

Technical Assistance Request Regarding the Auxiliary
Building Ventilation System at Zion Nuclear Power Station

HPPOS-323

PDR-9308260238

Title: Technical Assistance Request Regarding the
Auxiliary Building Ventilation System at Zion Nuclear Power
Station

See the memorandum from J. A. Zwolinski to E. G. Greenman dated June 23, 1993. This NRR memo contains the NRR responses to questions asked by Region III regarding the auxiliary building ventilation system at Zion Nuclear Power Station. The licensee had taken the position that the UFSAR contains two types of information: descriptive and design. They indicated that paragraphs labeled "system description" are general design and operating features intended to provide an understanding of the overall plant operation. The licensee also stated that only paragraphs labeled "design basis" can be considered as design basis. This issue is concern at Zion and is generic to other nuclear power plants.

Question 1: Is the whole UFSAR considered in the design basis of the plant, or only sections specifically labeled as such?

The definition of Design Bases in 10 CFR 50.2 means that information that identifies the specific functions to be done by a structure, system, or component of a facility and the specific values or range of values chosen for controlling parameters chosen for controlling parameters as reference bounds for design. These values may be restraints derived from generally accepted "state of the art" practices for achieving functional goals, or requirements derived from analysis of the effects of a postulated accident for which a structure, system or component must meet its functional goals. Regardless of what a paragraph in an UFSAR or FSAR is called, if a specification was assumed in an accident analysis, then it is part of the design basis.

Question 2: Is the concept that NRC only cares about maintaining negative pressure within contaminated cubicles in the auxiliary building the design basis or is maintaining a negative pressure within the whole auxiliary

building the design basis?

The design basis and the licensing basis for the auxiliary building ventilation system serving all areas of the auxiliary building and the spent fuel pool building are to maintain the auxiliary building at a negative pressure of about 0.25 inch of water relative to ambient under normal and abnormal operation and to maintain the cubicles at a negative pressure of about 0.25 inch of water relative to the auxiliary building; hence, a negative pressure of about 0.5 inch of water relative to the outside. The objective is to maintain the auxiliary building at a negative pressure with respect to all adjacent areas so that contamination is not transported to areas that are at a lower pressure than the auxiliary building.

Question 3: Does the auxiliary building wall / door have any function with regard to keeping contaminated airborne material inside?

The design functions of the outer walls and doors serve in situations not involving an accident are structural and missile protection and control of the spread of contamination by allowing the required vacuum to be maintained. Auxiliary building access doors should not routinely be left open during normal operations since this may affect the normal ventilation flow path and/or function of maintaining a negative pressure of about 0.25 inch of water in the auxiliary building. This negative pressure is designed to prevent the release of radioactive material from the auxiliary building. The proper system flow balance is required to prevent the spread of airborne radioactive material from areas of high concentration to areas of lower concentration. Question 4: Can licensees justify operability with PRA and can licensees use PRA to delay a test or an operability determination?

These practices are unacceptable.

Question 5: Is there some design function for the auxiliary building outer walls relating to the confinement of radioactive materials that may be present in the auxiliary building during non-accident conditions?

The design function of the outer walls and doors not involving an accident are structural and missile protection and control of the spread of contamination by allowing the

required vacuum to be maintained. Maintaining 0.25 inch of negative pressure in potentially contaminated areas serves to confine radioactive materials to the auxiliary building under non-accident conditions.

Question 6: Is the "interfacing system LOCA" considered a postulated accident and is the occurrence of such an event considered part of the design basis?

The answer is no to both questions.

Guidance was also sought on the role of PRA in the preparation of 10 CFR 50.59 safety evaluations by licensees. 10 CFR 50.59 identifies the use of probability in reference to the determination of an unreviewed safety question. Prior to PRA, the increase in probability of occurrence for a 10 CFR 50.59 evaluation was judged on design basis considerations and engineering judgement. With the current PRA methods, reliability data, and plant specific PRAs, it is reasonable to expect these to be used to estimate changes in probability associated with proposed plant modifications. However, the results of licensee 10 CFR 50.59 evaluations should not be based solely on bottom line PRA numbers. Other considerations such as engineering judgement and operating experience should be factored in when appropriate.

Regulatory references: 10 CFR 50.2, 10 CFR 50.59

Subject codes: 5.0, 5.5

Applicability: Reactors