



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

SECTIONS 2.2.1 and 2.2.2

LOCATIONS AND ROUTES, DESCRIPTIONS

REVIEW RESPONSIBILITIES

Primary - Accident Analysis Branch (AAB)

Secondary - None

I. AREAS OF REVIEW

1. The locations and distances from the nuclear plant of the various industrial, military, and transportation facilities and routes identified by the applicant as being in the vicinity of the plant are reviewed to identify those activities that may require further investigation and detailed evaluation in order to determine design basis events for the plant. Where available, sources of data independent of the applicant's safety analysis report (SAR) will be used.
2. The descriptive information and statistical data submitted to describe the facilities and the products and materials regularly manufactured, stored, used or transported in the vicinity of the nuclear plant are reviewed to identify potentially hazardous facilities and materials and to establish the maximum quantities of hazardous materials that should be considered in subsequent analyses.
3. Available statistical data pertaining to the nearby transportation routes such as mode of transportation, frequency of shipment, frequency of accidents, and the maximum quantities of hazardous materials per shipment are reviewed to establish that sufficient information is available to perform a probability analysis, if required, to determine design basis events.
4. The descriptions of certain significant facilities in the vicinity of the plant, such as airports, waterways, pipelines, or installations which, because of their proximity and the presence of hazardous materials, pose a potential threat to the safety-related features of the plant are reviewed to determine which of these facilities and associated activities may be candidates for design basis events. (A design basis event is a postulated occurrence against which the design of plant safety-related features are evaluated to assure that the postulated event will have no adverse effects.)

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. 20555.

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II. ACCEPTANCE CRITERIA

1. Data in the SAR is acceptable if it adequately describes the locations and distances of industrial, military, and transportation facilities in the vicinity of the plant, and is in agreement with data obtained from other sources, when available.
2. Descriptions of the nature and extent of activities conducted at nearby facilities, including the products and materials likely to be processed, stored, used, or transported, are acceptable if they are adequate to permit evaluations of possible hazards.
3. Where potentially hazardous materials may be processed, stored, used, or transported in the vicinity of the plant, sufficient statistical data on such materials should be provided to establish a basis for evaluating the potential hazard to the plant.

III. REVIEW PROCEDURES

Selection and emphasis of various aspects of the areas covered by this review plan will be made by the reviewer on each case. The judgment on the areas to be given attention during the review is to be 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.

1. The reviewer should be especially alert, in the construction permit (CP) stage review, for any potentially hazardous activities in close proximity (up to 2 miles) of the plant. All identified facilities and activities within five miles of the plant should be reviewed. Facilities and activities at greater distances should be considered if they are unusually large (e.g., a large liquid natural gas (LNG) facility or airport) or otherwise have the potential for affecting plant safety-related features. At the operating license (OL) stage, most hazards will already have been identified. Emphasis should be placed on any new information. At the operating license stage, any analyses pertaining to potential accidents involving hazardous materials or activities in the vicinity of the plant will be reviewed to ensure that results are appropriate in light of any new data or experience which is then available.
2. Information should be obtained by the reviewer from sources other than the SAR wherever available, and should be used to check the accuracy and completeness of the information submitted in the SAR. This independent information may be obtained from sources such as U. S. Geological Survey (USGS) maps and aerial photos, published documents, contacts with state and federal agencies, and from other nuclear plant applications (especially if they are located in the same general area or on the same waterway). Information may also be obtained during the site visit and subsequent discussions with local officials. (See Appendix A to Standard Review Plan 2.1.1 for further guidance with regard to site visits.)
3. The specific information relating to types of potentially hazardous material, including distance, quantity, and frequency of shipment, is reviewed to eliminate as many of the

the potential accident situations as possible by inspection, based on past review experience. At the operating license stage, nearby industrial, military and transportation facilities and transportation routes will be reviewed for any changes or additions which may affect the safe operation of the plant. If these changes alter the data or assumptions used in previous hazards evaluations or demonstrate the need for new ones, appropriate evaluations will be performed.

The maximum quantities of explosives likely to be processed, stored, used, or transported in the vicinity of the plant are reviewed to determine if an explosion of this material is capable of producing blast overpressures on the order of 1.0 psi or greater at the plant. References on quantity-distance relationships, e.g., U.S. Army Technical Manual TM5-1300 and Regulatory Guide 1.91, should be consulted.

Regulatory Guides 1.78 and 1.95 are consulted to determine if a potentially hazardous situation exists with regard to chemical releases.

The problems of pipeline rupture and other flammable gas releases are reviewed on an individual case basis by evaluating analyses provided by the applicant, and may also involve independently checking the gas cloud size and TNT equivalency derived by the applicant.

The distance from nearby railroad lines is checked to determine if the plant is within the range of a "rocketing" tank car which, from the National Transportation Safety Board report on the Laurel, Mississippi train accident, dated October 6, 1969, is taken to be 1100 feet, with the range for smaller pieces extending to 1600 feet.

4. The potential accidents which cannot be eliminated from consideration as design basis events because the consequences of the accidents, if they should occur, could be serious enough to affect plant safety-related features, are identified. The Branch Chief is consulted to determine if further detailed investigations by the AAB staff are warranted or if the applicant should be requested to provide additional information.

IV. EVALUATION FINDINGS

The reviewer verifies that sufficient information has been provided, and that his evaluation is sufficiently complete and adequate to support conclusions of the following type, to be used in the staff's safety evaluation report:

"The nature and extent of activities involving potentially hazardous materials which are conducted at nearby industrial, military, and transportation facilities have been evaluated to determine if such activities have the potential for adversely affecting plant safety-related structures. Based on evaluation of information contained in the SAR, as well as information independently obtained by the staff, it is concluded that such activities are not likely to have an adverse effect on the plant safety-related structures."

If the activities are identified as being potentially hazardous, the evaluations described in Standard Review Plan 2.2.3 are performed and conclusions are drawn with respect to the inherent capability of the plant or special plant design measures to prevent radiological releases in excess of the 10 CFR Part 100 guidelines.

V. REFERENCES

1. Department of the Army Technical Manual TM5-1300, "Structures to Resist the Effects of Accidental Explosions," June 1969.
2. Regulatory Guide 1.91, "Evaluation of Explosions Postulated to Occur on Transportation Routes Near Nuclear Power Plant Sites."
3. Regulatory Guide 1.78, "Assumptions for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release."
4. Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release."
5. National Transportation Safety Board Railroad Accident Report, "Southern Railway Company, Train 154, Derailment with Fire and Explosion, Laurel, Mississippi, January 25, 1969," October 6, 1969.
6. Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants," Revision 2.

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