



U.S. NUCLEAR REGULATORY COMMISSION
STANDARD REVIEW PLAN
OFFICE OF NUCLEAR REACTOR REGULATION

SECTION 2.2.3

EVALUATION OF POTENTIAL ACCIDENTS

REVIEW RESPONSIBILITIES

Primary - Accident Analysis Branch (AAB)

Secondary - None

I. APPLICANT'S REVIEW

The applicant's determination of potential accident situations in the vicinity of the plant that are to be considered as design basis events is reviewed. (See Standard Review Plans 2.2.1 and 2.2.2.)

The applicant's probability analyses of statistical data pertaining to potential accidents involving hazardous materials or activities in the vicinity of the plant, if such analyses have been performed, are reviewed to determine that appropriate data and analytical models have been utilized.

The analyses of the consequences of accidents involving nearby industrial, military, and transportation facilities which have been identified as design basis events are reviewed.

II. ACCEPTANCE CRITERIA

The identification of design basis events resulting from the presence of hazardous materials or activities in the vicinity of the plant is acceptable if the design basis events include each postulated type of accident for which a realistic estimate of the probability of occurrence of potential exposures in excess of the 10 CFR Part 100 guidelines exceeds the NRC staff objective of approximately 10^{-7} per year. The methods of calculating the radiological exposures resulting from these events are acceptable if they are consistent with methods used for calculation of other accident radiological exposures (e.g., SRP 15.6.5.) Because of the difficulty of assigning precise numerical values to the probability of occurrence of the types of potential hazards generally considered in this review plan, judgment must be used as to the acceptability of the overall risk presented by an event.

In view of the low probability events under consideration, the probability of occurrence of the initiating events leading to potential consequences in excess of 10 CFR Part 100 exposure guidelines should be estimated using assumptions that are as realistic as is practicable. In addition, because of the low probability events under consideration, valid statistical data are often not available to permit accurate quantitative calculation of probabilities. Accordingly, a conservative calculation showing that the probability of occurrence of potential exposures in excess of the 10 CFR Part 100 guidelines is approximately 10^{-6} per year

USNRC STANDARD REVIEW PLAN

Standard review plans are prepared for the guidance of the Office of Nuclear Reactor Regulation staff responsible for the review of applications to construct and operate nuclear power plants. These documents are made available to the public as part of the Commission's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Standard review plans are not substitutes for regulatory guides or the Commission's regulations and compliance with them is not required. The standard review plan sections are keyed to Revision 2 of the Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants. Not all sections of the Standard Format have a corresponding review plan.

Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggestions for improvement will be considered and should be sent to the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, D.C. 20558

11/24/75

9511010067 751124
PDR NUREG
75/087 R PDR

is acceptable if, when combined with reasonable qualitative arguments, the realistic probability can be shown to be lower.

The effects of design basis events have been appropriately considered if analyses of the effects of those accidents on the safety-related features of the plant have been performed and appropriate measures (e.g., hardening, fire protection) to mitigate the consequences of such events have been taken.

III. REVIEW PROCEDURES

The judgment on the areas to be given attention and analysis during the review is based on an inspection of the material presented, the similarity of the material to that recently reviewed on other plants, and whether items of special safety significance are involved. The selection and emphasis of the areas covered by the review is made by the reviewer on each case.

In some cases it may be necessary to consult with or obtain specific data from other branches, such as the Structural Engineering Branch (SEB) or Auxiliary and Power Conversion Systems Branch (APCSB), regarding possible effects of external events on plant structures or components.

The applicant's probability calculations are reviewed, and an independent probability analysis is performed by the staff if the potential hazard is considered significant enough to affect the licensability of the site or is important to the identification of design basis events.

The design parameters (e.g., overpressure) and physical phenomena (e.g., gas concentration) selected by the applicant for each design basis event are reviewed to ascertain that the values are comparable to the values used in previous analyses and found to be acceptable by the staff.

Each design basis event is reviewed to determine that the effects of the event on the safety features of the plant have been evaluated. If an accidental explosion is considered to be a design basis event, an analysis of the missiles generated in the explosion should be analyzed under the procedures given in the standard review plans (SRP) for Section 3.5.

If accidents involving release of smoke, flammable or nonflammable gases, or chemical bearing clouds are considered to be design basis events, an evaluation of the effects of these accidents on control room habitability should be made in SAR Section 6.4 and on the operation of diesels and other safety-related equipment in SAR Chapter 9.

IV. EVALUATION FINDINGS

If the reviewer verifies that sufficient information has been provided and that the evaluation is sufficiently complete and adequate to meet the acceptance criteria in Section II of this SRP, conclusions of the following type may be prepared for the staff's safety evaluation report:

"The applicant has identified potential accidents in the vicinity of the plant which should be considered as design basis events and has provided analyses of the effects of these accidents on the safety-related features of the plant. The applicant has demonstrated that the plant is adequately protected and can be operated with an acceptable degree of safety with regard to potential accidents which may occur as the result of activities at nearby industrial, military, and transportation facilities."

V. REFERENCES

Regulatory Guide 1.70. "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants," Revision 2.

11/24/75

SRP 2.3.1