

Safety Basis Expectations for Defense Nuclear Facilities

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The Department of Energy (DOE) has expressed an expectation that contractors responsible for the design, construction, operation, decontamination, or decommissioning of nuclear facilities complete safety analyses that demonstrate the adequacy of the safety bases of the facilities [DOE Order 5480.23]. This expectation, which appears simple to articulate, has proven difficult to realize for existing facilities. DOE and its contractors have had even more difficulty in agreeing upon the required format and content of the reports that document a given facility's or activity's safety analyses.

In 1995, the Board issued Recommendation 95-2 and DNFSB Technical Reports 5 and 6 to introduce the concept of Integrated Safety Management System (ISMS) and ensure enhanced safety of operations at defense nuclear facilities through its implementation. Subsequent to the Board Recommendation, significant changes were made to the way that the contractors implemented safety. They were required to 1) amend their contract with a list of requirements (List A and List B) in response to 48 CFR § 970.5204-78, the DEAR Laws clause, 2) prepare Authorization Basis documents (identifying the hazards, analyzing the hazards, and identifying the necessary controls), and 3) sign Authorization Agreements with DOE that clearly identify key terms and conditions under which the contractor is authorized to perform the work.

The majority of hazard category 2 defense nuclear facilities have already signed Authorization Agreements based on the currently existing Authorization Basis documents. However, the safety basis upgrade programs initiated in response to DOE O 5480.23 have not yet achieved the objectives of the Order in many cases. The hazard analyses supporting some current safety or authorization bases do not meet DOE expectations as stated in DOE O 5480.23 and its supporting standard (DOE-STD-3009-94), are out of date, are based on inappropriate bounding scenarios, or do not address worker safety. These safety bases are in need of upgrading.

This paper discusses some of the contractors' practices and activities in response to implementation of ISMS at their facilities, how these activities may be tied to the safety bases and tailoring of the authorization bases, and proposes an approach and a minimum set of information that needs to be prepared and documented in the authorization bases to be consistent with the intents of ISMS and meet DOE expectations. The proposed approach encompasses existing facilities with limited and long-term mission.

In summary, this paper proposes an alternative to the 17 chapter-SARs for existing facilities with long-term mission and demonstrates the need for an amendment to some Bases for Interim Operation or Authorization Agreements for limited life facilities.