

Hazard Categorization Simplification and Graded Approach under the Rule

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Hazard categorization of DOE-owned nuclear facilities is performed consistent with DOE-STD-1027, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*, as required by 10 CFR 830 (the Rule). DOE-STD-1027 was developed in 1991-92 for the purpose of providing a “graded approach” to the development of hazards and accident analysis for DOE nuclear facilities.

The graded approach was based on the facility hazard categorization, which could easily be ascertained by comparison of the inventory of radioactive material which could be in a facility to established threshold quantities (TQs) using a sum-of-fractions calculation method. Since its establishment, the parameters used to generate the TQs have been increasingly examined to determine whether they are adequately conservative in bounding accident conditions, an application not originally intended.

It is proposed to 1) return DOE-STD-1027 to a simple determination of hazard category 1, 2, and 3, and 2) provide a distinction in safety basis requirements between hazard category 2 and 3 facilities based on magnitude of radiological hazards and hazard controls typically required for hazard category 3 facilities.

The simplest application of hazard categorization requires only an initial hazard category determination based on inventory comparison to TQs. Final hazard categorization based on hazards analysis and bounding dose estimate requires approval by DOE. Rule requirements are adjusted for hazard category 3 facilities.

The benefit of these proposed changes are greater efficiency in hazard categorization and application of a true graded approach for safety basis development.

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