TU ELECTRIC

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William J. Cahill, Jr.
Executive Vice President

November 29, 1990

U. S. Nuclear Regulatory Commission
Attn: Director of Nuclear Reactor Regulation
Washington, D.C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NO. 50-445
SUPPLEMENTAL INFORMATION REGARDING THE CPSES
SIMULATOR CERTIFICATION REPORT

Ref: TU Electric letter from W. J. Cahill, Jr. to NRC logged
TXX-90291, dated August 13, 1990.

Gentlemen:

With the referenced letter, TU Electric submitted the CPSES Unit 1 Control Room Simulator Initial Certification Report. Enclosed is additional information aimed at clarifying information in the initial report.

The attachment provides the details for placing this material in the initial report. If you have any questions, contact Mr. Jerry Walker at (817) 897-5367.

Sincerely,

William J. Cahill, Jr.

By D. R. Woodlan
D. R. Woodlan
Docket Licensing Manager

GLB/gj
Attachment
Enclosure

c - Mr. R. D. Martin, Region IV (w/o encl.)
Resident Inspectors, CPSES (3) (w/o encl.)
Mr. J. W. Clifford, NRR (w/o encl.)
Mr. J. Pellet, Region IV
Mr. N. K. Hunemuller (NRC-ONRR)

Ltr, Encl
A001 Add: NRR/DLPQ/LOLB
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The following pages should be placed in the CPSES Unit 1 Control Room Simulator Certification Report submitted on August 13, 1990:

1) Remove pages 6-3, 6-4, and 6-5; replace with pages 6-3, 6-4, 6-5, 6-6 and 6-7

2) Insert the page titled "CPSES Annual Normal Operations Test List" in Section 8 "Four-Year Test Schedule."

TURBINE STARTUP AND GENERATOR SYNCHRONIZATION

This test was conducted in conjunction with the Nuclear Startup from Hot Standby to Rated Power.

This test was deemed satisfactory.

REACTOR TRIP FOLLOWED BY RECOVERY TO RATED POWER

This test was conducted in compliance with ANSI/ANS-3.5-1985 section 3.1. It was a test to validate the simulator performance from an initial condition of - Mode 1, Reactor Power 100%, RCS Temperature 589 °F, RCS Pressure 2235 psig and Pressurizer level 60% - to a condition of - Mode 1, Reactor Power 100%, RCS Temperature 589 °F, RCS Pressure 2235 psig and Pressurizer level 60 % - utilizing current controlled plant Integrated Plant Operating Procedures, System Operating Procedures and Licensed Operator Training Program selected Operations Testing Procedures (surveillance tests).

This test was deemed satisfactory.

OPERATIONS AT HOT STANDBY

This test was conducted in conjunction with the Nuclear Startup From Hot Standby To Rated Power, Reactor Trip Followed By Recovery To Rated Power and the Plant Shutdown From Rated Power To Hot Standby And Cooldown To Cold Shutdown tests.

This test was deemed satisfactory.

LOAD CHANGES

This test was conducted in conjunction with the Nuclear Startup from Hot Standby to Rated Power.

This test was deemed satisfactory.

PLANT SHUTDOWN FROM RATED POWER TO HOT STANDBY AND COOLDOWN TO COLD SHUTDOWN

This test was conducted in compliance with ANSI/ANS-3.5-1985, section 3.1.1. It was a test to validate the simulator performance from an initial condition of Mode 1 (RCS temperature 589 °F, RCS pressure 2235 psig and Pressurizer Level 60%) operation to Mode 5 (RCS temperature ≤ 200 °F, Keff < .99 and Power 0%) with RCS pressure < 400 psig and on Residual Heat Removal system cooling.

This test was deemed satisfactory.

STARTUP, SHUTDOWN AND POWER OPERATIONS WITH LESS THAN FULL REACTOR COOLANT FLOW

This test was not conducted due to Unit 1 Operating License/Technical Specifications not allowing this configuration.

CORE PERFORMANCE TESTING:

Performance of Plant Heat Balance and Shutdown Margin Calculations.

These tests were conducted in conjunction with the Nuclear Startup from Hot Standby to Rated Power.

These tests were deemed satisfactory.

REACTIVITY COEFFICIENT AND CONTROL ROD WORTH MEASUREMENTS

These tests are conducted in the plant using temporarily installed instrumentation therefore, they have not been performed on the simulator for this certification. However, similar plant startup tests have been performed on the simulator by licensed operator training prior to actual plant performance.

OPERATOR CONDUCTED SURVEILLANCE TESTING

Licensed Operator Training selected tests were conducted in conjunction with the Nuclear Startup from Hot Standby to Rated Power.

These tests were deemed satisfactory.

TRANSIENT PERFORMANCE TESTS

The ANSI/ANS-3.5 Appendix B2.2 transient tests have been completed. Attached is a copy of the completed Manual Reactor Trip test procedure and copies of test abstracts from the following performance tests:

- Simultaneous Trip of All Feedwater Pumps
- Simultaneous Closure of All Main Steam Isolation Valves
- Simultaneous Trip of All Reactor Coolant Pumps
- Trip of Any Single Reactor Coolant Pump
- Main Turbine Trip (Maximum Power Level which does not result in immediate Reactor Trip)
- Maximum Rate Power Ramp (100% down to approximately 75% and back up to 100%)
- Maximum Size Reactor Coolant System Rupture Combined with Loss of All Off Site Power
- Maximum Size Unisolable Main Steam Line Rupture
- Slow Primary System Depressurization to Saturated Condition using Pressurizer Relief or Safety Valve Stuck Open

MALFUNCTION TESTS

The malfunctions listed in the attached "Malfunction Causes and Effect" document have been tested in compliance with ANSI/ANS-3.5-1985, section 3.1.2. The initial condition for introducing the malfunction was as listed in the "Malfunctions Causes and Effect" document and maximum severities were used unless the minimum severity would produce the least desirable effect upon reference unit simulation. Malfunctions tested include:

(1) Loss of coolant:
   (a) significant PWR steam generator leaks;
   (b) inside and outside primary containment;
   (c) large and small reactor coolant breaks including demonstration of saturation condition;
   (d) failure of safety and relief valves;

(2) Loss of instrument air to the extent that the whole system or individual headers lost pressure and affected the plant's static or dynamic performance;

(3) Loss or degraded electrical power to the station, including loss of offsite power, loss of emergency power, loss of emergency generators, loss of power to the plant's electrical distribution buses and loss of power to the individual instrumentation buses (AC as well as DC) that provide power to control room indication or plant control functions affecting the plant's response;

(4) Loss of forced core coolant flow due to single or multiple pump failure;

(5) Loss of condenser vacuum including loss of condenser level control;

(6) Loss of service water or cooling to individual components;

(7) Loss of shutdown cooling;

(8) Loss of component cooling system or cooling to individual components;

(9) Loss of normal feedwater or normal feedwater system failure;

(10) Loss of all feedwater (normal and emergency);

(11) Loss of protective system channel;

(12) Control rod failure including stuck rods, uncoupled rods, drifting rods, rod drops, and misaligned rods;

(13) Inability to drive control rods;

(14) Fuel cladding failure resulting in high activity in reactor coolant or off gas and the associated high radiation alrms;

(15) Turbine trip;

(16) Generator trip;

(17) Failure in automatic control system(s) that affect reactivity and core heat removal;

(18) Failure of reactor coolant pressure and volume control systems;

(19) Reactor trip;

(20) Main steam line as well as main feed line break (both inside and outside containment);

(21) Nuclear instrumentation failure(s);

(22) Process instrumentation, alarms, and control system failures;

(23) Passive malfunctions in systems, such as engineered safety features, emergency feedwater systems;

(24) Failure of the automatic reactor trip system.

These tests were deemed satisfactory. Minor discrepancies identified during testing have been scheduled for completion as shown in Section 7.

A "Malfunction Cause and Effects" listing for all certified malfunctions is attached.

CPSES ANNUAL NORMAL OPERATIONS TEST LIST

- Plant Startup - Cold Shutdown To Hot Standby
- Nuclear Startup From Hot Standby To Rated Power
- Turbine Startup And Generator Synchronization
- Reactor Trip Followed By Recovery To Rated Power
- Operations At Hot Standby
- Load Changes
- Plant Shutdown From Rated Power To Hot Standby And Cooldown To Cold Shutdown
- Core Performance
- Operator Conducted Surveillance Testing On Safety-Related Equipment Or Systems