

SEP 3 1982

Docket No. 50-382

APPLICANT: Louisiana Power & Light Co.  
FACILITY: Waterford Steam Electric Station, Unit 3  
SUBJECT: SUMMARY OF QA MEETING ON WATERFORD

On August 26, 1982, the NRC staff met with representatives from Louisiana Power & Light Company and Torrey Pines Technology in Bethesda, Md. The purpose of the meeting was to discuss the applicant's revised proposal for verification program that would provide additional confidence that Waterford 3 was designed in accordance with NRC requirements. A list of attendees is attached.

Mr. Lee Maurin, Vice President, Nuclear Operations, announced a delay in the fuel load date to May 1983 and the commercial operation date to January 1984. He then introduced Mr. Fred Drummond, the Nuclear Project Support Manager. Mr. Fred Drummond opened with a general discussion which summarized the June 15, 1982 meeting held on this same subject. He also gave an update and general summary of the status of LP&L's QA program, as well as their safety review committee membership and recent activities on site. Since the last meeting, LP&L has completed its first preoperational test and has completed a reinspection of all hangars and a preservice inspection of welds. The applicant proposed a different design verification plan from the one we discussed at the June meeting. They have proposed a design review of the Emergency Feedwater System (EFWS) because it is a critical safety system and because of the attention this system has received from the ACRS and the licensing board. Torrey Pine Technology was chosen to perform this independent design review.

Mr. George Wessman of Torrey Pines Technology made a presentation on the proposed design review. It is to include a review of the design procedure used by the contractors, the design procedure implementation, and a technical review of the design with independent calculations when it is judged to be necessary. The review will encompass the EFWS from the condensate storage pool to one steam generator. Interim findings and the final report will be provided to NRC and LP&L in parallel. The total effort will take 14 weeks and involve 10 - 15 people. A copy of the slides used during the presentation is attached.

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PDR ADOCK 05000382  
A PDR

OFFICE ▶	.....	.....	.....	.....	.....	.....	.....
SURNAME ▶	.....	.....	.....	.....	.....	.....	.....
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After discussing the acceptability of this proposal, we suggested four improvements which would make it more acceptable to the staff. Our first suggestion was that the review should include the design work provided by subcontractors, and their interface with Ebasco and/or C.E. We were informed that this was already included in the proposal because the piping system was designed by a subcontractor. The second suggestion was that essential auxiliary support systems (for example, HVAC) be included in the proposal. Third, we suggested that the review include an examination of the engineering concerns raised by the start-up engineers and the adequacy of their resolution. And finally, we suggested that the project include an as-built field verification to ensure that the design was correctly implemented, and that design changes were appropriately evaluated.

The applicant agreed to consider our suggestions, and will present a revised program plan to the staff by September 3, 1982.

**Original Signed By:**

Suzanne Black, Project Manager  
 Licensing Branch #3  
 Division of Licensing

Enclosure s:  
 As stated

cc: See next page

OFFICE	DL:LB#3	DL:LB#3					
SURNAME	SBlack:eb	Miraglia					
DATE	9/2/82	9/2/82					

WATERFORD

Mr. L. V. Maurin  
Vice President - Nuclear Operations  
Louisiana Power & Light Company  
142 Delaronde Street  
New Orleans, Louisiana 70174

Regional Administrator-Region IV  
U.S. Nuclear Regulatory Commission  
611 Ryan Plaza Drive  
Suite 1000  
Arlington, Texas 76012

cc: W. Malcolm Stevenson, Esq.  
Monroe & Lemann  
1423 Whitney Building  
New Orleans, Louisiana 70130

Mr. E. Blake  
Shaw, Pittman, Potts and Trowbridge  
1800 M Street, NW  
Washington, DC 20036

Gary L. Groesch  
2257 Bayron Road  
New Orleans, Louisiana 70119

Mr. F. J. Drummond  
Project Manager - Nuclear  
Louisiana Power & Light Company  
142 Delaronde Street  
New Orleans, Louisiana 70174

Mr. D. B. Lester  
Production Engineer  
Louisiana Power & Light Company  
142 Delaronde Street  
New Orleans, Louisiana 70174

Luke Fontana, Esq.  
824 Esplanade Avenue  
New Orleans, Louisiana 70116

Stephen M. Irving, Esq.  
535 North 6th Street  
Baton Rouge, Louisiana 70802

Resident Inspector/Waterford NPS  
P. O. Box 822  
Killona, Louisiana 70066

Dr. D. C. Gibbs  
Middle South Service, Inc.  
P. O. Box 61000  
New Orleans, Louisiana 70161

ATTENDEES

QA MEETING

August 26, 1982

S. Black	NRC, Project Manager
F. Miraglia	NRR/DL/LB#3
L. Constable	NRC
G. Madson	NRC
G. Gallagher	NRC/IE/QAB
J. Nelson	QUADREY
T. Kishbaugh	NUTECH
R. Tedesco	NRC
R. Prados	LP&L
G. McLandon	LP&L
T. Gerrets	LP&L
L. Maurin	LP&L
F. Drummond	LP&L
R. Vollmer	NRR/DE
D. Norkin	NRC/IE/DRP
W. Rutherford	NUTECH
J. Henderson	IE



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TECHNOLOGY

A DIVISION OF GENERAL ATOMIC COMPANY

INDEPENDENT DESIGN REVIEW  
OF  
WATERFORD SES UNIT 3

PRESENTATION TO NRC  
BY  
TORREY PINES TECHNOLOGY

AUGUST 26, 1982

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## QUALIFICATIONS OF GENERAL ATOMIC COMPANY

- BUSINESS EXPERIENCE
  - ACTIVE IN NUCLEAR POWER INDUSTRY SINCE 1958
  - FULL RANGE OF NSSS AND SUPPLIER CAPABILITIES TO THE NUCLEAR INDUSTRY
  
- BREADTH OF TECHNICAL CAPABILITIES
  - ALL MAJOR ENGINEERING DISCIPLINES
  - VERIFIED AND STATE-OF-THE-ART COMPUTER CODES
  - ASME CERTIFICATIONS
  - APPLIED EXPERIENCE
  
- DEPTH OF CAPABILITIES
  - TOTAL STAFF OF 1920
  - 916 DEGREED PROFESSIONALS, INCLUDING 485 WITH ADVANCED DEGREES
  
- REQUIRED INFRASTRUCTURE
  - FIRST NRC ACCEPTED QUALITY ASSURANCE PROGRAM (1974)
  - DOCUMENT CONTROL CAPABILITY (SINCE 1970)
  
- PREVIOUS EXPERIENCE ON VERIFICATION PROGRAMS



## INDEPENDENCE OF GENERAL ATOMIC COMPANY

- FINANCIAL
  - LESS THAN 1% REVENUE FROM LOUISIANA POWER & LIGHT COMPANY RELATED CONTRACTS
  - LESS THAN 5% REVENUE FROM LP&L, EBASCO AND COMBUSTION ENGINEERING
- CORPORATE INTEGRITY
  - COMPANY COMPLETELY INDEPENDENT OF ANY OF THE PROJECT PARTICIPANTS IN THE WATERFORD-3 PROJECT
  - MAINTAIN CORPORATE IMAGE OF PARENT COMPANIES
- NO SUBSTANTIVE CONFLICT OF INTEREST OF PERSONNEL
  - NO PAST WORK EXPERIENCE FOR KEY PERSONNEL IN DESIGN, CONSTRUCTION OR QUALITY ASSURANCE AT WATERFORD-3.
  - NO IMMEDIATE FAMILY EMPLOYED BY ANY OF THE PROJECT PARTICIPANTS IN THE WATERFORD-3 PROJECT
  - NO SIGNIFICANT OWNERSHIP OR CREDITOR INTEREST IN ANY OF THE PROJECT PARTICIPANTS IN THE WATERFORD-3 PROJECT
  - COMPLIANCE ASSURED THROUGH PERSONNEL QUESTIONNAIRE



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INDEPENDENT DESIGN REVIEW  
WATERFORD SES UNIT 3

SUMMARY OF TASKS

TASK	TITLE
A	DESIGN PROCEDURE REVIEW
B	DESIGN PROCEDURE IMPLEMENTATION REVIEW
C	TECHNICAL REVIEW
D	PROCESSING OF POTENTIAL FINDINGS
E	REPORTS

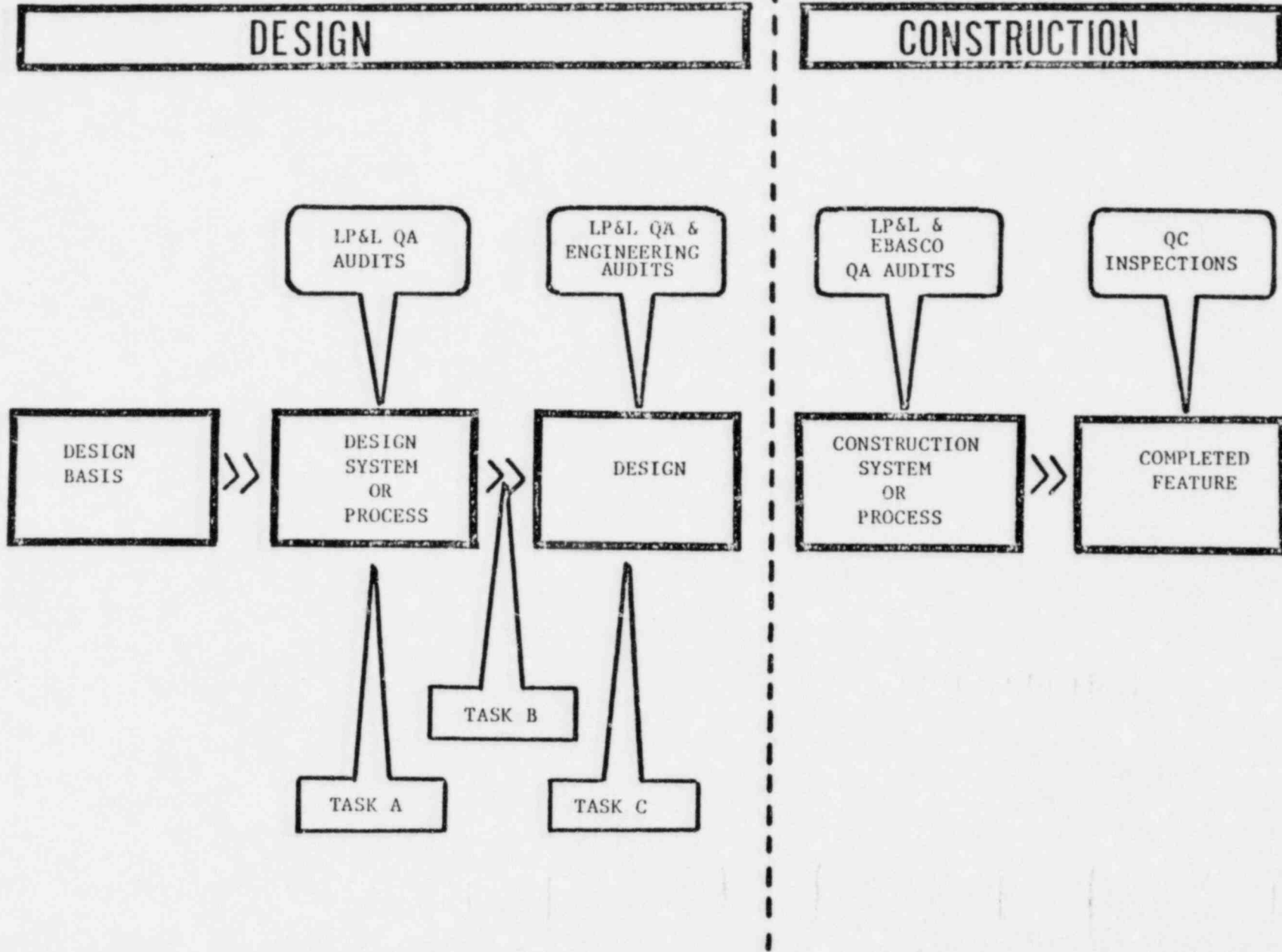
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Figure 1

# SCOPE OF REVIEW

BASIC PROGRAM STRUCTURE





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TASK A

DESIGN PROCEDURE REVIEW

OBJECTIVE

VERIFY COMPLIANCE OF DESIGN  
PROCEDURES AND CONTROLS WITH  
REQUIREMENTS

ACTIVITY

REVIEW LP&L, EBASCO, AND CE  
DESIGN CONTROL SYSTEM

CRITERIA

PSAR QA SECTION  
10CFR50, APPENDIX B  
ANSI N45.2

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TASK B

DESIGN PROCEDURE IMPLEMENTATION REVIEW

OBJECTIVE

VERIFY IMPLEMENTATION OF THE DESIGN  
PROCEDURES AND CONTROLS IDENTIFIED  
IN TASK A

ACTIVITY

REVIEW DESIGN DOCUMENTS FOR EVIDENCE  
OF COMPLIANCE WITH DESIGN PROCEDURES  
AND CONTROLS

CRITERIA

DESIGN PROCEDURES AND CONTROLS  
IDENTIFIED IN TASK A

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DOCUMENT REVIEW  
FOR COMPLIANCE WITH DESIGN PROCEDURES

- ALL DOCUMENTS FROM TASK C
- DOCUMENTS BY EBASCO, CE, AND LP&L (IF ANY)
- CALCULATIONS, DRAWINGS, SPECIFICATIONS,  
MEMOS, CHANGE NOTICES, AND CODE VERIFICATION  
REPORTS
- COVER CALENDAR PERIOD OF DESIGN EFFORT AND ALL  
PHASES OF DESIGN PROCESS



TASK C

TECHNICAL REVIEW

OBJECTIVE

VERIFY TECHNICAL ADEQUACY OF THE  
EMERGENCY FEEDWATER SYSTEM (EFW)  
DESIGN

ACTIVITY

PERFORM DETAILED TECHNICAL REVIEW  
OF THE STRUCTURAL, MECHANICAL,  
ELECTRICAL, CONTROL SYSTEM, AND FLUID  
SYSTEM DESIGN OF SELECTED PORTIONS OF  
THE EFW SYSTEM.

CRITERIA

APPLICABLE CODES AND STANDARDS  
FSAR DESIGN BASES  
GOOD ENGINEERING PRACTICE



## TYPICAL ELEMENTS OF TECHNICAL REVIEW

- DESIGN BASES
- ADEQUACY OF DESIGN SPECIFICATION
- APPLIED LOADS
- MATHEMATICAL MODEL USED FOR ANALYSIS
- INPUT TO ANALYSIS
- VALIDATION OF COMPUTER CODES USED
- OUTPUT OF ANALYSIS
- COMPLIANCE WITH APPROVED STANDARDS



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CRITERIA FOR REQUIRING  
INDEPENDENT ANALYSIS

- JUDGMENT - USING ANSI N45.2.11, SECTION 6.3.1 IS NOT ADEQUATE
- ORIGINAL ANALYSIS METHOD APPEARS UNREASONABLE
- POTENTIAL FINDING IMPACT CANNOT BE JUDGED

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TASK D

PROCESSING OF POTENTIAL FINDINGS

OBJECTIVE

REVIEW AND DOCUMENT DISPOSITION  
OF ALL POTENTIAL FINDINGS

ACTIVITY

"FIVE-LEVEL" REVIEW AND POTENTIAL  
FINDING DISPOSITION

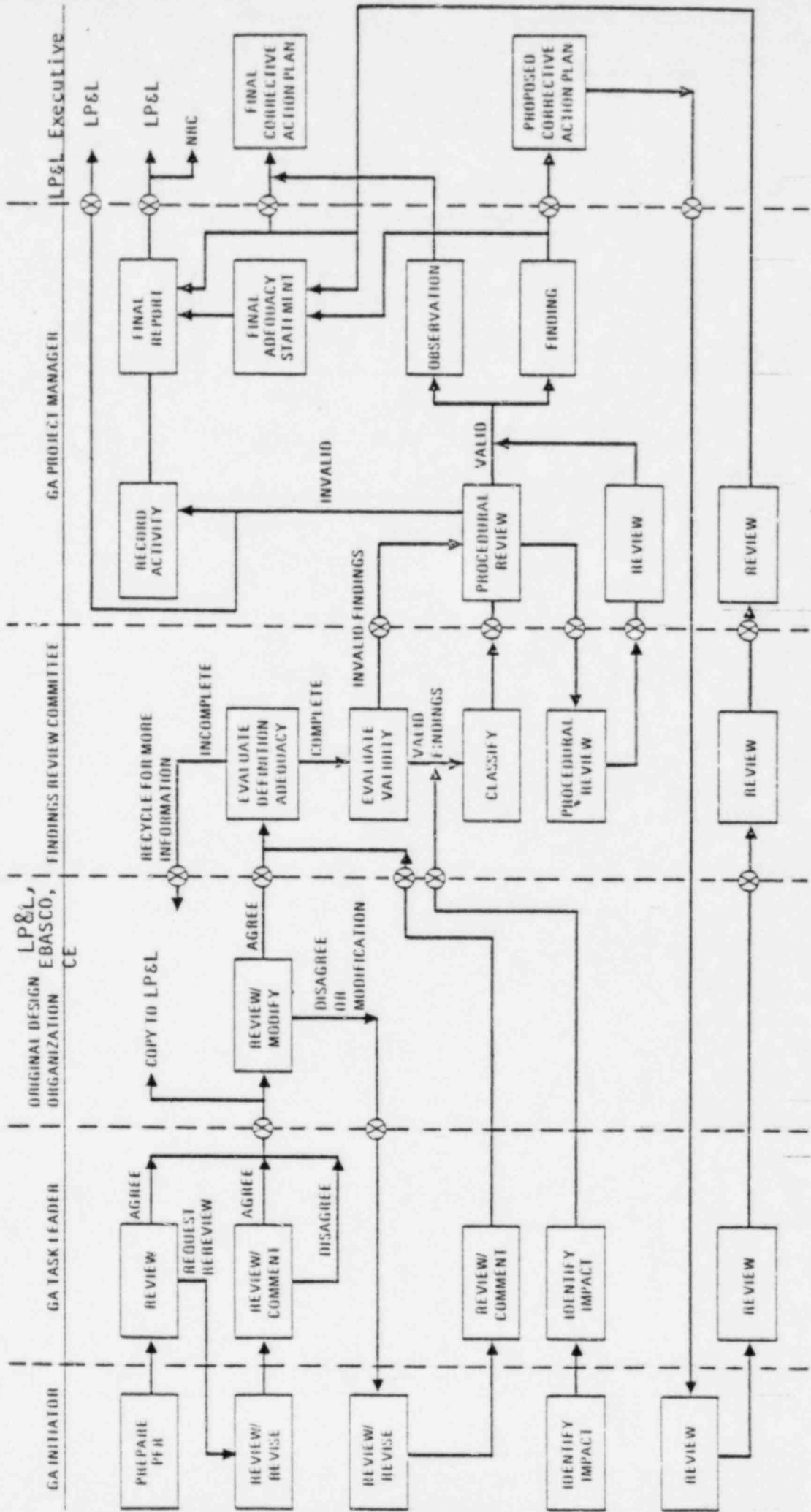
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PROCEDURE FOR PROCESSING FINDINGS



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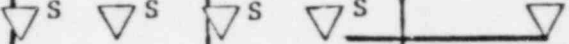

TASK E                      REPORTS

OBJECTIVE                      PREPARE PERIODIC STATUS REPORTS  
AND A FINAL EVALUATION REPORT

ACTIVITY                      ISSUE BIWEEKLY REPORT  
ISSUE FINAL REPORT

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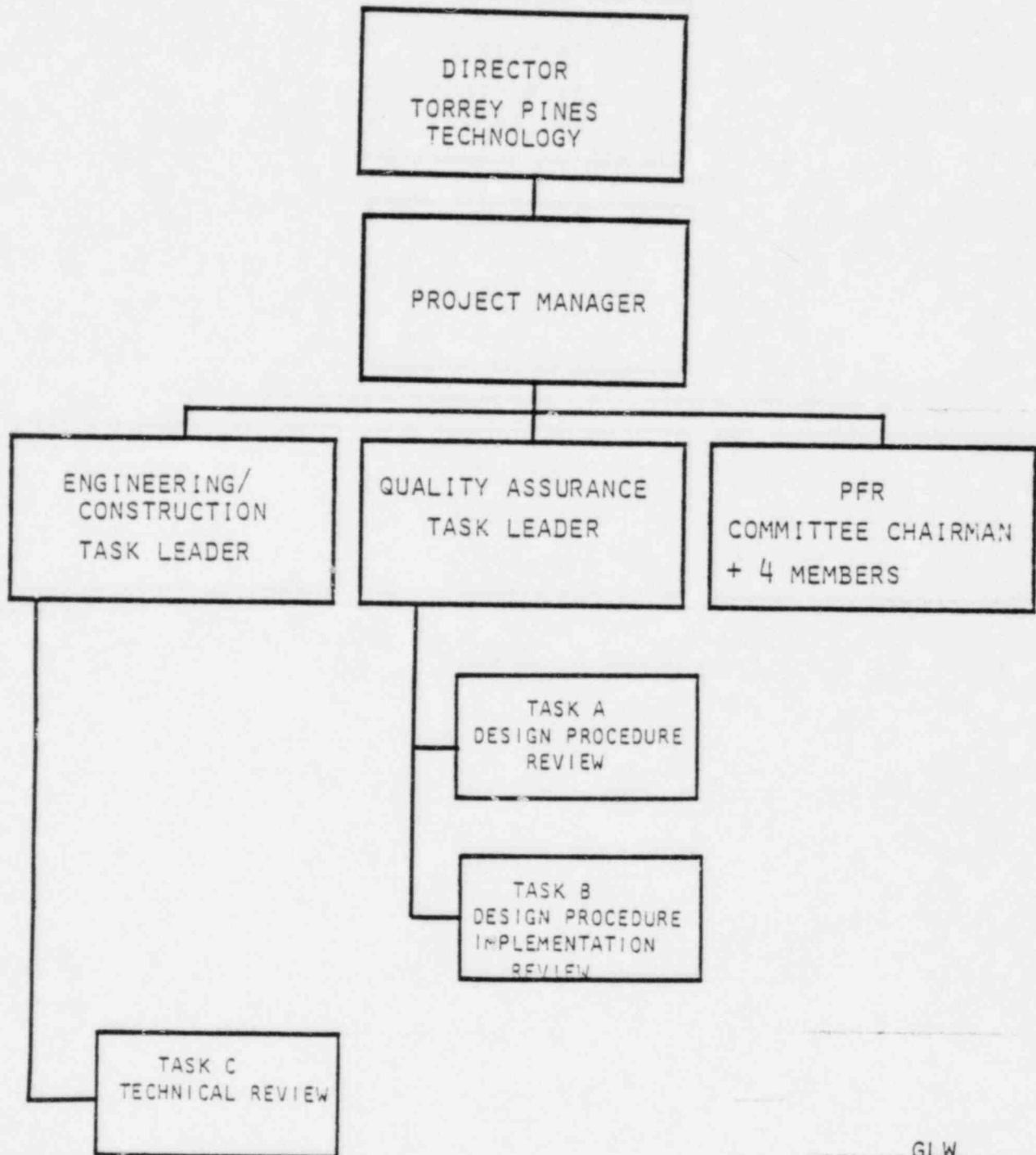
Proposed Schedule for LP&L Independent Design Review

	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
I. <u>INITIAL EFFORT</u> (Assemble people, clearances, training, program plan, prepare procedures, QA program, acquire data, etc.)				
II. <u>DESIGN VERIFICATION</u> A. Design Procedure Review B. Design Procedure Implementation Review C. Technical Review	  			
III. PFR PROCESSING				
IV. REPORTS (S - Status Reports)	 			

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INDEPENDENT DESIGN REVIEW OF  
WATERFORD SES UNIT 3 SAFETY-RELATED SYSTEMS

ORGANIZATION



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MEETING SUMMARY DISTRIBUTION

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STurk, Attorney/OELD  
I&E  
Regional Administrator, Reg. 4  
NRC Participants: S. Black  
F. Miraglia  
L. Constable  
G. Madson  
G. Gallagher  
R. Tedesco  
R. Vollmer  
D. Norkin

cc: Service List