REGULATORY ANALYSIS

DRAFT REGULATORY GUIDE DG-1275
Ultimate Heat Sink for Nuclear Power Plants
(Proposed Revision 3 of Regulatory Guide 1.27, dated January 1976)

1. Statement of the Problem

The U.S. Nuclear Regulatory Commission (NRC) published Revision 2 of Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Power Plants (For Comment)," in January 1976 to provide licensees and applicants with agency-approved guidance for complying with the then-current version of Title 10, of the Code of Federal Regulations, Part 50, "Licensing of Production and Utilization Facilities" (10 CFR Part 50). This guide is being revised to address revisions in regulations and lessons learned from operating experience since the guide was last issued in January 1976. These include system design considerations for ultimate heat sink (UHS), natural phenomena and site hazards design for UHS, in-service testing and maintenance of UHS. This revised guide contains information applicable to both older plants and newer reactors licensed under both 10 CFR Parts 50 and 52.

2. Objective

The objective of this regulatory action is to update NRC guidance and provide licensees and applicants with methods and procedures that maybe used to demonstrate compliance with general design criteria (GDC) in Appendix A, "General Design Criteria for Nuclear Power Plants," to Title 10, of the *Code of Federal Regulations*, Part 50, "Domestic Licensing of Production and Utilization Facilities" (10 CFR Part 50), that are applicable to the UHS features of plant systems.

3. Alternative Approaches

The NRC staff considered the following alternative approaches:

1. Do not revise Regulatory Guide 1.27

2. Withdraw Regulatory Guide 1.27

3. Revise Regulatory Guide 1.27 to address the current methods and procedures.

<u>Alternative 1: Do Not Revise Regulatory Guide 1.27</u>

Under this alternative, the NRC would not revise or issue additional guidance, and the current guidance (for comment) would be retained. If NRC does not take action, there would not be any changes in costs or benefit to the public, licensees, applicants, or NRC. However, the "no-action" alternative would not address identified concerns with the current version of the regulatory guide or in the absence of NRC guidance, for a new guide. The NRC would continue to review each application on a case-by-case basis. This alternative is considered the "no-action" alternative and provides a baseline condition from which any other alternatives will be assessed.

<u>Alternative 2: Withdraw Regulatory Guide 1.27</u>

Under this alternative the NRC would withdraw this regulatory guide. This would eliminate the current conflict that exists between the current regulatory guide and the newer regulations. It would also

eliminate the only readily available description of the methods the NRC staff considers acceptable for demonstrating compliance with the general design criteria in Appendix A of 10 CFR Part 50, that are applicable to the ultimate heat sink features of plant systems. Although this alternative would be less costly than the proposed alternative, it would impede the public's accessibility to the most current guidance information.

Alternative 3: Revise Regulatory Guide 1.27

Under this alternative, the NRC would revise Regulatory Guide 1.27. This revision would incorporate the latest information of general design criteria provided in 10 CFR Part 50, that are applicable to ultimate heat sink features of plant systems, supporting guidance, and review practices. By doing so, the NRC would ensure that the RG guidance available in this area is current, and accurately reflects the staff's position.

The impact to the NRC would be the costs associated with preparing and issuing the regulatory guide revision. The impact to the public would be the voluntary costs associated with reviewing and providing comments to NRC during the public comment period. The value to NRC staff and its applicants would be the benefits associated with enhanced efficiency and effectiveness in using a common guidance document as the technical basis for license applications and other interactions between the NRC and its regulated entities.

4. Conclusion

Based on this regulatory analysis, the NRC staff recommends revision of Regulatory Guide 1.27. The staff concludes that the proposed action will enhance reactor safety by providing current and accurate guidance.