

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD



In the Matter of  
HOUSTON LIGHTING & POWER COMPANY  
  
(Allens Creek Nuclear Generating  
Station, Unit 1)

x  
x  
x  
x  
x

Docket No. 50-466

MCCORKLE'S ANSWERS TO THIRD SET OF INTERROGATORIES FROM H. L. & P.

A. Contention 9:

1. It was a few miles southwest of Wallis. The well caught fire around September 4, 1979.
  - a. Hydrogen sulfide, sulfur dioxide, sulfuric acid, and some chlorine and hydrochloric acid.
  - b. There is no known concentration that has no toxic effects. Sulfur dioxide is thought to cause cancer. Hydrogen sulfide kills at very low levels. Short term levels are: 1 ppm for chlorine; 5 ppm for HCl; 10 ppm for SO<sub>2</sub>; 20 ppm for H<sub>2</sub>S.
  - c. Levels of several thousand ppm are possible at the source of the fire. If it is carried by a wind that does not change direction these concentrations will not change much over the distance of several miles.
- 2a These rail lines can carry anything, including, but not limited to, Phosphine (.05 ppm), Arsine (.05 ppm), Phosgene (1.0 ppm), Bromine (1.0 ppm), nickel carbonyl (1.0 00m).
  - b. I have no documents at this time.
  - c. I do not have this information.
  - d. Quantities of toxic gas may be transported to the site by the rupture of one of the nearby pipelines or by the crash of a cargo plane near the site.
- 3.a. The concentrations possible can easily overburden the few safety measures called for in Reg. Guide 1.95. Also, the guide does not prove compliance with the regulations which are not proven to provide safety in all cases.
  - b. No allowance is made for a plane crash which could carry the gases into the control room.

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4. a. The control room is not a Type A control room.
  - b. No provisions have been made to protect against the gases listed in 2.a. above.
5. Stated in #s 3 & 4 above.
6. a. Reg. Guide 1.23 was not sent to me. Many sets of conditions could cause this problem. No special conditions were used. Certainly, a 5mph wind speed, with most reasonable temperatures, and inversion conditions could cause these problems.
  - b. I have no calculations at this time. Weather data is available at Hobby, Galveston, Alvin, and Intercontinental airports.
7. a. I do not know what toxic gases will be stored at Allens Creek site.
  - b. See above
  - c. See above

B. Contention 14

1. a. It is a metal that has a high activity or electromotive potential. The fuel rod clad is an active metal.
  - b. Page 4-5 of the SER shows that cladding has hydriding problems.
2. Zirconium is reactive with hydrogen. Source: Page 4-5 of SER.
3. a. I do not know all sources of hydrogen from the plant site that could get inside the fuel rods. Hydrogen from the air may be a source.
  - b. Any quantity of moisture would contribute to the failure.
  - c. I do not know if there is a threshold level of moisture below which failure of the fuel rod will not occur.
4. Several operating reactors have had fuel rod failure due to hydriding. This is referenced on Page 4-5 of the SER.
5. The hydrogen getter material has not been used long enough to get a history as to how effective it will be in the long term.
6. The initial density of the fuel pellets is within the knowledge of the applicant. I do not know the initial density or the expected amount of density increase.
7. Initially, 13.4 kW/ft. After densification the rate may rise to above 30 kW/ft for short distances and during transients. See Page 4-4 of SER.

8. Any increase in the densification increases the linear heat generation rate which increases the clad strain which increases the chance of clad failure which increases the possibility of down time or an accident.
9. Heat transfer to the reactor water from the fuel rods does not stop completely as a result of densification. The heat transfer coefficient will be changed by the ratio of the conductivity of the gap to that of the  $UO_2$ .
11. I do not have this information.

Contention 17

- 1.a. About  $100 \text{ ft}^3/\text{hr}$  divided by 100 equals about  $1 \text{ ft}^3/\text{hr}$ . By weight of containment air.
- b. No, Measure total containment leakage, then divide by 100.
- c. Twenty-four hours for test purposes, but it would have to be met under all conditions.
- d. The bypass of any more than 1% would not sufficiently protect the health of the public.
- 2.a. All intake filters.
- b. I do not know what filters at ACNGS are located in the reactor building or their function.
- c. The heat follows the air as it travels through the pipes.
- d. The noble gases and Iodine.

Contention 10:

- 1.a. I do not have a copy of this study in my possession. This study was done by the Houston Chamber of Commerce.
- b. I do not have the names of the eight airlines or the number of flights.
- c. See b. above.
- 2.a. I do not know at this time.
- b. Same as 2.a. above.

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Under oath I state that I have answered these interrogatories to the best of my ability.

Brenda A. McCorkle

SUBSCRIBED AND SWORN TO BEFORE ME, this 15<sup>th</sup> day of November, 1979.

E. F. BURLEIGH

Notary Public in Harris County, Texas  
My Commission Expires November 15, 1980

E. F. Burleigh

UNITED STATES OF AMERICA  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD -- DOCKET #50-466

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing McCorkle's Answers to Third Set of Interrogatories From H. L. & P. in the above-captioned proceeding were served on the following by deposit in the United States mail, postage prepaid, on this 13th day of November, 1979.

Sheldon J. Wolfe, Chairman, Atomic Safety and Licensing Board Panel  
Dr. E. Leonard Cheatum  
Mr. Gustave A. Linenberger  
Mr. Chase R. Stephens  
Richard Lowerre, Assistant Attorney General for the State of Texas  
Atomic Safety and Licensing Appeal Board  
Atomic Safety and Licensing Board Panel  
Steve Schinki, Staff Counsel  
Ms. Carro Hinderstein  
Mr. James Scott, Jr.  
Mr. D. Marrack  
Mr. Wayne E. Rentfro  
Mr. John F. Doherty  
Mr. H. Pottoff  
Baker & Botts

RELATED CORRESPONDENCE

Brenda A. McCorkle

