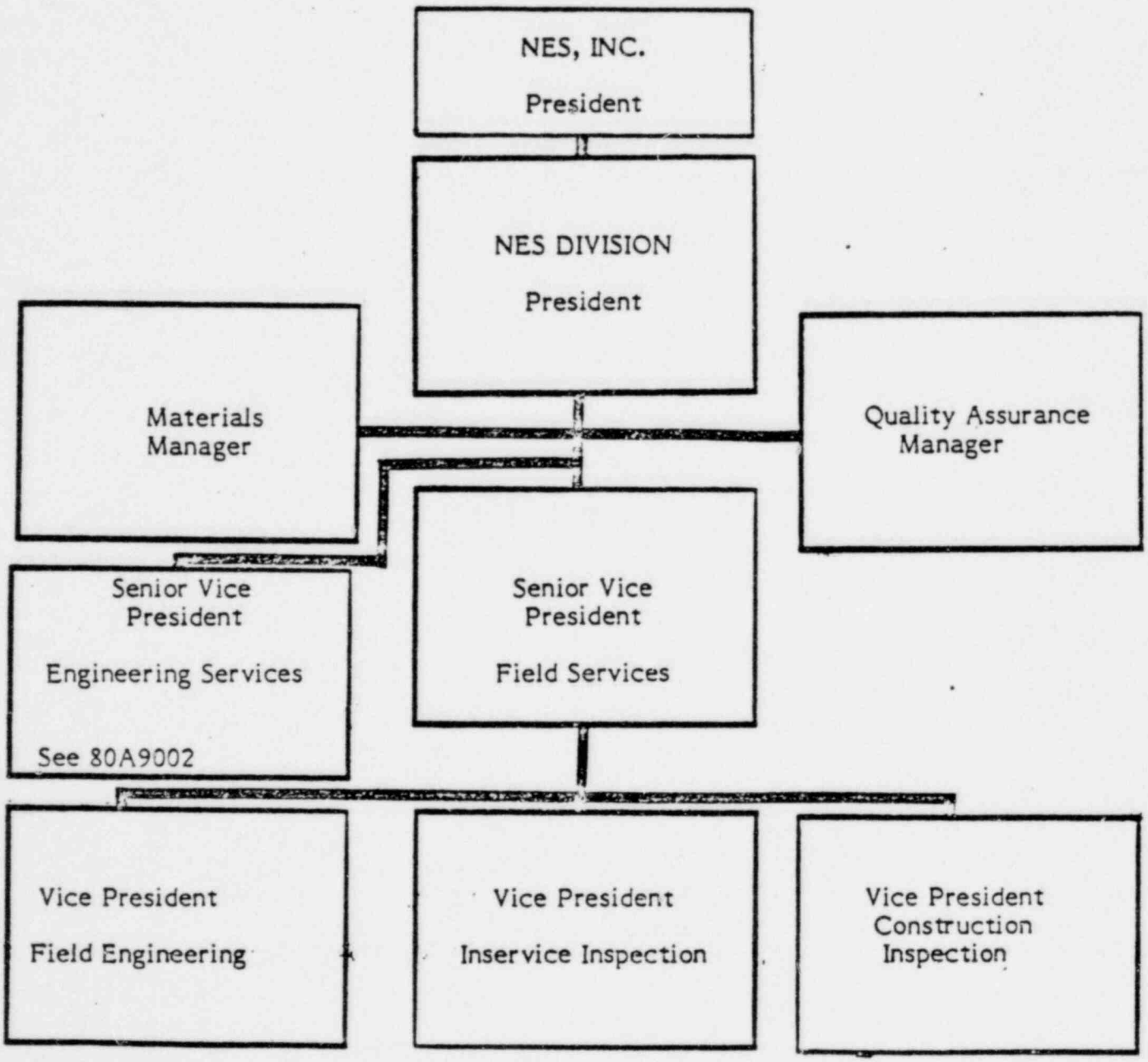


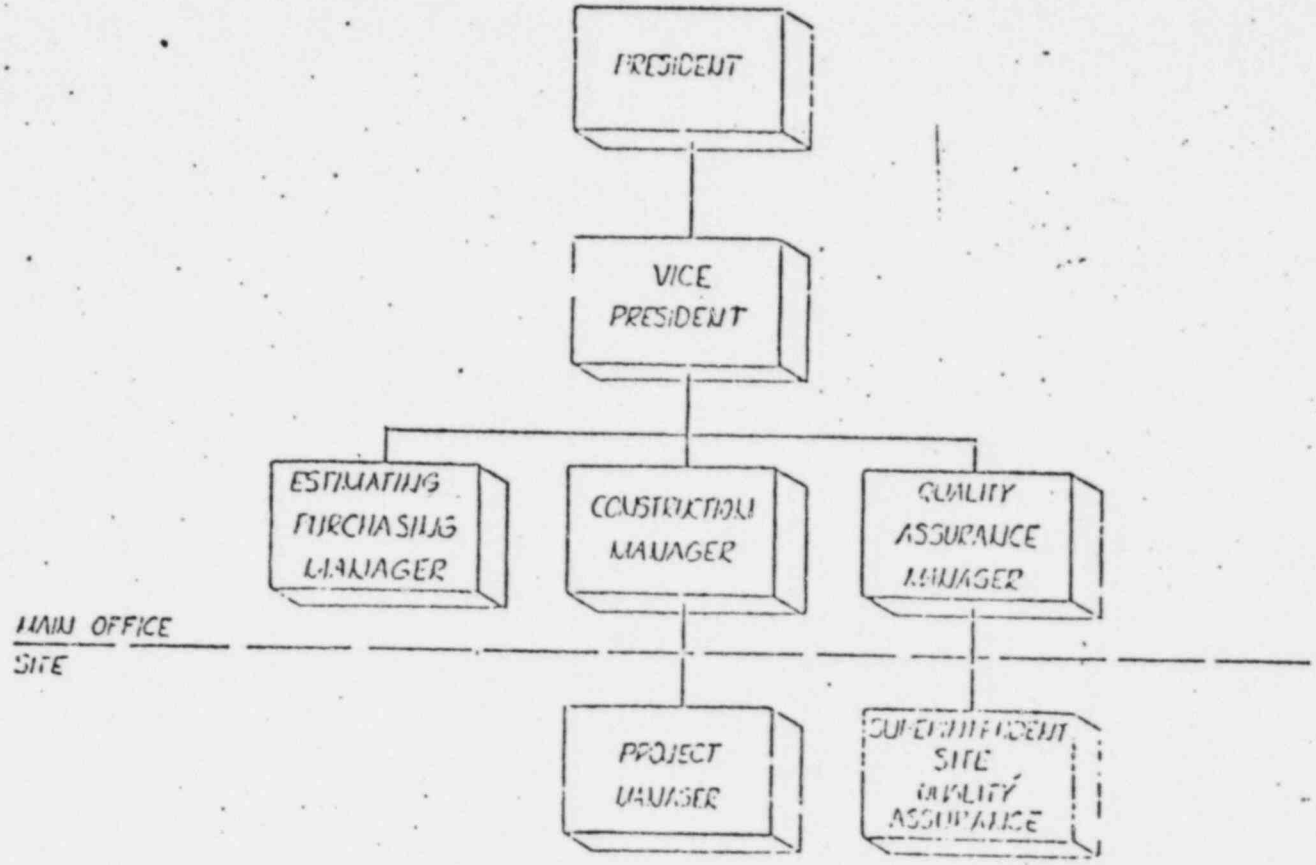
Responsibility ————————

FIGURE 1.1 A

NES DIVISION ORGANIZATION

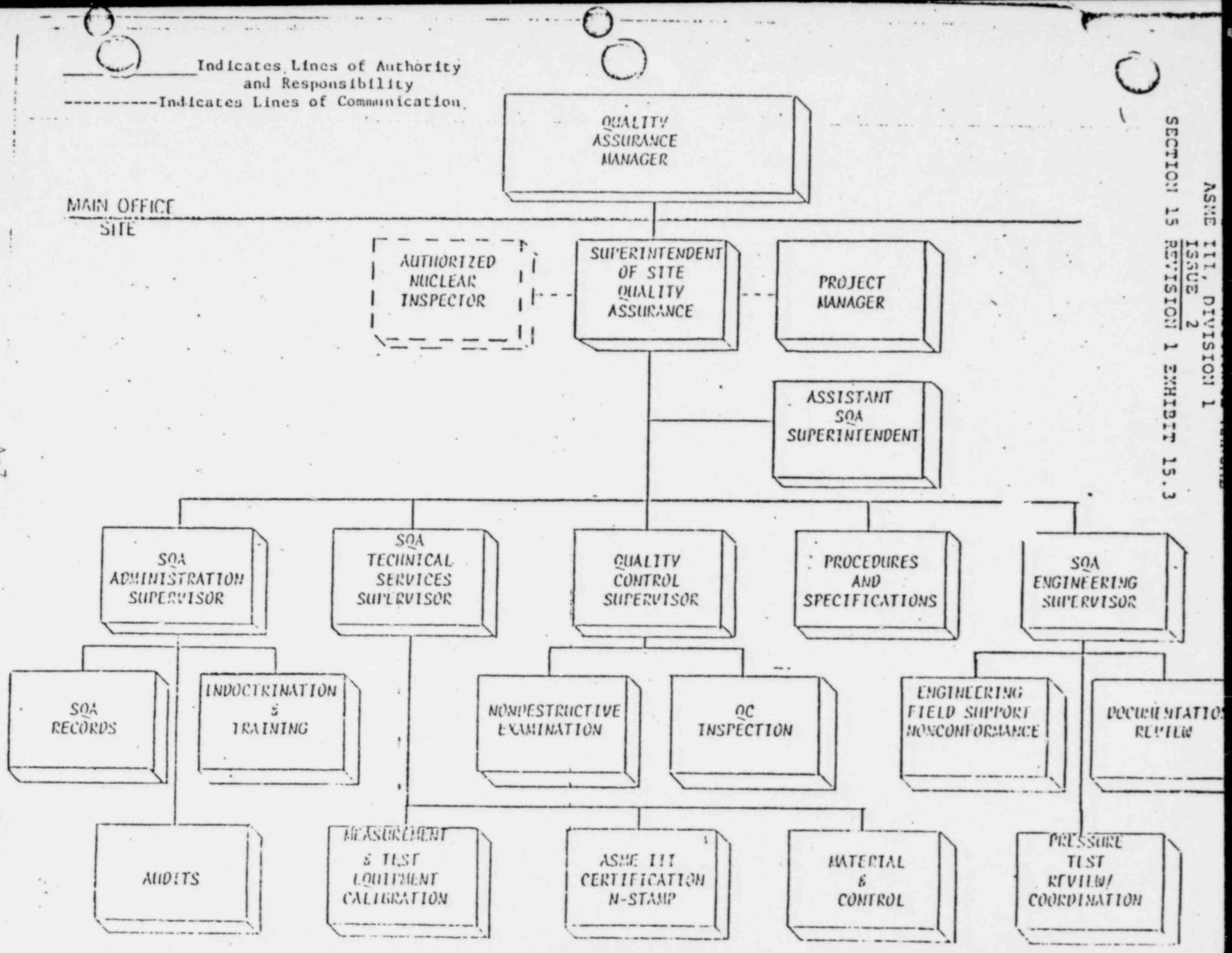
Inservice Inspection





Courtesy of [illegible]

Main Office Organization


Indicates Lines of Authority and Responsibility
Indicates Lines of Communication
QUALITY ASSURANCE MANAGER
MAIN OFFICE
SITE
AUTHORIZED NUCLEAR INSPECTOR
SUPERINTENDENT OF SITE QUALITY ASSURANCE
PROJECT MANAGER
ASSISTANT SQA SUPERINTENDENT
SQA ADMINISTRATION SUPERVISOR
SQA TECHNICAL SERVICES SUPERVISOR
QUALITY CONTROL SUPERVISOR
PROCEDURES AND SPECIFICATIONS
SQA ENGINEERING SUPERVISOR
SQA RECORDS
INDOCTRINATION & TRAINING
NONDESTRUCTIVE EXAMINATION
QC INSPECTION
ENGINEERING FIELD SUPPORT NONCONFORMANCE
DOCUMENTATION REVIEW
AUDITS
MEASUREMENT & TEST EQUIPMENT CALIBRATION
ASME III CERTIFICATION N-STAMP
MATERIAL & CONTROL
PRESSURE TEST REVIEW/ COORDINATION

LILCO
LONG ISLAND LIGHTING

QUALITY ASSURANCE PROCEDURE

Title STOP WORK AUTHORITY

QAP 1.2

Page 1 of 5
Revision 4
Date 2/17/81

REVIEWED		APPROVED	
E.C. Bajada	2/17/81	T J Greeke	2/17/81
DIVISION MANAGER	DATE	QA DEPT. MANAGER	DATE

1.0 Purpose and Scope

To define the criteria and establish the methods to be used by the Quality Assurance (QA) Department in exercising "Stop Work" authority. This procedure applies to procurement, construction and operating conditions observed by QA Department personnel and considered serious enough to warrant Stop Work action.

2.0 References

2.1 Quality Assurance Manual, Section 1 - Organization

3.0 Discussion

3.1 Reference 2.1 provides the Quality Assurance Department Manager (QA Manager) with the authority to stop work when necessary and to delegate this authority to other quality assurance personnel. This procedure defines the extent of such delegation of authority and the criteria and methods to be used in exercising the authority.

3.2 Stop work authority must be given with discretion. Every consideration must be given to the possible consequences of a Stop Work Order; if indiscriminately given, such an order might conceivably result in a dangerous or unsafe condition or situation. Stoppage of work or operation shall be considered only as a last resort when continued work could result in one of the following conditions:

a) Cause undue risk to the health and safety of personnel or the public.

b) Cause extensive or irreparable damage.

c) Preclude further inspection.

d) Make remedial action ineffective.

3.3 Every effort must be made to identify potential quality problems early so that timely corrective action may be taken without requiring issuance of a stop work order. However, when conditions described above exist, QA personnel shall not hesitate to use stop work authority.

3.4 This procedure is applicable to all activities associated with safety related structures, systems, components or services performed by LILCO organizations, suppliers or contractors at nuclear plant construction sites, operating nuclear power plants, suppliers or contractor's facilities or other facilities as applicable. Ultimate authority to stop work remains with LILCO and this procedure describes the administrative channels through which stop work is exercised. Certain major suppliers (i.e. architect-engineer, NSSS supplier, etc.) who direct the services of other suppliers may exercise stop work authority; such stop work is normally processed in accordance with their QA Program requirements.

3.5 References to the QA Manager or Quality Division Managers in the following instructions shall be understood to include their designees.

4.0 Instructions

4.1 Normally, a Stop Work Order shall be issued by the QA Manager, preferably to the senior available representative of the responsible organization. If such a senior representative is not available, the order may be given to the immediate supervisor or, if necessary, directly to the worker(s). However, certain circumstances could require that a Quality Division Manager, or the QA observer who detects the condition, issue a stop work directive. The various circumstances and subsequent actions are described in the following paragraphs.

4.1.1 Ordinarily, the QA observer of a condition that appears to warrant Stop Work action shall notify his Quality Division Manager. If he concurs, the Division Manager shall, as expeditiously as possible, inform the QA Manager of the condition to permit him to take appropriate action. Such notification shall be followed by a memorandum from the Quality Division Manager to the QA Manager describing the condition necessitating the Stop Work Order.

4.1.2 If the QA Manager is not immediately available and the urgency of the situation will not permit delay, the Quality Division Manager shall issue the Stop Work Order.

4.1.3 In the event that a condition is observed that could immediately cause extensive or irreparable damage or danger to the health and safety of personnel or the public, the QA observer shall issue a Stop Work Order to a supervisor at the work location or, if necessary, directly to the worker(s). Such an order shall be followed by oral reports and written memoranda to the QA Manager and the Quality Division Manager.

4.2 Immediately after the issuance of a Stop Work Order, the person issuing the order must notify other cognizant personnel in addition to the QA Manager and/or appropriate Quality Division Manager. The identity of such personnel depends on the location in which the occurrence takes place. See the following.

4.2.1 At an Operating Station

a) Plant Manager

b) Cognizant Chief Engineer

c) Cognizant Section Head

d) Operating Quality Assurance Engineer

4.2.2 At a Construction Site

a) LILCO Project Manager

b) Senior Representative of Construction Management

c) Senior Representative of Field Quality Control

d) Senior Representative of affected organization

4.2.3 At an Offsite LILCO Facility

a) LILCO Project Manager (during construction)

b) LILCO Plant Manager (during operation)

c) Cognizant LILCO Department and/or Division Manager

d) Operating Quality Assurance Engineer (during operation)

4.2.4 At a Vendor's Facility (under direction of a Major Supplier) Normally to be processed and issued through the major supplier in accordance with the supplier's system.

a) Major Supplier's Project Manager

b) Major Supplier's QA contact

c) Vendor's Senior Management

4.2.5 At a Vendor's Facility (under LILCO direction)

a) LILCO Project Manager (if applicable)

b) LILCO Plant Manager (if applicable)

c) LILCO Purchasing Department Manager

d) Manager of the LILCO organization procuring the item

e) Vendor's Senior Management

4.3 Upon notification of the issuance of a Stop Work Order, the QA Manager shall prepare a Stop Work Memorandum reporting the conditions that led to the order, QA person(s) who issued the order, person(s) to whom the order was issued, date and time of day of the order, and the immediate follow-up action taken. The memorandum and copies shall be submitted as follows: 4

a) During construction - memorandum to Vice President, Engineering, with copy to Vice President, Nuclear.

b) During operations - memorandum to Vice President, Nuclear, with copy to Vice President, Engineering.

c) During construction and operations - copies to appropriate managers listed in paragraph 4.2.

4.4 Authorization to resume work may be given only by the QA Manager after the responsible Quality Division Manager reports that:

a) The nonconforming conditions have been corrected.

b) Measures have been taken, if applicable, to prevent recurrence of the nonconforming condition.

4.5 Following resumption of work, the initiator of the stop work action, or the responsible Quality Division Manager, shall certify by memorandum to the QA Manager that the nonconforming conditions have been corrected and that the necessary measures were taken to prevent recurrence.

4.6 Upon notification that work has resumed, the QA Manager shall submit a Resumption of Work Memorandum, as applicable, to the Vice President, Engineering, or the Vice President, Nuclear, with distribution of copies as directed in paragraph 4.3. The memorandum shall report time and date that nonconforming conditions had been corrected and resumption of work was authorized, and the measures taken to prevent recurrence. 4

5.0 Records and Reports

5.1 Memorandum to QA Manager of Stop Work Order recommended or issued.

5.2 Stop Work Memorandum to Vice President, Engineering, or Vice President, Nuclear. 4

5.3 Memorandum to QA Manager of resumption of work.

5.4 Resumption of Work Memorandum to Vice President, Engineering, or Vice President, Nuclear. 4

6.0 Exhibits

None

1.0 Purpose and Scope

To assign responsibilities and provide for the establishment and implementation of a quality assurance training program. This procedure applies to the quality assurance training of LILCO personnel who are involved in quality-related activities during design, procurement and construction of nuclear power plants.

2.0 References

2.1 EQAP 2.3 - Training and Qualification of Audit Personnel.

2.2 EQAP 2.5 - Certification of Level III NDT Personnel.

2.3 EQAP 2.6 - Certification of Level II-R NDT Personnel.

2.4 EQAP 2.8 - Training and Qualification of Site Audit Personnel.

3.0 Discussion

3.1 The Engineering Quality Assurance Training Program is designed to provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained.

3.2 The training program shall make use of programs offered by outside organizations, programs developed within LILCO, and on-the-job training consistent with manpower availability and program commitments.

3.3 The training program provides for training and qualification of personnel involved in the construction phases of a project. A separate training program provides for quality assurance training and qualification of Operational Quality Assurance personnel.

3.4 The Engineering Quality Assurance (EQA) Manager is responsible for establishment and implementation of an Engineering Quality Assurance Training Program consisting of the following:

a. Indoctrination and training of all EQA personnel to assure that suitable qualification/proficiency is achieved and maintained.

b. Quality Assurance (QA) indoctrination of Project personnel and assistance, as required, to the Project Managers in implementing a training program for Project personnel to assure suitable qualification/proficiency in their quality-related functions.

c. An indoctrination program for concerned management personnel to assure that corporate and project policies and decisions reflect due consideration of adequate quality-related criteria.

3.5 The training program for EQA personnel is divided into five broad areas as indicated below. Exhibit 2.1.1, Engineering Quality Assurance Training/Qualification Requirements, tabulates the minimum requirements for qualification for the first two areas.

3.5.1 Power plant indoctrination - Desirable but not mandatory for assigned EQA personnel. At the EQA Manager's discretion, personnel may be assigned such training consistent with each individual's background and availability.

3.5.2 General EQA training - Mandatory for all EQA personnel unless waived by the EQA Manager because of an individual's prior experience. The EQA Manager shall schedule this training to achieve full qualification of each individual at the earliest time consistent with other manpower requirements and available training opportunities.

3.5.3 Auditor training and qualification - Mandatory in accordance with EQAP 2.3. The EQA Manager shall schedule this training to achieve auditor qualification for all headquarters staff QA Engineers at the earliest time consistent with other manpower requirements. Also, there shall be at least one qualified Audit Team Leader in the EQA Department at all times. The EQA Manager may, as necessary, assign site QA personnel to train and qualify in accordance with EQAP 2.3.

3.5.4 Auditor training and qualification for site QA personnel - Mandatory in accordance with EQAP 2.8. The EQA Manager shall ensure that site QA Engineers are qualified in accordance with EQAP 2.8 as soon as practicable.

3.5.5 NDT training and certification - Mandatory in accordance with EQAP's 2.5 and 2.6. The EQA Manager shall ensure that this training is scheduled to maintain an adequate number of certified personnel.

3.6 The EQA Manager shall provide QA Indoctrination of Project personnel in accordance with Exhibit 2.1.1 as scheduled by Project Managers.

3.7 QA indoctrination requirements for management personnel are also shown on Exhibit 2.1.1. The EQA Manager shall schedule this indoctrination as necessary to ensure that management personnel are kept abreast of quality-related requirements which should be considered prior to formulating policies or reaching decisions affecting nuclear power plant projects.

3.8 EQA personnel shall be considered to retain their qualificiations as long as they remain actively and continuously associated with the nuclear projects, or are not disassociated from the projects for a period of over three months, unless one of the following conditions exists.

a. The quality of their performance is shown to be questionable by an audit, program evaluation or other review.

b. The EQA Manager determines that a significant change in the Engineering Quality Assurance Program requires requalification in one or more areas.

3.9 If a QA Engineer is disassociated from nuclear projects for a period of over three months and then returns, the EQA Manager shall determine the degree of additional training required for requalification.

3.10 Management personnel who have once attended an EQA Management Presentation are not required to attend future presentations to maintain qualification. However, all concerned management personnel shall be invited by the EQA Manager to any such presentations which might be conducted.

4.0 Instructions

4.1 The EQA Manager or designee shall perform the following actions:

a. Implement the indoctrination and training program for all EQA personnel adhering as closely as possible to the established schedule as practicable.

b. Assign, or have assigned, instructors for those portions of the training program to be conducted "in-house." Ensure that assigned instructors have been qualified in the area in which they are to instruct.

c. Assign duties to EQA personnel to afford maximum practical on-the-job training and to maintain their proficiency.

d. Monitor the performance of all personnel performing activities affecting quality in order to promptly identify areas where the need for additional training of any type is indicated.

e. Review the EQA Training Program annually to determine its progress and identify areas where changes in emphasis are indicated. Update the training program for the coming year based on the results of the annual review. Report the results of the review and the updating of the program for the coming year to the Senior Vice President, Engineering and Project Management.

f. Periodically review the training schedule and revise the program schedule if such is warranted by the results of paragraphs g. and h. below.

g. Complete the EQA Training Program Status Record and the Engineering Quality Assurance Training schedule at the time of the initial review and update the records as necessary during the annual review required by paragraph e. above.

h. Review all available training and experience records, and conduct personal interviews as necessary of all EQA personnel to identify the areas where suitable proficiency appears to have been attained and the areas where the need for further training is indicated. Complete the appropriate records as required by 5.0 below.

i. Prepare and maintain an Individual Training and Qualification Record for each person assigned to the EQA Department.

j. Maintain a record of QA indoctrination of project and management personnel.

4.2 All assigned instructors shall perform the following actions:

a. Assemble the necessary instructional materials and prepare lesson plans, if necessary, prior to the scheduled instruction date.

b. Submit to the EQA Manager any recommendations for changes in course content, method of presentation, etc. Complete and submit to the EQA Manager a Class Attendance and Recommendation Record after each instruction period held.

4.3 An individual of the EQA Department, after completing a formal training course, seminar, workshop, etc. shall submit a report to the EQA Manager with copies to the Company Secretary, the Senior Vice President, Engineering and Project Management, the Engineering Files and the EQA Files. The report shall include a brief summary of significant subject matter covered, an evaluation of the program and a recommendation concerning future attendance at similar programs.

5.0 Records and Reports

5.1 Engineering Quality Assurance Training Program Status Record.

5.2 Engineering Quality Assurance Training Schedule.

5.3 Engineering Quality Assurance Individual Training and Qualification Record.

5.4 Class Attendance & Recommendation Record.

5.5 Formal Training Course Reports.

6.0 Exhibits

6.1 Exhibit 2.1.1 - Engineering Quality Assurance Training/ Qualification Requirements.

Prepared D S Chan Date 1/1/77

Reviewed F.X. Schoner Date 1/1/77
Responsible Manager

Approved T J Greco Date 1/1/77
Eng. QA Manager

EXHIBIT 2.1.1

ENGINEERING QUALITY ASSURANCE TRAINING/QUALIFICATION REQUIREMENTS

ENGINEERING QUALITY ASSURANCE (EQA) PERSONNEL

Training/Qualification Area	Minimum Requirements for Qualification	Notes
Power Plant Indoctrination		
Power Plant Familiarization	One Year Experience in plant or LILCO familiarization program.	General background; desirable but not required.
Nuclear Plant Familiarization	One year experience in plant or NSSS familiarization program or equivalent	General background; desirable but not required.
Quality Assurance Training		
Quality Assurance Indoctrination	Completion of LILCO EQA Indoctrination Program or the equivalent.	Includes introduction to 10CFR50 Appendix B, LILCO EQA Manual, EQA Procedures and related regulatory guides, codes and standards.

EXHIBIT 2.1.1

ENGINEERING QUALITY ASSURANCE TRAINING/QUALIFICATION REQUIREMENTS

ENGINEERING QUALITY ASSURANCE (EQA) PERSONNEL

Subject of Training	Minimum Requirements for Qualification	Notes
Quality Assurance Engineer Basic Training	Three months on-the-job training in the LILCO EQA Program and at least one of the following attributes. 1. Twenty hours for formal instruction by an outside agency. 2. Completion of LILCO EQA Training Program. 3. Satisfactory combination of 1. and 2. above in the judgement of the EQA Manager. 4. Equivalent training and experience in the judgement of the EQA Manager.	Requires general familiarity with 10CFR50 Appendix B, LILCO EQA Manual, EQA Procedures, and related regulatory guides, codes and standard

EXHIBIT 2.1.1

ENGINEERING QUALITY ASSURANCE TRAINING/QUALIFICATION REQUIREMENTS

ENGINEERING QUALITY ASSURANCE (EQA) PERSONNEL

Subject of Training	Minimum Requirements for Qualification	Notes
Specific Quality Assurance Functions	1. LILCO QA Qualification, plus 2. Two months on-the-job training under supervision of appropriate EQA Division Manager, plus 3. Recommendation of appropriate EQA Division Manager.	Functions considered include: specification review; procurement document review; nonconformance and corrective action review; review of engineering changes; writing and review of PSAR/FSAR; writing and review of EQA Manual and Procedures; review of major suppliers' (A-E and NSSS) QA/QC Program Manuals/Procedures.

EXHIBIT 2.1.1

ENGINEERING QUALITY ASSURANCE TRAINING/QUALIFICATION REQUIREMENTS

NUCLEAR PROJECTS PERSONNEL

Subject of Training	Minimum Requirements for Qualification	Notes
Quality Assurance for Nuclear Power Plants	EQA Indoctrination Program or attendance at NRC Management Presentation or briefings on quality matters and/or participation in EQA activities.	

MANAGEMENT PERSONNEL

Indoctrination Area	Minimum Requirements	Notes
Quality Assurance for Nuclear Power Plants	NRC Management Presentation or equivalent.	Covers 10CFR50 Appendix B and related regulations.

LILCO Long Island Lighting

QUALITY ASSURANCE PROCEDURE

Title TRAINING AND QUALIFICATION OF AUDIT PERSONNEL

QAP 2.3

Page 1 of 7

Revision 4

Date 8/29/80

REVIEWED	APPROVED
E. C. Barada	J. J. Finneke
DIVISION MANAGER 8/29/80 DATE	QA DEPT. MANAGER 8/29/80 DATE

1.0 Purpose and Scope

To establish training and qualification requirements for LILCO quality audit personnel. This procedure is applicable to Quality Assurance Department personnel and engineers or technical specialists assigned to serve on audit teams. 4

2.0 References

2.1 QAP 2.1 - Quality Assurance Training

2.2 QAP 18.1 - Program Audit Procedure

2.3 QAP 18.2 - Quality Audit and Surveillance of Field Activities

2.4 ANSI/ASME N45.2.12 - 1977 - Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants. 4

2.5 ANSI/ASME N45.2.23 - 1978 - Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants.

3.0 Discussion

3.1 QAP 2.1 defines general training and experience required of Quality Assurance (QA) personnel.

3.2 QAP 18.1 provides the method for auditing and evaluating quality-related programs of LILCO organizations, major suppliers and vendors. It includes specific duties of audit personnel during preparation, performance and reporting of program audits.

3.3 QAP 18.2 provides the method for auditing, evaluating and performing surveillance of quality related activities at nuclear power plant construction sites. It includes specific duties of audit personnel during preparation, performance and reporting of field audits.

3.4 Reference 2.5 provides the basis for this procedure.

3.5 The Quality Assurance Department has established three levels of auditors which are defined below.

a. QA Audit Team Leader/Lead Auditor - A QA Engineer or QA specialist who is qualified by training and experience to plan and supervise audits.

b. QA Auditor - A QA Engineer or QA Specialist who is qualified by training and experience to serve on an audit team.

c. Specialist Auditor - An Engineer or Technical Specialist who is qualified by specialty and/or experience to serve on an audit team under the direction of an Audit Team Leader/Lead Auditor. |4

4.0 Instructions

4.1 Responsibilities

4.1.1 The Quality Assurance (QA) Manager is responsible for:

a. Review and approval of auditor training.

b. Annual review of auditor training to assure compliance with changes or revisions to the quality assurance program as to industry and regulatory requirements.

4.1.2 The Quality Division Managers or designees have the responsibility to:

a. Revise or direct revision of auditor training as necessary to comply with changes in industry or regulatory requirements or revisions to the LILCO Quality Assurance Program.

b. Perform periodic reviews to assure implementation of auditor training and maintenance of qualification records.

c. Evaluate the performance of QA Auditors and certify them as qualified Audit Team Leaders/Lead Auditors when they are prepared.

d. Maintain documented evidence of auditor accomplishments and any comments relating to areas of audit

techniques requiring further development or training.

e. Assure that the records listed in Section 5.0 of this procedure are complete, are maintained and are updated annually for each Audit Team Leader/ Lead Auditor.

4.1.3 The QA Audit Team Leader/Lead Auditors shall:

a. Develop auditor training to include preparation and use of audit plans, checklists, Corrective Action Requests and Audit Report Forms as required by references 2.2 and 2.3.

b. Provide for on-the-job training of Auditors and supply guidance and counseling to audit personnel which includes the planning, performance, report- ing and follow-up actions involved in the conduct of audits.

c. Observe performance of QA Auditors to determine if additional training is required to maintain qualifications. | 4

d. Provide instruction and orientation of Specialist Auditors.

4.2 Qualifications

4.2.1 The QA Audit Team Leader/Lead Auditor shall:

a. Be sufficiently trained as determined by QA management's evaluation with regard to knowledge and understanding of codes, standards, procedures and requirements related to quality systems. This knowledge shall include general structure of quality assurance programs and, as applicable, elements such as; design, purchasing, fabrication, handling, shipping, storage, cleaning, erection, installation, inspection, testing, statistics, nondestructive examination, maintenance, repair, operation, modification of nuclear facilities or associated components and safety aspects of the nuclear facility.

b. Have participated in at least five quality assurance audits in a period not to exceed three years prior

to the date of qualification, one audit of which shall be a nuclear quality assurance audit within the year prior to his qualification.

c. Have on file documentary evidence of training, experience and qualifications which indicates observations attesting to the expertise developed and capability to perform the necessary audit techniques of planning, examining, questioning, evaluating, and reporting, methods of identifying and follow up on corrective action items, and closing out audit findings. The records of qualification will also include observations pertinent to the Audit Team Leader/Lead Auditor's ability to provide the required leadership during the complete audit process and to effectively communicate orally and in writing.

d. Have a minimum of 10 credits based upon education, experience, and technical and professional competence. Certification of the Lead Auditor shall be documented on the Record of Audit Team Leader/ Lead Auditor Qualification (Exhibit 2.3.1 or equivalent).

4.2.2 The QA Auditor shall:

a. Have a knowledge of quality system requirements and concepts of control and documentation.

b. Receive orientation to provide a working knowledge of 10CFR50 Appendix B and the QA auditing procedures.

c. Receive orientation regarding specific audit scopes and assigned auditing responsibilities.

d. Receive on-the-job training, guidance and counseling under the direct supervision of a Lead Auditor - which includes, planning, performing, reporting and follow up action involved in conducting audits.

4.2.3 The Specialist Auditor shall:

a. Have received basic orientation on quality program audit procedures, objectives, conduct of audits, use of checklists and special audit planning as determined and directed by the Audit Team Leader.

b. Present formal audit observations relating to

his discipline for review by the Audit Team Leader.

c. Be cognizant of required codes, standards, procedures and requirements related to his discipline.

4.3 Audit Program Participation

4.3.1 QA personnel from respective QA Divisions who meet the requirements of paragraph 4.2.1 will be qualified to perform or lead audits at the discretion of the respective Division Managers. | 4

4.3.2 QA personnel meeting the requirements of paragraph 4.2.2 can participate in any audit under the supervision of a qualified Audit Team Leader/Lead Auditor.

4.4 Training

4.4.1 Training of all audit personnel shall include the following: | 4

a. Attendance at recognized QA seminars or training courses and/or by QA Department instruction. The training or instruction will include the applicable areas of the following: ASME Boiler and Pressure Vessel Code; AWS Structural Welding Code; ACI and ANSI Standards; the Code of Federal Regulations, particularly 10CFR50 Appendix B and 10CFR50.55(e); NRC Regulatory Guides; and other pertinent requirements.

b. Receive further training provided by the QA Department, to include eight (8) hours of instruction in the QA Manual and Procedures, and applicable LILCO Project Procedures or Company Policies. | 4

c. Receive orientation as to other applicable programs which may affect the audit program - for example:

1. Major Suppliers Quality Programs, Quality Procedures and Project Instructions.

2. LILCO Procedures specific to Engineering, Purchasing, Operations and Special Process Applications.

d. On-the-job training in respective audit processes as required to attain qualification to perform auditing.

4.4.2 Portions of the training for personnel with prior QA audit experience may be fully or partially waived as determined by the responsible Division Managers. The basis for waiver of training requirements shall be documented as part of Auditor's Qualification records.

4.4.3 Training for Specialist Auditors shall be the instruction and orientation given by the Audit Team Leader in quality program audit procedures and the auditing process including applicable checklists, pertinent policies, standards, codes, and regulatory requirements.

5.0 Records and Reports

5.1 Lead Auditor Qualification Records

6.0 Exhibits

6.1 Appendix 2.3.1 Record of Lead Auditor Qualifications.

APPENDIX 2.3.1

RECORD OF LEAD AUDITOR QUALIFICATIONS

RECORD OF LEAD AUDITOR QUALIFICATIONS EMPLOYER:	NAME	DATE	
2.3.1	QUALIFICATION POINT REQUIREMENTS		CREDITS
2.3.1.1	EDUCATION – University/Degree/Date –	– 4 Credits Max.	
	1. Undergraduate Level 2. Graduate Level		
2.3.1.2	EXPERIENCE – Company/Dates	– 8 Credits Max.	
	Technical (0–5 pts.) and Nuclear Industry (0–1 pt.), or Quality Assurance (0–2 pts.), or Auditing (0–1 pt.)		
2.3.1.3	PROFESSIONAL ACCOMPLISHMENT – Certificate/Date	– 2 Credits Max.	
	1. P.E. 2. Society		
2.3.1.4	MANAGEMENT – Justification/Evaluator/Date	– 2 Credits Max.	
	Explain: Evaluated by: (Name & Title)	Date	
		Total Credits	
2.3.2	AUDIT COMMUNICATION SKILLS		
	Evaluated by: (Name & Title)		Date
2.3.3	AUDIT TRAINING COURSES		
	Course Title or Topic :		Date
	1.		
	2.		
2.3.4	AUDIT PARTICIPATION		
	Location	Audit	Date
	1. 2. 3. 4. 5.		
2.3.5	EXAMINATION	Passed	Date
6.2	AUDITOR QUALIFIED CERTIFIED BY *(Signature and Title)*		Date Certified
3.2	ANNUAL EVALUATION *(Signature and Date)*		

LILCO
LONG ISLAND LIGHTING

QUALITY ASSURANCE PROCEDURE

Title CERTIFICATION OF LEVEL III NDE PERSONNEL

QAP 2.5

Revision 4

Date 2/7/80

REVIEWED	APPROVED
Joseph M Kelly 2/7/80	T. D. Gerecke
DIVISION MANAGER DATE	QA DEPT. MANAGER 2/7/80 DATE

1.0 Purpose & Scope

To establish the requirements for the qualification and certification of LILCO Level III Nondestructive Examination (NDE) personnel. Certification in accordance with this procedure is intended to establish personnel qualifications which meet or exceed the requirements of References 2.2, 2.3 and 2.4.

2.0 References

2.1 LILCO Quality Assurance Manual

2.2 ANSI N45.2.6-1973, Qualifications of Inspection, Examination, and Testing Personnel for the Construction Phase of Nuclear Power Plants.

2.3 American Society for Nondestructive Testing, Recommended Practice No. SNT-TC-1A (June 1975 Edition).

2.4 ASME Boiler & Pressure Vessel Code, Sections III, V and XI (Editions in effect as mandated by 10CFR 50.55a).

3.0 Discussion

3.1 Definitions applicable to this procedure are as follows:

a) Qualification - Skills, education, training and experience required to perform the required functions.

b) Qualification Records - Written testimony of education, training and experience.

c) Certification - The action of determining, verifying, and attesting in writing to the qualifications of personnel, or a written and duly signed statement attesting to the qualifications of an individual.

3.2 The certification of NDE Level III personnel shall be the responsibility of the Quality Assurance Manager. Qualification of personnel shall be demonstrated by examination for technical compentency. LILCO may use an outside agency to examine Level III candidates and attest to their proficiency in fulfillment of the general, specific or practical requirements stated herein.

3.3 Certification of NDE personnel shall be applicable to the following methods:

a) Radiographic Testing **RT**

b) Ultrasonic Testing **UT**

c) Magnetic Particle Testing **MT**

d) Liquid Penetrant Testing **PT**

e) Eddy Current Testing **ET**

f) Visual Testing **VT**

g) Leak Testing

(1) Bubble Test **BT**

(2) Pressure Change/Measurement Test **PCMT**

(3) Halogen Diode Leak Test **HDLT**

(4) Mass Spectrometer Leak Test **MSLT**

3.4 NDE Level III personnel shall be capable of designating and establishing techniques and interpreting specifications, codes and the results of examinations in the method(s) for which he is certified. He shall be capable of evaluating results in terms of existing codes, standards and specifications and shall have sufficient practical background in applicable materials technology to assist in establishing test and acceptance criteria. He should have a general familiarity with other commonly used NDE methods. When designated, he shall be responsible for the development of training programs, and the training, examination and certification of NDE personnel.

3.5 Personnel who are considered for NDE Level III certification shall have sufficient education and experience to ensure understanding of the principles and procedures of the pertinent methods of testing. Exhibit 2.5.1 details the qualification requirements related to education and experience.

4.0 Instructions

4.1 An individual applying for NDE certification as Level III shall prepare and submit a resume with evidence of appropriate education, training, qualification, and work experience including prior certifications. See Exhibit 2.5.2.

4.2 To qualify for certification, the candidate shall have completed sufficient organized training to become thoroughly familiar with the principles and practices of the specified examination method. The total hours of qualifying training shall be as shown on Exhibit 2.5.3.

4.3 Organized training may consist of LILCO conducted or sponsored classes, off-site college or industrial courses, previous employers' documented training or supervised study of approved texts.

4.4 LILCO conducted or sponsored training courses shall substantially follow the course outlines and source materials outlined in Reference 2.3.

4.5 The Quality Assurance Manager may substitute documented education, work experience or prior certification in lieu of the organized training described herein. This substitution and the extent thereof shall be documented on the NDE Level III Personnel Qualification and Examination Record, Exhibit 2.5.4.

4.6 To be considered for certification in all methods other than visual (VT), the NDE Level III candidates must successfully complete the following required technical examinations in the applicable method:

General

The general examination shall consist of a minimum of 60 questions covering the basic test principles.

Specific

The specific examination shall consist of 15 questions to demonstrate the candidate's knowledge of test variables and 10 questions related to evaluating specific procedural and code requirements.

Practical

Proficiency shall be demonstrated in selecting, specifying, and writing NDE procedures using appropriate reference material by preparing an NDE procedure in the applicable test method.

4.7 Individuals certified as NDE Level III in the applicable test method by the American Society for Nondestructive Testing are considered to have met the guidelines of Reference 2.3, paragraph 8.5.3(a) (General Examination) and 8.5.3(c) (Practical Examination). When documented proof of prior experience, training and education exist and are acceptable based upon an oral interview to determine the candidates knowledge of the applicable codes, standards and specifications, the candidate shall be considered to have met the guidelines of Reference 2.3, paragraph 8.5.3(b) (Specific Examination). When documented evidence of prior experience or training are not available, the candidate shall successfully complete the Specific Examination described above.

4.8 NDE Level III candidates for the VT method may be certified without examination based upon the experience requirements in column 2 of Exhibit 2.5.1. When qualification is based upon examination, the experience requirements of column 1 shall apply.

4.9 Physical Examinations

NDE personnel shall have vision examinations at the time of certification and annually thereafter. Examinations shall be performed by qualified personnel and the results recorded on a form such as or similar to Exhibit 2.5.5.

a) NDE personnel for all methods shall be examined to assure that they have natural or corrected near distance acuity in at least one eye, as determined by the ability to read the equivalent of Jaeger Number 1 on a standard Jaeger Test.

b) NDE personnel for all methods shall receive color vision examinations to verify the capability of distinguishing colors and differentiating contrast between colors normally used in the applicable methods.

c) Personnel performing visual examinations shall receive vision examinations to assure natural or corrected far distance acuity that is equivalent to the near distance requirement such as a Snellen Test at 15 feet.

4.10 Grading of Examinations

a) The Quality Assurance Manager or designee shall grade the required examinations and compute a composite grade. A composite grade of 90% is required and no grade shall be less than 80%. Percentile weights for the individual examinations to be applied to the composite grade are: General - 0.4; Specific-Practical-0.6.

b) When the ASNT is the outside agency administering the Level III examination, the letter from the ASNT shall be considered in lieu of actual grades as the basis for awarding the certification.

When an outside agency, other than ANST, is the examining agency, the agency shall supply LILCO with the examination grades and shall be requested to maintain the actual examination on file for a minimum of three years.

4.11 Failure to Pass Examinations(s)

In the event that a candidate fails an examination, the following requirements apply, as applicable.

a) Physical

A candidate who fails to meet the visual acuity requirements shall obtain the necessary corrective lenses and shall be reexamined.

A candidate who fails to meet the color discrimination requirements may be further examined by a licensed professional vision care practitioner who shall be provided with a description of the proposed assignment. If the practitioner determines that the individual can effectively perform the proposed duties certification may be awarded. Such special conditions shall be documented and made part of the candidate's qualification records.

b) Technical

A candidate who fails to obtain a passing grade as defined in paragraph 4.10 shall be given additional training and shall wait at least 30 days before reexamination.

4.12 When a candidate has satisfactorily met all of the requirements for certification, the Quality Assurance Manager or designee shall prepare, and the QA Manager shall sign, a statement of certification and a Form FC 9508 certification card. See Exhibit 2.5.6.

4.13 NDE Level III personnel shall be recertified by examination on a triennial basis.

4.14 NDE certifications shall be automatically terminated when an employee leaves LILCO.

4.15 The QA Manager shall maintain in the QA Department personnel files all records pertaining to training, qualification and certification of NDE personnel as listed in paragraph 5.0. The LILCO NDE Level III Examiner may maintain a file containing copies of all records except for the copy of the current written and graded examinations.

5.0 Records

5.1 The personnel file of each NDE Level III individual shall contain as a minimum the following records:

a) Copies of the statement of Certification and completed form FC 9508, Certification Card.

b) Resume of related education, training and experience.

c) Current graded examinations.

d) Current and all previous NDE Personnel Qualification and Examination Records.

e) Current Vision Examination Records.

6.0 Exhibits

6.1 Exhibit 2.5.1 - Qualification Education and Experience Requirements for NDE Level III Personnel.

6.2 Exhibit 2.5.2 - NDE Level III Resume of Education and Employment Experience.

6.3 Exhibit 2.5.3 - NDE Level III Required Training.

6.4 Exhibit 2.5.4 - NDE Level III Personnel Qualification and Examination Record.

6.5 Exhibit 2.5.5 - Vision Examination Record.

6.6 Exhibit 2.5.6 - Statement of Certification.

EXHIBIT 2.5.1

Qualification Education & Experience Requirements
NDE Level III Personnel

Education	Column 1 RT, UT, MT, PT, ET & LT Experience as Level II (or equivalent) (1)	Column 2 VT Quality Assurance Experience (2) & (3)
Graduate with Engineer or Science Degree from an accredited 4 yr. college or university	1 year	5 years-including 2 years nuclear-related experience
Completion with passing grade of 2 years of engineering or science study at an accredited college, university or technical school	2 years	7 years-including 2 years nuclear-related experience
High School graduate	4 years	10 years-including 2 years nuclear-related experience

(1) Qualifying experience may be partially fulfilled by substitution of experience requirements in another discipline when certification is based upon training and examination.

(2) When the experience does not include the required nuclear-related experience, the candidate shall receive sufficient training to acquaint him thoroughly with the safety aspects of a nuclear facility.

(3) VT personnel certified by examination may meet the experience requirements of Column 1 rather than Column 2.

EXHIBIT 2.5.2

Long Island Lighting Company

NDE Level III Resume of Education & Employment Experience

Name Social Security No.

Organization Employee No.

Formal Education & NDE Training

List in chronological order High School Diploma, College or University degrees awarded, Post-graduate Technical Courses and NDE Training Courses (including number of hours).

School Name & Location of Training Organization	Title of Course or Degree Awarded	Date Completed	No. of Hours

Note: For NDE Training Courses, provide pertinent available records such as course outlines, diplomas, certifications, etc.

EXHIBIT 2.5.2
(Cont'd.)

Long Island Lighting Company

NDE Level III Resume of Education & Employment Experience

Name Social Security No.

Qualifying Work Experience

List in chronological order QA and NDE-related experience at LILCO and at other companies.

From Mo.	From Yr.	To Mo.	To Yr.	Company Name & Location	Job Title, Brief Job Description & Certification

To the best of my knowledge, the foregoing education and experience information is accurate and complete.

Applicants Signature & Date

Field QA Div. Mgr. or designee Evaluation:

Evaluators Signature & Date

QA Mgr. Signature & Date

EXHIBIT 2.5.3

NDE Level III Required Training

Education	NDE METHODS								
						Leak Testing			
	RT	MT	UT	PT	ET	BT	PCMT	HDLT	VT
All Levels	80*	12	64	8	16	4	28	14	12

*At least 40 hours shall be specifically oriented to film interpretation.

A-40

EXHIBIT 2.5.4

Long Island Lighting Company

NDE LEVEL III PERSONNEL QUALIFICATION AND EXAMINATION RECORD

Certified Individual_____ Organiz._____

Current Level of Certification_____ NDE Method_____

Effective Date of this Certification: From_____ To_____

PRIOR CERTIFICATION STATUS

	Start Date	Finish Date	Employer
Level II			
Level III			

Education Considered_____

Previous Experience Considered_____

QA Div. Mgr. or designee: Comments/Justification_____

_____

CURRENT CERTIFICATION - WRITTEN AND PRACTICAL EXAMINATION RESULTS

	GENERAL	SPECIFIC-PRACTICAL	OTHER
Actual Grade	_____	_____	_____
Percentile Weight	_____	_____	_____
Weighted Grade	_____	_____	_____

Composite Weighted Grade Total_____

Test Props Used_____

Eye Examination - Result & Date_____

Results/Remarks Certified Recertified Failed_____

_____

I attest that the above examinations were administered and graded in accordance with the Recommended Practice No. SNT-TC-1A, ANSI N45.2.6, and current LILCO practices and procedures and that results are as recorded.

Signed by:_____ Date_____
QA Manager or designee

EXHIBIT 2.5.5

Long Island Lighting Company

QUALITY ASSURANCE DEPARTMENT
VISION EXAMINATION RECORD

NDT Method(s) - Check Appropriate Box(es)

☐ Radiographic Testing (RT)
☐ Liquid Penetrant Testing (PT)
☐ Magnetic Particle Testing (MT)
☐ Eddy Current Testing (ET)
☐ Visual Testing (VT)
☐ Ultrasonic Testing (UT)
☐ Leak Testing (LT)
☐ Other

Jaeger 1 Near Distance Acuity
TEST WITHOUT GLASSES at 12 inches

1. (Cover Left Eye)...Right Eye O.D. Chart No. _____ _____
2. (Cover Right Eye) Left Eye O.S. " " _____
   Both Eyes O.U. " " _____

Jaeger 1 Near Distance Acuity
TEST WITH GLASSES at 12 inches (If Applicable)

Type of Glasses Used _____ (Example: Reading, *Bifocal)
*If Bifocal, use lower set of lenses

1. (Cover Left Eye) Right Eye O.D. Chart No. _____
2. (Cover Right Eye) Left Eye O.S. " " _____

Far Distance Vision Snellen @ 15 ft. _____

COLOR VISION: The following numbers were distinguished in the first 20 Plates of the S. Ishihara test for color blindness. 38 Plates, 1971 Edition.

Plate 1_____ Plate 6_____ Plate 11_____ Plate 16_____

Plate 2_____ Plate 7_____ Plate 12_____ Plate 17_____

Plate 3_____ Plate 8_____ Plate 12_____ Plate 18_____

Plate 4_____ Plate 9_____ Plate 14_____ Plate 19_____

Plate 5_____ Plate 10____ Plate 15_____ Plate 20_____

I certify that _____ has been given the above eye tests and has met the requirements of reading J-1 Portion of the chart, and the applicant's far distance and color vision test results are recorded above.

Signed _____ Title _____ Date _____

Note: This test complies with the American Society for Nondestructive Testing Recommended Practices No. SNT-TC-1A (1975 Edition)

EXHIBIT 2.5.6

LILCO
LONG ISLAND LIGHTING COMPANY
175 EAST OLD COUNTRY ROAD · HICKSVILLE, NEW YORK 11801

Direct Dial Number

STATEMENT OF CERTIFICATION

Date_____

To Whom It May Concern:

This is to certify that NAME has successfully met the training, experience and examination requirements for certification to (NDE Method and Level). Certification is based on The Society for Nondestructive Testing Recommended Practice No. SNT-TC-1A (June 1975 Edition), ANSI N45.2.6, and the guidelines outlined in the LILCO Quality Assurance Procedure QAP 2.5.

Qualification records are maintained in the LILCO Quality Assurance Department files.

_____
Quality Assurance Manager

LILCO NONDESTRUCTIVE TESTING CERTIFICATION

_____ is qualified to perform NDT as listed on the reverse side of this card at the levels and limits indicated. Certification is in accordance with Quality Assurance Procedures which comply with SNT-TC-1A and ANSI N45.2 requirements. Certification records are maintained by LILCO QA Dept.

_____ _____
EXAMINER QA MANAGER

LEVEL OF CERTIFICATION

METHOD	LEVEL	DATE	LIMITATION	APPR
MAGNAFLUX				
PENETRANT				
RADIOGRAPHY				
ULTRASONIC				
EDDY CURRENT				
Leak				
Visual				

Certification expires three years after above date and upon termination of employment by LILCO.

LILCO
LONG ISLAND LIGHTING

QUALITY ASSURANCE PROCEDURE

Title PROGRAM AUDIT PROCEDURE

QAP 18.1

Page 1 of 11

Revision 4

Date 8/1/79

REVIEWED E. Bajada

DIVISION MANAGER 8/1/79 DATE

APPROVED T.J. Beuke 8/1/79

QA DEPT. MANAGER DATE

1.0 Purpose and Scope

To provide an audit method to verify compliance with the elements of the Quality Assurance Program. This procedure is applicable to auditing and evaluating quality-related programs other than those activities defined in QAP 18.2.

2.0 References

2.1 Quality Assurance Manual, Section 18 - Audits.

2.2 QAP 2.3 - Training and Qualifications of Audit personnel.

2.3 QAP 16.1 - Corrective Action Request.

2.4 QAP 18.2 - Quality Audit and Surveillance of Field Activities.

2.5 ANSI/ASME N45.2.12 - 1977 Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants.

2.6 ANSI/ASME N45.2.23 - 1978 Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants. | 4

3.0 Discussion

3.1 Section 18 of the Quality Assurance (QA) Manual establishes an audit program for quality-related activities including the frequency of required audits.

3.2 QAP 2.3 provides for the training and qualification as required by reference 2.6, of QA Audit Team Leaders/Lead Auditors, QA Auditors and Specialist Auditors. | 4

3.3 QAP 16.1 describes the use of the Corrective Action

Request if needed during audit follow-up.

3.4 QAP 18.2 establishes the requirements for quality audit/surveillance of construction site activities.

3.5 ANSI N45.2.12 provides the basis for this procedure.

3.6 The Quality Assurance (QA) audit process consists of four major elements as follows:

a. Planning the Audit

b. Conduct of the Audit

c. Audit Report

d. Audit Follow-up

4.0 Instructions

4.1 Duties and Responsibilities

4.1.1 The QA Manager shall:

a. Retain overall responsibility and control of the QA Audit Program.

b. Forward a periodic audit summary to responsible LILCO management.

c. Advise Management promptly of "significant" or "urgent" findings. | 4

4.1.2 The responsible Quality Division Manager or designee shall:

a. Be responsible for maintenance and implementation of the QA Audit Program.

b. Periodically review the schedule of quality program activities in relation to the audit program needs.

c. Direct such special audits as necessary to assure proper implementation of all phases of the QA Program.

d. Direct the maintenance of records necessary to document the status of the audit program.

e. Determine trends of noncompliance as indicated in audit reports and take action to obtain effective correction by responsible management.

f. Serve as or assign an Audit Team Leader in advance of a scheduled audit to permit proper planning.

g. Serve as an auditor when necessary.

h. Perform those duties indicated in paragraph 4.2.1.1 of this procedure.

i. Periodically issue an Audit Status Report to the Quality Assurance Manager. | 4

4.1.3 The QA Audit Team Leader/Lead Auditor shall:

a. Be cognizant of applicable codes, standards, procedures and instructions related to quality assurance programs and program auditing.

b. Review and plan audits, prepare or direct preparation of audit checklists and agendas, provide an analysis of related quality history, perform audit preparation or assist in such preparation, perform or assist in the preparation of the audit report, and perform or assist in the audit follow-up activities.

c. Conduct LILCO audits of safety-related activities as assigned, assuming full responsibility for preparation, performance, identification or corrective action items, verification of actions completed, and follow-up activities including initiation of Corrective Action Requests as required.

d. Perform those duties assigned in paragraph 4.2.1.2 of this procedure.

e. Alert the responsible Quality Division Manager and other cognizant management personnel of nonconformances which may jeopardize subsequent work or acceptability of safety-related components, systems, processes or services.

4.1.4 The QA Auditor shall:

a. Remain cognizant of applicable codes, standards, procedures and instructions related to quality assurance programs and program auditing.

b. Upon direction from the responsible Quality Division Manager or the Audit Team Leader, review and plan audits prepare audit checklists and agendas, provide an analysis of related quality history, perform audit preparation or assist in such preparation, perform or assist in the performance of the audit, prepare or assist in the preparation of the audit report, and perform or assist in the audit follow-up activities.

c. Participate as an audit team member on quality program audits as assigned.

d. Alert the QA Audit Team Leader or the responsible Quality Division Manager and other cognizant management personnel of nonconformances which may jeopardize subsequent work or acceptability of safety-related components, systems, processes or services.

4.1.5 The Specialist Auditor shall:

a. Provide technical assistance to the audit team leader upon request.

b. Prepare audit checklists for the applicable areas of expertise.

c. Perform as an audit team member, under the direction of the Audit Team Leader, within the applicable areas of expertise and wherein the Specialist Auditor has had no direct responsibility for the area, work or service audited.

d. Be cognizant of required codes, standards, procedures and instructions relating to both quality assurance and technical expertise.

e. Document audit findings for use by the audit team leader in preparation of audit reports.

4.2 The Audit Process

4.2.1 Planning the Audit

4.2.1.1 The responsible Quality Division Manager or designee shall: | 4

a. Select an Audit Team Leader and team members to perform scheduled or unannounced audits.

b. Assure that audit team members including specialists are qualified as required by QAP 2.3.

c. Review and approve the audit plan and checklist.

4.2.1.2 The Audit Team Leader/Lead Auditor shall: | 4

a. Review previous applicable audit reports and other quality history to determine those areas which require follow-up to verify that corrective actions were taken, If such reports or history information contain open items which should have been corrected they will be incorporated into the audit checklist for follow-up of previous audit open items.

b. Identify objectives and essential elements of the audit. Assign responsibilities to audit team members.

c. Provide orientation and direction to the audit team. Disseminate pertinent policies, procedures, standards, instructions, codes, regulatory requirements and prior audit reports for review. Instruct the audit team in the use of the audit checklist, in methods of examining, questioning, evaluating, verifying and documenting specific audit items, and in identifying open items, deviations, and nonconformances.

d. If a Specialist Auditor is to be used, provide QA orientation and instructions in quality program audit procedures, objectives, conduct of audits, preparation and use of checklists, and pertinent policies, standards, codes and regulatory requirements.

e. Develop or direct development of an audit plan

which shall include the scope of the audit, the activities to be audited, the applicable documents, the audit schedule and written procedures or checklists.

f. Submit the written plan or checklist to the responsible Quality Division Manager for approval.

g. Formally notify the organization to be audited. At least one week prior to a scheduled audit, provide an audit agenda which includes the scope of the audit, identity of audit team members and their areas of interest, the schedule of meetings and the method of audit.

4.2.1.3 The QA Auditor shall:

a. Assist the QA Audit Team Leader/Lead Auditor as required. 4

4.2.1.4 The Specialist Auditor shall:

a. Assist the QA Audit Team Leader/Lead Auditor or QA Auditor as instructed.

4.2.2 Conduct of the Audit

4.2.2.1 The QA Audit Team Leader shall:

a. Conduct a brief pre-audit conference with appropriate management of the audited organization to confirm the scope of the audit, present the audit plan, introduce auditors and meet conterparts, discuss audit sequence and timing, and establish channels of communications.

b. During the course of the audit verify actions taken on open items, provide direction to the audit team, coordinate the audit process, establish the pace of the audit and act as spokesman for the audit team as necessary. Participate as a QA Auditor if needed.

c. During a lengthy audit, gather and assess audit findings daily and keep representatives of the audited organization informed.

d. Bring any audit deficiencies that are major or require immediate corrective action to the 4

attention of responsible management of the audited organization. | 4

e. Prepare a written summary of audit findings and open items based on a review of the audit observations, the open items, recommendations and suggested corrective action.

f. Using the written summary for guidance, conduct a post-audit conference with responsible management-personnel of the audited organization to present and discuss audit findings and deficiencies, and corrective actions required. If possible, obtain commitments for corrective actions and dates for completion of actions.

4.2.2.2 The QA Auditor shall:

a. When participating as a member of a QA audit team, perform interrogation, verifications, and documentation of findings as instructed by the QA Audit Team Leader.

b. When performing a LILCO internal audit alone, conduct pre-audit and post-audit conferences and perform the necessary interrogation, verification, and documentation of findings and verification of action taken on open items. | 4

4.2.3 Audit Report

4.2.3.1 The QA Audit Team Leader or Assigned QA Auditor shall:

a. Meet with responsible Quality Division Manager or designee to discuss audit findings and conclusions, to determine the severity of deficiencies and the proposed corrective actions, and to discuss preparation of the audit report.

b. Prepare or direct preparation of the audit report using a format essentially as shown in Exhibit 18.1.1. Identify the report with a number consistent with each Division's sequential numbering system. The report shall list all nonconforming and open items and shall be organized as follows:

I. Purpose of Audit

II. Conduct of Audit

III. Audit Conclusions

IV. Post-Audit Conference

V. Pertinent Attachments

NOTE: Attach the Audit Checklist and work sheet or notes to the QA File copy.

c. Submit the audit report to the responsible Quality Division Manager within two weeks after completion of the audit. The report shall contain conclusions as to the acceptability of the audited program/system and any additional information or recommendations to be considered. | 4

4.2.3.2 The responsible Quality Division Manager or designee shall:

a. Meet with the QA Audit Team Leader or QA Auditor as described in Step a of Paragraph 4.2.3.1 above.

b. Review and approve the audit report.

c. Advise the QA Manager of the audit results and the required corrective actions. | 4

4.2.3.3 The Assigned Audit Team Leader shall:

a. Prepare a letter for the responsible Division Manager's signature to transmit the audit report to the Audited Organization and the Project/Operations Management as appropriate. | 4

b. Forward copies of the report to the appropriate company and Quality Assurance Files, and to other affected personnel, as necessary.

4.2.4 Audit Follow-up

4.2.4.1 The QA Audit Team Leader or an Assigned QA Auditor shall: | 4

a. Assure that a written response is received from the audited organization within the specified time. The response shall be evaluated to assure

that satisfactory corrective action has been taken or is scheduled, for each nonconformance. The evaluation shall be documented by memorandum to the audit file or on an appropriate response form.

b. Notify the audited organization by telephone or letter if the response is unsatisfactory. An extension of the response date shall be established to accomplish the modification of the response. Such an extension, including reason and date, shall be documented by a written memorandum to the audit file.

c. Notify the audited organization by telephone or letter if the response is not received within the specified time. Grant an extension of the response time if extenuating circumstances so warrant. Such an extension, including reason and date, shall be documented by a memorandum to the audit file.

d. Initiate a CAR in accordance with QAP 16.1, if a response is not received by the extended date.

e. Determine if the audit nonconformances shall be closed by a review of data provided by the audited activity, by conducting a verification audit, or by identifying follow-up items to be included in the next regularly scheduled audit.

f. If corrective actions are not completed on time or prove unsatisfactory, initiate a CAR in accordance with QAP 16.1. | 4

4.2.4.2 The QA Auditor, when performing a LILCO internal audit alone, shall be responsible for the follow-up actions described in Paragraph 4.2.4.1 above.

5.0 Reports and Records

5.1 Audit plans and checklists.

5.2 Letters of notification of audits.

5.3 Audit reports.

5.4 Letters/Forms of responses to audits. | 4

5.5 Memoranda of time extensions.

5.6 Copies of Corrective Action Requests.

5.7 Supporting documentation and correspondence.

6.0 Exhibits

6.1 Exhibit 18.1.1, Audit Report. | 4

EXHIBIT 18.1 1

AUDIT REPORT

LILCO

AUDIT REPORT

Quality System Division

Page ___ of ___

Audited Activity	Distribution LILCO OTHERS
Location	
Date	Eng File QA File

Audited Function
(Item, System, Process, Criteria)

Project

Work Order

Quality Assurance Audit Number ____

Quality Assurance Follow-up Audit of Audit Number ____

Organization

I. Purpose

II. Conduct of Audit

III. Audit Conclusions

IV. Audit Exit Meeting

V. Attachments, Appendices, Exhibits

Prepared By:	Approved By:	
Date:	Date:	

LILCO

QUALITY ASSURANCE PROCEDURE

Title QUALITY AUDIT AND SURVEILLANCE OF FIELD ACTIVITIES

QAP 18.2

Page 1 of 11
Revision 7
Date 3/19/80

REVIEWED		APPROVED	
Joseph M Kelly	3-19-80	B. Lewis	3/19/80
DIVISION MANAGER	DATE	QA DEPT. MANAGER	DATE

1.0 Purpose and Scope

To establish instructions and assign responsibilities for LILCO audit and surveillance of quality-related activities at nuclear power plants under construction. It is applicable to construction sites where quality assurance and quality control functions have been delegated to an outside agent.

2.0 References

2.1 Quality Assurance Manual, Section 18-Audits.

2.2 QAP 1.2 - Stop Work Procedures.

2.3 QAP 2.3 - Training and Qualifications of Audit Personnel.

2.4 QAP 16.1 - Corrective Action Request.

2.5 QAP 18.1 - Program Audit Procedure.

2.6 ANSI ASME N45.2.12 - 1977 Quality Assurance Program Auditing Requirements for Nuclear Power Plants.

3.0 Discussion

3.1 A qualified outside agent is delegated the responsibility for quality assurance/quality control at each nuclear power plant construction site. The agent's senior representative at the site is hereafter referred to as the Superintendent of Field Quality Control (FQC).

3.2 Through a Field Quality Assurance Division, LILCO maintains surveillance over field quality assurance/quality control activities including quality-related activities performed on site by the Architect-Engineer (A-E), the supplier of the Nuclear Steam Supply System (NSSS), the Construction Manager (CM), and subcontractors in addition to FQC.

3.3 Section 18 of the Quality Assurance (QA) Manual establishes an audit program for quality-related activities.

3.4 Audits of appropriate field activities conducted by the Quality Systems Division or by the FQC site personnel with Field QA Auditor participation may be considered fulfilling individual requirements of the FQA Division audit schedule.

3.5 QAP 1.2 defines the criteria and establishes procedures for QA personnel to exercise "Stop Work" authority.

3.6 QAP 2.3 establishes the training and qualifications required of personnel to perform audits of quality-related activities at nuclear power plant construction sites in accordance with this procedure.

3.7 QAP 16.1 describes the method for reporting and documenting significant LILCO detected nonconformances.

3.8 QAP 18.1 provides the audit system which is used to audit, verify and evaluate quality-related programs other than construction site activities covered by this procedure.

3.9 ANSI N45.2.12 provides guidance for this procedure.

3.10 The four major elements of the field audit process are:

a. Planning the Audit

b. Conduct of the Audit

c. Audit Report

d. Audit Follow-up

4.0 Instructions

4.1 QA Department personnel shall perform the duties outlined in the following paragraphs.

4.1.1 The Quality Assurance (QA) Manager shall:

a. Retain responsibility for effective implementation of the field audit/surveillance program.

b. Remain alert for significant problems or trends which could adversely affect the quality of construction of the power station.

c. Direct the Field Quality Assurance Division Manager to perform special audits and surveillance, as necessary, in addition to those listed in the Schedule of Field Audit Activities.

d. Inform appropriate LILCO management personnel of significant quality-related occurrences at the construction sites.

e. Keep the Senior Vice President, Engineering and Project Management, informed of the status of the field audit/ surveillance program.

4.1.2 The Field Quality Assurance (FQA) Division Manager or designee shall:

a. Be responsible for LILCO FQA surveillance of quality-related activities at the construction site.

b. Assure that field surveillance and audits of activities in progress are performed in accordance with pre-established schedules.

c. Maintain the schedule of Field Audit Activities and increase or decrease the audit frequency if audit results so warrant. Such frequency changes are subject to approval by the QA Manager.

d. If a specific activity is not being performed, suspend auditing until such activity resumes. Such suspension shall be documented by memo from the QA Auditor to the FQA Division Manager and to the audit file.

e. Supervise and direct the activities of FQA Division personnel and other personnel temporarily assigned for auditing, surveillance, etc.

f. Assign field audit personnel to perform audit and surveillance of site activities as scheduled. If necessary, request the services of Quality Systems Division personnel to assist in meeting the schedule. Serve as an auditor when necessary.

g. Request other LILCO organizations to provide Specialist Auditors as necessary. Provide for orientation and instruction of such personnel.

h. Review and approve Field Audit Checklists.

i. Discuss audit and surveillance results and required corrective actions with the Field QA Auditor prior to preparation of audit reports.

j. Verbally notify management of the responsible organization of observed nonconformances and deficiencies or instruct the Field QA Auditor to do so. Follow this verbal notification with a written notice on a LILCO Field Audit Transmittal/Response Form, Exhibit 18.2.2 or a Corrective Action Request, whichever is applicable.

k. Review and approve audit reports including distribution.

l. Assure that corrective actions are satisfactorily performed. Review and approve completed Corrective Action Requests and LILCO Field Audit Transmittal/Response forms.

m. When conditions as described in QAP 16.1 occur, prepare and follow-up Corrective Action Requests (CAR). Forward a copy of each CAR to the QA Manager as each portion of the form is filled in.

n. Stop work in progress, in accordance with QAP 1.2, where continued work would cause damage, preclude further inspection, or make remedial action ineffective.

o. Monthly provide data to the QA Manager summarizing the Division's activities.

p. Maintain a record of the status of deficiencies observed during field audits and surveillance. Submit a copy of the status records to the QA Manager monthly.

q. Maintain records of the status of Corrective Action Requests and of LILCO Field Audit Transmittal/Responses. Submit copies of these records to the QA Manager monthly.

r. Establish a surveillance program. The scope and frequencies of surveillance activities shall be prescribed by QA Instructions.

4.1.3 The Field QA Auditor shall:

a. Remain cognizant of applicable codes, standards, procedures and instructions related to quality assurance programs and program auditing.

b. Conduct audits of field activities as assigned, assuming full responsibility for preparation, performance identification of corrective action items, verification of actions items, verification of items completed, and follow-up activities including initiation of Corrective Action Requests as required.

c. Perform other field surveillance activities as directed by the FQA Manager or designee.

d. Participate as directed by the FQA Manager in audits performed by the Quality Systems Division or FQC. If credit for a scheduled audit is assumed, either prepare a separate FA Audit Report with the Systems Division or FQC report as an attachment or assign the appropriate FA No. to the original report for identification and filing purposes.

e. Alert the FQA Manager, and when necessary other management personnel, of nonconformance which may jeopardize subsequent work or acceptability of safety-related components, systems, processes or services.

4.1.4 The Field QA Auditor-Trainee shall perform assigned duties under the direction of the Field QA Auditor, or the FQA Division Manager or designee.

4.1.5 The Specialist Auditor shall:

a. Provide technical assistance to the FQA Division Manager upon request.

b. Prepare audit checklists in the applicable areas of expertise as directed.

c. Perform as an audit team member, under the direction of the Field QA Auditor, within the areas of his expertise and wherein he has had no direct responsibility for the area, work or service audited.

d. Be cognizant of required codes, standards, procedures and instructions relating to both quality assurance and his areas of technical expertise.

e. Document audit findings for use by the Field QA Auditor in preparation of audit reports.

4.2 The Audit Process

4.2.1 Planning the Audit

4.2.1.1 The FQA Division Manager or designee shall:

a. Assign performance of the audit to a qualified Field QA Auditor or request the Quality Systems Division Manager to supply a qualified person to serve as a Field QA Auditor.

b. If a specialist Auditor is needed, request an appropriate organization to supply a qualified person.

c. Review the Field Audit Checklist as required.

4.2.1.2 The Field QA Auditor shall:

a. Review previous applicable audit reports to determine if there are any open items and violations requiring verification of corrective action and subsequent implementation.

b. Identify objectives and essential elements of the current audit.

c. If a Specialist Auditor is to assist in the audit, provide orientation and guidance. Provide instruction in preparation and use of the checklist, in methods of examining, questioning, evaluating and verifying specific audit items, and in identifying and documenting open items, deviations and nonconformances.

d. Prepare a checklist or revise an applicable existing checklist, if necessary, to cover current conditions and activities. Submit the checklist to the FQA Division Manager or designee for approval.

e. Notify supervisor of QA/QC personnel of the activity to be audited that the audit is due.

4.2.1.3 The Specialist Auditor shall prepare an audit checklist in the applicable area of expertise if so directed.

4.2.2 Conduct of the Audit

4.2.2.1 The Field QA Auditor shall:

a. If the scope of the audit so dictates, conduct a brief pre-audit conference with affected managers and/or supervisors to present the audit plan and discuss audit sequence.

b. During the course of the audit, verify action taken on open items and violations from previous audits, and check and verify the actions and documentation contained on the prepared checklist. Interrogate personnel and witness operations as necessary to fulfill the audit objectives.

c. In the event that violations or open items are found, conduct a post-audit conference with responsible management and/or supervisory personnel of the audited organization to present and discuss audit findings and deficiencies, corrective actions, and tentative date for completion of corrective actions.

4.2.2.2 The Specialist Auditor shall participate in the audit as instructed by the Field QA Auditor.

4.2.3 Audit Report

4.2.3.1 The Field QA Auditor shall:

a. Meet with the FQA Division Manager or designee to discuss audit findings and conclusions, to determine the severity of deficiencies and proposed corrective actions, and to discuss preparation of the audit report.

b. Prepare the Field Audit Report using the current approved Field Audit Report Format which shall be essentially as illustrated in Exhibit 18.2.1 of this procedure. Attach the completed checklist and other pertinent documentation. Address the Field Audit Report to the QA Manager with copies to the LILCO Project Manager, all personnel from whom responses are required, the LILCO Engineering Files and the Field Quality Assurance Files. Also transmit LILCO Field Audit Transmittal/Response forms to all personnel required to provide responses. Require responses to all items listed as Violations and, subject to approval of the FQA Manager, to significant open items.

c. Submit the complete Field Audit Report package to the FQA Division Manager or designee for approval.

4.2.3.2 The FQA Division Manager or designee shall review and approve the Field Audit Report prior to distribution.

4.2.4 Audit Follow-up

4.2.4.1 The Field QA Auditor shall:

a. Assure that the LILCO Field Audit Transmittal/Response is returned as scheduled and review the response for adequate and timely action, verifying that the response includes action(s) proposed to correct item(s), scheduled date of completion of the action(s), and action(s) to preclude recurrence, when necessary.

b. If the response is incomplete, notify the responder. Such notification may be verbal.

c. If the response is disapproved, initiate a CAR.

d. If the response is approved, verify that corrective action has been implemented as per commitment.

e. When implementation is satisfactory, so note on the Transmittal/Response forms.

f. If implementation is unsatisfactory, so note in the corrective action block of the Transmittal/Response form and initiate a CAR for the unsatisfactory open item(s) or violation(s).

g. If a violation or open item is to be carried over and picked up on a subsequent Field Audit a CAR will not be initiated. The QA Auditor shall indicate on the affected Transmittal/Response form the reason for the reappearance of the item and to which item it is associated with on the latter audit.

4.2.4.2 The FQA Division Manager shall:

a. Complete the Audit Transmittal/Response forms as necessary and submit copies to the QA Manager.

5.0 Reports and Records

5.1 Field Audit Reports including Field Audit Checklists.

5.2 LILCO Field Audit Transmittal/Response forms.

5.3 LILCO Field Audit Transmittal/Response Status Records.

5.4 Corrective Action Status Records.

5.5 Field Quality Assurance Reports.

5.6 Audit Suspension Memos.

5.7 Surveillance Records.

6.0 Exhibits

6.1 Exhibit 18.2.1 Field Audit Report Format.

6.2 Exhibit 18.2.2 LILCO Field Audit Transmittal/Response.

Exhibit 18.2.1

FIELD AUDIT REPORT FORMAT

(Date audit report is prepared)

(QA Managers name)

Field Audit No._____ (Name of activity/facility which was surveyed/audited)

_____Nuclear Power Station Unit_____ W.O._____

1. Purpose: (Brief summary of purpose of audit).

2. Scope: (Date(s) of audit, area(s) audited, name(s) of auditor(s), name(s) of person(s) contacted during audit).

3. Conclusions: (General conclusion(s) supported by audit findings).

4. Action Required: (List of violations and/or open items and actions required to correct conditions. If there were no violations or open items, so state).

5. Previous Audit Items Closed During This Audit: (Previous Audit No., Item No. and how closed. If none closed, so state).

_____ Approved: _____
(Name of Auditor) Manager Field QA Div.

_____
(Name of Auditor)

Attachment

(Distribution) cc:

Exhibit 18.2.2

LILCO

LILCO FIELD AUDIT TRANSMITTAL/RESPONSE

STATION:	DATE:	XMTL. NO.
SENT TO:	RESPONSE DUE BY:	
SPECIFICATION_____ PROCEDURE_____ OTHER_____	SENT FOR YOUR RESPONSE TO ITEM: ____ AUDITOR/DATE	

Addressee or his designee to include action proposed to correct item(s) noted, schedule date of completion of this action, and action taken to prevent recurrence.

RESPONSE:

PREVENTIVE ACTION:

_____
SIGNATURE & DATE

FOR LILCO USE ONLY

RESPONSE: ___ APPROVED
___ DISAPPROVED

REASON & FOLLOW-UP

_____
AUDITOR - Signature & Date

CORRECTIVE ACTION ___ SAT.
___ UNSAT.

REASON & FOLLOW-UP

_____
AUDITOR - Signature & Date

APPROVED: _____
Manager Field QA Div. (Date)