Sandia National Laboratories

Energy, Climate, & Infrastructure Security

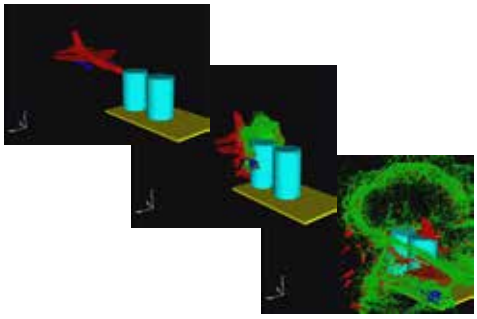
Advanced Security for Nuclear Materials and Facilities

SNL has a history of developing the technologies necessary to understand phenomenologies related to the assessment of consequences from various types of adverse security events. This understanding started with fundamental tests in the 70s that have been used to ascertain global effects of a security event as well as to benchmark early computer codes that were being developed. As both hardware and software technologies developed, the sophistication of the analyses improved dramatically along with the types of tests that were conducted to obtain important experimental data that better represented realistic events.

Vision

To enhance the nation's security and prosperity through sustainable, transformative approaches to our most challenging energy, climate, and infrastructure problems.

Important applications of these capabilities include performing assessment of facility vulnerabilities and resultant consequences of a range of attack scenarios related to nuclear facilities after 9/11.



This established capability provides a suite of phenominological codes that span the relevant physics of the problem as well as several engineering disciplines to replicate real-world security events and their resultant consequences. Further, these codes have been benchmarked against applicable data to ensure results that truly replicate the real event.

These comprehensive analyses were able to realistically represent the actual attack, the response of the facility to the attach, the release of radiological source term, the dispersion of the source term based on gas and solid phases as well as particle size distribution, and finally dose consequence at a defined boundary.

These vulnerability analyses provided realistic data that to support decision-making to enhance physical protection designs and mitigation features. Subsequently, this work has been used as a basis for follow on studies that are being used by the NRC in development of a technical basis for use in potential rule-making for revising the physical protection regulations in 10CFR73.

For more information, contact

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