

TUNNEL TARGET DEFEAT ACTD V&V PROGRAM

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The Tunnel Target Defeat (TTD) ACTD (Advanced Concept Technical Demonstration) program conducted by the U.S. Defense Threat Reduction Agency (DTRA) had as its primary objective the validation of selected high-fidelity 3-D finite element ground shock and tunnel damage computer codes. Five modeling organizations participated in the 3-year program, each employing their own codes and modeling techniques. DTRA established a Modeling Assessment Group (MAG) as an independent group of subject matter experts to (1) Review the V&V planning effort, (2) Assess the program's success, and (3) Recommend confidence and limitations in code application. The author was the MAG chairman. The paper briefly describes the scope of the ACTD (code verification exercises, experiment design and results, and V&V metrics) but the focus is on the MAG's approach to code performance evaluation with respect to the database of software verification results and laboratory and field tests data obtained during the program. Particular attention is given to the analysis of uncertainties and errors in measurements and calculations.