



UNITED STATES
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MAY 27 1980

APPLICANT: TEXAS UTILITIES GENERATING COMPANY
FACILITY: COMANCHE PEAK STEAM ELECTRIC STATION, UNITS 1 AND 2 (CPSES)
SUBJECT: SUMMARY OF MARCH 25, 1980 MEETING ON INSTRUMENTATION AND CONTROL SYSTEMS

Summary

A meeting was held in Bethesda, Maryland with representatives of the Texas Utilities Generating Company (TUGCO) on Tuesday, March 25, 1980. The applicant (TUGCO) was accompanied by personnel from Westinghouse and Gibbs & Hill. The NRC was represented by members of the NRC staff, Argonne National Laboratory (ANL), and Oak Ridge National Laboratory (ORNL). Enclosure 1 is the attendance list.

The purpose of the meeting was to discuss the instrumentation and control system with emphasis on the Comanche Peak "instrumentation up-grade package." The applicant utilized viewgraph slides in his presentation on the instrumentation upgrade package, and copies of these are provided in Enclosure 2. The draft FSAR questions enclosed with the meeting notice dated March 4, 1980 were used as the agenda for the discussions. As a result of the discussions our consultants at ANL will refine and supplement their earlier questions on information needed to continue their review.

Meeting Details

We opened the meeting by proposing an agenda in three parts based upon the draft FSAR questions as follows: (1) a description of the Comanche Peak instrumentation upgrade package including a discussion of items needing FSAR amendment, (2) a discussion of electrical power, instrumentation and control drawing needed for review, and (3) a discussion of miscellaneous questions raised in the review of FSAR Section 7.

Mr. L. A. Campbell presented a description of the Comanche Peak instrument upgrade package using slides 'a' through 'f' of Enclosure 2. The changes from earlier Westinghouse instrumentation systems are listed on slide 'a'. A basic change consists of replacing the coolant inlet to outlet temperature differential (ΔT) with N-16 detectors as the means of measuring core power. This change eliminates the resistance temperature detector bypass loops. Coolant temperature is monitored by detectors located on each of the cold legs. This change replaces the "temperature-average" signal to the reactor protection system with a "temperature-cold" signal. Calorimetric flow calibration is replaced with flow measurement by N-16 detectors. The two-section excore flux monitors in each quadrant are replaced with four-section excore flux monitors. The upgrade package also adds a kilowatt per foot calculation for axial core power distribution to the reactor surveillance instrumentation.

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Westinghouse has been testing the multi-section excore detectors since 1971 and the N-16 power measurement instrumentation since 1970 as shown on slides 'b' and 'c'.

Slide 'd' provides a direct comparison between the reactor power and temperature trip instrumentation provided on earlier Westinghouse reactors and that provided on Comanche Peak. This slide shows two schematics; one based on the older ΔT protection signal and one based on the newer N-16 protection signal. The reactor control system continues to use a "temperature-average" signal to maintain power equilibrium between the reactor and secondary system. However, in the upgrade package the temperature-average signal is calculated from the N-16 detector and temperature-cold detector outputs.

Slide 'e' lists the four FSAR Section 15 accidents which were reanalyzed due to the protection system change. These were: (1) depressurization of the reactor coolant system, (2) dropped rod accident, (3) excessive load increase, and (4) rod bank withdrawal at power. Westinghouse stated that the new protection system performed acceptably in all four reanalyses.

Slide 'f' provides a schematic of the N-16 reactor coolant flow measuring technique. This technique is used periodically to calibrate the elbow tap flow detectors and the latter provide the protection system low-flow signal.

Mr. D. M. Skeers described the integration of the instrument upgrade package into the reactor trip system and surveillance system using slides 'g' through 'i' of Enclosure 2.

During the presentations by Westinghouse, several areas where additional information will be requested were discussed. The principal areas discussed were:

1. The performance of the four-section excore detectors versus the old two-section excore detectors relative to accuracy of measurement and output with a degraded section.
2. The information to be incorporated by referencing certain Westinghouse topical reports. There appear to be several topical reports which should be incorporated by reference which we do not find. Further, the interface relationship, and applicability of several topical reports and Comanche Peak needs clarification.
3. The separation criteria, testing and similarity of components to earlier reviewed equipment need clarification.
4. The information in the FSAR does not allow tracing from detector to safety equipment actuation.
5. Comanche Peak appears to be the lead plant to use the N-16 detector and temperature-cold detector signals in the reactor trip system and reactor control system. Westinghouse noted that the components have been extensively tested as shown by the slides, and components of the upgrade package have been reviewed and accepted under the topical report program.

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Westinghouse also advised that many of the components are the same as those described in the RESAR-414 reactor protection and control systems.

6. Westinghouse states that the upgrade package gives improved accuracy of measuring total core power; i.e., the ΔT system is accurate to about three percent while the N-16 system is accurate to about 1.5 percent. The upgrade package also improves ease of maintenance since the new detectors may be replaced without opening or draining the reactor coolant pressure boundary.
7. In response to our question Westinghouse advised that the upgrade package will have no effect on the resolution of staff concerns about anticipated transient without scram (ATWS). The reliability of the trip breakers is controlling and these components are not changed.
8. We also raised the question of whether the upgrade package will result in significant changes to the "Standard Technical Specifications for Westinghouse Pressurized Water Reactors." The applicant will review this matter and be prepared to respond to a question.

We discussed our efforts to conduct a review of the electrical instrumentation and control drawings listed in FSAR Section 1.7. We have not been successful in tracing through the circuitry. Usually we find the circuit of interest is continued on another sheet that has not been provided. We want to trace the circuit or signal from start to end. The applicant agreed that it would review the drawings transmitted earlier and supplement them based on their understanding of this meeting's discussion.

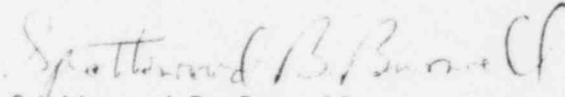
The remainder of the meeting was directed at discussing miscellaneous questions from the agenda as follows:

1. In the event of a control room evacuation what are the limitations on maintaining the plant in hot shutdown from outside the control room?
2. How does Comanche Peak conform to Regulatory Guide 1.97 and the recommendations of NUREG-0578?
3. How do we interpret the applicability of the FSAR references to Regulatory Guides and General Design Criteria; i.e., to the referencing section only or are they adopted universally in the design? We agreed to study FSAR Sections 1AN and 1AB.
4. How does Comanche Peak conform to Regulatory Guide 1.47 and Branch Technical Position ICSB 21?
5. How is WCAP-8584 (not referenced in the FSAR) applicable to Comanche Peak?
6. Are the controls on the fuel handling system safety-related, and do they need to be described in more detail?

We closed the meeting with a discussion of our desire to keep the review effort at Argonne National Laboratory moving. An early submittal of the drawings discussed above is needed. (These were transmitted by the applicant's

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letters to the NRC dated April 18 and 22, 1980.) We will be sending the applicant our instrumentation and control questions within the next several weeks. (These were included in our letter to the applicant dated May 1, 1980.) We urge that the applicant make an early response to these. We will be discussing our schedule as we progress in our mutual effort to keep the review moving.



Spottswood B. Burwell
Licensing Branch No. 2
Division of Licensing

Enclosures:

1. Attendance List
2. Viewgraph Slides Used During Meeting

ccs w/enclosures:
See next pages

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Mr. R. J. Gary
Executive Vice President and
General Manager
Texas Utilities Generating Company
2001 Bryan Towers
Dallas, Texas 75201

cc: Nicholas S. Reynolds, Esq.
Debevoise & Liberman
1200 Seventeenth Street
Washington, D. C. 20036

Spencer C. Relyea, Esq.
Worsham, Forsythe & Sampels
2001 Bryan Tower
Dallas, Texas 75201

Mr. Homer C. Schmidt
Manager - Nuclear Services
Texas Utilities Services, Inc.
2001 Bryan Tower
Dallas, Texas 75201

Mr. H. R. Rock
Gibbs and Hill, Inc.
393 Seventh Avenue
New York, New York 10001

Mr. A. T. Parker
Westinghouse Electric Corporation
P. O. Box 355
Pittsburgh, Pennsylvania 15230

David J. Preister
Assistant Attorney General
Environmental Protection Division
P. O. Box 12548, Capitol Station
Austin, Texas 78711

Mrs. Juanita Ellis, President
Citizens Association for Sound
Energy
1426 South Polk
Dallas, Texas 75224

Geoffrey M. Gay, Esq.
West Texas Legal Services
406 W. T. Waggoner Building
810 Houston Street
Fort Worth, Texas 76102

Mr. Richard L. Fouke
Citizens for Fair Utility Regulation
1668-B Carter Drive
Arlington, Texas 76010

Resident Inspector/Comanche Peak
Nuclear Power Station
c/o U. S. Nuclear Regulatory Commission
P. O. Box 38
Glen Rose, Texas 70642

ENCLOSURE 1

COMANCHE PEAK STEAM ELECTRIC STATION, UNITS 1 AND 2

MEETING ATTENDANCE LIST

Tuesday, March 25, 1980

NRC - STAFF

S. B. Burwell
T. G. Dunning
A. J. Szukiewicz
C. W. Moon
M. Dumenfeld
W. L. Brooks
A. J. Richings
A. B. Bennett
D. F. Sullivan

ARGONNE NATIONAL LABORATORY

J. F. Mech
G. F. Popper

OAK RIDGE NATIONAL LABORATORY

O. W. Burke

TEXAS UTILITIES

C. K. Feist
D. R. Woodlan

WESTINGHOUSE

J. C. Mesmeringer
D. P. Dominicis
L. A. Campbell
W. R. Spezialetti
M. A. Torcaso
D. M. Skeers

GIBBS & HILL

D. J. Castro
K. Mittal