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## Geological Repository Safeguards: Options for the Future

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Challenges for safeguarding a geological repository of spent nuclear fuel pose at least three high-level opportunities. First, being a relative late-comer among the various types of nuclear facilities subject to safeguards, the geological repository is an ideal candidate for applying “safeguards by design” (SBD). Moreover, a repository is an especially good example facility where the sometimes conflicting objectives of safeguards, security, and safety (3S) in fact can align harmoniously. And finally, a repository is unlike all other nuclear facilities such that containment and surveillance (C/S) arguably should constitute the primary safeguards approach, rather than material accountancy. Several states have already invested many years and resources toward implementing final disposal of spent nuclear fuel in a geological repository. The critical, precedent-setting decisions about the best approaches for safeguarding nuclear material destined for and emplaced within a geological repository are already beginning to take shape. We consider the unfolding safeguards consideration of geological repositories from the perspectives of SBD, 3S, and C/S. If done mindfully, the prospects are good for an effective and cost-efficient safeguards solution likely to facilitate, rather than hinder, the future worldwide growth of civil nuclear energy.

### Country or International Organization

United States of America

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