

ORGANIZATION: COMBUSTION ENGINEERING  
POWER SYSTEMS GROUP  
WINDSOR, CONNECTICUT

REPORT NO.: 99900401/85-01	INSPECTION DATE(S): 2/25-3/1/85	INSPECTION ON-SITE HOURS: 62
CORRESPONDENCE ADDRESS: Combustion Engineering, Inc. Power Systems Group ATTN: Mr. C. W. Hoffman, Director Quality Assurance 1000 Prospect Hill Road Windsor, Connecticut 06095 ORGANIZATIONAL CONTACT: Mr. P. D. Ford, Supervisor, Group QA TELEPHONE NUMBER: (203) 285-9210		
PRINCIPAL PRODUCT: Nuclear Steam Supply Systems.  NUCLEAR INDUSTRY ACTIVITY: The Power Systems Group, Combustion Engineering (CE), had contracts for 16 domestic reactor units to date, of which five (5) are in the design and construction phase. In addition, they have modification/repair/service contracts for 16 reactor units.		
ASSIGNED INSPECTOR: <u>R. P. McIntyre</u> <u>6/26/85</u> R. P. McIntyre, Special Projects Inspection Section (SPIS) Date  OTHER INSPECTOR(S): W. Shier, BNL  APPROVED BY: <u>RP. McIntyre</u> <u>6/26/85</u> for John W. Craig, Chief, SPIS, Vendor Program Branch Date		
INSPECTION BASES AND SCOPE:  A. <u>BASES</u> : 10 CFR Part 50, Appendix B and Topical Report CENPD-210-A.  B. <u>SCOPE</u> : The purpose of this inspection was to obtain and review selected Field Action Requests (FAR), Corrective Action Reports, and Availability Data Program Infobulletins for followup at CE designed plants.		
PLANT SITE APPLICABILITY: Multiple plant applicability including Palo Verde (50-528, 529, and 530).		

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A. VIOLATIONS:

None.

B. NONCONFORMANCES:

None.

C. UNRESOLVED ITEMS:

None.

D. STATUS OF PREVIOUS INSPECTION FINDINGS:

1. (Open) Nonconformance (84-02): No internal audits have been performed on the error reports pertaining to the CESEC computer code.

Not inspected during this inspection.

2. (Open) Nonconformance (84-03): Computer code FATES3A verification analysis (0000-TH-186) was found to have insufficient information concerning the test problems to evaluate the intent or adequacy of the verification runs.

Not inspected during this inspection.

3. (Open) Nonconformance (84-03): No verification calculations were available for the STRIKIN II computer code.

Not inspected during this inspection.

4. (Open) Nonconformance (84-03): The verification calculations performed for the CELDA and HCROSS computer codes were not independently reviewed.

Not inspected during this inspection.

5. (Open) Nonconformance (84-03): A modification implemented in the 78226 version of the CELDA computer code was not tested and verified.

Not inspected during this inspection.

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E. OTHER FINDINGS OR COMMENTS:

During this inspection, the Combustion Engineering (CE) Corrective Action Program, the Availability Data Program, and the Field Action Request system were surveyed to identify significant safety-related occurrences and concerns affecting CE operating plants and CE plants currently under construction. In addition, procedure API-17, for identification, evaluation, and disposition of potential safety hazards as required by 10 CFR Part 21, was reviewed.

1. Corrective Action Program (CAP) - This program monitors the performance of operating reactors to identify safety concerns with systems and components supplied by CE. Sources of information for the CAP include Licensee Event Reports (LERs), CE Field Action Requests (FARs), and utility feedback through the Availability Data Program. The CAP provides quarterly reports to CE Management as a mechanism for identifying safety-related problems before they occur and for initiating resolutions of identified safety concerns when necessary.
2. Availability Data Program (ADP) - This is a reporting system for performance and reliability concerns for both operating plants and plants under construction incorporating CE Nuclear Steam Supply Systems. Through this program CE receives feedback information on equipment problems which might affect the performance of systems at a nuclear power plant. The program provides an advisory service to utilities that have purchased CE nuclear plant equipment.

Input information for the program is obtained from Licensee Event Reports (LERs) and various other reports related to plant operations such as, monthly operating reports, plant outage reports, and maintenance reports. CE requests the utilities to return this information to assist CE in developing availability design improvements for operating as well as future plants. The ADP issues quarterly reports to Utility Management summarizing recent problems and occurrences. CE also issues a more detailed Availability Data Program Infobulletin to utilities who purchase CE nuclear plant equipment. Infobulletins discuss technical developments related to the application or operation of nuclear plant equipment supplied by CE. Acknowledgement of receipt of the ADP Infobulletin by the utilities is requested by CE. Followup action on these items is then considered to be the responsibility of the utilities.

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3. Field Action Requests (FARs) - This system was established by CE for nuclear plants under construction to coordinate required field changes between CE Windsor Engineering personnel and CE staff at the construction site. FARs may be generated at Windsor or at the site. In addition, concurrence for FAR closure is required by both Windsor and the construction site personnel.

This system provides a mechanism for tracking design changes, equipment malfunctions, and procedure modifications that are identified during construction. FARs associated with safety-related equipment at the Palo Verde project were chosen as representative examples for review during this inspection.

4. API-17 - Reporting of Safety Hazards - This CE administrative manual describes the procedures to be followed for reporting and evaluating potential substantial safety hazards to conform with the requirements of 10 CFR Part 21. The system includes a four part report that includes: (1) a description of the potential safety hazard by the originator, (2) an evaluation by the immediate manager, (3) an evaluation by the applicable department director, and if both evaluators concur that a substantial safety hazard might result, then (4) the Substantial Safety Hazard Report is forwarded to the Nuclear Power Systems Nuclear Safety Committee for further evaluation. If their evaluation also concludes that a substantial safety hazard exists, then the NRC is notified in accordance with 10 CFR Part 21.

It was noted during this inspection that API-17 provides for traceability of the disposition of the potential safety hazard report at each stage except the first (i.e., from the originator to the immediate manager). The report does not enter a formal log until a transmittal is made between the manager and the department director.

5. Summary - During this inspection selected issues in Corrective Action Program Quarterly Reports, Availability Data Program Infobulletins, Field Action Requests for the Palo Verde Project, and API-17 Reports were reviewed. The information reviewed will be utilized during future NRC inspections of vendor/utility information interface to review utility receipt, evaluation and implementation of action, if

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any, as determined by the utility to be appropriate. CE provided the NRC inspector with copies of Availability Data Program Infobulletins for 1982, 1983, and 1984 (43 total).



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EXIT MEETING:

[illegible]

PERSONS CONTACTED

Company COMBUSTION ENGINEERING

Dates 2/25-3/1/85

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Inspector R M C TAYRE

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NAME(Please Print)

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# DOCUMENTS EXAMINED

INSPECTOR: Bill Shier

SCOPE: Combustion ENGINEERING

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ITEM NO.	*TYPE OF DOCUMENT	DOCUMENT NO.	REV.	DATE	DOCUMENT TITLE/SUBJECT
1	IR		-	Feb 1985	Corrective Actions Quarterly Report Oct-Dec 1984 Apr-June 1984
2	INM		-	Sept 1984	Substantial Safety Hazard Report API-17 Target Rock HPSI Header Isolation Valve
3	LER		-	Aug 1984	SAN ONOTAE Nuclear Generating Station -2 - HPSI Isolation Valves
4	INM		-	Aug 1984	SAME AS 2
5	INM		-	Aug 1984	SAME AS 2
6	INM		-	June 1984	TARGET Rock HPSI 2" Globe Valves
7	INM		-	July 1984	Evaluation of SONGS Unit 3 High Pressure Safety Injection System Performance
8	INM		-	July 1983	API 17 Report on Two NVD Valves
9	FILE		-	Dec 1983	Field Action Request File P-T Limits and Tech Spec
10	FILE		-	July 1983	FAR LPSI Pump Failure to Start
11	FILE		-	July 1983	FAR Reactor Temp Switchgear system
12	PROC		2	Jan 1979	Reporting of Safety Hazards API-17
13	IR		-	-	Availability Data Program Quarterly Report Apr-June 1984 Oct-Dec 1984
14	INFO		-	Aug 1984	ADP Infobulletin: Target Rock Two Inch Globe Valve Deterioration + Failure

## \*TYPE OF DOCUMENT

DWG - DRAWING  
SPEC - SPECIFICATION  
PROC - PROCEDURE  
QAM - QA MANUAL  
P.O. - PURCHASE ORDER

INM - INTERNAL MEMO  
LTR - LETTER  
IR - INTERNAL REPORT  
INFO - Infobulletin

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1	PROC	<del>correction actions</del>		7/6/77	Power Systems Group Administration Manual/ Reporting of Safety Hazards API-17
2	RPT			MARCH 1984	CORRECTIVE ACTIONS Program/ Quarterly Report
3	INM			10/17/83	API-17 REPORT Relative TO BONG WARNER HPSI values at PALO VERDE
4	OTH	84-01		3/6/84	AVAILABILITY DATA <sup>(ADB)</sup> PROGRAM info Bulletin/ safety Injection Isolation Valve operability
5	LTR			10/24/84	CE TO NRC/ EXCESSIVE DRIFT OF SETPOINT Potentiometers
6	RPT			2/1/85	PLANT APPARATUS correspondence listing by Letter # FOR YEAR 1984 -
7	OTH			2/2/85	PVNGS FAR MGMT INFO SYSTEM / <sup>Computer Printed</sup> FAR LOGS
8	OTH	FAR		8/17/84	FIELD ACTION REQUEST / FAR 4273-1285 ARIZONA Public Service/ PVNGS-UNIT 1

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OTH - OTHER  
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9	OTH	FAR		5/4/83	FAR 14373-365 / VALVES CH 524 & CH 525 STAINLESS STEEL HEX BOLT FAILURE INTENSION.
10	OTH	FAR		8/4/83	FAR 14273-880 / a b c / REACTOR COOLANT PUMP Internal damage / seal housing leakage
11	OTH	FAR		9/20/83	FAR 14273-890 / cracks of several shroud tubes in vicinity of 4 finger extension guide attach weld and adjacent shroud flow holes.
12	OTH	84-03		3/19/84	ADP info bulletin / Terminal block connectors
13	OTH	83-09		8/23/83	ADP info bulletin / CEA SHROUD TUBE CRACK
14	OTH	84-13		9/21/84	" / STEAM GENERATOR DEFLECTOR PLATE
15	OTH	84-14		12/20/84	ADP info bulletin / Plant Protection System / Plant computer interface.

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ITEM NO.	*TYPE OF DOCUMENT	DOCUMENT NO.	REV.	DATE	DOCUMENT TITLE/SUBJECT
1		82-001		1/13/82	AFW/EFW SYSTEM Operational guidance
2		82-02		3/11/82	Installation of ITT GRINNELL HYDRAULIC SWABBERS
3		82-03		3/19/82	Degraded steam Generator Manway Studs
4		82-04		3/30/82	Malfunctions of Solenoid Valves due to Elastomer Degradation
5		82-05		4/27/82	Safety Injection Tank Nitrogen Supply Values
6		82-06		6/18/82	Potential Thermal Fatigue of Pressurizer Spray Nozzles and Auxiliary Spray Piping
7		82-07		7/14/82	Balancing Drum Settings in Centrifugal Pumps
8		82-08		8/9/82	Thermal Sleeve Performance
9		82-09		10/18/82	Ring Settings for Dresser Safety Valves
10		82-10		10/20/82	Manufacturing defect in electrical fuses.
11		82-11		11/9/82	Target Rock Solenoid Valve Failure during Qualification testing

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12		82-12		11/16/82	Thermal Shield Positioning Pins
13		82-13		11/18/82	Resistance Temperature Detector (RTD) Response time
14		82-14		11/19/82	Valve Operator Malfunction (Limit Torque)
15		82-14 SUPP 1	1	7/19/83	" " " UPDATE
16		82-15		12/13/82	Instrumentation Installation REQUIREMENTS
17		83-01		2/16/83	INADVERTENT Enginereed Safety Features activation
18		83-02		2/16/83	Feedwater Line Fracture
19		83-03		3/2/83	Instrumentation Nozzle WEELDS
20		83-04		4/6/83	Gasket Compressibility Properties
21		83-05		4/20/83	Unqualified Motor Operators
22		83-06		4/28/83	Thermal Shield Support and positioning Components
23		83-07		6/15/83	Reactor Trip Switch GEAR Circuit Breaker
					Maintenance Frequency Verification

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24		83-08		6/23/83	TORQUE VALVES FOR PRESSURIZED AND STEAM GENERATOR BOLTED CLOSURES
25		83-09		8/16/83	CEA SHROUD TUBE CRACKS
26		83-10		8/12/83	POSSIBLE DEFECTIVE UNDERVOLTAGE DEVICES ON WESTINGHOUSE DS-206 REACTOR TRIP SWITCH GEAR
27		83-11		9/30/83	RCP SPEED SENSING SYSTEM
28		83-12		10/10/83	FAILURE OF LIMITATIVE CAST IRON SPRING COMPENSATOR HOUSINGS
29		83-13		11/4/83	UNDERVOLTAGE TRIP DEVICE ARMATURE PICKUP ON REACTOR TRIP SWITCH GEAR
30		83-13 SUPP 1	1	1/27/84	UPDATE REGARDING 83-13 (above)
31		84-01		3/6/84	SAFETY INJECTION ISOLATION VALVE OPERABILITY (HPST)

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32		84-02		3/6/84	LOSS OF CHARGING CAPACITY CAUSED BY VOLUME CONTROL TANK REFERENCE LEG DRYOUT
33		84-03		3/4/84	TERMINAL BLOCK CONNECTOR ERRORS
34		84-04		3/20/84	PRESSURIZER SPRAY NOZZLE AND SPRAY PIPING THERMAL FATIGUE
35		84-05		5/18/84	STEAM GENERATOR EDDY CURRENT INSPECTION TECHNIQUES
36		84-06		6/20/84	REVITALIZATION OF REACTOR TRIP SWITCHGEAR CIRCUIT BREAKER LUBRICATION.
37		84-07		6/29/84	REACTOR COOLANT PUMP IMPELLER DAMAGE
38		84-08		7/17/84	LIMITORQUE MOTOR OPERATED VALVE ACTUATORS TORQUE & LIMIT SWITCHES
39		84-09		7/29/84	EVENTS RESULTING IN STEAM GENERATOR OR FEEDWATER SYSTEM PIPING DAMAGE

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40		84-10		8/16/84	TARGET ROCK TWO INCH GLOBE VALVE DETERIORATION AND FAILURE
41		84-11		9/11/84	DROPPED DUMMY FUEL ASSEMBLY
42		84-12		9/14/84	REACTOR PRESSURE-TEMPERATURE HEATUP LIMITS
43		84-13		9/21/84	STEAM GENERATOR DEFLECTOR PLATE
44		84-14		12/20/84	PLANT PROTECTION SYSTEM / PLANT COMPUTER INTERFACE
45		84-15		12/21/84	CORE PROTECTION CALCULATOR (CPC) SYSTEM COMPUTER PARITY BOARDS

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