

FIELD TESTING OF VULNERABILITY ASSESSMENT AND PROTECTION OPTION (VAPO) TOOL

Mr. Phillip Benshoof¹, Dr. Nathan Kathir², Dr. Ali Amini²

¹ SYColeman

9302 Lee Highway, Suite 800, Fairfax, VA 22031

² Defense Threat Reduction Agency

8725 John J. Kingman Road, MSC 620, Fort Belvoir, VA 22060-6201

MSC 6201

The Vulnerability Assessment and Protection Option (VAPO) tool has been designed to support force protection evaluators and planners with the ability to quickly model a facility, assess its vulnerability to terrorist threats and analyze the effects of different blast mitigation protection options. VAPO uses fast-running, physics-based algorithms to predict blast pressure and impulse levels; weapon casing fragmentation; individual structural component damage levels for columns, walls, slabs and beams that include differing construction materials and practices; glazing hazard levels; and subsequent predicted human injuries. Calculations of the blast environment for urban scenes are available, to include effects of reflection and diffraction of blast pressures off of and around structures, the urban blast pressures are represented in color and viewable in a 3-D Mode.

Since its first release in October 2005, VAPO 1.0 has been field tested in several assessments by the Joint Staff Integrated Vulnerability Assessments (JSIVA) teams. In this paper, we will present an overview of VAPO 1.0 and discuss the experience of JSIVA structural engineers in first time use of the software tool in the field.

