UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
HOUSTON LIGHTING & POWER COMPANY, ET AL.	)	Docket Nos. 50-498 OL 50-499 OL
	)	
(South Texas Project, Units 1 and 2)	)	

APPLICANTS' MOTION FOR SUMMARY DISPOSITION ON CCANP CONTENTION FOUR

Applicants hereby move the Atomic Safety and Licensing Board (Board) for an order granting summary disposition pursuant to 10 C.F.R. § 2.749 on Citizens Concerned About Nuclear Power's (CCANP) contention 4, relating to the adequacy of the design of South Texas Project (STP) Category I structures and equipment to withstand the effects of hurricane-generated wind loads. Applicants maintain that there is no genuine issue as to any material fact relating to CCANP's contention and that they are entitled to a decision as a matter of law.

Affidavits in support of Applicants' Motion are attached as Exhibits 1 and 2. A statement of material facts not in dispute is attached as Exhibit 3.

I. The Legal Standard

10 C.F.R. § 2.749(a) provides that any party to an NRC proceeding may move for a decision in its favor on any issue in the proceeding. The motion may be accompanied by supporting affidavits, and must include a "short and concise" statement of the material facts which it contends are not in dispute. 10 C.F.R. § 2.749(a).

Any party opposing the motion must provide a similar statement identifying the material facts which it believes are in dispute, and any such facts not controverted by the opposing party "will be deemed to be admitted." Id. Furthermore, the opposing party may not rest upon "mere allegations or denials," but must provide "specific facts showing that there is a genuine issue of fact." 10 C.F.R. § 2.749(b). "[C]onclusions of law will not suffice [and] the opposing party's facts must be material [and] substantial, not fanciful, or merely suspicious." Gulf States Utilities Co. (River Bend Station, Units 1 and 2), LBP-75-10, 1 NRC 246, 248 (1975). If the filings submitted, including relevant discovery responses and affidavits, show 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," then the presiding officer "shall render the decision sought." */ 10 C.F.R. § 2.749(d).

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*/ Partial summary disposition may also be granted. See e.g., Cleveland Electric Illuminating Co. (Perry Nuclear Power Plant, Units 1 and 2), LBP-82-114, 16 NRC 1909, 1913-18 (1982).

Summary disposition pursuant to section 2.749 is analogous to summary judgment under Rule 56 of the Federal Rules of Civil Procedure. Alabama Power Co. (Joseph M. Farley Nuclear Plant, Units 1 and 2), ALAB-182, 7 AEC 210, 217 (1974). Its purpose is not to deny a litigant the right to a full hearing on legitimately disputed issues of material fact, but instead to avoid "unnecessary and possibly time-consuming hearings on demonstrably insubstantial issues. . . ." Houston Lighting & Power Co. (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 550 (1980). Thus, summary disposition is used to dispose of meritless contentions and to avoid squandering the limited resources of the adjudicatory board and the parties to the proceeding.

II. There is No Genuine Issue of Material Fact Regarding the Adequacy of STP Category I Structures and Equipment to Withstand Hurricane Wind Loads

A. CCANP's Contention

CCANP Contention 4 states:

> The South Texas Project (STP) Category 1 structures and equipment are inadequately designed and constructed with respect to wind loadings as demonstrated by the fact that actual wind velocities associated with hurricanes which occurred along the Texas Gulf Coast have exceeded wind loadings for which STP structures have been designed and evaluated. Further, there are non-Category 1 structures containing equipment which if destroyed or damaged would jeopardize the safe operation of STP. These non-Category 1 buildings are not designed to withstand winds generated by hurricanes and if damaged would

description of the methods approved by the NRC, accepted in the industry, and utilized at STP to factor high wind speed data into the design of nuclear power plants demonstrates that the STP has been more than adequately designed to withstand hurricane wind loads. */

B. Consideration of Extreme Wind Speed Data in Nuclear Power Plant Design

Before addressing CCANP's specific contention it is important to describe, in general terms, how hurricane wind speeds are considered in the design of nuclear power plants. Nuclear power plant design takes into consideration a number of specific load "combinations" under which Category I structures must be capable of performing their safety functions. Linderman at ¶ 4. Some of these combinations include "severe" conditions (such as the OBW or operating basis earthquake) which, although unlikely, are utilized as operating basis conditions for nuclear plant design. Structures, systems and components necessary for continued operation must be designed to remain functional under such conditions without jeopardizing the public health and safety. Id.

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*/ In its October 15, 1982 Memorandum and Order (Memorandum and Order), as well as at the October 16, 1984 prehearing conference, the Board raised a number of questions regarding CCANP's contention. Each of the Board's questions are addressed herein or in the accompanying Affidavits.

> provide missile type projectiles which could penetrate Category 1 structures which are inadequately protected.

Memorandum and Order (August 3, 1979), Attachment at 3.

The thrust of CCANP's contention is that there have been reports of hurricane-generated wind speeds along the Texas Gulf coast in excess of the STP operating basis wind (OBW) of 125 mph set forth in section 3.3.1.1 of the STP FSAR, and that therefore, Category I structures have been inadequately designed to withstand hurricane wind loads. */ CCANP argues that Applicants have "eliminat[ed] estimated and even recorded wind speeds on technical grounds," and "appear to have ignored or avoided available data." **/ CCANP Answers at 2-3.

Both Applicants and the NRC Staff have acknowledged the existence of reported wind speed data in excess of 125 mph. Such data, however, does not support CCANP's contention. Instead, a

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*/ See also CCANP Response to Applicants' Motion to Compel Answers to its Seventh Set of Interrogatories and Requests for Production of Documents to CCANP (May 31, 1983) at 6-8 (CCANP Answers). Although CCANP's contention also alleges that STP Category I structures have been inadequately "constructed" to withstand hurricane wind loads, it has not identified any alleged instances of improper construction related to the contention.

**/ CCANP's contention does not specifically address the effects of heavy rainfall and hurricane-induced storm surge on the STP. Its discovery responses do, however, include a number of generalized references to such conditions. CCANP Answers at 4-5, 8-9; CCANP Supplemental Answer to Applicants' Seventh Set of Interrogatories and Requests for Production of Documents (June 14, 1983) (CCANP Supplemental Answers) at 2. As discussed in the Affidavit of R. Bruce Linderman (Linderman) at ¶ 25, the STP has been adequately designed to withstand such effects.

Other load combinations include "extreme" conditions (such as the design basis tornado (DBT) or safe shutdown earthquake) which are even less likely to occur than severe conditions, and are utilized as design basis conditions. Though continued operation would not be authorized under such conditions, safety-related structures, systems and components are designed to perform their safety functions and thereby ensure that there is no undue risk to the public health and safety. Id. at ¶ 5.

Since severe conditions are more likely to occur than extreme conditions, an additional margin of safety is provided through additional conservatisms in design calculations in order to account for uncertainties in data and the quality of construction. Id. at ¶ 6.

As indicated above, the OBW is one of the loads considered in combination with other severe loads in nuclear power plant design. Pursuant to section 2.3.1 of the NRC Standard Review Plan (SRP) (Rev. 2 - July 1981), an OBW should be calculated on the basis of the 100-year recurrence fastest-mile wind speed. Guidance for the selection of historical tropical (hurricane) and extra-tropical (non-hurricane) high wind data for use in the calculation is also provided. In particular, section 2.3.1 states that "[d]ata on severe weather phenomena should be based on standard meteorological records from nearby represen-

tative National Weather Service (NWS), military or other stations recognized as standard installations which have long periods of record."

Once the OBW speed is determined, the resulting load on Category I structures is calculated and utilized in the appropriate load combinations for Category I structures in accordance with sections 3.3.1, 3.8.1 and 3.8.4 of the SRP and ANSI A58.1, "Building Code Requirements for Minimum Design Loads in Buildings and Other Structures" (ANSI A58.1). Linderman at ¶ 8.

Nuclear power plant design should also take into account a DBT as defined in NRC Regulatory Guide 1.76 (Reg. Guide 1.76), in combination with other "extreme" loads. Id. at ¶ 9. In addition, the design should ensure that there is adequate protection against wind-generated missiles in accordance with SRP § 3.5.1.4. Id.

C. Adequacy of the STP OBW

The design of the STP takes into consideration an OBW, based upon the fastest-mile wind speed expected to occur once in 100 years in accordance with SRP § 2.3.1. */ The STP OBW was

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*/ The Board has inquired whether "the thousand-year hurricane would . . . be more applicable than the hundred-year one." Fifth Prehearing Conference Transcript (October 16, 1984) (Tr.) at 10752. Even if the 100-year recurrence event is exceeded, the STP is still designed to perform all necessary safety functions. Thus, utilizing a 1,000-year recurrence interval value would necessitate costly recalculations and analyses without resulting in additional protection to the public health and safety. Linderman at ¶ 7. Furthermore, while the FSAR (Tables 2.3-3 and 2.3-39) reflects 1,000-year recurrence interval values of 182 and 160 mph, such values

verified on the basis of fastest-mile wind speed data from standard measurement stations with periods of record sufficient to calculate reliable recurrence statistics. Fastest-mile wind speeds are sustained winds speeds (rather than instantaneous values or gusts) and are the only high winds speeds observed, recorded and reported in a manner such that reliable recurrence statistics may be generated. Wolfe at ¶ 8. While both the Staff */ and Applicants **/ have acknowledged wind speeds in excess of 125 mph, most of those data, as well as all of the accounts of hurricane wind speeds cited by CCANP and CEU, represent gust, instantaneous wind speeds, estimated wind speeds, and other data inappropriate for use in calculating the STP OBW. ***/ Wolfe at ¶¶ 14-22. Thus, the OBW is supported by data appropriate for use in calculating fastest-mile wind speed values in accordance with applicable NRC guidance and conservative meteorological practices. Id. at ¶¶ 11-13. ****/

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are well in excess of even the highest reliable, historical fastest-mile wind speed data. Affidavit of Dale E. Wolfe (Wolfe) at ¶ 19.

*/ NRC Staff Response to the State of Texas' First Set of Interrogatories and Request for Production to NRC Staff on Contention 4 (October 18, 1983) (NRC Staff Answers) at 5-23.

**/ FSAR at 2.3-6a.

***/ In the only instance where the Staff and Applicants have identified appropriate fastest-mile wind speed data exceeding 125 mph, such data have been utilized in Applicants' verification of the STP OBW. Wolfe at ¶ 19.

****/The Board has inquired whether certain high wind speed data cited in the FSAR may have been improperly discounted by HL&P (Memorandum and Order at 11-12), and whether the STP

NRC Staff Answers at 27-28.

Thus, there is no factual controversy regarding the existence of reported wind speeds in excess of 125 mph, no legitimate question regarding the adequacy of the data used to calculate the STP OBW, and no factual basis for concluding that appropriate and relevant data have been ignored or rejected. On the contrary, the STP OBW is supported by reliable high wind speed data and conservative statistical methodologies. In short, an appropriate OBW value has been utilized in the design of the STP.

D. The STP Design

Assuring that STP Category I structures will remain safely operational under hurricane wind loads is but one of a number of elements in the STP design which ensure that such structures are adequately designed to withstand hurricane-induced loads. OBW-induced loads were considered in combination with other severe conditions, and appropriate safety margins were applied, in accordance with SRP sections 3.8.1 and 3.8.4 and applicable industry codes, resulting in a design which will withstand significantly greater loads than those generated by the OBW alone. Linderman at ¶§ 13-15.

Furthermore, STP Category I structures have also been designed to withstand various combinations of "extreme" conditions such as the DBT. Linderman at ¶ 16. Since the DBT is assumed to generate winds as great as 360 mph, taken alone or in

The STP OBW of 125 mph was verified utilizing the most recent analytical methods and data not available at the time the original FSAR analysis was performed. Wolfe at ¶¶ 9-13. The highest 100-year recurrence fastest mile wind speed obtained for any individual station under the most recent analyses was 116 mph for Corpus Christi. A separate composite analysis, utilizing the highest fas Another appropriate analytical method resulted in a 100-year recurrence value of 125 mph. Wolfe at ¶ 13.

Thus, the statistical methodologies utilized to verify the STP OBW resulted in 100-year recurrence fastest-mile wind speeds equal to or lower than that originally calculated for STP, demonstrating that the 125 mph OBW is supported by the most recent data and current analytical methods. Id. In addition, the adequacy of the STP OBW has been reaffirmed by the NRC Staff:

> The available statistical analyses of extreme wind speeds in the area of STP indicate that the "fastest mile" wind speed 30-feet above ground at the 10^{-2} probability level [100-year recurrence] is about 125 mph. . . . In the context of an operating basis condition . . . the selection of a design wind velocity of 125 mph is consistent with Commission regulations and guidance, and is supported by a variety of independent assessments of occurrences of extreme wind speeds in the STP area.

OBW value is sufficiently conservative in light of the fact that "there are many reported wind speeds that are significantly higher." Tr. at 10746. As described in Mr. Wolfe's Affidavit, such data are unsuitable for calculating recurrent fastest-mile wind speeds for STP. Wolfe at ¶¶ 14-22.

combination with the other extreme conditions, it results in loads on STP structures well in excess of those induced by hurricane winds (even if such winds are assumed to be as great as alleged by CCANP). Id. at ¶ 17; NRC Staff Answers at 26-27.

Thus, designing STP Category I structures to withstand extreme load combinations (including the DBT) results in a design capable of withstanding loads well in excess of those which could be credibly generated by a hurricane. */ Linderman at ¶ 18.

CCANP's contention also alleges that there are non-Category I structures containing equipment which, if destroyed or damaged under hurricane wind loads, might jeopardize safe operation of STP. Contrary to CCANP's unsupported assertion, safety-related equipment is housed in Category I structures and non-Category I structures have been designed, generally through physical separation of structures, to ensure that Category I structures, and the equipment contained therein, will not be adversely affected by collapse of non-Category I structures. Linderman at ¶¶ 19-21.

Finally, CCANP contends that non-Category I structures might generate missiles which could penetrate Category I structures. In accordance with applicable NRC guidance, however, STP

/ The Board has asked whether hurricane and tornado wind speeds are directly comparable given the fact that "the tornado exists for a short period of time and a hurricane exists for up to hours . . . ." Tr. at 10750. As described by Mr. Linderman, STP Category I structures are designed to withstand hurricane and DBT-generated loads regardless of the duration of the load application. Linderman at ¶ 18n.

Category I structures (with the exception of the isolation valve cubicle (IVC) roof), have been designed to withstand the spectrum of missiles which might be generated by the DBT. That spectrum includes missiles which might be generated by non-Category I structures and envelopes missiles which could credibly be generated by hurricanes. Linderman at ¶ 22.

Furthermore, missile velocities calculated on the basis of a DBT with a wind speed of 360 mph exceed the missile velocities which could credibly be generated by hurricane winds. Thus, designing STP Category I structures to withstand DBT-generated missiles provides substantial assurance that such structures are more than adequately protected against hurricane-generated missiles. Linderman at ¶ 23.

With respect to the design of the IVC roof, Applicants have demonstrated, in accordance with applicable NRC guidance, that the probability of a tornado or hurricane-generated missile strike is sufficiently low that the design need not take into account the possibility of such an event. */ Linderman at ¶ 24.

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*/ The Board has expressed concern that the IVC probabilistic analysis may not have considered the possibility of hurricane-generated missiles. Tr. at 10747. An analysis of the probability of a hurricane-generated missile striking the IVC roof was, however, performed. That analysis demonstrated that the threat of such an event was insignificant and that the IVC roof need not be designed to withstand such missiles. Linderman at ¶ 24.

III. Conclusion

Applicants have demonstrated that the STP OBW is supported by reliable data and conservative statistical methods, that the STP has been designed to withstand structural loads well in excess of those which might credibly be generated by hurricane winds, and that Category I structures and equipment will not be jeopardized by non-Category I structures, equipment or missiles under hurricane loads.

CCANP's contention, on the other hand, is based upon its misinterpretation and misuse of historical wind speed data, and its failure to understand the methods approved by the NRC and utilized in the industry to ensure that nuclear power plants are properly designed to withstand loads resulting from high winds. CCANP has failed to provide any factual basis for challenging Applicants' use of the historical data, and has not demonstrated that the methodology utilized to determine high wind loads is improper.

Accordingly, Applicants respectfully request that the Board find that there is no genuine issue of material fact with respect to CCANP contention 4 and grant Applicants' Motion.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the "Applicants' Motion for Summary Disposition on CCANP Contention Four" dated March 12, 1985, and accompanying exhibits, has been served on the following individuals and entities by deposit in the United States mail, first class, postage prepaid, or by personal service as indicated by an asterisk, on this 12th day of March, 1985.

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