

INDEPENDENT QUALITY ASSURANCE EVALUATION  
OF PALO VERDE NUCLEAR GENERATING  
STATIONS UNITS 1, 2 AND 3

BI-WEEKLY STATUS REPORT #5  
for the  
Period Ending September 10, 1982

TASK A - EVALUATION OF PROJECT MANAGEMENT ORGANIZATION

This task is complete.

Two Potential Finding Reports (PFRs) were initiated on this task.

TASK B - MANAGEMENT POLICIES TOWARD QUALITY ASSURANCE

Work on this task is complete except for Subtask B8 (APS Management Dedication and Commitment to the Independent Evaluation). Questionnaires are being collected from all project personnel to provide input for Subtask B8.

Three PFRs were initiated on this task.

TASK C - QUALITY ASSURANCE ACTIVITIES

Work on this task is complete except for issuance of the Task Summary Report.

Two PFRs were initiated on Subtask C3 (APS Audit Program) and twelve on Subtask C5 (APS Inspection Program).

TASK D - DESIGN VERIFICATION REVIEW

Work on Subtask D1 (Procedure Review) is complete.

Four PFRs were initiated on this subtask.

Subtask D2 (Design Procedure Implementation Review) is complete except for the Subtask Summary Report, and the Core Protection Calculator QA Review.

A total of 14 PFRs were initiated on Subtask D2.



Subtask D3: Technical review of selected PVNGS features is approximately 95% complete. The review status of each feature is summarized in Table 1. Nineteen (19) PFRs were initiated on this Subtask.

The Core Protection Calculator technical review was initiated on August 31, at the C-E offices in Windsor, Connecticut.

An independent seismic analysis of the condensate storage tank was initiated and is about 35% complete

#### TASK R - CONSTRUCTION VERIFICATION REVIEW

Subtask E1 (Field Change Design Control): Work is complete. One PFR was initiated on this subtask.

Subtask E2 (As-Built Drawing Control): The implementation evaluation at Downey was completed and additional checks need to be made at the site. Two PFRs have been initiated on this subtask.

Subtask E3 (Physical Verification): Fifty-three of 54 walkdown packages were completed. The number of walkdown packages was reduced from 64 (as previously reported) to 54 by consolidating the mechanical walkdown packages. One PFR has been initiated.

Coverage of the walkdown continued with one QA Engineer and eight engineers assigned full-time to the site.

#### TASK F - PROCESSING OF FINDINGS

As of September 10, 60 Potential Finding Report (PFR) numbers had been issued. Table 2 lists their status as of September 10, 1982.

#### COST AND SCHEDULE

All the program milestones scheduled for completion by September 10, are complete.

Pertinent manpower applied to the project is shown in Figure 1, in which the planned manhours curve has been adjusted relative to the last report to reflect the additional effort for the independent seismic analysis of the condensate storage tank. Actual spending has not kept up with the plan largely due to the late start of the Core Protection Calculation (CPC) review.



TABLE 1  
STATUS OF FEATURE REVIEW

Containment Spray Pump: Technical review and the draft Review Evaluation Report (RER) RER-2426-022 are complete. One Potential Finding report (PFR) has been issued: PFR-2426-050.

Containment Spray Pump Motor: The technical review and the draft RER draft are complete. No PFR was generated.

Shutdown Cooling Heat Exchanger: The certificates of validation of computer codes used in performing the analysis have been received and reviewed. The technical review and the draft RER-2427-007 are complete. No PFR was issued on this feature.

Condensate Storage Tank: The technical review and draft RER-2426-006 are complete. Five (5) PFRs have been issued. BPC has responded to three PFRs, PFR-2426-021, -039 and -040. The other two PFRs issued are PFR 2426-028 and -038.

As a result of the PFR-2426-021 which identified a deficiency in the seismic analysis, subsequently agreed to by the original design organization, an independent seismic analysis has been initiated on the Condensate Storage Tank.

Auxiliary Feedwater Pump: The technical review and draft RER-2426-023 have been completed. No PFR was generated.

Auxiliary Feedwater Pump Motor: The technical review and the draft RER-2426-002 are complete. One PFR has been initiated. PFR-2426-052.

Safety Injection and Shutdown Cooling System Piping: The technical review and the drafts of RER-2426-011 and -012 are complete. Impact assessments of two PFRs (2426-017 and -018) are in progress.

Safety Injection and Shutdown Cooling System Pipe Supports: Six pipe support designs have been reviewed and found structurally adequate. The draft RER-2426-009 is complete.

Auxiliary Feedwater System Piping: The technical review has been completed. PFR-2426-051 concerning the containment penetration U76 has been issued. An additional PFR-2426-058 regarding the downcomer has been initiated.

Auxiliary Feedwater System Pipe Supports: Four support designs have been reviewed and the draft RER-2426-010 is complete. No PFR was issued.

Safety Injection and Shutdown Cooling System Valves: The technical review and the draft RER-2426-014 is complete. No PFR was issued.



Table 1 (Continued)  
STATUS OF FEATURE REVIEW

Auxiliary Feedwater System Valves: The technical review and draft RER-2426-013 is complete.

Auxiliary Feedwater System Function: The technical review and draft RER-2426-024 is complete. No PFR was issued.

Motor Operated Valve Motors: The technical review and draft RER-2426-005 is complete. No PFR was issued.

Motor Control Center (480V): The technical review and draft RER-2426-04 is complete. One PFR has been issued, PFR-2426-048.

Switchgear (4160V): The technical review has been completed and when qualified in accordance with requirements, appears adequate. The draft RER-2426-003 is complete. No PFR was issued.

Instrumentation and Controls: Additional documents needed to complete review have been received and are being reviewed. Two PFRs have been initiated, PFR-2426-055, and -059.

Cable Tray Supports: The technical review of tray supports between a) the containment spray pump and switchgear and b) the auxiliary feedwater flow transmitter and the control room have been completed. Two PFRs have been initiated, PFRs 2426-045 and 2426-046. Preparation of the draft RER-2426-008 is underway.

Pressurizer: The review status of the pressurizer is:

- a) for the surge nozzle, the detailed review and input to the RER-2426-026 are complete.
- b) for the safety valve nozzle, the review has been completed and preparation of RER-2426-025 is underway. One PFR has been initiated, PFR-2426-057.
- c) for the pressurizer support skirt, the review is nearly complete. One PFR has been initiated, PFR-2426-047. Preparation of RER-2426-027 is underway.

Equipment Supports: The equipment supports include a) shutdown cooling heat exchanger support, b) pressurizer support, c) containment spray pump support, and d) auxiliary feedwater pump support. The status of the review is:

- a) the review and draft RER-2426-019 of the shutdown cooling heat exchanger support has been completed.





TABLE 1 (Continued)  
STATUS OF FEATURE REVIEW

- b) for the pressurizer support, the review and the draft RER-2426-018 are complete.
- c) for the containment spray pump support, the review has been completed. Draft RER- 2426-021 is complete. One PFR was issued, PFR 2426-044.
- d) the review and the draft RER-2426-020 for the auxiliary feedwater pump support are complete.

Containment Building Penetrations: The technical review has been completed. RER preparation is underway.

Core Protection Calculator: With agreement reached between TPT and C-E regarding protection of C-E's proprietary and commercial secrets associated with the CPC, technical review was initiated at C-E, Windsor on August 31, 1982. The technical review procedure was revised to reflect the status of the CPC design documentation and the fact that the review is being conducted at C-E's offices at Windsor.



TABLE 2

STATUS OF  
POTENTIAL FINDING REPORTS (PFR)  
AS OF SEPTEMBER 10, 1982

NUMBER	SUBJECT	DATE	COMMENTS
2426:PFR:001	Control of Design Criteria - Licensing	7/20	APS/Returned, Agreed 8/30
2426:PFR:002	Significant Corrective Action Report	7/26	Declared invalid in Internal Review
2426:PFR:003	Design as As-Built Conformance Checklist	7/26	FRC* Ruled Invalid 9/10
2426:PFR:004	Non-existent Design Verification Pro- cedures Referenced	7/26	BPC/Returned, Disagreed, 9/10
2426:PFR:005	Dwg CN Incorporation Time Limit Exceeded	7/26	Returned from BPC on 8/23. Disagreed. FRC Ruled Invalid, 9/7
2426:PFR:006	SDDR Disposition Variance	7/26	Rec'd from BPC on 8/19. Disagreed. In Review. FRC ruled Valid, 9/7
2426:PFR:007	APS QA Staffing	7/26	Rec'd from APS on 19. Agreed. FRC Ruled Valid, 9/7
2426:PFR:008	Salary Ranges of APS/QA Dept.	7/26	Revised due to APS response. Issue B sent to APS on 8/15
2426:PFR:009	Condensate Storage Tank (CTE-T01; SS Liner)	7/27	APS/Returned, Disagreed, 9/2

\*Finding Review Committee



TABLE 2

STATUS OF  
POTENTIAL FINDING REPORTS (PFR)  
AS OF SEPTEMBER 10, 1982

NUMBER	SUBJECT	DATE	COMMENTS
2426:PFR:010	Shutdown HE, PO 9061519, Tag No. IM-SIB-E01	7/27	APS/Returned, Disagreed, 9/2
2426:PFR:011	Aux. Feedwater Transmitter - Incorrect Dwg. Rev. Flow Transmitter 01-J-AFB-FT41B	7/27	APS/Returned, Agreed, 9/2
2426:PFR:012	Aux. Feedwater Flow Transmitter - 01-J-AFB-FT 41B No. CIP	7/27	APS/Returned, Agreed, 9/1 FRC Ruled Valid, 9/10
2426:PFR:013	COMP - Press. Transmitter 1-J8CD-PT352D 1-J8CD-PT351D, CIP Dated 4/29/82	7/27	APS//Returned, Agreed, 9/2. FRC Requested Rev. 9/10
2426:PFR:014	Flow Transmitter 1-J-AFB-FT41B (unqualified inspector)	7/27	APS/Returned, Agreed 9/1. FRC Ruled valid, 9/10.
2426:PFR:015	Flow Transmitter 1-J-AFB-FT41B (Welding)	7/27	Sent to APS on 8/11
2426:PFR:016	Aux. Feedwater System Valve 01J-AFB-BHV-031	7/27	Rec'd from BPC on 8/23. Agreed. Impact Assessment prepared on 8/24. FRC Ruled Valid, 9/10
2426:PFR:017	Small Bore Piping BPC Piping Anal. Calc S1516D	7/28	Returned from BPC on 8/16. Agreed.
2426:PFR:018	BPC Design Spec 13-PM-102 Comments	7/28	Returned from BPC on 8/16. Disagreed. In Review.



TABLE 2  
STATUS OF  
POTENTIAL FINDINGS REPORTS (PFR)  
AS OF SEPTEMBER 10, 1982

NUMBER	SUBJECT	DATE	COMMENTS
2426:PFR:019	Calculations not Marked Prel. Per Procedure	7/29	Returned from BPC on 8/16. Disagreed PFR Ruled Invalid by FRC 9/7.
2426:PFR:020	Calculations not Initialed by Grp Leader per Procedure	7/29	Combined with PFR:019 on internal review
2426:PFR:021	Condensate Storage Tank Calc 13-CC-CT-015	7/29	Sent from BPC on 8/18. Agreed.
2426:PFR:022	Orig. Calcs not in File	7/30	Combined with PFR:019 on internal review
2426:PFR:023	Transfer of System and Component from Construction and Operation	8/4	In Preparation
2426:PFR:024	Audit Reports not signed by Audit Team	8/5	APS/Returned, Agreed. 9/9.
2426:PFR:025	Pressure Relays - Bolts torqued to to incorrect value	8/5	APS/Returned, Agreed. FRC Ruled valid 9/9.
2426:PFR:026	Flow and Pressure Transmitters	8/5	APS/Returned, Agreed. 9/10.
2426:PFR:027	Instrumentation	8/5	APS/Returned, Disagreed 9/1. FRC ruled Valid 9/10





TABLE 2  
STATUS OF  
POTENTIAL FINDING REPORTS (PFR)  
AS OF SEPTEMBER 10, 1982

NUMBER	SUBJECT	DATE	COMMENTS
2426:PFR:028	Condensate Storage Tank 13-CC-CT-015	8/5	Returned from BPC on 8/23. Agreed. In review. (Independent Calculations)
2426:PFR:029	Deficient QA Program in Bechtel Supplier Unistrut	8/6	Returned from BPC on 8/20. Disagreed. FRC Found Invalid 9/7.
2426:PFR:030	Review of Audit Performed did not have signature of Audit Team Leader	8/9	APS/ Returned, Disagreed, 9/2 FRC on 9/9.
2426:PFR:031	Discrepancies between Calc Title Sheets on CEBUS Log	8/10	Returned from BPC on 8/23. Agreed. FRC requested revision, 8/30.
2426:PFR:032	Outstanding (Unincorporated) DCN's Against Drawings.	8/10	Returned from BPC on 8/23. Disagreed. To FRC on 8/25
2426:PFR:033	PSAR & APSQAN Disagreement and review & Approval Policy	8/10	APS/Returned, Disagreed, 9/2 FRC Found Invalid, 9/10
2426:PFR:034	Review & Approval of Bechtel Purchase Order/Spec.	8/11	APS/Returned, Agreed 9/10
2426:PFR:035	Engineering Responses SDDR	8/11	Sent to BPC on 8/17



TABLE 2

STATUS OF  
POTENTIAL FINDING REPORTS (PFR)  
AS OF SEPTEMBER 10, 1982

NUMBER	SUBJECT	DATE	COMMENTS
2426-PFR-036	SDDR Disposition Clarity	8/11	Combined with # 35 on Internal Review
2426-PFR-037	Minor Discrepancy on Termination Records	8/13	Sent to APS on 8/24
2426-PFR-038	Condensate Storage Tank 13-CC-CT-015	8/17	Sent to BPC on 8/23
2426-PFR-039	Condensate Storage Tank 13-CC-CT-015	8/17	Sent to BPC on 8/23
2426-PFR-040	Condensate Storage Tank 13-CC-CT-015	8/17	Sent to BPC on 8/23
2426-PFR-041	Required Assumptions & References missing from Calcs.	8/19	C-E/Returned, Disagreed, 9/9.
2426-PFR-042	ASME B&PG Code 3 Required missed from Project Spec. for Safety Related Comp.	8/19	Sent to C-E 9/1
2426-PFR-043	Technical Change of Safety System Comp. without spec. for drawing revisions	8/19	Sent to C-E 9/3.
2426-PFR-044	Containment Spray Pump Calc # 13-CC-ZA-130	8/19	BPC/Returned, Agreed, 9/10.
2426-PFR-045	Cable Tray Supports/No Calcs.	8/20	BPC/Returned, Disagreed, 9/9
2426-PFR-046	Cable Tray Supports - Method & Overstressed EZJ-2B-H1110/EZJ-2B-H119	8/20	BPC/Returned, Disagreed, 9/9
2426-PFR-047	Pressurizer Core Support Buckle Mode of Failure	8/23	Sent to C-E 9/2
2426-PFR-048	480V Motor Control Center	8/24	Sent to BPC 9/2



TABLE 2  
STATUS OF  
POTENTIAL FINDING REPORTS (PFR)  
AS OF SEPTEMBER 10, 1982

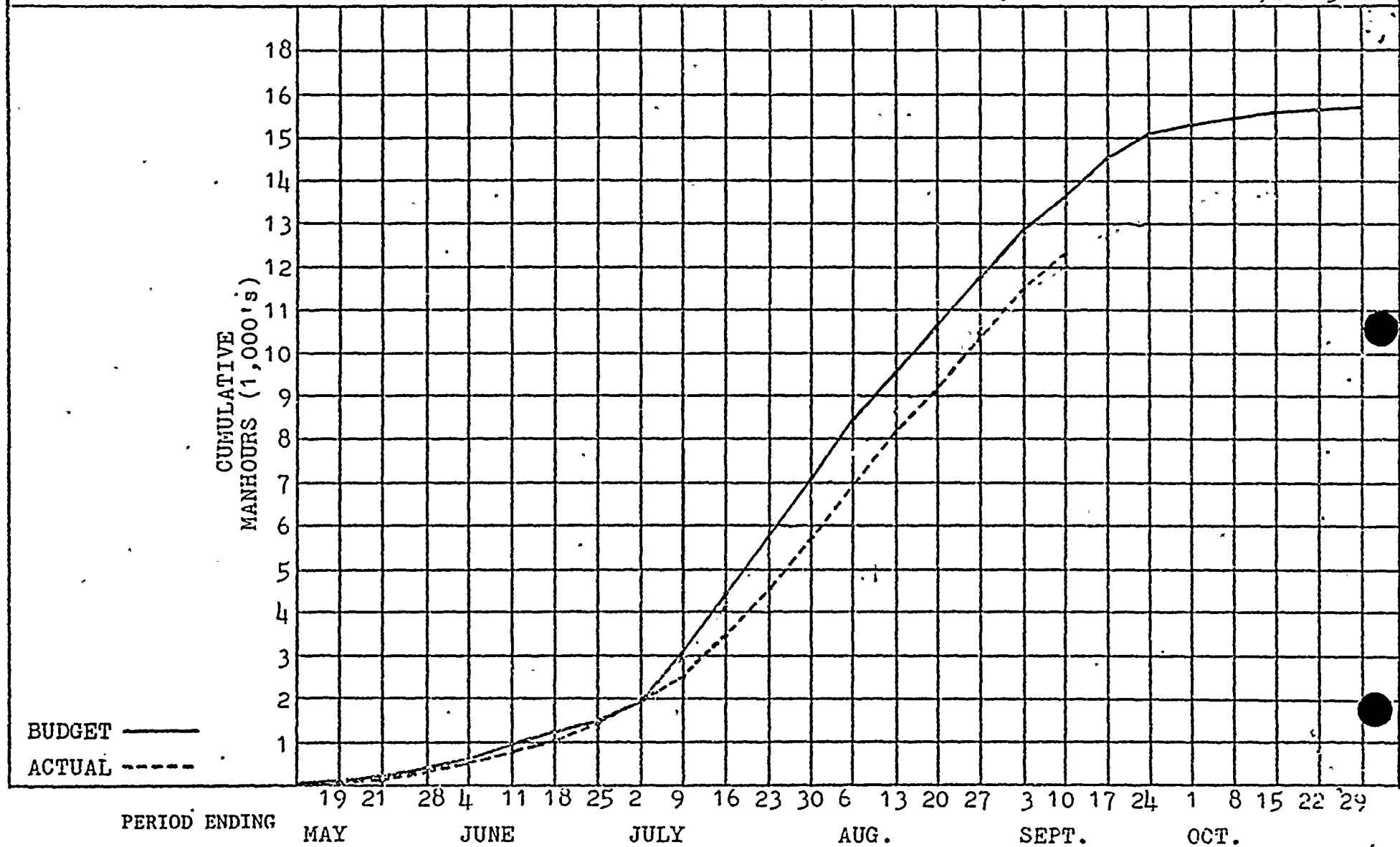
NUMBER	SUBJECT	DATE	COMMENTS
2426-PFR-049	Task EIC - Field Design Change Control	8/24	BPC/Returned, Disagreed, 9/10
2426-PFR-050	Containment Spray Pump	8/25	Sent to C-E 9/2
2426-PFR-051	Mech. Penetration 76' of Aux. F/W Sys.	8/26	In Preparation
2426-PFR-052	Aux. Feedwater Pump Motor M-AFB-P01	8/26	Sent to BPC on 9/2
2426-PFR-053	Mistag of Number	8/31	Sent to APS 9/7
2426-PFR-054	E2C As-Built Log	9/7	In Preparation
2426-PFR-055	Generic PFR No. "Dust" Specified in Instrumentation Spec.	9/7	In Preparation
2426-PFR-056	Technical Change of Safety Comp w/o Spec. for Drawing	9/8	In Preparation
2426-PFR-057	PVNGS Pressurizer Safety Valve Nozzle Inconsistent Nozzle Loads	9/8	In Preparation
2426-PFR-058	Downcomer and Aux. F/W Line	9/9	In Preparation
2426-PFR-059	Aux. Feed Pump Outlet Pressure	9/10	In Preparation
2426-PFR-060	E2C As-Built Log	9/10	In Preparation



FIGURE 1

MANHOUR STATUS AS OF: 9/10/82

PROJECT: INDEPENDENT QA EVAL. OF PVNGS 1, 2 &amp; 3



A. PLANNED (100)	.7	2.0	4.1	6.2	9.7	12.2	14.9	19.4	30.4	43.7	57.1	70.8	83.5	95.7	106.0	118.0	128.2	136.1	145.3	150.4	153.2	154.9	156.1	156.8	157.2
B. ACTUAL (100)	.2	1.3	3.3	5.4	7.8	10.1	14.5	19.3	24.9	34.8	45.4	57.3	68.3	81.0	90.3	103.8	111.6	122.7							
C. VARIANCE (100)	.5	.7	.8	.8	2.7	2.1	.4	.1	5.5	8.9	11.7	13.5	15.2	14.7	15.7	14.2	13.5	13.4							

