January 26, 1982

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
TEXAS UTILITIES GENERATING COMPANY, et al.	)	Docket Nos. 50-445 and 50-446
	)	
(Comanche Peak Steam Electric Station, Units 1 and 2)	)	(Application for Operating Licenses)

APPLICANTS' MOTION FOR SUMMARY DISPOSITION OF CFUR'S CONTENTIONS 2 AND 7

Pursuant to 10 C.F.R. § 2.749, Texas Utilities Generating Company, et al. ("Applicants") hereby move the Atomic Safety and Licensing Board ("Board") for summary disposition of Contentions 2 and 7, raised by Citizens for Fair Utility Regulation ("CFUR"). As demonstrated in the accompanying affidavits and statements of material facts, there is no genuine issue of fact to be heard regarding Contentions 2 and 7. Applicants urge the Board to so find, to conclude that Applicants are entitled to a favorable decision as a matter of law, and to dismiss Contentions 2 and 7 as issues in this proceeding.

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I. BACKGROUND

On June 16, 1980 the Board issued its Order Subsequent to the Prehearing Conference of April 30, 1980, in which it admitted Contentions 2 and 7, as follows:

> Contention 2: One or more of the reports used in the construction of computer codes for the CPSES/FSAR have not been suitably verified and formally accepted; thus conclusions based upon these computer codes are invalid.

> Contention 7: Applicants have failed to adequately evaluate whether the rock "overbreak" and subsequent fissure repair using concrete grout have impaired the ability of category I structures to withstand seismic disturbances.

Both the Applicants and the NRC Staff have conducted discovery against CFUR on Contentions 2 and 7. [1/] Through that discovery Applicants were able to clarify and refine the issues sought to be raised by CFUR in Contentions 2 and 7.

By Order dated December 11, 1981, the Board established a prehearing schedule leading to further evidentiary hearings to commence March 9, 1982, at which the issues raised in,

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1/ See Applicants' First Set of Interrogatories to CFUR, dated August 13, 1980. CFUR responded to these interrogatories on September 15, 1980 with a May 8, 1981 Supplement. See also NRC Staff's First Set of Interrogatories to CFUR (All CFUR Contentions), dated January 19, 1981, (CFUR answers dated March 11, 1981 and supplements of May 22, 1981 and September 1, 1981) and NRC Staff's Second Set of Interrogatories to CFUR (Contentions 2 and 7), dated April 10, 1981 (CFUR answers dated May 22, 1981 and Supplement of September 1, 1981).

inter alia, Contentions 2 and 7 would be addressed. That schedule called for the parties to submit by no later than January 29, 1982 motions for summary disposition regarding the topics scheduled for hearing. The Board had noted earlier that if such motions were filed prior to the January 29 deadline, then responsive pleadings were to be filed in accordance with the timeframe specified in 10 C.F.R. § 2.749 (i.e., within 20 days of the filing of the motion) (Tr. at 677).

II. APPLICANTS' MOTION FOR SUMMARY DISPOSITION OF CONTENTIONS 2 and 7

A. General

Pursuant to 10 C.F.R. § 2.749(d), upon an appropriate motion for summary disposition, "the presiding officer shall render the decision sought" where it is shown "that there is no genuine issue as to any material fact and that the moving party is entitled to a decision as a matter of law." To provide more definitive guidance in rendering such judgements, the Commission stated that Section 2.749 "has been revised to track more closely the Federal Rules of Civil Procedure." See 37 Fed. Reg. 15135 (1972). 2/

In accordance with the Federal Rules of Civil Procedure, to defeat an appropriate motion for summary disposition an opposing party must present facts in the proper form; conclusions

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2/ See also, Alabama Power Company (Joseph M. Farley Plant, Units 1 and 2), ALAB-182, 7 AEC 210, 217 (1974); Gulf States Utilities Co. (River Bend Station, Units 1 and 2), LBP-75-10, 1 NRC 246, 247 (1975); Public Service Company of New Hampshire (Seabrook Station, Units 1 and 2), LBP-74-36, 7 AEC 877, 878 (1974).

of law will not suffice. [3] The opposing party's facts must be material, [4] and of a substantial nature, [5] not fanciful, or merely suspicious. [6] One cannot avoid summary disposition

> on the mere hope that at trial he will be able to discredit movant's evidence; he must... be able to point out to the court something indicating the existance of a triable issue of material fact. [6 Moore's Federal Practice 56.15(4). (Emphasis added)].

One cannot "go to trial on the vague supposition that something may turn up". 6 Moore's Federal Practice 56.15(3). See Radio City Music Hall v. United States, 136 F.2d 715 (2nd Cir. 1943). See also Orvis v. Brickman, 95 F. Supp. 605 (D.D.C. 1951), where the Court in granting the defendant's motion for summary judgment under the Federal Rules said:

> All that plaintiff has in this case is the hope that on cross-examination . . . the defendants . . . will contradict their respective affidavits. This is purely speculative, and to permit trial on such

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3/ Pittsburg Hotels Association, Inc. v. Urban Redevelopment Authority of Pittsburg, 202 F. Supp. 486 (W.D. Pa. 1962), aff'd, 309 F.2d 186 (3rd Cir. 1962), cert. denied, 376 U.S. 916 (1963).

4/ Egyes v. Magyar Nemzeti Bank, 165 F.2d 539 (2nd Cir. 1948).

5/ Beidler and Bookmeyer v. Universal Ins. Co., 134 F.2d 828, 831 (2nd Cir. 1943).

6/ Griffin v. Griffin, 327 U.S. 220, 236 (1946); Banco de Espana v. Federal Reserve Bank, 28 F. Supp. 958, 973 (S.D.N.Y. 1939) aff'd, 144 F.2d 433 (2nd Cir. 1940).

> basis would nullify the purpose of Rule 56, which provides summary judgment as a means of putting an end to useless and expensive litigation and permitting expeditious disposal of cases in which there is no genuine issue to any material facts.

Fundamental precepts of the administrative process mandate that CFUR be required in response to this motion to present material and disputed facts in affidavit form supporting its position at this stage of litigation or that the Board rule favorably on Applicants' motion. To permit otherwise would be to countenance unnecessary litigation and unwarranted delay. In this regard see 10 C.F.R. § 2.749(b), where it is stated that:

> When a motion for summary decision is made and supported as provided in this section, a party opposing the motion may not rest upon the mere allegations or denials of this answer; his answer by affidavits or as otherwise provided in this section must set forth specific facts showing that there is a genuine issue of fact. If no such answer is filed, the decision sought, if appropriate, shall be rendered.

Further, the Appeal Board has emphasized that admission of a contention does not "carry with it any implication that ... the contention [is] meritorious." Houston Lighting and Power Company (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 549 (1980). Thus, even though a contention might be admitted to a proceeding it does not perforce follow that the contention must be taken up at an evidentiary hearing. See Allens Creek, ALAB-629, 13 NRC 75, 76 (1981). In this regard the Commission's summary disposition

procedures set forth in 10 C.F.R. § 2.749 "provide in reality as well as theory, an efficacious means of avoiding unnecessary and possibly time-consuming hearings on demonstrably insubstantial issues." Allens Creek, supra, ALAB-590, 11 NRC at 550.

Finally, the Commission recently issued a Statement of Policy on Conduct of Licensing Proceedings, CLI-81-8, 13 NRC 452 (May 20, 1981), in which it recognized the difficult problems facing the NRC in meeting its responsibilities in the licensing area, primarily as the result of a redirection of Commission licensing resources to regulatory functions following the accident at Three Mile Island. The Commission noted that it will seek to avoid delays in the licensing process by utilizing existing procedures consistent with the Commission's commitment to a fair and thorough hearing process. In this regard the Commission urged both its Licensing and Appeal Boards to employ procedural tools available to expedite the hearing process. Id. at 453. Among the tools which the Commission urged to be used by the Boards are the summary disposition procedures, so that where there is indeed no genuine issue of material fact to be heard, evidentiary hearing time is not devoted to such issues. Id. at 457. Accordingly, upon a finding of no genuine issue of material fact with respect to Contentions 2 and 7, the Board should grant the instant motion for summary disposition.

B. Contention 2 Should Be Summarily Dismissed

Contention 2 involves the question of whether certain computer codes used by the Applicants have been "verified" by comparison to "some recognized standard" and "accepted" for use by the Applicants pursuant to an NRC Staff review. 7/ CFUR has identified the particular computer codes with which it is concerned as being those listed in its May 7, 1979, Supplement to Petition to Intervene and its April 10, 1980, Report on Contentions. 8/

Contrary to CFUR's assertions, each of the computer codes referenced by CFUR which Applicants' rely upon for safety analyses have been "verified" by accepted engineering practices (including comparison to experimental data where appropriate) and each has been accepted by the NRC Staff as affording valid bases for the analyses in which the codes are employed. In some instances, the topical reports referenced by CFUR do not present any computer codes for NRC Staff review. Accordingly, no genuine issue of material fact exists with respect to Contention 2, and the Board should find that the Applicants are entitled to judgement as a matter of law.

7/ See CFUR response to Applicants' Interrogatory 1 (May 8, 1981 Supplement).

8/ See CFUR response to Applicants' Interrogatory 16 (September 15, 1980 Answers).

1. Computer codes within the scope of Contention 2.

In its April 10, 1980, Statement of Position on proposed contentions, CFUR listed 22 topical reports which it claims present computer codes which have not been "approved" by the NRC. In addition, CFUR listed 16 topical reports in its May 7, 1979 Supplement to its Petition to Intervene (6 of which were also listed in its April 10, 1980 Report). These 32 reports 9/ were referenced by CFUR in its September 15, 1980 answers to Applicants' Interrogatories 11 and 16 as constituting the reports with which Contention 2 was concerned. The following 22 topical reports where listed in CFUR's April 10, 1980 Report:

1. An Evaluation of Solid State Logic Reactor Protection in Anticipated Transients, WCAP-7706 (Non-Proprietary), February 1973

2. Overpressure Protection for Westinghouse Pressurized Water Reactors, WCAP-7769, October 1971

3. Overpressure Protection for Westinghouse Pressurized Water Reactors, WCAP-7769, Revision 1, June 1972

4. Evaluation of Steam Generator Tube, Tubesheet and Divider Plate Under Combined LOCA Plus SSE Conditions, WCAP-7832, December 1973

9/ CFUR stated in its May 8, 1981 Supplement to its answers to Applicants' First Set of Interrogatories (at p. 2) that 33 computer codes were included in its lists of topical reports subject to Contention 2. Actually, 32 different topical reports were listed by CFUR because reports numbered 2, 5, 6, 13, 14, and 17 (6 reports) on the April 10, 1980 list also appeared on the May 7, 1979 list.

5. LOFTRAN Code Description, WCAP-7907, June 1972

6. FACTRAN - A FORTRAN-IV Code for Thermal Transients in a UO_2 Fuel Rod, WCAP-7908, June 1972

7. MARVEL, A Digital Computer Code for Transient analysis of a Multiloop PWR System, WCAP-7909, June 1972

8. Fuel Assembly Safety Analysis for Combined Seismic and Loss of Coolant Accident, WCAP-7950, July 1972

9. Reactor Coolant Pump Integrity in LOCA, WCAP-8163, September 1973

10. Safety Analysis of the 17x17 Fuel Assembly for Combined Seismic and Loss of Coolant Accident, WCAP-8288 (Non-Proprietary), January 1974

11. Documentation of Selected Westinghouse Structural Analysis Computer Codes, WCAP-8252, Revision 1, July 1977

12. Hydraulic Flow Test of the 17x17 Fuel Assembly, WCAP-8279 (Non-Proprietary), February 1974

13. Westinghouse Anticipated Transients Without Trip Analysis, WCAP-8330, August 1974

14. An Evaluation of Loss of Flow Accidents Caused by Power System Frequency Transients in Westinghouse PWRs, WCAP-8424, Revision 1, June 1975

15. Fuel Rod Bowing, WCAP-8692 (Non-Proprietary), December 1975

16. Improved Analytical Models Used in Westinghouse Fuel Rod Design Computations, WCAP-8785 (Non-Proprietary), October 1976

17. Westinghouse Emergency Core Cooling System Evaluation Model - Modified October 1975 Version, WCAP-9169 (Non-Proprietary), September 1977

18. Properties of Fuel and Core Component Materials, WCAP-9224 (Non-Proprietary), September 1977

19. MRI/STARDYNE, Static and Dynamic Structural Analysis System, User's Information Manual, developed by and proprietary to Mechanics Research, Inc.

20. SCONV, Gibbs & Hill

21. SPECTRA, Gibbs & Hill

22. Safety-Related Research and Development for Westinghouse Pressurized Water Reactors, Program Summaries, WCAP-8768, latest revision

The following 16 topical reports were listed in CFUR's May 7, 1979 Supplement:[10/]

(1) See Report 2, above.

(2) See Report 5, above.

(3) See Report 6, above.

23.(4) THINC-IV, An Improved Program for Thermal-Hydraulic Analysis of Rod Bundle Cores, WCAP-7956, June 1973

24.(5) Calculational Model for Core Reflooding After a Loss of Coolant Accident (WREFLOOD Code), WCAP-8171 (Non-Proprietary), June 1974

25.(6) WFLASH, A Fortran-IV Computer Program for Simulation of Transients in a Multi-Loop PWR, WCAP-8261, Revision 1 (Non-Proprietary), July 1974

26.(7) LOCTA-IV Program: Loss of Coolant Transient Analysis, WCAP-8305 (Non-Proprietary), June 1974

27.(8) SATAN-IV Program: Comprehensive Space-Time Dependent Analysis of Loss of Coolant, WCAP-8306 (Non-Proprietary), June 1974

10/ The reports are listed consecutively for ease of reference. The number in the parentheses is the original number from CFUR's May 7, 1979 list.

28. (9) Containment Pressure Analysis Code (COCO), WCAP-8326 (Non-Proprietary), June 1974

(10) See Report 13, above.

29. (11) Westinghouse ECCS Evaluation Model-A Summary, WCAP-8339, July 1974

30. (12) Westinghouse ECCS Plant Sensitivity Studies, WCAP-8356 (Non-Proprietary), July 1974

31. (13) Westinghouse ECCS Evaluation Model Sensitivity Studies, WCAP-8342 (Non-Proprietary), July 1974

(14) See Report 14, above.

32. (15) Westinghouse ECCS Evaluation Model-- Supplementary Information, WCAP-8472 (Non-Proprietary), April 1975

(16) See Report 17, above.

2. Computer code acceptance by NRC Staff

Each of the topical reports discussed below either were not relied upon by Applicants in their FSAR or have been accepted by the NRC Staff (generically or specifically for use at Comanche Peak) as presenting a valid model for conservatively predicting reactor system behavior under the conditions for which the model is intended to be used. In addition, some of the reports do not include or reference any computer codes. The reports are discussed in the order in which they are listed above.

Report 1

This topical report presents a fault tree analysis for demonstrating compliance with the single failure criterion. FSAR §7.1, p. 7.1-38. The report also discusses matters such as functional diversity, physical separation, and testing,

as well as administrative control during design, production, installation, and operation. FSAR §7.2, p. 7.2-30. This report is being considered in conjunction with the NRC Staff's ATWS evaluation, which is discussed below in Item 13. NUREG-0390, p. II-128. 11/

Reports 2 and 3

These topical reports analyze the overpressure protection afforded for the reactor coolant pressure boundary. FSAR § 5.2.2. Neither report presents or references any new computer codes for NRC review or present justification for the validity of any particular code. Report 2 is merely an earlier version of Report 3. Affidavit of William R. Spezialetti at 4. The NRC Staff has concluded that based on, in part, the analysis in this report the reactor coolant system is adequately protected against postulated overpressurization events. SER § 5.2.2., pp. 5-2, 5-3, SSER § 5.2.2., p. 5-1.

Report 4

This topical report is used in the analyses of steam generator tubes, tube sheets and divider plates under maximum accident loading conditions (i.e., combined Loss of

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11/ "Topical Report Review Status," NUREG-0390, Vol. 5 No. 1 (July 15, 1981).

Coolant Accident ("LOCA") and Safe Shutdown Earthquake ("SSE") loads). FSAR § 5.4.2. The NRC Staff has found that the Applicants' method of analysis of dynamic loading of the reactor coolant system, for both component and system analyses, under combined LOCA and SSE loads is acceptable. SER § 3.9.2.3, p. 3-23. The report is generically approved for use in power reactor operating license applications. NUREG-0390, p. II-131.

Report 5

This computer program simulates the neutron kinetics, reactor coolant system, pressurizer, pressurizer relief and safety valves, pressurizer spray, steam generator, and steam generator safety valves. The program computes pertinent plant variables including temperatures, pressures and power level. FSAR § 15.2.3.2, p. 15.2-8. As reviewed by the NRC Staff, this code can be utilized with reasonable assurance of acceptable results on Comanche Peak. SER § 15.1.2, p. 15-3. The program has been approved for use in anticipated transient without scram ("ATWS") analyses. NUREG-0390, p. II-132.

Report 6

This code is used to calculate the transient temperature distribution in a cross section of a metal clad UO_2 fuel rod and the transient heat flux at the surface of

the cladding. FSAR § 15.2.3.2, p. 15.2-28. As reviewed by the NRC Staff, this code can be utilized with reasonable assurance of acceptable results on Comanche Peak. SER § 15.1.2, p. 15-3.

Report 7

This code is used to calculate the mass/energy data presented in FSAR § 6.2.1. Affidavit of William R. Spezialetti at 5. The NRC Staff has determined that the use of this code conforms to applicable criteria and that Applicants' evaluation model is acceptable. SER § 6.2, pp. 6-4 to 6-5, SSER § 6.3, pp. 6-1 to 6-2.

Report 8

This topical report analyzes fuel assembly response to combined LOCA and SSE loads. FSAR § 3.7N. The NRC Staff has approved this topical report for use in license applications for power reactors. NUREG-0390, p. II-134; SER § 3.7.3.2, p. 3-16.

Report 9

This topical report does not introduce or reference any computer codes or present justification for the validity of any particular code for NRC acceptance. Affidavit of William R. Spezialetti at 5. The reactor coolant pump ("RCP") flywheel and the performance of the pump under LOCA conditions

with the use of suitable materials, conservative design, preservice testing, and in-service flywheel inspection as providing reasonable assurance of structural integrity of flywheels in the event of postulated accidents. SER § 5.4.1, pp. 5-13, 14.

Report 10

This topical report analyzes the fuel mechanical response to combined seismic and vertical LOCA loads from postulated double-ended hot- and cold-leg breaks. FSAR § 3.7N. The NRC Staff has found this methodology acceptable for 17x17 fuel assemblies with eight spacer grids, as will be used at Comanche Peak. SER § 4.2.3, p. 4-4; NUREG-0390, p. II-137.

Report 11

This topical report contains a description of computer codes used by Westinghouse for the analysis and design for mechanical systems and components. FSAR § 3.6N, p. 3.6N-2. The NRC has performed a detailed review of this report and the computer codes described in it have been reviewed in detail. SER § 3.6, pp 3-11 to 3-12. This topical report has been accepted by the NRC Staff for use in power reactor operating license applications. NUREG-0390, p. II-137.

Report 12

This topical report analyzes hydraulic flow tests for fuel assembly fretting and wear in 17x17 assemblies. FSAR §§ 4.2 and 4.4. The NRC Staff has determined that these analyses, along with additional Westinghouse test results, demonstrate that fuel assembly wear and fuel rod fretting are within acceptable limits. SER § 4.2.3, p. 4-5; NUREG-0390, p. II-138.

Report 13

This topical report does not introduce any new computer code or present justification for the validity of any particular code. Affidavit of William R. Spezialetti at 4. This report is used to evaluate the plant response to anticipated transients without scram ("ATWS"). FSAR § 15.2. The Staff has found that, based on an understanding of plant response to ATWS events (based, in part, on this report), there is an acceptable basis for interim (pending a Commission decision on ATWS) operation of the plant with certain procedural requirements. SER § 15.3.9, p. 15-11, SSER § 15.3.9, p. 15-1.

Report 14

This topical report analyzes grid frequency disturbances and the resulting NSSS protection requirements applicable to Comanche Peak. FSAR § 15.3. This topical report does not introduce any new computer codes for NRC review or present justification for the validity of any particular code. Affidavit of

William R. Spezialetti at 4. The NRC Staff has accepted Applicants' accident analyses for decreased cooling transient accidents, although this specific transient was not examined. SER § 15.2.2, p. 15-4.

Report 15

This topical report analyzes fuel rod bowing for 17x17 fuel rod designs. FSAR § 4.2. This topical report does not introduce any new computer codes for NRC review or present justification for the validity of any particular code. Affidavit of William R. Spezialetti at 4. In any event, the Staff has approved an interim method for evaluating rod bowing and has found analyses results for Comanche Peak to be acceptable. SER § 4.2.3.

Report 16

This topical report presents a model to analyze fuel thermal performance in Westinghouse PWR's, such as Comanche Peak. This report includes models for fission gas release, helium solubility, fuel swelling and fuel densification. FSAR § 4.2. This topical report has been approved by the NRC Staff with only one restriction, which the Staff has concluded is not significant for first-cycle operation of Comanche Peak at full power and does not adversely affect the results of plant safety analyses. SER § 4.2.2; NUREG-0390, p. II-149.

Report 17

This topical report is no longer referenced in the Comanche Peak FSAR. Affidavit of William R. Spezialetti at 4.

Report 18

This topical report provides materials data and evaluations of in-core control components, including irradiation stability and chemical effects on materials. FSAR § 4.2, pp. 4.2-3 to 4.2-8. This report does not present any new computer codes for NRC review or present justification for any particular code. Affidavit of William R. Spezialetti at 4. The NRC Staff has approved the analyses which employ the data and information presented in this report. SER § 4.2.1, p. 4-1. SSER § 4.2.1, pp. 4-1 to 4-2.

Report 19

This computer code consists of a series of digital computer programs designed to analyze linear elastic structural models. FSAR § 3.7B(A).5. This code is one of the largest, most powerful and most widely recognized codes in the public domain for performing structural analyses of buildings. It has been employed for approximately 12 years by many engineering organizations in performing a variety of static and dynamic structural analyses. Gibbs & Hill has used the code for eight years in performing static and dynamic analyses of buildings. Affidavit of Chun-Mong Jan at 3. The NRC Staff has accepted the analyses for which this code was used in the Comanche Peak FSAR. SER § 3.7.

Report 20

This code uses convolution integration to solve dynamic problems for linear elastic systems. FSAR § 3.7B(A).9. The code employs an integration technique which is recognized and used in the field of dynamic analysis. Affidavit of Chun-Mong Jan at 2. The NRC Staff has accepted the analyses for which this code was used in the Comanche Peak FSAR. SER § 3.7.

Report 21

This subroutine provides spectral accelerations corresponding to a set of specified pairs of frequencies and the associated modal damping values through the interpolation of the prescribed ground response spectra. Affidavit of Chun-Mong Jan at 3. The NRC Staff has accepted the analyses for which this code was used in the Comanche Peak FSAR. SER § 3.7.

Report 22

This report is provided to the NRC for information purposes only and is not relied on for safety-related analyses for Comanche Peak. FSAR § 1.6.

Reports 23-28

These codes have been used for various purposes in Applicants' transient and accident analyses for Comanche Peak. Each code has been reviewed and approved by the NRC

Staff as acceptable for use with Comanche Peak. SER § 15.1.2, p. 15-3; NUREG-0390, pp. II-134(23), 136(24), 137(25), 138(26), 139(27,28).

Reports 29-32

These topical reports are used in Applicants' Emergency Core Cooling System ("ECCS") analyses. FSAR § 15.6.5.3. The NRC Staff has accepted these topical reports for use in nuclear power reactor operating license applications. SER § 15.3.8, p. 15-10 to 15-11. NUREG-0390, pp. II-140 (29, 30, 31) and II-143(32).

3. Computer code verification

CFUR alleges that the computer codes which are the subject of Contention 2 have not been suitably verified. CFUR contends that these codes should be tested against some recognized standard, such as "the results of a controlled experiment."[12/] Applicants demonstrate below that these codes have been verified by accepted methodologies and thus CFUR's argument in this regard is without merit.

Each of the computer codes referenced in Westinghouse Topical Reports has been verified by accepted engineering procedures. Verification of the computer programs assures that each program will produce accurate (or conservative)

12/ CFUR's May 8, 1981 Supplement to Applicants' First Set of Interrogatories, Response to Interrogatory 26.

results consistent with the problem assumptions, the numerical technique or algorithm chosen, and the defined boundaries, limits and/or range of variables, parameters and constants employed. Affidavit of Arthur C. Spencer at 2.

It is standard practice of the Westinghouse Water Reactor Divisions ("WRD") to perform verification of each Westinghouse computer program used for safety-related engineering analysis and design. In addition, following any modification to a computer program Westinghouse performs a reverification of the program. Affidavit of Arthur C. Spencer at 2.

At Westinghouse, one or more of the following methods is generally employed to verify computer programs:

1. Review of the computer program logic by personnel competent in computer programming technology.

2. Formal review of program objectives, mathematical models and techniques, and input/output variable ranges by personnel competent in engineering analysis, design and safety analysis.

3. Comparison of program results with one or more of the following:

   a. A sufficient number of hand calculations.

   b. Alternate verified calculational methods.

   c. Results obtained in experiments and tests.

   d. Results of other verified computer programs.

   e. Known solutions for similar or standard problems.

   f. Measured and documented plant data.

   g. Confirmed published data and correlations.

h. Results of standard programs and benchmarks.

i. Parametric sensitivity analysis.

Affidavit of Arthur C. Spencer at 2-3.

Prior to the initiation of work on the Comanche Peak FSAR, procedures enforcing these computer program verification practices were established at Westinghouse. These established procedures are followed in verifying Westinghouse computer programs used at Comanche Peak. Accordingly, there is adequate assurance that the Westinghouse computer codes used in the safety analyses for the Comanche Peak FSAR have been verified. Affidavit of Arthur C. Spencer at 3.

With respect to the verification of the computer codes employed by Gibbs & Hill (Numbers 19-21), the following facts demonstrate that these codes have been properly verified.

As discussed above, the STARDYNE code (Number 19) is one of the largest, most powerful and widely recognized codes in the public domain for performing structural analyses of buildings. Affidavit of Chun-Mong Jan at 2. The code has been employed for approximately 12 years by many engineering organizations. Id. In view of this, the STARDYNE code is a "recognized program in the public domain that has had a sufficient history of use to justify its applicability and validity without further demonstration" in accordance with NRC Standard Review Plan acceptance criteria. Id.

The SCONV code (Number 20), which was developed by Gibbs & Hill, has been verified by Gibbs & Hill by comparing results obtained from sample problems using the CSMP code, which is a well-recognized and accepted IBM scientific subroutine program. Affidavit of Chun-Mong Jan at 2. The other code developed by Gibbs & Hill, SPECTRA (Number 21) has been verified by comparison of results obtained using the code with those interpolated from NRC Reglatory Guide 1.60. Id. at 3.

In view of the foregoing, Applicants submit that there is no genuine issue of material fact to be heard regarding the acceptance and verification of the computer codes of concern to CFUR that were employed in safety analyses for Comanche Peak. Accordingly, the Board should render judgment on Contention 2 in favor of Applicants and dismiss Contention 2 from consideration in this proceeding.

C. Contention 7 Should be Summarily Dismissed

Contention 7 involves an allegation by CFUR that Applicants have failed to evaluate adequately whether rock overbreak and subsequent fissure repair have impaired the ability of Category I structures to withstand seismic events. CFUR specifically advances two arguments. First it "suspects" that because there has been "extraordinary fissure repair," Applicants' computer codes do not adequately

predict the behavior of CPSES during an earthquake. 13/ Second, CFUR claims that it has "reason to believe" that loose rock and other foreign material were thrown into the excavation site prior to the pouring of concrete 14/ and that such foreign material, as well as air pockets which allegedly formed in the foundation, may effect the "static, dynamic and engineering properties of the CPSES structure." 15/ As discussed in detail below, there exist no genuine issues of material fact with regard to these allegations. Accordingly, Applicants are entitled to judgment as a matter of law, and Contention 7 should be summarily dismissed.

1. Rock Overbreak and Fissures

To demonstrate that summary disposition of this aspect of Contention 7 is appropriate, Applicants will show that: (1) all incidents of rock overbreak and fissures

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13/ May 8, 1981 "CFUR's Supplement to Answers to Applicants' First Set of Interrogatories to CFUR and Request to Produce", Response to Interrogatory 121.

14/ Response to Interrogatory 112e.

15/ Response to Interrogatory 115. Applicants note that the second of CFUR's two arguments is beyond the literal wording of Contention 7. We recognize that in its July 30, 1981 Order at p. 4, the Board stated that, for purposes of discovery, Contention 7 is "broad enough to encompass such related matters as the nature of concrete poured for [the] foundations, materials incorporated into the foundation itself or placed above bedrock, as well as the use of loose rock materials." In order to support this motion for summary disposition of Contention 7, Applicants address both of CFUR's arguments. However, Applicants preserve the right to object to consideration of this second argument if and when hearings on Contention 7 are held.

were identified and procedures developed for their repair (Affidavit of Raymond C. Mason); (2) these repairs were implemented and performed correctly (Affidavits of Raymond C. Mason, P.M. Milam, John T. Merritt, and Charles A. Gatchell); and (3) foundations for seismic Category I structures will perform in a seismic event no differently than if the incidents of rock overbreak and fissures had not occurred (Affidavit of Ralph E. McGrane).

The foundations of all seismic Category I structures for Comanche Peak are designed to be founded on competent rock. For these structures, site excavation was required so that the foundation and subsurface walls could be poured directly against the competent rock. The excavation methods used consisted of blasting and heavy equipment demolition where blasting was not an acceptable method. FSAR Section 2.5.4.5 and Affidavit of Ralph E. McGrane at 1.

As a result of blasting during excavation, portions of the competent rock were overexcavated around the foundations of both Containment Buildings and under the Fuel Building. Such detrimental rock overbreak occurred when the rock on which or against which a foundation was to be poured shattered. To repair this condition, all damaged rock was removed and (after necessary preparation) replaced with concrete having a minimum compressive strength of 2,500 pounds per square inch at 28 days (Class C concrete). Affidavit of

Raymond C. Mason at 1-2 and Ralph E. McGrane at 2. See also PSAR Section 2.6.5.1. Concrete of this strength equals or exceeds the strength of the damaged competent rock. Affidavit of Ralph E. McGrane at 2. The repair procedure, as described in the Affidavit of Raymond C. Mason at 1-2, was completed in accordance with all required specifications and procedures. Affidavit of P.M. Milam at 3. Therefore, the performance of the foundations of seismic Category I structures during a seismic event will be no different than if the rock overbreak had not occurred. Affidavit of Ralph E. McGrane at 2.

Blasting also resulted in fissures (or fractures) in the competent rock against which foundations and walls for Unit 1 Containment, Units 1 and 2 Safeguard Buildings and the Fuel Building were placed. Affidavit of Raymond C. Mason at 2. To maintain the design continuity of the competent rock, grout was pumped into the fissures. Affidavit of Ralph E. McGrane at 2. These fissures were properly identified, mapped for grouting and repaired in accordance with the applicable specifications and procedures. Affidavit of John T. Merritt at 1-2. The procedures used for this repair are described in the Affidavit of Raymond C. Mason at 2-3 and FSAR Section 2.5.4.12. The repairs were completed by Mason-Johnston & Associates, Inc. and Texas Utilities Services, Inc. Affidavits of Raymond C. Mason at 2 and John T. Merritt at 1-2. Grouting used in the repairs was equal to or greater than the design strength of the competent rock it

replaced. Affidavit of Ralph E. McGrane at 2. Accordingly, the performance of the foundations located above or adjacent to these fissures during a seismic event will be no different than if such fissuring had not occurred. Affidavit of Ralph E. McGrane at 2.

The critical allegations in CFUR's contention are that, as a result of overbreak and fissure repair, the assumptions on which the Applicants' seismic analyses are based are erroneous and that Applicants have not evaluated adequately whether Category I structures at Comanche Peak can withstand seismic disturbances. However, the facts are that the overbreak and fissures were repaired properly, and that seismic Category I foundations will act no differently than if rock overbreak and fissuring had not occurred. Accordingly, summary disposition of this aspect of Contention 7 is appropriate. 16/

2. Loose Rock, Foreign Material and Air Pockets.

CFUR also alleges that loose rock, foreign material and air pockets (voids) exist in the foundation of Category I structures, which may have an effect on the "static, dynamic and engineering properties of the CPSES structures." 17/

16/ At page 22 of its May 7, 1978 Supplemental Petition for Leave to Intervene, CFUR references I&E Inspection Report 75-05, relating to the review of site QA/QC program implementation as it applies to work activities regarding safety-related structures during the initial construction phase. Applicants note that this matter was resolved. See SER and SSER Section 2.5.4.5.

17/ Response to Interrogatory 115.

Apparently the sole basis for this argument is the unverified statement of a worker alleged to have been on site when the seismic Category I foundations were poured. 18/

To demonstrate that summary disposition of this aspect of Contention 7 is appropriate, Applicants will show that: (1) before any concrete placement began for the foundations of seismic Category I structures, the excavation site was properly cleaned and free of any loose rock or other foreign material (Affidavit of P.M. Milam); (2) there are only two occasions in which foreign material was discovered in such foundations (Affidavits of P.M. Milam and Charles C. Gatchell); (3) there are only two occasions in which voids were discovered in such foundations (Affidavits of P.M. Milam and Charles C. Gatchell); and (4) appropriate corrective action was taken to effect necessary repairs (Affidavits of P.M. Milam and Charles C. Gatchell).

The facts set forth below demonstrate that CFUR's contention should be dismissed. First, before any concrete placement began, the site excavation was properly cleaned and free of any loose rock or other foreign material. Affidavit of P.M. Milam at 2. In addition, with the

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18/ March 11, 1981 "Answers to NRC Staff's First Set of Interrogatories to and Request to Produce from CFUR" at C7-13 and May 8, 1981 "CFUR's Supplement to Applicants' First Set of Interrogatories to CFUR and Request to Produce" at Response to Interrogatory 98. Although Applicants have attempted to depose this worker, efforts to do so have so far been unsuccessful.

exception of the items described below, there is no evidence of loose rock, foreign material or voids in any seismic Category I foundations. Affidavits of P.M. Milam at 2-3 and Charles C. Gatchell at 2.

There were two occasions in which foreign material was found in seismic Category I foundations. First, a chainfall was found embedded in the Unit 1 base mat. Affidavit of P.M. Milam at 3. However, because the increased mat stresses resulting from the chainfall were found to be negligible, no repairs were required. Affidavit of Charles H. Gatchell at 2. In addition, two wood spreaders (or spacers) used to maintain form to steel clearance were left in a placement at the 797 foot elevation. The spreaders were removed by drilling and chipping and the cavity repaired. Affidavits of P.M. Milam at 3 and Charles H. Gatchell at 3.

Further, there were only two incidents of voiding in seismic Category I foundations. Visual inspection indicated the presence of voids under both sumps in the Unit I containment base mat. The average void space was found to be 3/8 of an inch with a maximum void of 5/8 of an inch. Affidavit of P.M. Milam at 2. To repair these voids, they were filled with a neat cement grout placed under low pressure. Affidavit of Charles H. Gatchell at 2. In addition, concrete was not properly worked around one of the valve embedments, and as a result a void was evident under the plate. Affidavit of P.M. Milam at 3. This

void was repaired by filling it with concrete. Affidavit of Charles H. Gatchell at 3. In sum, the facts show that no loose rock, foreign material and/or voids exist in foundations to seismic Category I structures which would have an impact on their performance during a seismic event. Id. at 3 and Affidavit of P.M. Milam at 3.

In view of the foregoing, Applicants submit that there is no genuine issue of material fact to be heard regarding Contention 7. Accordingly, the Board should render judgement on Contention 7 in favor of Applicants and dismiss that Contention from consideration in this proceeding.

II. CONCLUSION

For the reasons set forth above, Applicants request that the Board grant Applicants' motion for summary disposition of Contention 2 and 7.

Respectfully submitted,

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