



## U.S. NUCLEAR REGULATORY COMMISSION

# STANDARD REVIEW PLAN

### 3.5.1.6 AIRCRAFT HAZARDS

#### REVIEW RESPONSIBILITIES

**Primary** - Organization responsible for the review of manmade site hazards.

**Secondary** - None

#### I. AREAS OF REVIEW

Chapter 2 of the Standard Review Plan (SRP) discusses the site characteristics that could affect the safe design and siting of the plant. The staff reviews information provided by the applicant for a Construction Permit (CP), Operating License (OL), Design Certification (DC), Early Site Permit (ESP), or Combined License (COL) concerning assessment of aircraft hazards. The purpose of the review is to assure that the risks from aircraft hazards are sufficiently low. Probabilistic considerations may be used to demonstrate that aircraft hazards need not be a design-basis concern. Otherwise, design-basis aircraft identification is made and the applicant's plant design is evaluated to assure that it is protected against the potential effects of aircraft impacts and fires. This SRP section applies to reviews performed for each of these types of applications.

Rev. 3 - [Month] 2007

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### USNRC STANDARD REVIEW PLAN

This Standard Review Plan, NUREG-0800, has been prepared to establish criteria that the U.S. Nuclear Regulatory Commission staff responsible for the review of applications to construct and operate nuclear power plants intends to use in evaluating whether an applicant/licensee meets the NRC's regulations. The Standard Review Plan is not a substitute for the NRC's regulations, and compliance with it is not required. However, an applicant is required to identify differences between the design features, analytical techniques, and procedural measures proposed for its facility and the SRP acceptance criteria and evaluate how the proposed alternatives to the SRP acceptance criteria provide an acceptable method of complying with the NRC regulations.

The standard review plan sections are numbered in accordance with corresponding sections in the Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)." Not all sections of the standard format have a corresponding review plan section. The SRP sections applicable to a combined license application for a new light-water reactor (LWR) will be based on Regulatory Guide 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition), until the SRP itself is updated.

These documents are made available to the public as part of the NRC's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Individual sections of NUREG-0800 will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience. Comments may be submitted electronically by email to [NRR\\_SRP@nrc.gov](mailto:NRR_SRP@nrc.gov).

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The staff reviews the applicant's assessment of aircraft hazards to the plant to determine whether or not they should be incorporated into the plant design basis. The review covers the following specific areas:

1. Airports
2. Federal airways
3. Holding and approach patterns
4. Military airports, training routes, and training areas

If the aircraft hazards are incorporated into the plant design basis, the staff identifies and describes the design-basis aircraft in terms of aircraft weight, speed, and other appropriate characteristics.

1. Inspection, Test, Analysis, and Acceptance Criteria (ITAAC). For design certification (DC) and combined license (COL) reviews, the applicant's proposed information on the ITAAC associated with the systems, structures, and components (SSCs) related to this SRP section is reviewed in accordance with SRP Section 14.3, "Inspections, Tests, Analyses, and Acceptance Criteria - Design Certification." The staff recognizes that the review of ITAAC is performed after review of the rest of this portion of the application against acceptance criteria contained in this SRP section. Furthermore, the ITAAC are reviewed to assure that all SSCs in this area of review are identified and addressed as appropriate in accordance with SRP Section 14.3.
2. Additional Information for 10 CFR Part 52 Applications: Additional information will be presented dependent on the type of application. For a COL application, the additional information is dependent on whether the application references an ESP, a DC, both or neither. Information requirements are prescribed within the "Contents of Application" sections of the applicable Subparts to 10 CFR Part 52.

#### Review Interfaces

The listed SRP sections interface with this section as follows:

1. Missile effects on plant structures from aircraft impacts (SRP Section 3.5.3).
2. Fire effects from aircraft fires (SRP Section 9.5.1).
3. Requirements to protect plant SSCs important to safety from aircraft crashes (SRP Section 3.5.2).
4. For DC applications and COL applications referencing a DC rule or DC application, review of the site parameters in the Design Control Document (DCD) Tier 1, Chapter 2 of the DCD Tier 2, and the supporting information in DCD Tier 2 Section 14.3 submitted by the applicant is performed under SRP Section 14.3.1, "Site Parameters (Tier 1)."

The specific acceptance criteria and review procedures are contained in the referenced SRP sections.

## II. ACCEPTANCE CRITERIA

### Requirements

Acceptance criteria are based on meeting the relevant requirements of the following Commission regulations:

1. 10 CFR Part 100, 10 CFR 100.10, 10 CFR 100.20, 10 CFR 100.21, and 10 CFR 52.79, as they relate to the factors to be considered in the evaluation of sites. These regulations require that reactors reflect through their design, construction, and operation an extremely low probability for accidents that could result in the release of significant quantities of radioactive fission products. In addition, 10 CFR Part 100, 10 CFR 100.10, and 10 CFR 100.20 require that the site location, in conjunction with other considerations, ensure a low risk of public exposure.
2. 10 CFR 50, Appendix A, General Design Criterion (GDC) 3 requires that SSCs important to safety be appropriately protected against the effects of fires.
3. GDC 4 requires that SSCs important to safety be appropriately protected against the effects of missiles that may result from events and conditions outside the nuclear power unit.
4. For ESP applications (as they relate to the factors to be considered in the evaluation of sites), the acceptance criteria are based on meeting the relevant requirements of 10 CFR 52.17, 10 CFR 100.20, and 10 CFR 100.21. These requirements stipulate that the individual and societal risk of potential plant accidents must be low.
5. 10 CFR 52.47(b)(1), as it relates to ITAAC (for DC) sufficient to assure that the SSCs in this area of review will operate in accordance with the certification.
6. 10 CFR 52.80(a), as it relates to ITAAC (for COL) sufficient to assure that the SSCs in this area of review have been constructed and will be operated in conformity with the license, the provisions of the Atomic Energy Act and the Commission's rules and regulations

### SRP Acceptance Criteria

Specific SRP acceptance criteria acceptable to meet the relevant requirements of the NRC's regulations identified above are as follows for each review described in Subsection I of this SRP section. The SRP is not a substitute for the NRC's regulations, and compliance with it is not required. However, an applicant is required to identify differences between the design features, analytical techniques, and procedural measures proposed for its facility and the SRP acceptance criteria and evaluate how the proposed alternatives to the SRP acceptance criteria provide acceptable methods of compliance with the NRC regulations.

1. 10 CFR 100.10, 10 CFR 100.20, 10 CFR 100.21, 10 CFR 52.17 and 10 CFR 52.79 requirements are met if the probability of aircraft accidents resulting in radiological consequences greater than the 10 CFR Part 100 exposure guidelines is less than an order of magnitude of  $10^{-7}$  per year (see SRP Section 2.2.3). The probability is

considered to be less than an order of magnitude of  $10^{-7}$  per year by inspection if the distances from the plant meet all of the criteria listed below:

- A. The plant-to-airport distance  $D$  is between 5 and 10 statute miles, and the projected annual number of operations is less than  $500 D^2$ , or the plant-to-airport distance  $D$  is greater than 10 statute miles, and the projected annual number of operations is less than  $1000 D^2$
- B. The plant is at least 5 statute miles from the nearest edge of military training routes, including low-level training routes, except for those associated with usage greater than 1000 flights per year, or where activities (such as practice bombing) may create an unusual stress situation
- C. The plant is at least 2 statute miles beyond the nearest edge of a Federal airway, holding pattern, or approach pattern

The projected number of operations in item A above, as well as the 1000 flights per year in item B above, should represent the maximum aircraft activity expected during the permit term in CP and ESP applications or for the license duration in OL and COL applications.

If the above proximity criteria are not met, or if sufficiently hazardous military activities are identified (see item B above), a detailed review of aircraft hazards must be performed. Aircraft accidents that could lead to radiological consequences in excess of the exposure guidelines of 10 CFR Part 100 with a probability of occurrence greater than an order of magnitude of  $10^{-7}$  per year should be considered in the design of the plant. If the results of the review do not support a finding that the risk from aircraft activities is acceptably low, then the design-basis acceptance criteria outlined in GDC 4 applies.

- 2. The plant meets the relevant requirements of GDC 3 and GDC 4, and is considered appropriately protected against design-basis aircraft impacts and fires, if the SSCs important to safety are capable of withstanding the effects of the postulated aircraft impacts and fires without loss of safe-shutdown capability and without causing a release of radioactivity that could exceed the 10 CFR Part 100 dose guidelines.

Regulatory Guide (RG) 1.117 provides acceptable methods for determining those SSCs that should be protected. The selection of SSCs to be protected is based upon not allowing offsite exposures to exceed an appropriate fraction of the offsite dose guidelines of 10 CFR Part 100. Basing the limits upon an appropriate "fraction" ensures protection for those events that are not as severe as the design-basis event but have a higher probability of occurrence. Protecting those SSCs important to safety from the effects of externally generated missiles due to aircraft hazards prevents failure of those systems required for safe shutdown and prevents the release of radioactivity with the potential for causing exposures in excess of the 10 CFR Part 100 guidelines.

- 3. The expected rate of exposure identified in 10 CFR 50.34(a)(1) dose guideline as it relates to the requirements identified in 10 CFR 100.20(b) should be about an order of magnitude of  $10^{-6}$  per year. If it can be shown with rigorous analysis, using realistic assumptions and reasonable arguments that the estimated probability could be lower, then, in accordance with the SRP Section 2.2.3, it is acceptable.

## Technical Rationale

The technical rationale for application of these requirements and/or SRP acceptance criteria to the areas of review addressed by this SRP section is discussed in the following paragraphs:

1. Aircraft crash hazards that have the potential for causing onsite accidents leading to the release of significant quantities of radioactive fission products, and thus pose an undue risk of public exposure, should have a sufficiently low probability of occurrence and be within the requirements of the low probability of occurrence criteria of 10 CFR 100.10, and 10 CFR 100.20.
2. GDC 3 establishes requirements regarding minimizing the probability and effect of fires and explosions on SSCs important to safety. Aircraft hazards include the potential through an aircraft impact for fires and explosions that could effect SSCs important to safety. RG 1.117 describes an acceptable method for determining which SSCs should be protected. Protecting those SSCs that are important to safety from the effects of aircraft hazards ensures the capability to shutdown the reactor and maintain it in a shutdown condition and the capability to prevent the release of radioactivity with the potential for causing exposures in excess of the 10 CFR Part 100 guidelines.
3. GDC 4 establishes requirements regarding the ability of SSCs important to safety to be protected from dynamic effects, including the effects of missiles that may result from events and conditions outside the nuclear plant. Aircraft hazards are events outside of the nuclear plant that could have the potential for missile generation. The initiation of an externally generated missile due to aircraft impacts is a dynamic effect and the effect of those missiles on SSCs important to safety must be evaluated.

### III. REVIEW PROCEDURES

The staff will select and emphasize material from the procedures described below, as may be appropriate for a particular case.

The procedures outlined below are used to review CP applications, ESP applications, and COL applications that do not reference an ESP to determine whether data and analyses for the proposed site meet the acceptance criteria given in Subsection II of this SRP section. For reviews of OL applications, these procedures are used to verify that the data and analyses remain valid and that the facility's design specifications are consistent with these data. As applicable, reviews of OLs and COLs include a determination on whether the content of technical specifications related to aircraft hazards is acceptable and whether the technical specifications reflect consideration of any identified unique conditions.

For deviations from these specific acceptance criteria, the staff should review the applicant's evaluation of how the proposed alternatives to the SRP criteria provide an acceptable method of complying with the relevant NRC requirements identified in Subsection II of this SRP.

1. Aviation Uses. Data describing aviation uses in the airspace near the proposed site, including airports and their approach paths, Federal airways, Federal Aviation Administration (FAA) restricted areas, and military uses is obtained from Section 2.2.1-2.2.2 of the safety analysis report (SAR) based on perusal data obtained and applying plant to airport distance criterion as explained in SRP section II.1 In general,

civilian and military maps should be examined to verify that all aviation facilities of interest have been considered. In the process, the reviewer should develop an independent assessment of the aircraft hazards. Communications with agencies responsible for aircraft operations and the evaluation of aircraft operational data may be utilized.

2. Airways. For situations in which Federal airways or aviation corridors pass through the vicinity of the site, the probability per year of an aircraft crashing into the plant ( $P_{FA}$ ) should be estimated. This probability will depend on a number of facts, such as the altitude and frequency of the flights, the width of the corridor, and the corresponding distribution of past accidents.

One way of calculating  $P_{FA}$  is by using the following expression:

$$P_{FA} = C \times N \times \frac{A}{w}$$

where:

$C$  = in-flight crash rate per mile for aircraft using airway

$w$  = width of airway (plus twice the distance from the airway edge to the site when the site is outside the airway) in miles

$N$  = number of flights per year along the airway

$A$  = effective area of plant in square miles

This gives a conservative upper bound on aircraft impact probability if care is taken in using values for the individual factors that are meaningful and conservative. For commercial aircraft a value of  $C = 4 \times 10^{-10}$  (Ref. 11) per aircraft mile has been used. For heavily traveled corridors (greater than 100 flights per day), a more detailed analysis may be required to obtain a proper value for this factor.

3. Civilian and Military Airports and Heli-Ports. The probability of an aircraft crashing into the site should be estimated for cases in which one or more of the conditions in item II.1 of the acceptance criteria are not met. The probability per year of an aircraft crashing into the site for these cases ( $P_A$ ) may be calculated by using the following expression:

$$P_A = \sum_{i=1}^L \sum_{j=1}^M C_j N_{ij} A_j$$

where:

$M$  = number of different types of aircraft using the airport

$L$  = number of flight trajectories affecting the site

$C_j$  = probability per square mile of a crash per aircraft movement, for the jth aircraft

$N_{ij}$  = number (per year) of movements by the jth aircraft along the ith flight path

$A_j$  = effective plant area (in square miles) for the jth aircraft

The manner of interpreting the individual factors in the above equation may vary on a case-by-case basis because of the specific conditions of each case or because of changes in aircraft accident statistics.

Values for  $C_j$  currently being used are taken from the data summarized in the following table:

Distance From End of Runway (miles)	Probability (x10 <sup>8</sup> ) of a Fatal Crash per Square Mile per Aircraft Movement			
	U.S. Air Carrier <sup>1</sup>	General Aviation <sup>2</sup>	USN/USMC <sup>1</sup>	USAF <sup>1</sup>
0-1	16.7	84	8.3	5.7
1-2	4.0	15	1.1	2.3
2-3	0.96	6.2	0.33	1.1
3-4	0.68	3.8	0.31	0.42
4-5	0.27	1.2	0.20	0.40
5-6	0	NA <sup>3</sup>	NA	NA
6-7	0	NA	NA	NA
7-8	0	NA	NA	NA
8-9	0.14	NA	NA	NA
9-10	0.12	NA	NA	NA

<sup>1</sup>D.G. Eisenhower, "Reactor Siting in the Vicinity of Air Fields," American Nuclear Society, June 1973.

<sup>2</sup>D.G. Eisenhower, "Testimony on Zion/Wankegan Airport Interaction." (Docket No. 50-295)

<sup>3</sup>NA indicates that data were not available for this distance

4. Designated Airspaces. For designated airspaces involving military or civilian usage, a detailed quantitative modeling of all operations should be verified. The results of the model should be the total probability ( $C$ ) of an aircraft crash per unit area and time in the vicinity of the proposed site.

The probability per year of a potentially damaging crash at the site from operations at the facility under consideration ( $P_M$ ) is then given for this case by the following expression:

$$P_M = C \times A$$

where:

$C$  = total probability of an aircraft crash per square mile per year in the vicinity of the site from the airports being considered

$A$  = effective area of one unit of the plant in square miles

Where estimated risks from military aircraft activity are found to be unacceptably high, suitable airspace or airway relocation should be implemented. Past experience has been that military authorities have been responsive to modification of military operations and relocation of training routes in close proximity to nuclear power plant sites.

5. Holding Patterns. Holding patterns are racetrack-shaped courses at specified altitudes, associated with one or more radio-navigational facilities, where aircraft can “circle” while awaiting clearance to execute an approach to a landing at an airport or to continue along an airway. Holding patterns that are sufficiently distant from the plant need not be considered (see Subsection II above). Otherwise, traffic in the holding pattern should be converted into equivalent aircraft passages taking into account the characteristics, including orientation with respect to the plant, of the holding pattern. The information in item III.2 above should be used in this evaluation.
6. The total aircraft hazard probability at the site equals the sum of the individual probabilities obtained in the preceding steps.
7. The effective plant areas used in the calculations should include the following:
  - A. A shadow area of the plant elevation upon the horizontal plane based on the assumed crash angle for the different kinds of aircraft and failure modes.
  - B. A skid area around the plant as determined by the characteristics of the aircraft under consideration. Artificial berms or any other manmade and natural barriers should be taken into account in calculating this area.
  - C. The areas of those safety-related SSCs that are susceptible to impact or fire damage as a result of aircraft crashes.
8. **Review Procedures Specific to 10 CFR Part 52 Application Type**
  - A. Early Site Permit Reviews

Subpart A to 10 CFR Part 52 specifies the requirements and procedures applicable to the Commission’s review of an ESP application for approval of a proposed site. Information required in an ESP application includes a description

of the site characteristics and design parameters of the proposed site. The scope and level of detail of review of data parallel that used for a CP review.

In the absence of a compliance or adequate protection issue, 10 CFR 52.39 precludes the staff from imposing new site characteristics, design parameters, or terms and conditions on the early site permit at the COL stage. Accordingly, the reviewer should ensure that all physical attributes of the site that could affect the design basis of SSCs important to safety are reflected in the site characteristics, design parameters, or terms and conditions on the early site permit.

#### B. Standard Design Certification Reviews

DC applications do not contain general descriptions of site characteristics because this information is site-specific and will be addressed by the COL applicant. However, pursuant to 10 CFR 52.47(a)(1), a DC applicant must provide site parameters postulated for the design. The reviewer verifies that:

1. The postulated site parameters should be representative of a reasonable number of sites that may be considered within a COL application; e.g., the site parameter values should be reasonable as compared to site characteristics listed in previously docketed ESP applications;
2. The appropriate site parameters are included as Tier 1 information per SRP Section 14.3.1;
3. Pertinent parameters are stated in a site parameters summary table; and
4. The applicant has provided a technical basis for each of the site parameters.

#### C. Combined License Reviews

For a COL application referencing a certified standard design, NRC staff reviews that application to ensure sufficient information was presented to demonstrate that the characteristics of the site fall within the site parameters specified in the DC rule. Should the actual site characteristics not fall within the certified standard design site parameters, the COL applicant will need to demonstrate by some other means that the proposed facility is acceptable at the proposed site. This might be done by re-analyzing or redesigning the proposed facility.

For a COL application referencing an ESP, NRC staff reviews the application to ensure the applicant provided sufficient information to demonstrate that the design of the facility falls within the site characteristics and design parameters specified in the early site permit as applicable to this SRP section. Should the design of the facility not fall within the site characteristics and design parameters, the application shall include a request for a variance from the ESP that complies with the requirements of §§ 52.39 and 52.93.

In addition, long-term environmental changes and changes to the region resulting from human or natural causes may have introduced changes to the site characteristics that could be relevant to the design basis. The requirements of

10 CFR 52.39 preclude the Commission from changing or imposing new site characteristics, design parameters, or terms and conditions on an ESP, unless the change is necessary to assure adequate protection of the public health and safety or to bring the permit or site into compliance with the Commission's regulatory requirements in effect when the permit was issued. Consequently, the staff's review of a COL application referencing an ESP should not include a re-investigation of the site characteristics that have previously been accepted in the referenced ESP. However, in accordance with 10 CFR 52.6, "Completeness and Accuracy of Information," the applicant or licensee is responsible for identifying changes of which it is aware, that would satisfy the criteria specified in 10 CFR 52.39. Information provided by the applicant in accordance with 10 CFR 52.6(b) will be addressed by the staff during the review of a COL application referencing an ESP or a DC.

For a COL application referencing either an ESP or DC or both, the staff should review the corresponding sections of the ESP and DC FSER to ensure that any unresolved items, commitments, assumptions, and differed issues identified in the FSERs are appropriately handled in the COL application.

#### IV. EVALUATION FINDINGS

The review should document the staff's evaluation of site characteristics against the relevant regulatory criteria. The evaluation should support the staff's conclusions as to whether the regulations are met. The reviewer should state what was done to evaluate the applicant's safety analysis report. The staff's evaluation may include verification that the applicant followed applicable regulatory guidance, performance of independent calculations, and/or validation of appropriate assumptions. The reviewer may state that certain information provided by the applicant was not considered essential to the staff's review and was not reviewed by the staff. While the reviewer may summarize or quote the information offered by the applicant in support of its application, the reviewer should clearly articulate the bases for the staff's conclusions.

The reviewer verifies that the applicant has provided sufficient information and that the review and calculations (if applicable) support conclusions of the following type to be included in the staff's safety evaluation report. The reviewer also states the bases for those conclusions.

Specifically, the reviewer drafts an introductory paragraph for the evaluation findings describing the procedure used in evaluating the aircraft hazards with respect to the safety-related SSCs. The reviewer verifies that the site location is acceptable and meets the requirements of 10 CFR Part 100, 10 CFR 100.10, or 10 CFR 100.20, as appropriate.

The basis for the above findings may be strictly in terms of the probabilities associated with potential aircraft crashes on site. If the aircraft crash statistics applicable to the onsite facilities are such that SRP Section 2.2.3 criteria are met without explicit consideration of plant design features, then conclusions of the following type should be included in the staff's safety evaluation report:

The staff concludes that the operation of the \_\_\_\_\_ plant in the vicinity of \_\_\_\_\_ does not present an undue risk to the health and safety of the public and meets the relevant requirements of 10 CFR Part 100 and 10 CFR 100.10 (or 10 CFR 100.20, as appropriate). This conclusion is based on the staff's independent verification of the applicant's assessment of aircraft hazards

at the site that resulted in a probability less than about  $10^{-7}$  per year for an accident having radiological consequences worse than the exposure guidelines of 10 CFR Part 100.

In addition, plant sites reviewed in the past which had equivalent aircraft traffic in equal or closer proximity were, after careful examination, found to present no undue risk to the safe operation of those plants. Based upon this experience, in the staff's judgment, no undue risk is present from aircraft hazard at the plant site now under consideration.

In the event that the staff evaluation of the aircraft hazards does not support the above basis (i.e., if SRP Section 2.2.3 criteria are not met), then the basis for acceptance is derived from applying the GDC 3 and GDC 4 criteria. If the protection against aircraft impacts and fires is such that the plant safety-related SSCs meet the GDC 3 and GDC 4 criteria, then 10 CFR Part 100 requirements are considered to be met and a conclusion of the following type may be included in the staff's safety evaluation report:

The staff concludes that the operation of the \_\_\_\_\_ plant in the vicinity of \_\_\_\_\_ does not present an undue risk to the health and safety of the public from aircraft hazards and meets the relevant requirements of GDC 3 and 4. This conclusion is based on the staff having independently verified the applicant's assessment of aircraft hazards, including aircraft fires and impacts, at the site and that, if the appropriate safety-related SSCs are designed to withstand the aircraft selected as the design-basis aircraft, then the probability of an aircraft strike causing radiological consequences in excess of the exposure guidelines of 10 CFR Part 100 is less than about  $10^{-7}$  per year.

#### 1. Construction Permit, Operating License, and Combined License Reviews

The following statements should be preceded by a summary of the site characteristics and parameters used for the plant:

As set forth above, the applicant has presented and substantiated information to establish the aircraft hazards. The staff has reviewed the information provided and, for the reasons given above, concludes that the applicant has established the risk of the aircraft hazards due to the proximity of airports and air transportation routes is very low and acceptable to meet the requirements of 10 CFR Part 52 and 10 CFR Part 100, as well as RG 1.117 and GDC 3 and GDC 4. The staff further concludes that the applicant provided sufficient details about the aircraft hazards to allow the staff to evaluate that the applicant has met the relevant requirements of 10 CFR Part 52 and 10 CFR part 100, as well as GDC 3 and GDC 4 with respect to determining the acceptability of the site.

#### 2. Early Site Permit Reviews

The following statements should be preceded by a summary of the site characteristics to be included in any ESP that might be issued for the ESP site:

As set forth above, the applicant has presented and substantiated information to establish the aircraft hazards. The staff has reviewed the information provided and, for the reasons given above, concludes that the applicant has established

the risk of the aircraft hazards due to the proximity of airports and air transportation routes is very low and acceptable to meet the requirements of 10 CFR Part 52.17 and 10 CFR Part 100, as well as RG 1.117 and GDC 3 and GDC 4 fo Appendix A to 10 CFR 50. The staff further concludes that the applicant provided sufficient details about the aircraft hazards to allow the staff to evaluate whether the applicant has met the relevant requirements of 10 CFR Part 52.17 and 10 CFR part 100, as well as GDC 3 and GDC 4 with respect to determining the acceptability of the site.

### 3. Design Certification Reviews

The following statement should be preceded by a list of the applicable site parameters used for the plant:

The applicant has selected the site parameters referenced above for plant design inputs (a subset of which is included as Tier 1 information), but does not claim that they are representative of any particular percentile of possible sites in the United States, and does not assert the acceptability of the basis for the choice of values with respect to siting. The aircraft hazard is site-specific and will be addressed by the COL applicant. This should include the provision of information sufficient to demonstrate that the design of the plant falls within the values of the actual site characteristics specified in a COL or CP application.

## V. IMPLEMENTATION

The staff will use this SRP section in performing safety evaluations of design certifications and license applications submitted by applicants pursuant to 10 CFR Part 50 or 52. Except when the applicant proposes an acceptable alternative method for complying with specified portions of the Commission's regulations, the staff will use the method described herein to evaluate conformance with Commission regulations.

The provisions of this SRP section apply to reviews of applications docketed six months or more after the date of issuance of this SRP section, unless superceded by a later revision.

## VI. REFERENCES

1. 10 CFR Part 100, "Reactor Site Criteria," Subpart A, "Evaluation Factors for Stationary Power Reactor Site Applications Before January 10, 1997 and for Testing Reactors," Section 100.10, "Factors To Be Considered When Evaluating Sites."
2. 10 CFR Part 100, "Reactor Site Criteria," Subpart B, "Evaluation Factors for Stationary Power Reactor Site Applications on or After January 10, 1997," Section 100.20, "Factors To Be Considered When Evaluating Sites."
3. 10 CFR Part 52, "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants," Subpart A, "Early Site Permits," Section 52.17, "Contents of Applications, Technical Information."

4. 10 CFR Part 100, "Reactor Site Criteria," Subpart B, "Evaluation Factors for Stationary Power Reactor Site Applications on or After January 10, 1997," Section 100.21, "Non-Seismic Siting Criteria."
5. 10 CFR 50.34(a)(1)(ii) "Contents of Application, Technical Information."
6. 10 CFR 52.47(a) "Contents of Application, Technical Information."
7. 10 CFR 52.79(a)(1)(vi) "Contents of Application, Technical Information in Final Safety Analysis Report."
8. Regulatory Guide 1.117, "Tornado Design Classification," Rev.1, April 1978.

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**PAPERWORK REDUCTION ACT STATEMENT**

The information collections contained in the draft Standard Review Plan are covered by the requirements of 10 CFR Part 50 and 10 CFR Part 52, and were approved by the Office of Management and Budget, approval number 3150-0011 and 3150-0151.

**PUBLIC PROTECTION NOTIFICATION**

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.

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## **SRP Section 3.5.1.6** Description of Changes

This SRP section affirms the technical accuracy and adequacy of the guidance previously provided in (Draft) Revision 3 of Section 3.5.1.6, dated April 1996 of these SRPs. See ADAMS accession numbers ML052070378.

In addition this SRP section was administratively updated in accordance with NRR Office Instruction, LIC-200, Revision 1, "Standard Review Plan (SRP) Process." The revision also adds standard paragraphs to extend application of the updated SRP section to prospective submittals by applicants pursuant to 10 CFR Part 52.

The technical changes are incorporated in Revision 3, dated [Month] 2007:

Review Responsibilities - Reflects changes in review branches resulting from reorganization and branch consolidation. Change is reflected throughout the SRP.

### I. AREAS OF REVIEW

1. Changes are minor, primarily in the form of clarification.
2. Review interfaces numerically itemized and references to specific branches removed or replaced with pointers to other relevant SRP chapters.
3. Changes are made to address CPs, OLs, DCs, ESPs, and COLs that are to be covered by this SRP section.

### II. ACCEPTANCE CRITERIA

1. Acceptance criteria itemized for clarity. This includes itemized list of regulatory requirements that form a basis for the acceptance criteria.
2. Technical rationale for the acceptance criteria itemized and discussed separately for clarity. With most conservative assumptions the probability of  $10^{-6}$  is acceptable, if it can be shown that it could be lower with realistic approach.
3. Changes include regulatory requirements of 10 CFR Part 52 to relevant to ESP, DC, and COL applications, but do not reflect new staff positions.
4. Standard ITAAC acceptance criteria were added.

### III. REVIEW PROCEDURES

1. Numerically itemized specific review procedures for clarity.
2. Changed references to technical support from specific branches to branches identified by technical areas of expertise.

3. Standard paragraph was added to address that applicant must show that any deviations from the stated SRP criteria provide an acceptable way to meet the relevant NRC requirements.
4. Standard paragraph was added to address application of Review Procedures under 10 CFR Part 52 for COL applications and DC reviews.

#### IV. EVALUATION FINDINGS

1. Changes are minor, in the form of clarification.
2. New paragraph was added at the end of the Evaluation Findings subsection to address DC reviews. This paragraph addresses DC-specific items including ITAAC, design acceptance criteria, site interface requirements, and COL action items.

#### V. IMPLEMENTATION

1. Reference was added for applications under 10 CFR Part 52.
2. Standard paragraph was added to indicate applicability of this section to reviews of future applications.

#### VI. REFERENCES

1. Addition of new references reflecting 10 CFR Part 50 and 10 CFR Part 52.
2. Addition of new technical references.