

USNRC Environmental Protection Considerations for Assessing Site Suitability

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USNRC Regulations and Guides

- **10CFR Part 100, Reactor Site Criteria, establishes approval requirements for proposed sites for stationary power and testing reactors.**
- **Regulatory Guide 4.7, General Site Suitability Criteria for Nuclear Power Stations, discusses the major site characteristics related to public health and safety and environmental issues that the NRC staff considers in determining the suitability of sites for LWR nuclear power stations.**

USNRC Regulations and Guides

- **Appendix A of Reg. Guide 4.7 provides a checklist of site safety characteristics, relevant regulatory guides, and regulatory experience and positions for assessing site suitability for nuclear power stations.**
- **Appendix B of Reg. Guide 4.7 summarizes environmental considerations related to site characteristics that should be addressed in the early site selection process.**

Environmental Protection Considerations

- **Preservation of Important Habitats**
 - **Such habitats include breeding areas, nursery, feeding, resting and wintering areas, wetlands or other areas of seasonally high concentrations of important species.**
- **Migratory Routes of Important Species**
 - **Disruption of migratory patterns can result from partial or complete blockage of routes by structures, discharge plumes, environmental alterations or human activities, such as corridor clearing or site preparation.**

Environmental Protection Considerations

- **Entrainment and Impingement of Aquatic Organisms**
 - **Fish and other aquatic organisms can be killed or injured by entrainment through cooling systems or discharge plumes, or by impingement on cooling water intake screens.**
- **Entrapment of Aquatic Organisms**
 - **Cooling water intake and discharge features, such as canals and thermal plumes, can entrap fish, leading to higher mortality from station-related causes.**

Environmental Protection Considerations

- **Water Quality**
 - **Effluents discharged from NPPs are governed under the Federal Water Pollution Control Act. The State must certify that any discharge will comply with water quality standards.**
- **Water Availability**
 - **Consumption of water for cooling may be restricted by law, may be inconsistent with water use planning or may lead to unacceptable impact on the water resource.**

Environmental Protection Considerations

- **Established or Prospective Public Amenity Areas**
 - **Areas dedicated by Federal, State or local governments to scenic, recreational or cultural purposes are generally prohibited for siting power stations.**
- **Public Planning**
 - **Land use for a power station should be compatible with established land use or zoning plans of governmental agencies.**

Environmental Protection Considerations

- **Visual Amenities**
 - **Power station structures may impact areas with significant dependence on desirable viewing characteristics.**
- **Local Fogging and Icing**
 - **Cooling systems can lead to ground fog and ice, resulting in transportation hazards and damage to electrical transmission systems.**

Environmental Protection Considerations

- **Cooling Tower Drift, Plume Length and Interactions**
 - **Concentrations of chemical, dissolved solids and suspended solids in cooling tower drift could affect animals, vegetation and other resources;**
 - **Visible cooling tower plumes could cause a hazard to aviation and have aesthetic impacts;**
 - **Interaction of water in cooling tower plumes with industrial emissions from nearby facilities can cause public health impacts or damage to biota, structures and other resources.**

Environmental Protection Considerations

- **Noise**
 - **Noise levels at proposed sites must comply with statutory requirements.**
- **Economic Impact of Preemptive Land Use**
 - **The land requirement is likely to be an important issue when a proposed site is on productive land. The level of economic impact must be considered.**
- **Environmental Justice**
 - **Areas that disproportionately affect minority or low-income populations should be avoided.**