



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

December 15, 2000

Mr. C. L. Terry
TXU Electric
Senior Vice President & Principal Nuclear Officer
ATTN: Regulatory Affairs Department
P.O. Box 1002
Glen Rose, Texas 76043

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION INSPECTION
REPORT NO. 50-445/00-10; 50-446/00-10

Dear Mr. Terry:

On November 17, 2000, the NRC completed an inspection of your Comanche Peak Steam Electric Station, Units 1 and 2. The enclosed report documents the inspection findings, which were discussed on November 17, 2000, with Mr. R. Walker and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

No findings of significance were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, and enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Claude E. Johnson, Chief
Engineering and Maintenance Branch
Division of Reactor Safety

Docket Nos.: 50-445; 50-446
License Nos.: NPF-87; NPF-89

TXU Electric

-2-

Enclosure:
NRC Inspection Report No.
50-445/00-10; 50-446/00-10

cc w/enclosure:
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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket Nos.: 50-445; 50-446
License Nos.: NPF-87; NPF-89
Report No.: 50-445/00-10; 50-446/00-10
Licensee: TXU Electric
Facility: Comanche Peak Steam Electric Station, Units 1 and 2
Location: FM-56
Glen Rose, Texas
Dates: October 30 through November 17, 2000
Inspectors: L. E. Ellershaw, Senior Reactor Inspector
Engineering and Maintenance Branch
P. A. Goldberg, Reactor Inspector
Engineering and Maintenance Branch
W. M. McNeill, Reactor Inspector
Engineering and Maintenance Branch
R. P. Mullikin, Senior Reactor Inspector
Engineering and Maintenance Branch
M. S. Peck, Reactor Engineer
Technical Support Staff Branch
R. L. Nease, Senior Reactor Inspector
Engineering and Maintenance Branch
Accompanied By: R. Quirk, Contractor
Approved By: Claude E. Johnson, Chief
Engineering and Maintenance Branch
Division of Reactor Projects

SUMMARY OF FINDINGS

Comanche Peak Steam Electric Station, Units 1 and 2
NRC Inspection Report No. 50-445/00-10; 50-446/00-10

IR 05000445/00-10; 05000446/00-10; on 10/30-11/17/00; TXU Electric; Comanche Peak Steam Electric Station; Inspection of Safety System Design and Performance Capability Report; No Findings were Identified.

The inspection was conducted by six region-based inspectors and one contractor during a 2-week onsite inspection. The report includes the results of a safety system design and performance capability team inspection of the station service water system and the safety-related portions of the chemical and volume control system. No findings were identified.

Inspector Identified Findings

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

- No findings were identified.

Report Details

1. REACTOR SAFETY Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

Introduction

A safety system design and performance capability inspection was performed at Comanche Peak Steam Electric Station to verify that the initial design and subsequent modifications have preserved the design basis of selected systems and related support systems. Additionally, the inspection effort served to monitor the capability of the selected systems to perform the design basis functions. This inspectable area verifies aspects of the initiating events, mitigating systems, and barrier integrity cornerstones.

The probabilistic risk analysis for Comanche Peak Steam Electric Station is based on the capability of the as-built safety systems to perform their intended safety functions successfully. The area and scope of the inspection were predetermined by reviewing the licensee's probabilistic risk analysis to identify the risk-dominant systems, structures, and components, ranked by importance, and their potential contribution to dominant accident sequences and/or initiators. The inspection team reviewed in detail the station service water system and the safety-related portions of the chemical and volume control system. The primary review prompted a parallel review of support and interfacing systems, such as, electrical power, instrument air, component cooling water heat exchangers, and condensate storage tank.

The objective of this inspection was to assess the adequacy of calculations, analyses, other engineering documents, and engineering and operating practices that were used to support the performance of the station service water system and chemical and volume control system and the necessary support systems during normal, abnormal, and accident conditions. The inspection was performed by a team of inspectors that consisted of a team leader, Region IV inspectors, and a contractor. Acceptance criteria utilized by the NRC inspection team included the Comanche Peak Steam Electric Station technical specifications, applicable sections of the Final Safety Analysis Report (FSAR), applicable industry codes, and industry initiatives implemented by the licensee's programs.

1R21 Safety System Design and Performance Capability

.1 System Requirements

a. Inspection Scope

The team reviewed the following attributes for the station service water system and the chemical and volume control system: process medium (water, air, electrical signal), energy sources (electrical and air), control systems, and equipment protection. The team also reviewed calculations, which verified that the net positive suction head available was greater than the net positive suction head required for the centrifugal charging pumps from the volume control tank, boric acid storage tanks, and the refueling water storage tank. The team also evaluated operator actions by review of

normal, abnormal, and emergency operating procedures, and by verification that instrumentation and alarms were available to operators for making necessary decisions. The review also considered requirements and commitments identified in the FSAR, technical specifications, design basis documents, and plant drawings. The purpose of these reviews was to verify that the station service water and chemical and volume control systems' needs were met.

b. Issues and Findings

No findings were identified.

.2 System Condition and Capability

a. Inspection Scope

The team reviewed periodic testing procedures (listed in Attachment 1) and results to verify that the design requirements were demonstrated by the performance of tests. The team also verified the environmental qualification of a sample of system components for operation under design environmental conditions and assumed operating parameters (e.g., voltage, speed, and power).

The team also reviewed each system's operations by conducting system walkdowns, review of normal, abnormal, and emergency operating procedures; and review of the FSAR, technical specifications, and design calculations, drawings, and procedures.

b. Issues and Findings

No findings were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The team reviewed a sample of station service water and chemical and volume control systems' problems identified by the licensee in the corrective action program to evaluate the effectiveness of corrective actions related to design issues. The team also reviewed Procedures STA-421, "Initiation and Processing of SmartForms," Revision 8, and STA-422, "Disposition of SmartForms Identifying Potential Adverse Conditions," Revision 15. The specific corrective action documents that were sampled and reviewed by the team were forms titled ONE Forms and SmartForms, and are listed in the attachment to this report. Inspection Procedure 71152, "Identification and Resolution of Problems," was used as guidance to perform this part of the inspection.

b. Issues and Findings

No findings were identified.

.4 System Walkdowns

a. Inspection Scope

The team performed walkdowns of the station service water and chemical and volume control systems, and portions of the support systems. The walkdowns focused on the installation and configuration of piping, components, and instruments; the placement of protective barriers and systems; the susceptibility to flooding, fire, or other environmental concerns; physical separation; provisions for high energy line break; accessibility for operator action; and the conformance of the currently installed configuration of the systems with the design and licensing bases.

b. Issues and Findings

No findings were identified.

.5 Design Review

a. Inspection Scope

The team reviewed the design to verify that the systems would function as required under accident conditions. The review included design assumptions, calculations, boundary conditions, and models. The team also performed single failure reviews of individual components to determine the potential effects of such failures on the capability of the systems to perform their safety functions. Instrumentation was reviewed to verify its appropriateness for the applications and its setpoints with regard to the function it was required to perform. Additionally, the team performed informal analyses in several areas to verify that design values were correct and appropriate. Documentation reviewed included drawings, procedures, calculations, safety evaluation reports, SmartForms, ONE Forms, and maintenance work orders identified in the attachment, as well as, the technical specifications, the fire protection report, and the FSAR. The purpose of the reviews was to determine whether the design bases of the systems were met by the installed and tested configurations.

b. Issues and Findings

No findings were identified.

.6 Safety System Testing

a. Inspection Scope

The team reviewed the program and procedures for testing and inspecting the safety-related valves and pumps in the station service water and chemical and volume control systems. The reviewed records included flow balancing and startup testing results; pump manufacturer pump curves; pump and valve inservice test records; and heat exchanger cleaning, testing, and performance records.

b. Issues and Findings

No findings were identified.

4 OTHER ACTIVITIES (OA)

4OA6 Management Meetings

Exit Meeting Summary

On November 17, 2000, the team leader presented the inspection results to Mr. R. Walker and other members of licensee management at the conclusion of the onsite inspection. The licensee's management acknowledged the findings presented.

The inspectors asked the licensee's management whether any materials examined during the inspection should be considered proprietary. While the licensee's representatives noted that some proprietary information had been reviewed by the team, no proprietary information is contained in this report.

ATTACHMENT 1

PARTIAL LIST OF PERSONS CONTACTED

Licensee

R. Calder, Executive Assistant
T. Clouser, Chemistry Manager
C. Feist, Design Basis Engineer
R. Flores, System Engineering Manager
T. Hope, Regulatory Compliance Manager
R. Mays, Engineering Programs Manager
J. Meyer, Engineering Analysis Manager
D. Reimer, Technical Support Manager
D. Rencher, Engineering Projects Manager
R. Walker, Regulatory Affairs Manager
D. Walling, Plant Modifications Manager

NRC

A. Gody, Senior Resident Inspector

LIST OF BASELINE INSPECTIONS PERFORMED

71111-21 Safety System Design and Performance Capability

DOCUMENTS REVIEWED

CALCULATIONS

NUMBER	DESCRIPTION	REVISION
16345 MEB-260	Maximum Normal Operating Pressure at Aux Feedwater Valves	1
16345 MEB-088	Station Service Water System Steady State Hydraulic Calculations	4 and 5
16345 MEB-143	Maximum DP for which Auxiliary Feed Water System MOVs Must Be Operable	2
ME-CA-0000-109	Design Basis Review Calculation MOV 2-HV-4396	2
ME-CA-0000-1093	MOV Design Basis Review Calculation	2
0214-251-1-AF-2480-DP	MOV Design Basis Review Calculation 1-HV-2480	1
ME-CA-0000-1086	Fire Safe Shutdown Analysis for CPSES Unit 1 and Common	1

CALCULATIONS

NUMBER	DESCRIPTION	REVISION
SI-CA-0000-662	Safeguards Bldg Unit 1 - Flooding Analysis	4
SI-CA-0000-663	Auxiliary Building Flooding Analysis	1
SI-CA-0000-921	Flooding Shutdown Analysis	3
	Systems Standard Design Criterion Nuclear Steam Supply Systems Electrical Heat Tracing Requirements	1
SI-CA-0000-0742	HELB Mass Flow by Room for Flooding Analysis of Auxiliary Building and E & C Building	2
1-SC-04-01	Component Cooling Water Heat Exchanger-01 Station Service Water Outlet Header Temperature Scaling	5 w/CCN 1
1-SC-04-09	Station Service Water Pump Discharge Pressure 1-P-4522 and 4523 Scaling	8 w/CCN 1
1-SC-04-10	Station Service Water to Auxiliary Building Loops 1-F-4258 and 1-F-4259 Scaling	5 w/CCN 1-3
2-IC-0058	RWST Level Total Loop Uncertainty	0 w/CCN 1- 3
CN-SEE-00-55	VCT Emergency Switch-Over	0
EE-CA-0008-265	6.9kV Class 1E Protective Relay Setting Calculation	4
EE-CA-0008-3332	Unit 1 MOV Starting and Running Voltages in Degraded Conditions	1 w/CCN 1- 11
EE-CA-0008-3335	Unit 2 MOV Starting and Running Voltages in Degraded Conditions	0
EE-VP-U1-1E	Unit 1 Class 1E System Voltage Profile	0 w/CCN 1
FSE/SS-TBX-1872	RWST Minimum Indicated Level	0
IC(B)-017	Condensate Storage Tank Level 1-LB-2478A, B, C, 1-LB-2479D	2 w/CCN 1
IC(B)-029	SSW Supply Header Pressure Low 1-PIS-4250 Setpoint	6
IC(B)-030	SSW Supply Header Pressure Low	6
IC(B)-097	Condensate Storage Tank Level 1-LI-2478A, 1-LI-2479A	0 w/CCN 1-2

CALCULATIONS

NUMBER	DESCRIPTION	REVISION
IC(S)-011	Station Service Water CCW Heat Exchanger Outlet Flow Loop Accuracy Calculation (F-4265 & F-4266)	2
IC-CA-4800-5011	RWST Level Instrument Uncertainties Between Low-Low and Empty Alarm Setpoints	1
ME-(B) 054	Auxiliary Feedwater Pump NPSH	2 w/CCN 1
RXE-TA-CP1/0-041	Unit 1 RWST Water Level Instrument Uncertainties	0
RXE-TA-CP2/0-016	Unit 2RWST Water Level Instrument Uncertainties	2
TBX-095	Process Control Alarm and Operating Signals for RCS, CVCS, SIS, RHRS, WPS, BTRS, and BRS	3/11/80
X-SC-04-03	SSW Traveling Screen 01 Differential Pressure	7 w/CCN 1-4
X-SC-04-05	Safe Shutdown Impoundment Level	8 w/CCN 1-2
16345-ME(B)-329	Charging Pump NPSH During Cold Leg Injection	0
16345-ME(B)-353	To determine the NPSHA of Charging Pumps During Op. Mode, "Gravity Drain From Boric Acid Tanks to Charging Pumps" and Comparison With the NPSHR	1
2-ME-0088	Minimum Water Level in the RWST Necessary to Meet NPSH Requirements of the Centrifugal Charging Pumps	0
2-ME-0122	Head Loss and NPSH for Gravity From the Boric Acid Tanks to the Suction of the Centrifugal Charging Pumps	0
SD/SS-TBX-114	NPSH Requirements for CC Pump - RWST	0
IC(S)-615	Aux. Feedwater Flow Loop Indicator	0
PDC-FSD/CWS-TBX-100C	CVCS - Charging Line Control Valves and NPSH to Cent & PD Charging Pumps	1
ME-CA-0011-3075	Diesel Jacket Water Heat Exchanger Fouling Factor Analysis	1
16345-MEB-403	SSW Flow Reduction Due to Tornado Effects	0
ME-CA-0229-5129	CCW Parameters for Fouling Margin	0

CALCULATIONS

NUMBER	DESCRIPTION	REVISION
RXE-LA-CPX-0-018	Ultimate Heat Sink and Maximum Sump Temperature	3
16345-ME(B)-609	Performance Prediction and Fouling Factor Determination of CCW Cooler	2
ME-CA-0000-3339	Flow of SW into AF System, with Backflow to Idle SW Train	0
16345-ME(B)-035	Station Service Water Operating and Design Temperatures	1
2-ME-0266	Thermal Input to SSI	0
16345-ME(B)-372	Service Water Pump NPSH and Submergence	0
ME-CA-0233-3002	Calculation of Minimum Required Service Water Flow to the Containment Spray Pump Bearing Coolers	0
2-ME-0288	Calculation of Minimum Required Service Water Flow to the Containment Spray Bearing Coolers	0
ME-CA-0229-2188	Component Cooling Water Heat Exchanger Fouling Factor Analysis	6
ME-CA-1101-628	CCW HX Tube Plugging Analysis	0
ME-(B)-391	Service Water Flow to Diesel Generator Jacket Water Heat Exchanger	1

DESIGN CHANGE AUTHORIZATIONS

00293, Revision 0	29767, Revision 5	59030, Revision 1
29350, Revision 1	35976, Revision 2	

DESIGN CHANGES

NUMBER	DESCRIPTION	REVISION
DCN 13167	Revise Traveling Screen DP Instrument Setpoints	0
DCA 7587	Add Centrifugal Charging Pump 1" Vent Line	5/21/80
DCN 9995	2-LCV-0112D Motor Change	1

DESIGN CHANGES

NUMBER	DESCRIPTION	REVISION
MCA-1999-003337-01	Install Switch for Solenoid Valves 1-HV-8220, -8221	0
FDA-1999-003337-01-01	Install a Cycling Switch Solenoid Valves 1-HV-8220, -8221	1
9814	Removal of fire partitions separating boric acid transfer pumps	6, 5

DRAWINGS

NUMBER	DESCRIPTION	REVISION
M1-3000	Environmental Data - Inside Containment, Sheet 1	3
M1-3000	Environmental Data - Inside Containment, Sheets 1A, 14A, & 14B	2
M1-3000	Environmental Data - Outside Containment, Sheets 2, 5, & 10	5
M1-3000	Environmental Data - Outside Containment, Sheets 2A, 3, 6, & 6A	4
M1-3000	Environmental Data - Outside Containment, Sheet 4	6
M1-3000	Environmental Data - Outside Containment, Sheets 6B & 13A	1
M1-3000	Environmental Data - Outside Containment, Sheet 7	8
M1-3000	Environmental Data - Outside Containment, Sheets 8, 9, 11, 12, 13, 14, 14C, & 14D	3
M1-0233	Station Service Water	CP-33
M1-0233	Station Service Water, Sheet A	CP-16
M1-0234	Station Service Water	CP-22
M1-0253	Chemical & Volume Control System	CP-18
M1-0253	Chemical & Volume Control System, Sheet A	CP-9
M1-0254	Chemical & Volume Control System	CP-21
M1-0255	Chemical & Volume Control System	CP-21
M1-0255	Chemical & Volume Control System, Sheet 1	CP-20

DRAWINGS

NUMBER	DESCRIPTION	REVISION
M1-0255	Chemical & Volume Control System, Sheet 2	CP-13
M1-0256	Chemical & Volume Control System	CP-10
M1-0257	Chemical & Volume Control System	CP-24
M1-0257	Chemical & Volume Control System, Sheet A	CP-12
BRHL-SW-1-AB-002	Station Service Water	CP-1
BRHL-SW-1-AB-007	Station Service Water	7
BRHL-SW-1-SI-001	Station Service Water	CP-1
BRP-SW-1-AB-002	Station Service Water, Sheet A	CP-2
BRP-SW-1-AB-007	Station Service Water	CP-3
BRP-SW-1-AB-007A	Station Service Water	CP-2
BRP-SW-1-AB-016	Station Service Water	CP-4
BRP-SW-1-AB-019	Station Service Water	CP-3
BRP-SW-1-SI-001	Station Service Water	CP-2
BRP-SW-1-SI-002	Station Service Water	CP-3
GHH-SW-1-AB-016	Service Water	12
GHH-SW-1-AB-019	Service Water	6
2323-M1-2631	Instrument Locations & Air Piping Service Water Pumphouse at Elevation 796' 0"	CP-1
356-3311	Outline Drawing Concentric Orifice Plates	3
BRP-AF-1-YD-002	CST to Auxiliary Feedwater Piping Isometric	CP-2
BRP-AF-1-YD-003	CST to Auxiliary Feedwater Piping Isometric	CP-1
E1-0001	Plant One Lie Diagram Units 1 and 2	CP-20
E1-0004	6.9kV Auxiliaries One Line Diagram Safeguard Bus	CP-27
E1-0004 Sheet A	6.9kV Aux One Line Diagram Safeguard Bus	CP-20
E1-0007	Safeguard and Auxiliary Buildings Safeguard 480V MCC One Line Diagram	CP-31
E1-0007 Sheet A	Safeguard and Auxiliary Buildings Safeguard 480V MCC One Line Diagram	CP-31

DRAWINGS

NUMBER	DESCRIPTION	REVISION
E1-0007 Sheet B	Safeguard and Auxiliary Buildings Safeguard 480V MCC One Line Diagram	CP-29
E1-0007 Sheet C	Safeguard and Auxiliary Buildings Safeguard 480V MCC One Line Diagram	CP-35
E1-0009	Containment and Diesel Generator Safeguards 480V MCC One Line Diagram	CP-23
E1-0014	Service Water Intake Structure and DG Safeguard 480V MCC One line Diagram	CP-26
E1-0014 Sheet A	Service Water Intake Structure and DG Safeguard 480V MCC One line Diagram	CP-20
E1-0031 Sheet 41	6.9kV Switchgear Bus 1EA1 Station Service Pump 11 Schematic	CP-9
E1-0031 Sheet 43	6.9kV Switchgear Bus 1E21 Station Service Pump 12 Schematic	CP-10
E1-0031 Sheet 53	6.9kV Switchgear Bus 1EA1 Centrifugal Charging Pump 11 Schematic	CP-6
E1-0031 Sheet 55	6.9kV Switchgear Bus 1EA1 Centrifugal Charging Pump 12 Schematic	CP-8
E1-2400 Sheet 32	Protective Device Setting Drawing	CP-2
E1-2400 Sheet 136	Protective Device Setting Drawing	CP-1
E1-2400 Sheet 137	Protective Device Setting Drawing	CP-3
M1-0206 Sheet 2	Auxiliary Feedwater System Yard Layout	CP-15
M1-2253 Sheet 8	Chemical & Volume Control System Channel 459/460 I&C Diagram	CP-6
M1-2253 Sheet 9	Chemical & Volume Control System Channel 8110/8112 I&C Diagram	CP-4
M1-2253 Sheet 10	Chemical & Volume Control System Channel 8141/8142 I&C Diagram	CP-3
M1-2253 Sheet 11	Chemical & Volume Control System Channel 8143 I&C Diagram	CP-2
M1-2253 Sheet 12	Chemical & Volume Control System Channel 8145/8146/8147 I&C Diagram	P-6

DRAWINGS

NUMBER	DESCRIPTION	REVISION
M1-2253 Sheet 13	Chemical & Volume Control System Channel 8149 I&C Diagram	CP-6
M1-2253 Sheet 14	Chemical & Volume Control System Channel 8152/8154 I&C Diagram	CP-7
M1-2253 Sheet 15	Chemical & Volume Control System Channel 8160 I&C Diagram	CP-4
M1-2253 Sheet 16	Chemical & Volume Control System Channel 8351 I&C Diagram	CP-3
M1-2254 Sheet 1	Chemical & Volume Control System Channel 112 I&C Diagram	CP-7
M1-2254 Sheet 2	Chemical & Volume Control System Channel 128/774 I&C Diagram	CP-3
M1-2254 Sheet 3	Chemical & Volume Control System Channel 129 I&C Diagram	CP-5
M1-2254 Sheet 4	Chemical & Volume Control System Channel 130/131/132/5385 I&C Diagram	CP-7
M1-2254 Sheet 5	Chemical & Volume Control System Channel 132/136 I&C Diagram	CP-6
M1-2254 Sheet 6	Chemical & Volume Control System Channel 381B/406 I&C Diagram	CP-4
M1-2254 Sheet 6A	Chemical & Volume Control System Channel 5382/5384/5386/MEBS I&C Diagram	CP-4
M1-2254 Sheet 7	Chemical & Volume Control System Channel 8245 I&C Diagram	CP-3
M1-2255 Sheet 1	Chemical & Volume Control System Channel 5386/5388/APCH1, APCH2 I&C Diagram	CP-11
M1-2255 Sheet 1A	Chemical & Volume Control System Channel APCH1LP/APCH2LP I&C Diagram	CP-2
M1-2255 Sheet 2	Chemical & Volume Control System Channel APPD I&C Diagram	CP-6
M1-2255 Sheet 3	Chemical & Volume Control System Channel 110 I&C Diagram	CP-9

DRAWINGS

NUMBER	DESCRIPTION	REVISION
M1-2255 Sheet 4	Chemical & Volume Control System Channel 110, 111 I&C Diagram	CP-6
M1-2255 Sheet 6	Chemical & Volume Control System Channel 111 I&C Diagram	CP-5
M1-2255 Sheet 7	Chemical & Volume Control System Channel 112, 8220, 8221 I&C Diagram	CP-8
M1-2255 Sheet 7A	Chemical & Volume Control System Channel 112 I&C Diagram	CP-5
M1-2255 Sheet 8	Chemical & Volume Control System Channel 112 I&C Diagram	CP-4
M1-2255 Sheet 12	Chemical & Volume Control System Channel 121 I&C Diagram	CP-6
M1-2255 Sheet 16	Chemical & Volume Control System Channel 112, 185/188 I&C Diagram	CP-5
M1-2255 Sheet 18	Chemical & Volume Control System Channel 8105, 8106 I&C Diagram	CP-4
M1-2255 Sheet 18A	Chemical & Volume Control System Channel 8104 I&C Diagram	CP-3
M1-2255 Sheet 19	Chemical & Volume Control System Channel 8109/8111/8155/8156 I&C Diagram	CP-5
M1-2255 Sheet 21	Chemical & Volume Control System Channel 8511 I&C Diagram	CP-5
M1-2257 Sheet 1	Chemical & Volume Control System Channel APBA1, APBA2 I&C Diagram	CP-7
M1-232 Sheet A	Containment Spray System Flow Diagram	CP-19
M1-233	Station Service Water System Flow Diagram	CP-33
M1-261	Safety Injection Flow Diagram	CP-20
M1-261 Sheet A	Safety Injection Flow Diagram	CP-13
M1-3000 Sheet 5	Environmental Data Outside Containment	CP-5
AI-0413	Room/Area Designations, Unit No. 1 & 2, Room/Area Building & Elevation Matrix	CP-9
MI-1701	Unit 1 and 2, Thermo-Lag Typical Detail, Sheets B and 4	CP-3

DRAWINGS

NUMBER	DESCRIPTION	REVISION
MI-1927	Fire Hazard Analysis Auxiliary/Electrical Control Building, Elev. 778'0" & 790'6"	CP-1
FHA-14	Fire Hazard Analysis Auxiliary/Electrical Control Building, Elev. 778'0"/790'6"	CP-1

ENGINEERING REPORTS

NUMBER	DESCRIPTION	REVISION
ER-PE-ME-050	Pipe Rupture Zone of Influence Sketches	0
EME 2.24-10	System Interaction Program - Interaction Evaluations	1

MISCELLANEOUS DOCUMENTS

NUMBER	DESCRIPTION	REVISION
FSAR 6.3.2.2.5	Centrifugal Charging Pumps	
FSAR Section 9.3.4	Chemical and Volume Control System (Including Boron Recycle System)	
MEQSP-WEC-001	Mechanical Equipment Qualification Summary Package - Harsh Environment, "NSSS Active Mechanical Equipment Pumps and Valves"	0
Licensee Letter SWTU-13,221	Radiation Environment for Mechanical Qualification Comanche Peak Steam Electric Station - Unit 1	
VMTR-001-892-001	Hayward Tyler Vendor Manual	
	Technical Requirements Manual	35
	Maintenance Rule Data Base	
IN 2000-08	Inadequate Assessment of the Effect of Differential Temperatures on Safety-Related Pumps	May 15, 2000
CP-0001-024	Vendor Manual - Centrifugal Charging Pumps and Motors	34
CP-0001-032	Vendor Manual Safety Injection Pumps and Motors	13
CP-0012-001	Vendor Manual Containment Spray Pumps	January 20, 1900

MISCELLANEOUS DOCUMENTS

NUMBER	DESCRIPTION	REVISION
CP-0010-001	Vendor Manual Service Water Pumps	7
Letter CVT 0561	Component Cooling Water Heat Exchanger Supplementary Performance Data	April 20, 1987
ICI-4652A	Volume Control Tank Level Channel 0185 Calibration	3
INC-7880A	Refueling Water Storage Tank Analog Channel Operational Test and Channel Calibration Channel 0932	5 w/PCN-8
INC-7855B	Containment Pressure Analog Channel Operational Test and Channel Calibration Channel 0932	2 w/PCN 7
INC-7723A	Pressurizer Pressure Analog Channel Operational Test and Channel Calibration Channel 0455	5 w/PCN 5
INC-7293B	Steam Pressure Analog Channel Operational Test and Channel Calibration Channel 0514	2 w/PCN 4
2323-MS-62	Orifice Plates - Flow Restriction Type (Nuclear)	0
2323-MS-624A	Annubar Flow Element Specification	0
CP-0624-001	Annubar Flow Sensor Vendor Manual	1
CP-0062-001	Permutit Power Products Orifice Plates Vendor Manual	1
EEQSP AE-2-01	Westinghouse Large Motors Thermalastic Epoxy Insulation Environmental Equipment Qualification Summary Package	3
EEQSP MS-600-02	Actuator Models SB, SMB, SMC, SDB Environmental Equipment Qualification Summary Package	2
EEQSP ES-29-01	Namco Limit Switches Model EA180 Environmental Equipment Qualification Summary Package	1
N/A	Comanche Peak Steam Electric Station, Unit No. 1, Facility Operating License, NFP-87	Amendment 68
N/A	Safety Evaluation Report Related to the Operation of Comanche Peak Steam Electric Station, Units 1 and 2	October 1985
N/A	Safety Evaluation Report Related to the Operation of Comanche Peak Steam Electric Station, Units 1 and 2	Supplements 1, 9, 12, 21, 23, 26, and 27
N/A	Comanche Peak Final Safety Analysis Report	6

MISCELLANEOUS DOCUMENTS

NUMBER	DESCRIPTION	REVISION
DBD-ME-255	Design Basis Document, Chemical and Volume Control System	8
N/A	Comanche Peak Steam Electric Station Fire Protection Report	16
N/A	Letter to W. J. Cahill, Executive Vice President Nuclear Engineering and Operations , T. U. Electric from J. L. Vota, Manager Comanche Peak Projects, Westinghouse Electric Corporation	April 21, 1992
IN 94-62	Corrosion of William Powell Gate Valve Disc Holders	n/a
IN 94-76	Recent Failures of Charging/Safety Injection Pump Shafts	n/a
IN 97-33	Unanticipated Effect of Ventilation System on Tank Level Indicators and Engineering Safety Features Actuation System Set Points	n/a
IN 94-61	Corrosion of William Powell Gate Valves	n/a
IN 98-45	Cavitation Erosion of Letdown Line Orifices Resulting in Fatigue Cracking of Pipe Welds	
IOER 97-90	Use of Nonconservative Acceptance Criteria in Safety Related Pump Surveillance Tests	n/a
Memorandum	Operations Guidelines Manual	July 17, 2000
SOER 97-01	Potential loss of High Pressure Injection and Charging Capability from Gas Intrusion	n/a

PROCEDURES

NUMBER	DESCRIPTION	REVISION
STA-716	Modification Process	15
ABN-101	Reactor Coolant Pump Trip/Malfunction	8
ICA-101	I&C Work Control with Procedure Changes 1 and 2	4
OPT-201A	Charging System	11
OPT-430A	Train A Diesel Generator 24 Hour Load Test with Procedure Change 1	0

PROCEDURES

NUMBER	DESCRIPTION	REVISION
OPT-435A	Train B Diesel Generator 24 Hour Load Test with Procedure Change 1	0
OPT-207A	Service Water System with Procedure Changes 1 through 3	9
OPT-507A	CVCS Solenoid Valve Position Indication Test with Procedure Changes 1 and 2	3
OPT-508A	CVCS Section XI Valves with Procedure Change 1	8
OPT-806A	Appendix J Leak Rate Test of Penetration MII-0001 (1-8160 and 1-8152)	1
OPT-815A	Appendix J Leak Rate Test of Penetration MIII-0006 (1-8105 and 1-8381)	1
OPT-816A	Appendix J Leak Rate Test of Penetration MIII-0011 (1-8100, 1-8112 and 1CS-8180)	1
1CP-SPT-036	Station Service Water Flow Balance	0
STA-734	Service Water System Fouling Monitoring Program	2
MSM-C0-3357	Emergency Diesel Engine Heat Exchangers	2
ALM-0011A	Alarm Procedure 1-ALB-1	7
MDA-111	Maintenance Department Troubleshooting Activities	2
STA-602	Temporary Modifications	13
1CP-SPT-36	Station Service Water Flow Balance	0
PPT-TP-90A-022	DM 90-137 SSW Heat Exchanger Screen Replacement Acceptance Test	0
TDM-901A	System Throttled Valves Flow Rates	9
MSM-G0-0204	Safety Valve and Relief Valve Bench Test	5
	CPSES Significance Determination Process, Desktop Instructions	1
EPRI NP-7552	Heat Exchanger Performance Monitoring Guidelines	December 1991
DBD-ME-233	Design Basis Document Station Service Water System	6
MSM-C0-3357	Emergency Diesel Engine Heat Exchangers	2

PROCEDURES

NUMBER	DESCRIPTION	REVISION
MSM-C0-5877	Component Cooling Water Heat Exchanger Maintenance	1
ICI-4652A	Volume Control Tank Level Channel 0185 Calibration	3
INC-7880A	Refueling Water Storage Tank Analog Channel Operational Test and Channel Calibration Channel 0932	5 w/PCN-8
INC-7855B	Containment Pressure Analog Channel Operational Test and Channel Calibration Channel 0932	2 w/PCN 7
INC-7723A	Pressurizer Pressure Analog Channel Operational Test and Channel Calibration Channel 0455	5 w/PCN 5
INC-7293B	Steam Pressure Analog Channel Operational Test and Channel Calibration Channel 0514	2 w/PCN 4
ABN-805A	Response to Fire in the Auxiliary Building or the Fuel Building	4
CHM-511	Chemistry Control of the Safeguards System	5
ODA-102	Conduct of Operations	19
OPT 104A-1	Operations Weekly Routine Test	17
OWI-104-19	Operations Dept. Logkeeping and Equipment Inspection	15
STA-421	Initiation and Processing of SmartForms	8
STA-422	Disposition of SmartForms Identifying Potential Adverse Conditions	15
ABN-107	Abnormal Conditions Procedure Manual, Emergency Boration	7
ABN-501	Station Service Water System Malfunction	7
ABN-305	Auxiliary Feedwater System Malfunction	5
SOP-501B	Station Service Water System	4
NQA-2.30	Nuclear Operating Review Program	5
ABN-803A-R5-6	Response to a Fire in the Control Room or Cable Spreading Room	5
ABN-905A-R7-2	Loss of Control Room Habitability	7
STA-754	Motor Operated Valve Program	2

PROCEDURES

NUMBER	DESCRIPTION	REVISION
PPT-PO-6005	Safety Related Quarter Turn Motor Operated Valve Testing, MOV 2-HV-4395	1
PPT-PO-6005	Safety Related Quarter Turn Motor Operated Valve Testing, MOV 2-HV-4396	1
PPT-SX-7517	Safe Shutdown Impoundment Inspection	1
ALM-0011A	Alarm Procedure Manual, 1-ALB1	7
PPT-PO-6004	Safety Related Quarter Turn Motor Operated Valve Testing, MOV 2-HV-2482	1
PPT-PO-6004	Safety Related Quarter Turn Motor Operated Valve Testing, MOV 2-HV-2481	1
FRC-0.1A/B	Response to Inadequate Core Cooling	1
OPT-202	Boration System Operability Verification	11
PPT-PO-6004	Safety Related Quarter Turn Motor Operated Valve Testing, MOV 2-HV-2480, Completed 4/02/99	1
PPT-SX-7517	Safe Shutdown Impoundment Inspection, Revision 1, 8/07/00	5
EOP-3.0A/B	Steam Generator Tube Rupture	1
EOS-1.1A/B	Safety Injection Termination	1
EOP-0.0A/B	Reactor Trip or SI	1
ECA-0.1A/B	Loss of all AC Power Recovery Without SI Required	1
ECA-0.0A/B	Loss of all AC Power	1
ECA-0.2A/B	Uncontrolled Depressurization of all Steam Generators	1

ONE FORMS

95-425	97-437	97-1678	98-734	98-1160
97-261	97-945	98-236	98-1058	98-1264
97-343	97-1532	98-590	98-1135	98-1276

SAFETY EVALUATIONS

NUMBER	DESCRIPTION	REVISION
TE-98-000036-00-00	Replace the centrifugal charging pump shaft with a shaft of new material and a new design	R0
TE-98-000297-00-00	The rotating assembly of CCP 1-02 was replaced. Determine post work requirements to meet T/S 4.0.5, 4.5.2.f.1 and 4.5.3.1.1	R0
QTE-1999-002690-01-01	During performance of surveillance test for 1-8510B the as found set pressure could not be obtained due to excessive leakage	R1
SE-93-121	Replacement of the CPSES Units 1&2 containment analysis	R0
SE-94-015	New setpoints to allow CCW outlet valves for the RH and CT heat exchangers throttle to an intermediate position upon receipt of LOCA/MSLB Signal	R0
NUREG-0797	Safety evaluation report related to the operation of Comanche Peak Steam Electric Station, Units 1 and 2	Supplements 1, 9, 12, 17, 21, 23, 26, and 27

TECHNICAL EVALUATIONS

90-3194	93-1083	93-1287	94-1520	95-0447
93-0638	93-1138	94-1307	95-0260	96-0325
93-1049	93-1139	94-1147	95-0297	97-0516
93-1064	93-1166			

SMARTFORMS

1998-002071-00	1999-001697-00	1999-003350-00	2000-002189-00
1998-002180-00	1999-001717-00	1999-003403-00	2000-002214-00
1998-002254-00	1999-001970-00	1999-003454-00	2000-003063-00
1999-000249-00	1999-002127-00	1999-003505-00	2000-003081-00
1999-000302-00	1999-002690-00	2000-000153-00	2000-003094-00
1999-000500-00	1999-002727-00	2000-000327-00	2000-003186-00
1999-000942-00	1999-002735-00	2000-000401-00	2000-003203-00
1999-001285-00	1999-002742-00	2000-001312-00	2000-003209-00
1999-001326-00	1999-002851-00	2000-001421-00	2000-003210-00
1999-001419-00	1999-002863-00	2000-001726-00	2000-003213-00
1999-001455-00	1999-003000-00	2000-001971-00	2000-003224-00
1999-001517-00	1999-003337-00	2000-002123-00	2000-003225-00
1999-001574-00	1999-003343-00	2000-002143-00	2000-003231-00

WORK ORDERS

1-95-092022-00	5-95-501467-AA	5-99-501185-AG	5-00-501772-AA
3-97-312291-01	5-96-501382-AB	5-99-501382-AB	5-00-501811-AA
3-98-330072-01	5-96-501467-AA	5-99-501467-AA	5-00-501811-AD
3-99-312292-01	5-96-504117-AA	5-99-501772-AB	5-00-501185-AA
3-00-330072-01	5-99-501185-AE	5-99-501772-AC	5-00-501185-AB
3-97-322432-01	5-99-504073-AE	5-99-501811-AD	5-00-501772-AA
3-00-301548-01	5-99-504073-AF	5-99-501811-AE	5-00-504073-AA
3-99-337857-01	5-99-504075-AD	5-99-501811-AF	5-00-504073-AB
3-00-336826-03	5-99-504075-AF	5-99-504117-AA	5-00-504073-AC
3-97-312291-01	5-99-501772-AD	5-99-505038-AA	5-00-504075-AA
4-00-129728-01	5-99-501185-AF	5-00-500675-AA	5-00-504075-AB

ATTACHMENT 2

NRC'S REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
<ul style="list-style-type: none">•Initiating Events•Mitigating Systems•Barrier Integrity•Emergency Preparedness	<ul style="list-style-type: none">•Occupational•Public	<ul style="list-style-type: none">•Physical Protection

To monitor these seven cornerstones of safety, the NRC used two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.