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**TORREY PINES TECHNOLOGY**

P.O. Box 85608  
San Diego, California 92138  
Telephone: (619) 455-2654

A Division of **GA Technologies Inc.**

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August 15, 1984

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USNRC

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Philadelphia Electric Company  
2301 Market Street S25-1  
Philadelphia, PA 19101

Attention: V. S. Boyer, Sr. Vice President Nuclear Power

Gentlemen:

The enclosed status report is the last of six scheduled for the Independent Design Review of the Limerick Generating Station Unit 1 Core Spray System. This report covers the period August 1, 1984 to August 15, 1984. However, since several items are being added to resolve technical issues, additional bi-monthly status reports will be issued during the extended period of review. A manpower activity summary graph was modified to include the estimated manpower needs. The new milestones are included in Table I.

A copy of this report is being sent directly to the representative of the U.S. Nuclear Regulatory Commission.

Please call me if you have any questions regarding the contents of this report.

Sincerely,

F. D. Carpenter  
Project Manager

FDC/dn  
Encl.

cc: PECO: R. A. Mulford N2-1  
E. C. Kistner  
J. Moskiwitz  
L. B. Pyrih  
G. J. Beck

Bechtel: S. J. Ployhar

USNRC: J. M. Milhoan, Chief Licensing Section  
Quality Assurance Branch, Office of Inspection & Enforcement  
U.S. Nuclear Regulatory Commission EWS-305A  
Washington, DC 20555

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INDEPENDENT DESIGN REVIEW  
OF LIMERICK GENERATING STATION #1  
CORE SPRAY SYSTEM

Bi-Monthly Status Report #6  
Period Ending August 15, 1984

### Introduction

This is the last of six scheduled bi-monthly status reports. This report documents information concerning the independent design review of Limerick's Core Spray System. The work performed covers the period August 1, 1984 to August 15, 1984.

### Summary

On August 9 representatives from the NRC (I&E Branch) contacted TPT's project representatives about the Limerick IDVP review. The purpose was to discuss the NRC concerns developed during their on-site review of the program on July 24 and 25. TPT believes the review scope is adequate to support statements which summarize systems adequacy in the mechanical, electrical, and fluid system areas. To avoid a limiting statement about civil-structural items which do not extensively occur within the core spray system, TPT was granted permission by PECO to extend the schedule and cost to probe a civil-structural area outside the core spray system but which is affected by components of the system.

Task A is complete and Task B is nearing completion. These tasks were accomplished within schedule but with additional manhours used to evaluate, in depth, the audit and corrective action programs of PECO, Bechtel, and GE.

For Task C, the review scope was increased to include additional civil-structural items. As noted above, this was done to comply with NRC suggestions that all technical disciplines be included in the review, even though most civil-structural items are outside the scope of the core spray system.

A considerable number of PFRs have been generated during this period as Tasks B and C are nearing completion. Fourteen new PFRs were initiated, bringing the total to 29 as of this date. Timely processing of these PFRs will be of prime importance in maintaining the schedule and issuance of the final report.

### TASK A DESIGN PROCEDURE REVIEW

Complete

### TASK B DESIGN PROCEDURE IMPLEMENTATION REVIEW

Subtasks B1 through B3 complete.

B4 A visit was made to PECO to examine their design control files for Bechtel documents requiring PECO review. The work was completed. Visits were also made to GE and Bechtel to examine their design control records. The on-site reviews were essentially completed. Any additional trips required will be brief and limited to clearing up any open items. Work is continuing in San

Diego to complete the checklists, initiate PFRs (as required), and prepare the Task Summary Report.

Memo #2524-QA-19 was issued, summarizing the Task B work related to Design Audits.

#### TASK C TECHNICAL REVIEW

C1 and C2 are complete.

- C3 The review scope was increased to include additional civil-structural items. The new review items are the local containment areas which are affected by loadings from the core spray line pipe whip restraints and containment penetration.
- C4 Most of the review work has been completed with the exception of the local containment area which is an extension of the original review scope. Work in these areas has just been initiated. Completion of the technical review will be delayed until September 7.
- C5 A visit to GE was made to initiate an analysis of the core spray nozzle which is independent of the one currently being performed by GE. This analysis is necessary to perform an impact assessment for a PFR, and is scheduled for completion by August 24.
- C6 Preparation of initial drafts of the review evaluation reports (RERs) has been initiated or completed for several review items. The task summary report will be based on these drafts. Because of the additional civil-structural review scope described in C3 above, the task summary will not be completed until September 14.

#### TASK D PHYSICAL VERIFICATION

All work on Task D is complete.

#### TASK E POTENTIAL FINDINGS

Tasks E1 through E3 are complete.

For this period, fourteen potential findings were initiated. Five were issued within Task B which questioned compliance of design documents with controlling procedures. The nine PFRs issued within Task C involved additional loading or analysis inconsistencies.

A site visit was made to resolve disagreements in the accuracy of several potential findings. This purpose was achieved and the PFRs in question are being processed. A visit to GE to assess the impact of a PFR is described under Subtask C5 above.

The Findings Review Committee convened during this report period and classified four PFRs.

## TASK F ADMINISTRATIVE AND REPORTING

On August 9, 1984 a conference call was initiated between the NRC (I&E Licensing Section) and TPT's Limerick IDVP project personnel. The purpose of this conference call was to discuss the on-site programmatic review made by NRC representatives on July 24 and 25, 1984. NRC's impact on the technical scope or depth of review is discussed under C3.

The NRC will be requiring considerable detail in the final report to substantiate the technical review which supports the conclusions. Extracting and restating such detail from records developed during the verification process will affect the reporting effort and schedule. (Previous TPT reports on independent reviews summarized details with the specific data and requirements documented in backup project records.) Once the results of the potential findings are compiled (Subtask F4), the preparation of the final report is expected to take 14 days rather than the 7 days previously planned.

The TPT project office is certainly aware of PECO's desire to maintain cost and schedule. Every effort to use options such as overtime or increased manpower is being considered. Some extended work days have been utilized already, however with the requirements of personnel independence, engineering capabilities and qualification, and project orientation and training, the utilization of additional personnel is questionable at this late date in the program.

The summary of projected vs. actual manpower graph has been revised to include the additional effort.

An estimate of manhours to accomplish the additional effort is:

	<u>Manhours</u>
Task B - Procedure Implementation (Design Document reviews)	60
Task C - Technical Review	
a) Subtask C5 Independent Analysis for PFR-014	80
b) Civil/Structure Analysis	160
Task E - Potential Findings Review (Based on a new estimate of 30 PFRs)	250
Task F - Administrative & Reporting	260
Total	820

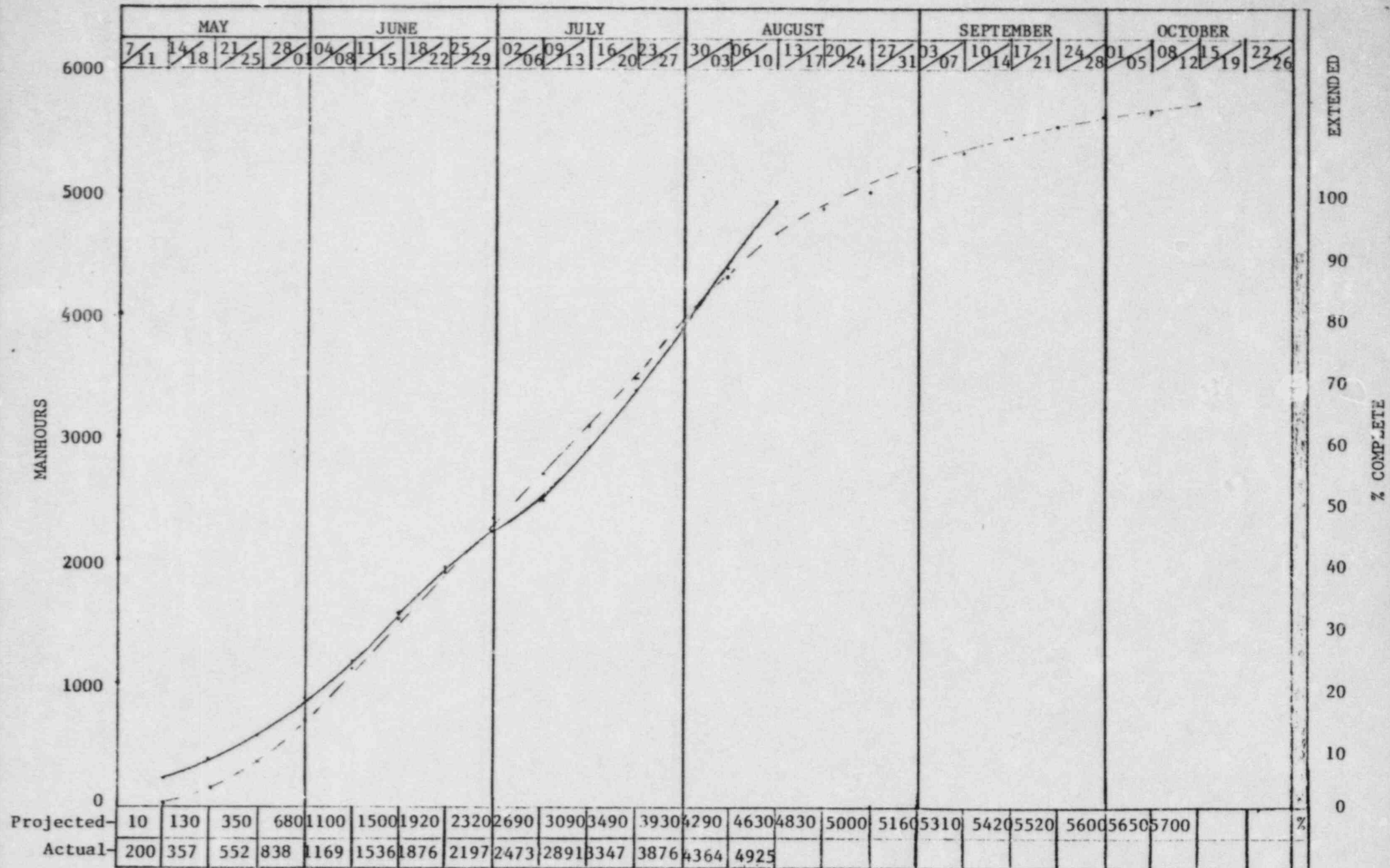
Table I has been updated to reflect the revised milestone completion dates.

August 15, 1984

TABLE I  
CORE SPRAY SYSTEM  
INDEPENDENT DESIGN REVIEW  
TASK/MILESTONE STATUS

Milestone	Subject	Schedule		Actual	Document
		Orig	Revised		
A1	Procedure/Checklist	5/30		5/24	2524-PD-1 & 7
A2	Procedure Structure	6/15		7/08	2524-QA-01, 05, 07, 13
A3	Access Design Procedures	6/15		7/06	NA
A4	Bechtel Review	7/05		7/03	TFT:012:FDC:84
A5	PECo/GE Review	7/05		7/05	2524-QA-01, 05, 07
A6	Time-period Procedures	7/10		7/10	2524-QA-12, 14, 15
A7	Task Summary	7/24		7/27	2524-QA-11
B1	Procedure/Checklist	5/30		5/24	2524-PD-2
B2	Document Selection	6/15	7/27	7/27	
B3	Document Location	7/01	7/27	7/27	
B4	Document Review	7/27	8/10		
B5	Task Summary	8/10	8/17		
C1	Procedure/Criteria	5/30		5/30	2524-PD-3
C2	Design Chain	6/08	7/31	7/31	
C3	Feature Selection	Cont			2524:ENG:02:AS:84
C4	Design Review	8/10	9/7		
C5	Independent Analysis	7/27	8/24		
C6	Task Summary	8/17	9/14		
D1	Walkdown Procedure	5/30		5/31	2524-PD-4
D2	Item Selection	6/04		5/29	2524:ENG:03:AS:84
D3	Complete Walkdown	6/27		6/15	
D4	Task Summary	8/10		6/22	2524:ENG:07:CFD:84
E1	Establish Committee	5/30		5/18	Proj. Directive #3
E2	Define Criteria	5/30		5/25	2524-PD-5
E3	Procedure	5/30		5/30	2524-PD-5
E4	Processing PFRs	cont	9/21		
F1	Management/cost	cont			Project Directive #1
F2	Protocol Procedure	6/01		6/01	2524-PD-6
F3	Status Report #1	6/1		5/31	TPT:005:FDC:84
	Status Report #2	6/15		6/15	TPT:012:FDC:84
	Status Report #3	7/1		7/2	TPT:018:FDC:84
	Status Report #4	7/15		7/16	TPT:023:FDC:84
	Status Report #5	8/1		8/1	TPT:029:FDC:84
	Status Report #6	8/15		8/15	TPT:034:FDC:84
F4	Information Compilation	8/15	9/21		
F5	Final Report Draft	8/24	10/5		
F6	Final Report-Issue	8/31	10/12		

PECo INDEPENDENT DESIGN REVIEW PROJECT 2524



cc: Judge Lawrence Brenner	(w/enclosure)
Judge Peter A. Morris	(w/enclosure)
Judge Richard F. Cole	(w/enclosure)
Troy B. Conner, Jr., Esq.	(w/enclosure)
Ann P. Hodgdon, Esq.	(w/enclosure)
Mr. Frank R. Romano	(w/enclosure)
Mr. Robert L. Anthony	(w/enclosure)
Maureen Mulligan	(w/enclosure)
Charles W. Elliott, Esq.	(w/enclosure)
Zori G. Ferkin, Esq.	(w/enclosure)
Mr. Thomas Gerusky	(w/enclosure)
Director, Penna. Emergency Management Agency	(w/enclosure)
Angus Love, Esq.	(w/enclosure)
David Wersan, Esq.	(w/enclosure)
Robert J. Sugarman, Esq.	(w/enclosure)
Martha W. Bush, Esq.	(w/enclosure)
Spence W. Perry, Esq.	(w/enclosure)
Jay M. Gutierrez, Esq.	(w/enclosure)
Atomic Safety & Licensing Appeal Board	(w/enclosure)
Atomic Safety & Licensing Board Panel	(w/enclosure)
Docket & Service Section	(w/enclosure - 3 copies))
James Wiggins	(w/enclosure)
Timothy R. S. Campbell	(w/enclosure)