

SURVIAC

SURVIAC's scope of responsibility includes:

- Attrition
- Ballistic Damage
- Ballistic Effects
- Battle Damage
- Battle Damage Repair
- Conventional Weapons
- Countermeasures
- Counter-Countermeasures
- Directed Energy Weapons
- High-Power Microwaves
- Hit Avoidance
- Hypervelocity Kill Mechanism
- Lethality
- Live Fire Test
- Probability of Kill
- Radar Signature
- Survivability Methodology
- Survivability Modeling
- Susceptibility
- Susceptibility Reduction
- Vulnerability Reduction
- Weapons Effectiveness

The United States is in an era of cutbacks in defense spending that are reducing the size of our active armed forces and restricting quantities of new systems purchased. Our combat forces will have to do more with what they have, and it will be increasingly important to build survivable systems that can return from battle to fight again and again. As a result, survivability is prominently recognized as an effective force multiplier. Operation Desert Storm demonstrated the importance of weapons system survivability and weapons effectiveness. Decisions affecting billions of dollars of equipment, the lives of combat crew members, and our national security depend on the availability of credible and responsive information on survivability and lethality.

The SURVIAC scope is the vital technology area of non-nuclear survivability and lethality of aeronautical and surface systems, equipment, and components. Data holdings for systems include physical and functional characteristics, design, performance and operational information, acoustics, infrared, optical, electro-optical and radar signature, combat damage and repair, and system, subsystem, and component probability of kill given a hit (Pk/h) functions.

SURVIAC provides lessons learned from prior combat incidents, integrates test results, and provides proven analytical methodologies, design guidance, and problem-solving

expertise. SURVIAC also provides comprehensive survivability and lethality modeling services including model distribution, expert support, training, and updates.

TATs & Products Ullage Model

Current methodologies to predict the likelihood of the effect of fuel-air vapor ullage explosion often are inconsistent, unreliable, unable to provide the detailed assessment of the effects of fuel/air vapor explosions, and incapable of evaluating the effectiveness of ullage protection techniques. SURVIAC developed an analytical fuel/air vapor ullage explosion computer model. In addition, SURVIAC identified suitable analytical methodologies and data, and documented the associated model and databases.

Fluid-Backed Plates

One of the configurations often encountered during aircraft vulnerability analysis is that of a plate backed by fluid such as fuel or hydraulic fluid. To compute both shielding and vulnerability of components behind the fluid, it is necessary to be able to estimate various projectile configurations. SURVIAC collected and analyzed data that involves threat penetration into fluid-backed plates.

Advanced Assault Amphibious Vehicle

Next-generation assault vehicles are in need of armor designs that are highly critical to the success of the

system. The need to keep weight low yet provide ballistic protection presents a unique challenge. SURVIAC fully evaluated the ballistic performance characteristics of the vehicle's armor, as well as the overall vulnerability of the vehicle.

Aircraft Fuel System Fire & Explosion Suppression Design Guide

This practical, up-to-date reference condenses all identified documented vulnerability reduction technology pertinent to the design of modern aircraft fuel systems. The three-volume design guide identifies more than 1,500 relevant reference documents, which are listed in a bibliography in the appendix.

Compendium of References for Non-Nuclear Aircraft Survivability

This compendium is a resource for aerospace and defense organizations, designers, analysts, and test personnel. It allows the user to quickly locate the most pertinent design, analysis, and test information for a particular system or subsystem. The compendium scope includes non-nuclear survivability, excluding directed energy weapons.

Joint Live Fire/Live Fire Test Program Catalogue

Available in hard copy and electronic media, the catalogue provides information on the Joint Live Fire/Live Fire Test program, including completed, on-going, and future tests. The database includes 47 descriptor

fields describing each test program identified. The data element fields include general test information, test documentation, target and threat information, and test results.

A Summary of Aerospace Vehicle Computerized Geometric Descriptions for Vulnerability Analyses

This May 92 report is a catalogue which contains a summary of target geometries of domestic aircraft, missiles, helicopters, satellites, target drones, and components, as well as foreign aircraft and helicopters, missiles, and target drones. These target geometries were developed in MAGIC, SHOTGEN, FASTGEN3, GIFT, or SCAN formats.

Critical Review & Technology Assessment (CR/TA) for Soldier Survivability (SSv)

This report presents a top-level summary of the background and establishment of Soldier Survivability (SSv) as the 7th Domain of the U.S. Army's MANPRINT (Manpower and Personnel Integration) program as well as the implementation of the SSv into the DoD acquisition process.

BLUEMAX IV

This tool allows the user to construct detailed flight paths for fixed-wing aircraft for input into models such as RADGUNS and ESAMS. Bluemax IV can be used as a stand-alone tool for determining aircraft performance characteristics.

This is just a sample of the products and services available from SURVIAC. For more information, please contact SURVIAC or browse our Web site at <http://iac.dtic.mil/surviac>

SURVIAC may be reached at:

Address:

SURVIAC
AFRL/VACS/SURVIAC, Bldg 45
2130 Eighth Street, Suite 1
WPAFB, OH 45433-7542

Phone: (937) 255-4840
Fax: (937) 255-9673
E-mail: surviac@wpafb.af.mil
URL: <http://iac.dtic.mil/surviac>

Kevin R. Crosthwaite Director

Phone: (937) 255-4840
E-mail: crosthwaite_kevin@bah.com

Martin I. Lentz COTR

AFRL/VACS
2700 D Street, Bldg. 22B, Suite C201
WPAFB, OH 45433-7605

Phone: (937) 255-6302, ext. 241
DSN: 785-6302
Fax: (937) 255-2237
E-mail: martin.lentz@va.wpafb.af.mil