

Defense-Related Uranium Mines Risk Screening Process

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The Defense-Related Uranium Mines (DRUM) Program provides the structure and basis for the U.S. Department of Energy, Office of Legacy Management (LM), to perform the verification and validation (V&V) of DRUM that provided ore to the U.S. Atomic Energy Commission from 1947 to 1970. LM conducts V&V activities to understand fully the scope of potential problems posed by these mines by determining their location, previous reclamation or remediation, and potential impacts to public safety, human health, and the environment. DRUM (V&V) activities include verification of actual mine locations in the field; inventory of mining-related features and assessment of physical hazards; collection of radiological data (gamma surveys), soil samples, and water samples (when applicable); screening of mines using a risk-based screening approach; and reporting the results of these activities to the partner agencies.

The DRUM Program risk screening process optimizes risk evaluation by providing flexibility to the risk evaluator. This screening process uses a two-part approach for identifying mines with no known hazards (none category) and for prioritizing mines with hazards into high, medium, and low categories. The overall approach focuses first on ranking primary site hazards (both physical safety and human health) and secondarily on the application of modifying factors. One objective of the first step, The Risk Scoring Assessment, is to identify mines that are at opposite ends of the hazard spectrum: (1) those that have no physical or human health hazards and are candidates for elimination from further consideration, and (2) those that pose clear physical hazards and/or human health hazards, and will likely require action. The emphasis in the second step, The Risk Roll-Up, is on incorporating the modifying factors to put mines that pose similar hazards into “bins” and prioritizing potential actions for each grouping (bin) of mines.

LM uses the risk screening results, in collaboration with partner agencies, to identify and reach concurrence on the physical hazards that require reclamation. Once LM and partner agencies achieve concurrence, LM will assist by obtaining the necessary funding and collaborating with partner agencies on the National Environmental Policy Act (NEPA) process, closure designs, and the construction/installation of safety closures.

The DRUM risk screening process has been successful in organizing the mines by risk and prioritizing actions. Results to date show that the majority of mines have physical hazards as the main risk driver, many mines rank low or none for all 3 primary hazards likely requiring no further action, and very few have human health hazards requiring further investigation or remediation of chemical and/or radiological constituents.