05/07/82

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

NRC STAFF'S ANSWER TO BOARD QUESTION 3,
REGARDING THE STATUS OF SAFETY ISSUE TAP A-9

I. INTRODUCTION

On June 16, 1980 the Atomic Safety and Licensing Board ("Licensing Board") issued its "Order Subsequent to the Prehearing Conference of April 30, 1980" ("Order"). In its Order, the Licensing Board denied the admission of Citizens for Fair Utility Rate's ("CFUR") proposed Contention 9 concerning hardward modifications and Anticipated Transients Without Scram ("ATWS") as:

> ... too speculative and insofar as it suggests the Board override any future possible Commission granted exemptions for ATWS related hardware modifications, it appears to be outside the jurisdiction of this Board.

Order, p.5. However, the Licensing Board directed the NRC Staff ("Staff") and Applicants to "respond in evidentiary hearing" to the following question:

> Describe the status of resolution of Safety Issue TAP A-9 (ATWS) as it relates to CPSES 1 and 2.

Order, pp. 5-6. This question was designated by the Licensing Board as "Board Question No. 3." *Id.*

On March 26, 1982, the Licensing Board and the parties participated in a telephone conference call. During the conference call, the Staff indicated to the Licensing Board that it will be prepared to address Board Questions 3 on or before the evidentiary hearing scheduled to commence June 7, 1982. See Order (Following Conference Call), p.2 (April 2, 1982) ("Conference Call Order"). Subsequently, the Licensing Board issued its April 2, 1982 Conference Call Order. In the Conference Call Order, the Licensing Board noted that while "summary disposition is not appropriate for Board questions", the Staff or Applicants may "file information with the Board which answers the questions." Id. The Licensing Board stated that it would evaluate this information, and indicated that ..."evidence might therefore not be necessary at the June hearing." Id. In accordance with the Licensing Board's invitation to the Staff to submit information on Board Question 3, the Staff now submits its Answer to Board Question 3 concerning the status of Safety Issue TAP A-9, relating to ATWS.

II. DISCUSSION

"Anticipated transients" are abnormal operating conditions at a nuclear plant which are likely to occur one or more times during the lifetime of the plant. These abnormal operating conditions include loss of offsite power, loss of power to recirculation pumps, and tripping of the turbine generator set. Nuclear plants have multiple and redundant safety and control systems to limit the consequences of abnormal operating conditions. Affidavit of David W. Pyatt, Answer 4. One of the more important safety control systems is the "scram" system, which causes a

rapid shutdown of the nuclear reaction. If an anticipated transient were to occur, and the scram system did not function as designed, then an "anticipated transient without scram, or "ATWS" would have occurred. Id.

ATWS occurrences are a cause for concern because there is a possibility of a partial core meltdown, accompanied by a large release of radioactivity to the environment. There has been roughly one thousand years of accumulated experience in foreign and domestic light water reactors ("LWRs") without an ATWS accident. While this suggests that the frequency of ATWS accidents is equal to or less than an order of once in a thousand years, the occurrence of several "precursor events" -- faults that could have led to an ATWS - suggests that frequency of ATWS occurrence is not significantly less than once in a thousand years. Therefore the NRC has determined that reductions must be made in the frequency of occurrence and/or security of ATWS. Affidavit of Pyatt, Answer 4.

The regulatory history of the ATWS issue at NRC and its predecessor agency, the Atomic Energy Agency ("AEC") is a long one. ATWS was first raised as an issue by the AEC in 1969. Affidavit of Palla, Answer 5. In 1973, "Technical Report on Anticipated Transients Without Scram for Water-Cooled Power Reactors," WASH-1270, was published. This report requested reactor manufacturers to perform design studies to improve safety from ATWS, and established the Staff's proposed acceptance criteria and related licensing positions for ATWS. Affidavit of Pyatt, Answer 5; Affidavit of James W. Clifford, Answer 4. In conformance with the requirements of Appendix A to WASH-1270, reactor vendors submitted studies on ATWS but concluded that implementation of the Staff's

proposed ATWS requirements would not be cost-effective. Affidavit of Pyatt, Answer 5.[1/]

After further evaluation the Staff published the report, "Anticipated Transients Without Scram for Light Water Reactors", Volumes 1 to 4, NUREG-0460. Volumes 1 and 2 were published in April, 1978, Volume 3 in December 1978, and Volume 4 in March 1980. Affidavit of Pyatt, Answer 5; Affidavit of Clifford, Answer 4. The Staff maintained in Volume 3 of NUREG-0460 that the likelihood of severe consequences arising from an ATWS event did not present an undue risk to the public. This conclusion was based on: (i) the favorable operating experience with operating nuclear power reactors; (ii) the limited number of reactors; (iii) the favorable operating experience with current scram systems; and (iv) the low estimated frequencies of occurrence of ATWS with potentially severe consequences. Affidavit of Marvin W. Hodges, Answer 5. Nonetheless, the Staff believed that additional measures designed to enhance the safety of present and proposed operating nuclear plants be implemented. These requirements are set forth in Volume 4 of NUREG-0460, and can be divided into two areas: (1) development of emergency procedures to train operators to recognize and correctly respond to ATWS events; and (2) training and testing of operators to determine if they are aware and capable of implementing the emergency procedures developed in (1) above. Affidavit of Clifford, Answer 4.

1/ Westinghouse, the vendor for CPSES' reactor, submitted an evaluation of ATWS in Topical Report WCAP-8330, "Westinghouse Anticipated Transients Without Trip Analysis." Affidavit of Clifford, Answer 4.

The Applicants have committed to develop emergency operating procedures for ATWS, in accordance with generic guidelines being developed by the Westinghouse Owners' Group. Id. The Staff's review of the Applicants' operating procedures will be conducted in accordance with the criteria set forth in an NRC memorandum from Frank Schroeder to Robert L. Tedesco and Voss Moore. See Attachment 1 to Affidavit of Clifford, for a copy of that memo. The Staff review will be conducted in conjunction with the Staff's review of TMI Item I.C.1; the Staff's conclusions regarding Applicants' compliance with NUREG-0460's emergency operating procedures requirements will be included in a future supplement to the CPSES SER. Affidavit of Clifford, Answer 5.

The operators for CPSES will be required to participate in the initial and requalification training programs for nuclear plant operators, as required by 10 C.F.R. Section 55, Appendix A. The operators will be trained to properly recognize ATWS events, and initiate proper emergency procedures developed by the Applicant during these training programs. The operators' knowledge of the emergency procedures is tested by written and oral initial operator license exams, as required by 10 C.F.R. Sections 55.21 and 55.24, and by the annual requalification exams required by 10 C.F.R. Section 55, Appendix A, 4.b. Id.

The Applicants will not be issued an operating license until Applicants comply with NUREG-0460, by developing acceptable emergency procedures and employing properly licensed operators. The Staff maintains that implementation of the interim requirements of NUREG-0460 will provide an additional margin of safety against occurrence of ATWS. Affidavit of Clifford, Answers 4 and 6.

In addition to the requirements of NUREG-0460, the Staff concluded that a rule on ATWS was required. In the fall of 1980, the Staff presented to the Commission the Staff's proposed ATWS rule in SECY-80-409. In November of 1980, a group of utilities petitioned the Commission to adopt an ATWS rule substantially different from the Staff proposal. Commissioner Joseph Hendrie felt that an ATWS rule which allowed flexibility on the part of applicants to deal with ATWS would be preferable to the Staff's proposed rule. Thus, a third alternative rule ("Hendrie rule") was drafted by Frank Rowsome, Deputy Director, Division of Risk Analysis, Office of Nuclear Regulatory Research.[2/] The Commission has initiated a rulemaking proceeding on ATWS. The two NRC proposed rules were published in a Notice of Rulemaking in the Federal Register. 46 Fed. Reg. 57522 (November 24, 1981). The Notice requested public comments on the two NRC proposed rules, as well as the utilities proposed ATWS rules. Affidavit of Pyatt, Answer 6, Affidavit of Clifford, Answer 4. The public comment period for all three alternatives ended on April 23, 1982. Extensive comments have been submitted to the Staff, and the Staff is continuing to receive comments beyond the April 23, 1982 deadline. Until the public comments are collated and reviewed, it is impossible to determine which direction the Commission's final ATWS rule will take. Affidavit of Pyatt, Answer 8.

The ATWS issue has been designated by the Commission as Unresolved Safety Issue ("USI") A-9, "Anticipated Transients Without Scram". Affidavit of Hodges, Answer 4. The Applicants will be required to conform to

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2/ The proposed requirements that would be imposed on CPSES for each of the three proposed ATWS rules, are summarized by Mr. Pyatt in Answer 7 of his Affidavit.

any final ATWS rule which the Commission finally promulgates. Affidavit of Hodges, Answer 4; Affidavit of Pyatt, Answer 7.

Notwithstanding the current status of USI A-9 and the current rulemaking proceeding, the Staff believes that the interim operation of CPSES pending resolution of USI A-9 is acceptable. The Staff has concluded on a generic basis that the operation of nuclear power plants is acceptable, and that there is no undue risk to the public from ATWS. NUREG-0460, Volume 3, p.46; Affidavit of Hodges, Answer 5. Moreover, the Staff has increased the operational safety of nuclear plants from ATWS by requiring licensees of currently operating plants and applicants for operating licenses, to implement the emergency procedures and operator training requirements of NUREG-0460, Volume 4. Affidavit of Clifford, Answer 4; Affidavit of Hodges, Answer 5. CPSES will not be licensed for operation until NUREG-0460 is complied with by the Applicants. Affidavit of Clifford, Answers 5 and 6.

The Staff's position on interim operation of CPSES, pending resolution of the Commission's ATWS rulemaking and USI A-9, is consistent with the Commission's generic approval of nuclear power plant operation pending implementation of the Commission's final rule on ATWS. In its Notice of Rulemaking, 46 Fed. Reg. 57521 (Nov. 24, 1982), the Commission stated that the likelihood of severe consequences arising from an ATWS event during the two to four year period required to implement a rule is acceptably small. The Commission's decision was based on: (i) the favorable experience with operating reactors, (ii) the limited number

of operating reactors, (iii) the inherent capability of some pressurized water reactors ("PWR"s) to partially or fully mitigate the consequences of ATWS events; and (iv) the interim steps, set forth in Volume 4 of NUREG-0460, taken to develop emergency procedures and train operators to further reduce the risk from ATWS. On the basis of these considerations, the Commission concluded that there is a reasonable assurance of safety for continued nuclear power plant operation pending final implementation of the Commission's ATWS rule. Id.; Affidavit of Hodges, Answer 5.

III. CONCLUSION

The Staff believes that the probability of severe consequences from ATWS is small. The Staff also believes that the margin of safety already existing in nuclear power plants will be enhanced if NUREG-0460 requirements on Operating training and emergency procedures development are implemented. Affidavit of Clifford, Answers 4 and 6. Both the Staff and the Commission have generically concluded that the risk of severe consequences from an ATWS event is not likely during the interim period before development of the Commission's final rules on ATWS, subsequent compliance with the Commission's final ATWS rules, and concommitment final resolution of USI A-9. Affidavit of Pyatt, Answer 10; Affidavit of Hodges, Answer 5. Accordingly, interim operation of CPSES is acceptable and will not pose a serious public health and safety risk. Affidavit of Hodges, Answer 5; Affidavit of Pyatt, Answers 9; Affidavit of Clifford, Answer 6. For

these reasons, the Staff believes that Board Question 3 has been fully answered, and that the taking of additional evidence on this issue at the forthcoming evidentiary hearing is unnecessary.

Respectfully submitted,

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Counsel for NRC Staff

Dated at Bethesda, Maryland
this 7th day of May, 1982