

EXHIBIT 1  
50 - 237

Received w/air dated 11-21-68 50 - 249

AMDT 899

1.0

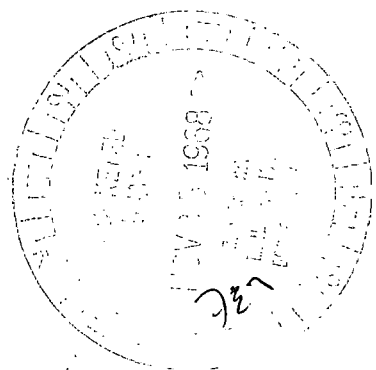
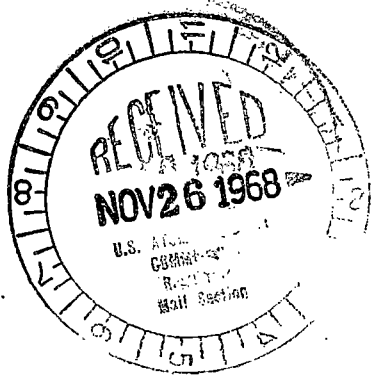
INTRODUCTION

This guide defines the quality control programs of Sargent & Lundy, Inc. as the architect/engineer for the General Electric Co., the prime contractor for the Dresden and Quad Cities nuclear plants.

This guide

- defines the quality program objectives
- delineates the assignment of quality responsibilities within the S&L functions
- defines the quality assurance activities
- outlines the S&L quality procedures.

REGULATORY SECRET FILE COPY



2.0 S&L QUALITY OBJECTIVES

Sargent and Lundy, Inc., as an organization, is committed, through corporate directive, to ensure that the designs, equipment, and services furnished to clients achieve the best standards of functional integrity and reliability. Thru concentration of corporate efforts toward design and consulting service to the power industry, Sargent and Lundy has developed engineering and management capabilities that match these high standards.

S&L's efforts on behalf of clients are therefore organized and directed, by established procedures, to assure that the criteria of clients are implemented into the final design, in full compliance not only with the furnished criteria but will all required codes and standards.

S&L's quality program, as an objective, provides the requisite assurance that

- ° the designs and specifications for structures, equipment and systems as furnished will meet the client criteria as well as other required codes and standards,
- ° the equipment purchased on behalf of clients is fabricated and furnished by vendors in full compliance with S&L designs and specifications,
- ° a disciplined system of drawing, specification, and procedure control exists so that construction activities proceed only on the basis of valid and latest design information, and that design documents are assured requisite reviews by client prior to release,

- requisite record files of design data, drawings, equipment data (fabrication and test records), and as required, construction and completed system test records and reports, are organized and accumulated as ready reference and evidence of compliance.

### 3.0 ORGANIZATION AND RESPONSIBILITY FOR QUALITY PROGRAMS

Development and implementation of the S&L quality objectives and policies is the responsibility of the Vice President (partner and manager) of the Mechanical and Nuclear Department. Reporting to him are the Project Managers for nuclear and other projects, and the heads of mechanical staff divisions. The project managers are responsible to assure implementation of quality policies and practices established for nuclear plants by all other S&L Departments. The project managers are also responsible to develop and implement the requisite document control policies and procedures.

Reporting to him as a mechanical staff division is the Quality Control Division. The head of the Quality Control Division is responsible for the administration and supervision of the Division, and participates in the formulation of quality control policies, procedures, and practices. (See organization charts attached.)

Sargent & Lundy established practice for non-destructive testing (NDT) personnel includes control and administration of NDT personnel training, examination and certification. Sargent & Lundy has established the criteria for the qualification and certification of NDT personnel. Certification of NDT personnel is in accordance with Society for Non-destructive Testing (SNT) recommended practice.

4.0 QUALITY ASSURANCE ACTIVITIES FOR THE  
DRESDEN AND QUAD CITIES NUCLEAR PLANTS.

The S&L quality assurance activities for the Dresden/Quad Cities projects encompass the following work scope:

- a) assurance of design and specification control,
- b) selection of qualified vendors for equipment to be supplied by S&L,
- c) quality assurance programs for fabrication of direct to site equipment (per above), including quality conformance records for delivered equipment.

4.1 QUALITY PROGRAM FOR DESIGN AND  
SPECIFICATION CONTROL.

Internal normal procedures and practices of Sargent and Lundy provide administrative controls to assure that generated designs and specifications receive internal reviews for consistency, utilization of most competent technical specialists, and conformance to national and local codes and standards. Superimposed on these procedures are the specific project practices, which not only assure S&L review of design documents by Project Management staff for compliance with client's criteria, but provide for assured submittal of such documents for client review and approval, as required.

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QUALITY CONTROL PROGRAM

4.2 DIRECT TO SITE - PROCUREMENT

- 4.2.1 The S&L quality assurance program for direct-to-site equipment provides the following steps as a minimum:
- a. Review of technical specifications for adequacy of quality assurance contractual requirements to procurement.
  - b. Investigations of prospective suppliers' quality control and inspection programs. This investigation includes an evaluation of the Bidder's ability to comply with the contractual commitments.
  - c. Participation in the pre-award conference on major procurements to insure an understanding of quality control requirements.
  - d. Pre-production review of suppliers' manufacturing and quality control procedures to assure clear understanding and response to the specifications.
  - e. Perform periodic in-shop inspection and audit of supplier's fabrication to assure conformance with contractual quality control procedures. This includes a review of all chemical and physical properties and quality control records, including radiographic, ultrasonic, magnetic particle, liquid penetrant, heat treatment, hydrostatic, welder qualification and dimensional inspection reports, and reporting of these results to all parties.
  - f. Maintain complete records of inspection and action on assigned components, available for review on a continuous basis, and submitted for acceptance of material and equipment.

4.2.2 In general, Sargent & Lundy's scope of quality control work is covered in Dresden Units 2 & 3 Division of Work Appendix "A" of the Procedures as outlined under the column "Procurement, Inspection and Expediting".

The above scope of quality assurance activities applies to all (direct-to-site) equipment procured by S&L. The S&L responsibility for procurement of equipment is defined by Appendix "A" (Division of Work) of the procedures for Dresden Units 2-3, and as modified by additional instructions from General Electric Co.

4.2.3 The quality control program - direct-to-site procurement is one of the specific responsibilities of the Quality Control Division of S&L.



5. QUALITY CONTROL RECORDS - EQUIPMENT

5.1 The supplier is responsible for originating and maintaining complete quality records of fabrication and inspection, as required by codes and S&L specifications. These records consist of all or part of the following:

Non-destructive test records, i.e.

radiographs

UT results

DP results

Mag particle test results

Material certifications (chemical & physical)

Welding and other processing procedures (including record of S&L approval as required)

Heat treatment procedures and records

Code reports & certifications

Performance Test reports

Hydrostatic test reports

Visual and dimensional inspection reports

and others as specified.

5.2 The work, procedures, and record system of vendors are revised by S&L Quality Control Division personnel

- prior to start of fabrication to establish capability of satisfactory compliance with S&L requirements,

- during fabrication to audit effectiveness of vendor quality control, to witness critical inspections, and to review test records,

- during and after fabrication to review and accept results of radiography,

- after fabrication to establish overall compliance with specification to warrant quality control release of equipment,

- prior to close-out of order to assure that pertinent vendor records, as required, have been acquired by S&L for transmittal to client for his compliance file record.

5.3 In the implementation of its assigned quality assurance functions, the Quality Control Division utilizes the following forms (as attached). As described, these forms when completed serve as an internal management measurement and assurance that the S&L quality control functions have been executed and that equipment furnished to client complies with S&L specifications.

- QC Form 1001 - The QC Summary is made a part of the monthly engineering report to summarize visits to manufacturing plants and reporting QC inspection and surveillance of direct to site procurements.
- QC Form 1001M - This form is also used in a modified form as individual report sheets to record the QC requirements contained in the equipment specifications as filled in the requirements have been fulfilled.
- QC Form 1002 - This form is used where the QC requirements in the equipment specification are more involved and require additional reporting space than Form 1001M.
- QC Form 1003 - Used as a quality control release form. This form is used on contracts where the QC release requirements is covered. In certain instances deviations can be made in using this form.
- QC Form 1004 - Vendor radiographs require S&L review and acceptance. Review of radiographs is either at S&L home office, in which case form 1004 is used as a record of this review. Otherwise, the review of radiographs is at vendor's plant, in which case S&L-QC sign-off on the vendor's radiography report constitutes acceptance.
- QCTR's - A Quality Control trip report is written as soon after each trip as possible. The minimum information required on a QCTR is:
1. Client and project
  2. QCTR#
  3. Purchase Order
  4. Supplier and date visited
  5. Personnel contacted
  6. Summary of work performed
  7. Detail of work performed including tag numbers, X-ray numbers, heat numbers, etc., if applicable.

5.4 Deviation from Specifications or Drawings

All deviations must be cleared through Sargent & Lundy Project Engineer.

5.5 Notification of Inspection

It is the responsibility of the cognizant QC Engineer to know approximate schedules of manufacture so that he can be present when specific fabrication areas are involved or for witnessing tests. QC Division obtains this information from the S&L Expediting Division.

Suppliers are asked to give S&L QC representatives at least a 48 hour notice of impending inspections.

LML:etb

9/10/68

PROJECT 3447 DRESDEN 2 & 3

DATE February 7, 1967

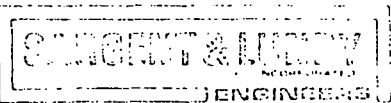
LOCATION Morris, Illinois

PAGE 1 of 1

CLIENT General Electric - APED

EQUIPMENT	P O NUMBER	MANUFACTURER	SCHEDULED TESTS	SCHEDULED VISITS	QUALITY CONTROL RELEASE	REMARKS COMMENTS
Condenser	3447-101	Ingersoll-Rand	---	1/23/7		I-R plant inspections not satisfactory. S/L QC in process of setting up schedule of inspection.
Condensate Demineralizer	3447-108	Graver Water Conditioning	---	1/24/7		Initial visit of S/L QC to Graver office. S/L QC now in process of establishing inspection points at Graver suppliers.
Circulating Water Pumps	3447-107	B-L-H	---	1/25/7		Pumps on this order are in all phases of fabrication. Schedule of inspections will be issued on next report.
Vacuum Breaker Valves	3447-115	Atwood & Morrill	Low temp. Hydrostatic	2/1/7		Test witnessed on unit No. SN1-2 test was satisfactory.
Condensate Demineralizer	3447-108	Oneill Tank Larry Goad Co.	---	2/13/7 2/14/7		Initial S/L QC visit-to review fabrication procedures and welding operations. Observe tank lining operations.
Miscellaneous Tanks	3447-126	Alpha Tank		2/15/7		Initial S/L QC visit to inspect facilities and establish pertinent inspection points during fabrication procedures.

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# QUALITY CONTROL SUMMARY

PROJECT DRESDEN 2 & 3  
 LOCATION MORRIS, ILLINOIS  
 CLIENT Commonwealth Edison Company via  
 General Electric Company

DATE July, 68  
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VALVES EQUIPMENT Tag #	P O NUMBER	MANUFACTURER	TESTS		SCHEDULED VISITS		QUALITY CONTROL RELEASE	Body Heat	Body X-Ray No	Certs Sent	QC# #
			Hydro	Seat	DP	Oper					
2-3107 A	3447	CC 1 1/2" 600	OK	OK		OK	YES	FBS	X375-3	7-18-68	160
2-3107 B		CC 1 1/2" 600							X375-2	7-18-68	160
2-3107 C		CC 1 1/2" 600							X375-4		160
3-3107 A		CC 1 1/2" 600							X375-5	4-3-68 163	160
3-3107 B		CC 1 1/2" 600							X375-6		178
3-3107 C		CC 1 1/2" 600							X375-1		↓
2-3201 A		CC 18" 900						2-2634	7		191
2-3201 B		CC 18" 900						1-2939	4		
2-3201 C		CC 18" 900	↓	↓	↓	↓	↓	1-2798	1		↓
3-3201 A											
3-3201 B											
3-3201 C											
2-3202 A		CC 16" 900	OK	OK	OK	OK	OK	2-2542	2	4-15-68 172	163
2-3202 B		CC 16" 900	↓	↓	↓	↓	↓	1-2698	1	↓	↓
2-3202 C											
3-3202 A											
3-3202 B											
3-3202 C											
2-3203		CC 16" 900	OK	OK	OK	OK	OK	2-2563	4		191
3-3203											
2-3205 A		CC 18" 900	OK	OK		OK	OK	1-3002	10		191
2-3205 B		CC 18" 900	OK	OK		OK	OK	1-2943	5		↓
3-3205 A											
3-3205 B											
2-3206 A		CC 8" 900	OK	OK	OK	OK	Yes	1-2955	6	6-7-68 215	209

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EQUIPMENT QUAD-CITIES 2 CONDENSER  
 JOB NO. 3620  
 MANUFACTURER Ingersoll-Rand  
West Easton, Pennsylvania

QUALITY CONTROL REPORT  
 E. R. HART  
 SARGENT AND LUNDY

APPL. JOB SPEC. R-2334

Nomenclature	QCTR#	Dim. &/or Visual	Inspection Final	N.D.T.			REVIEW		U.T.	E.C.	Ed.	Insp Hydro Test Certifications				QC Release Date Issue	Preserv'n	Paint	Packaging	REMARKS				
				RT	SER#	PT	MT	Car. Hot				Cold	Date Recd	Date Trns										
3-20-68	DISCUSSION OF		QUALITY	REQUIREMENTS	ON	QUAD	2												PERSONNEL					
EXTENSION	169	4-10-68	4-10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
PIECES, END	170	4-18-68	4-19																	Verbal	OK	OK	OK	D.V. CARPENTER)
PANELS, EXT-	183	4-25-68	4-25																	Superintendent)				
EXTENSION NECKS																				W. Joscak-Chf. Insp.				
CROSS OVER																				W. Johns-Gen. Foreman				
PIPE																				C. Siefert-Prod. Planner				
WATER BOXES	176	4-18-68	4-18																	W. Wills-Weld Engr.				
	183	4-25-68	4-25																					
	185	5-2-68	5-2																					
	192	5-16-68	5-16																	N A	5-2-68			
HOTWELL	176 (4	4-19-68	4-19																		5-16-68			
SECTIONS	183	4-25-68	4-25																	X				
	185	5-2-68	5-2																		5-2-68			
	192 v	5-16-68	5-16		5-16-68																			
UPPER &	176	4-19-68	4-19																					
LOWER	200	5-23-68	5-23		5-23-68																			
SHELLS	208	5-28-68	5-28		5-28-68																			
	212	5-6-68	5-6		6-6-68																			
THREE END	250	7-30-68			5-31-68																			
PANELS		& 7-31-68		X	Verbal	OK	OK	OK	Tube Sheets Checked. 1. Hole location-See QCTR-250															
									2. Hole Size OK 3. Ligament size OK 4. Flatness															



QUALITY CONTROL DIVISION

TO: [ ]

DATE \_\_\_\_\_

PROJECT \_\_\_\_\_

CLIENT \_\_\_\_\_

DESCRIPTION \_\_\_\_\_

P.O. and/or \_\_\_\_\_

CONTRACT NO. \_\_\_\_\_

Quality Control shipping release is hereby issued for the following:

Quality Control release of the above does not relieve Vendor from any obligation under the Contract.

DISTRIBUTION:	
<input type="checkbox"/>	ORIGINAL - TO VENDOR
<input type="checkbox"/>	COPY FOR
<input type="checkbox"/>	COPY FOR
<input type="checkbox"/>	

SARGENT & LUNDY

BY \_\_\_\_\_





RADIOGRAPHIC INSPECTION REPORT

Date: \_\_\_\_\_

Check one:

Castings

Weldments

Job No: \_\_\_\_\_

P.O. No.: \_\_\_\_\_

Client: \_\_\_\_\_

Stage of Manufacture: \_\_\_\_\_

Specification No: \_\_\_\_\_ Standard: \_\_\_\_\_ Date Radiographed: \_\_\_\_\_

Pattern or Part No.: \_\_\_\_\_ Ser. No.: \_\_\_\_\_ Heat No.: \_\_\_\_\_ Other Ident.: \_\_\_\_\_

Comments on Radiographs of Material listed above are as follows:

Radiographs Approved as Read

Additional Radiographs Rqd.

Material Review Rqd.

Distribution:

Sargent & Lundy

By \_\_\_\_\_

Quality Control Div.

SARGENT & LUNDY  
INCORPORATED  
ENGINEERS  
CHICAGO

QCTR

Subject:  
Quad Cities  
General Electric Company for  
Commonwealth Edison Company

QCTR-200, P.O. No. 3620-109  
Condensing Equipment

Ingersoll-Rand Company  
West Easton, Pennsylvania  
on 23 May 1968

THOSE PRESENT:

Messrs.

W. Johns	}	Ingersoll-Rand
W. Joscak		
D. Carpenter		
P. Shafer		
E. R. Kurts	)	Sargent & Lundy

SUMMARY:

Performed final inspection on two upper shell sections.  
Released these for painting, oiling and shipment.

DETAIL:

A trip was made to Ingersoll-Rand Company, West Easton, Pennsylvania for the purpose of final inspection of two upper shell sections.

The following discrepancies were noted and corrected:

1. Not enough shot removed from the connecting pipes.
2. Some gas holes and undercutting on fabrication welds.
3. No weld pups on six of the connecting pipes.

No major problems were encountered on these shell sections.

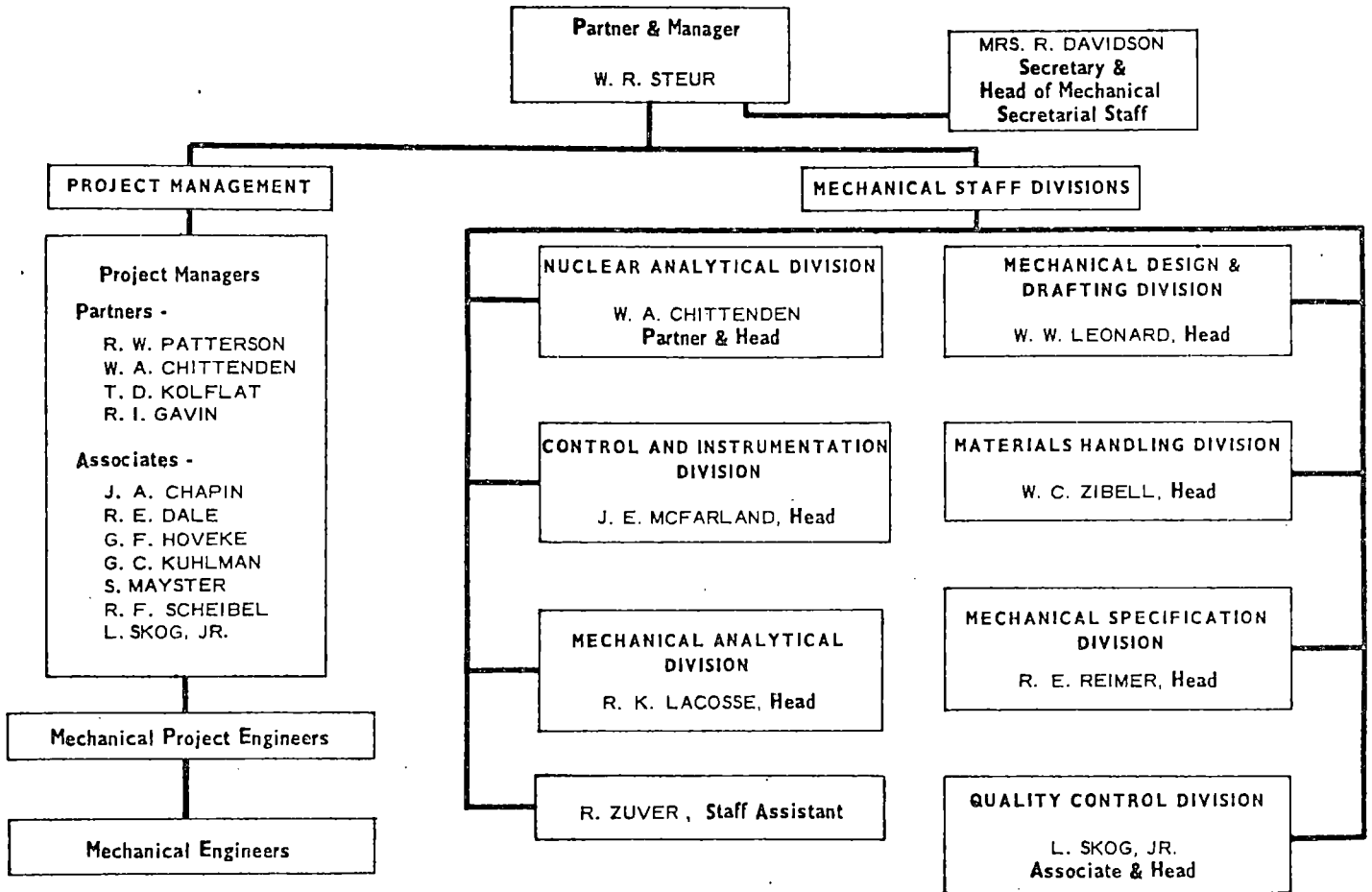
Next trip to Ingersoll-Rand Company planned for the week of 27 May 1968.

E. R. Kurts  
Quality Control

/ad  
cc: RJA:cherl (3)  
WRS (3)  
WAC (3)  
LS

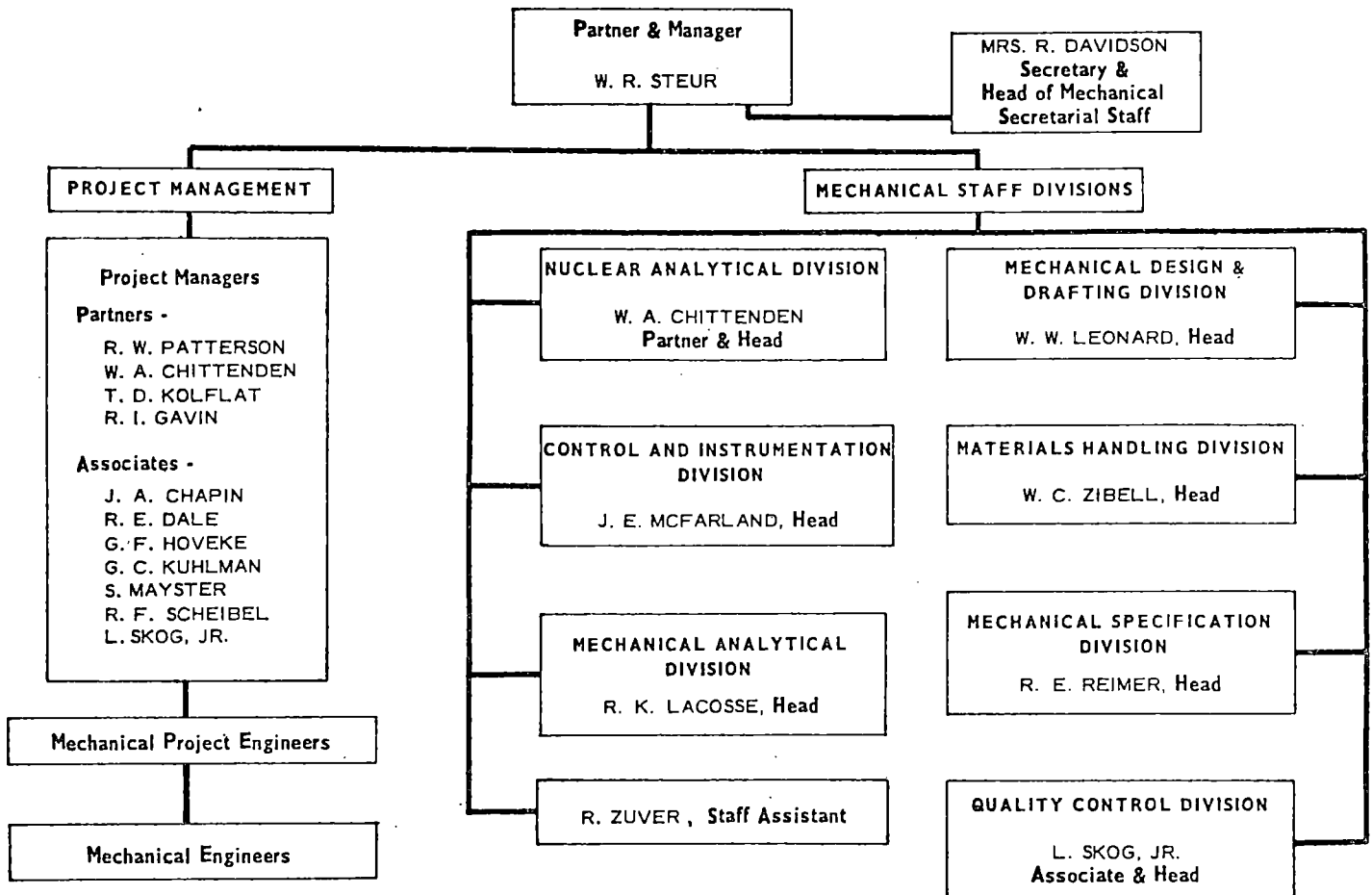
**SARGENT & LUNDY  
ENGINEERS  
CHICAGO**

**MECHANICAL DEPARTMENT**



**SARGENT & LUNDY  
ENGINEERS  
CHICAGO**

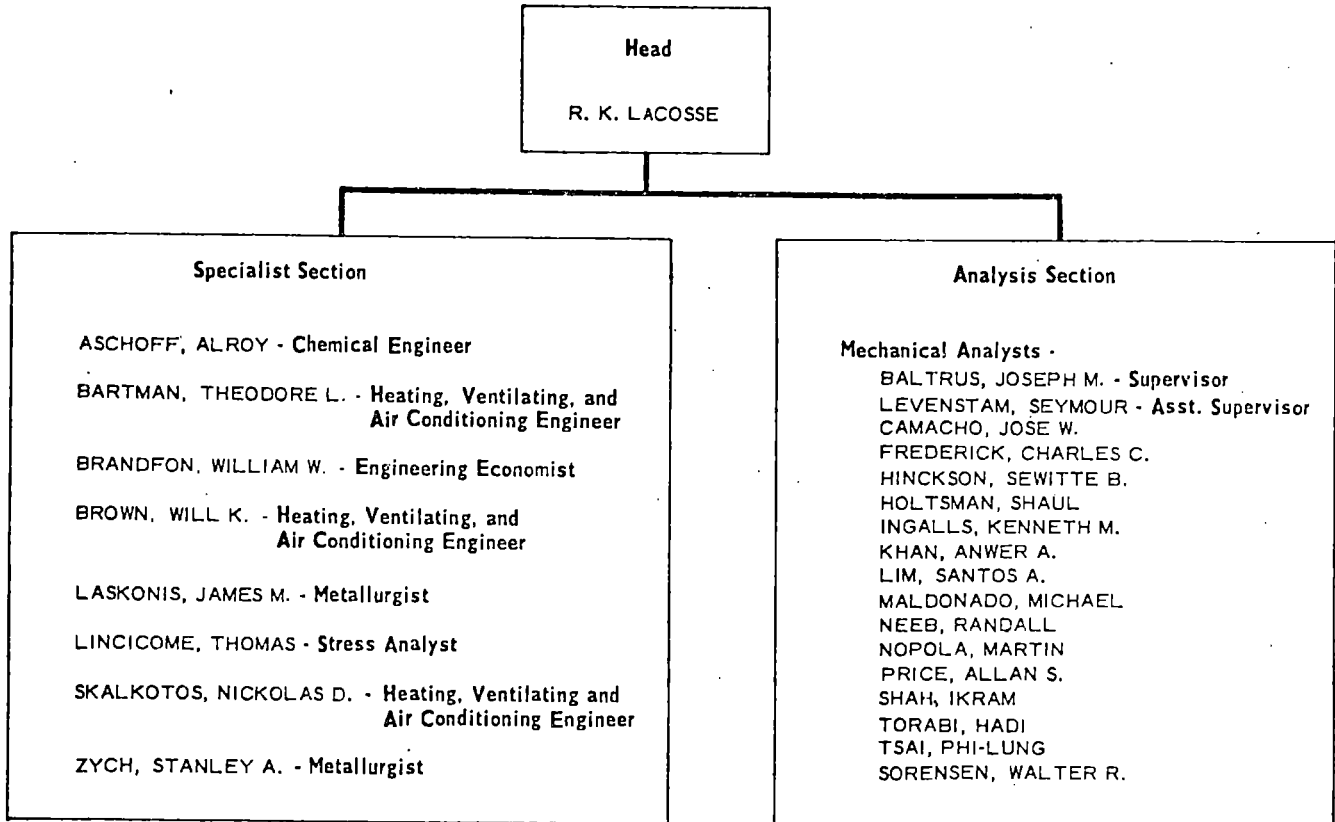
**MECHANICAL DEPARTMENT**



SARGENT & LUNDY  
ENGINEERS  
CHICAGO

MECHANICAL DEPARTMENT

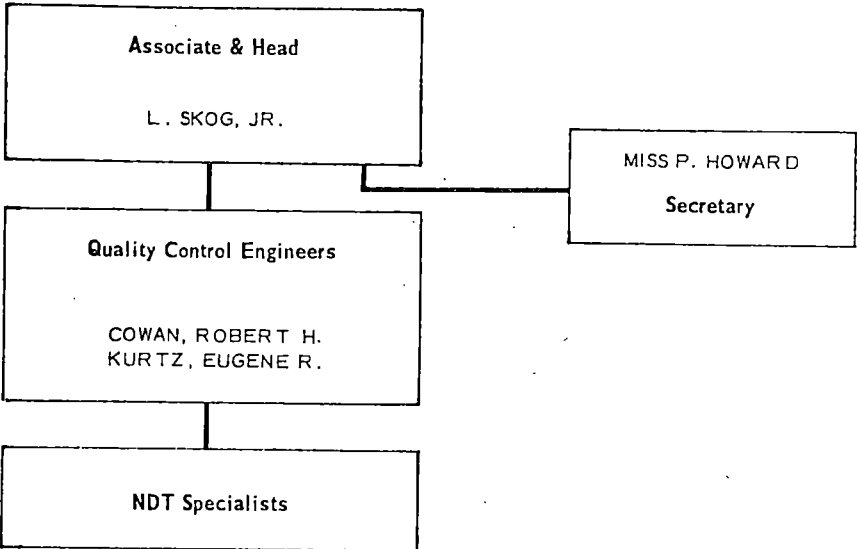
MECHANICAL ANALYTICAL DIVISION



SARGENT & LUNDY  
ENGINEERS  
CHICAGO

MECHANICAL DEPARTMENT

QUALITY CONTROL DIVISION



SARGENT & LUNDY  
ENGINEERS  
CHICAGO

GENERAL ORGANIZATION CHART

