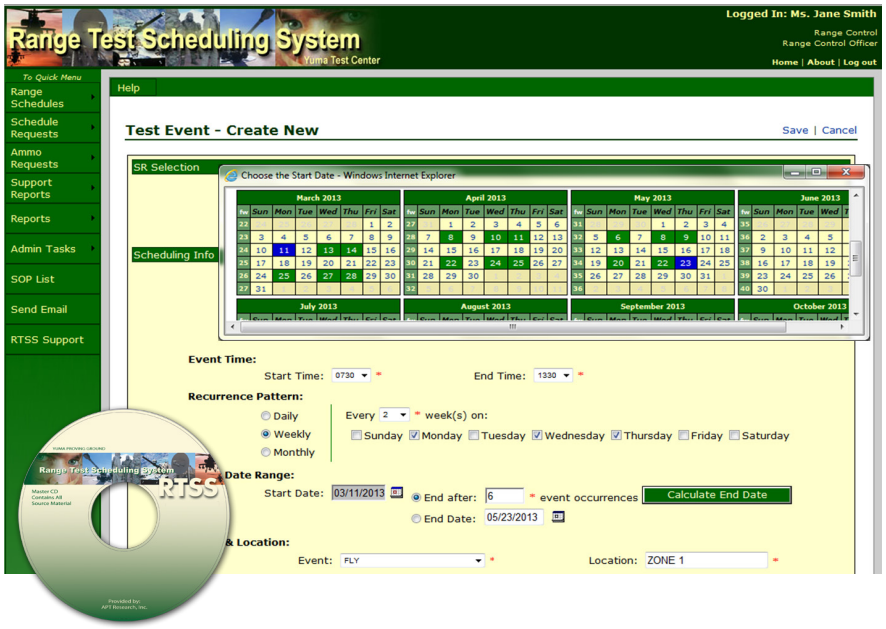
A-P-T RESEARCH, INC.

SOFTWARE DEVELOPMENT & MODELING

Organized to Provide Excellence in Safety Support

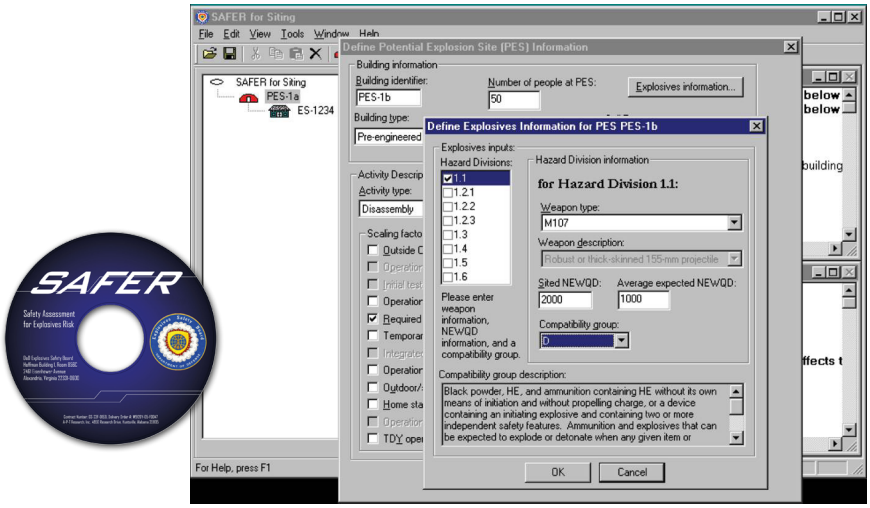
Range Test Scheduling System (RTSS)

RTSS is scheduling tool which is a web-based database application. It allows users to request time and support organization resources in order to conduct tests on ranges. All users have visibility of range schedules weeks or months in advance. The RTSS software can be used as developed or can be tailored by APT developers to match the processes of any range.



Safety Assessment For Explosives Risk (SAFER)

The SAFER model calculates the risk to people from an explosive facility. The event probability, explosives effects and consequences, and exposure of personnel is calculated.



Capabilities

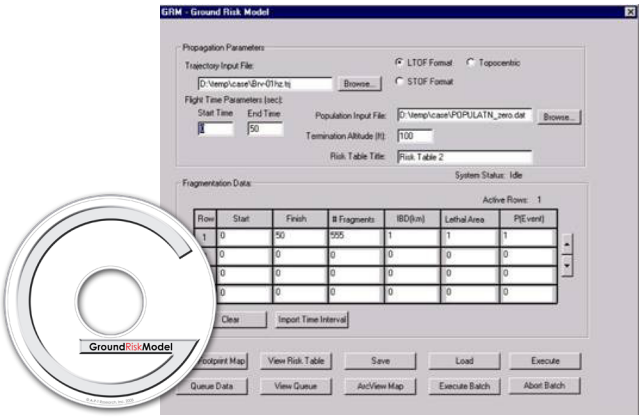
- Development of software using documented processes based on SEI CMM Level 2
- Development of standalone and web-based, user friendly tools for both Government and commercial customers to support:
  - Scheduling
  - Test Incident Reporting
  - System Safety
  - Explosive Safety
  - Risk Assessment
  - Test Planning
  - Flight Dynamics
- Software Verification and Validation (V&V)
- Experienced in developing software using Government Information Assurance for software security guidelines

Customers

- WSMR
- YPG
- NASA
- AFSC
- DDESB
- Navy
- Marine Corps
- AMCOM
- MDA
- DSOC
- IME

Ground Risk Model (GRM)

GRM simulates worst case trim turns from a nominal trajectory followed by flight termination. Modeled turns are based on the Range Safety Officer response time and maximum vehicle capability. Debris fragments are propagated to impact or aircraft altitudes and hazard footprints are developed for each time increment. Casualty expectation is computed for each population center/asset within the hazard area and total mission risks from malfunctions are determined.



Site Assessment of Tornado Threat (SATT)

SATT is a graphical expert system to analyze National Weather Service data to research the historical database of all tornadic activity in the United States since 1950. It provides a statistical analysis, track map, and threat contour display of all tornadoes matching user-defined criteria. Tornadic data may be searched and sorted based on several filters including year, date, time, intensity, and selected area.

Accomplishments

Designed and developed the following web-based tools:

- Range Test Scheduling System (RTSS) – Schedule range activities, aid in range incident reporting, and provide statistics on rounds fired, etc.
- AMCOM Safety Tracking System (ASTS) – A hazard tracking system developed for AMCOM that can be customized for any organization.
- BMDS Test Incident Reporting (BTIR) Database – Log and track incidents that occur during test flight missions that can be customized for any organization.
- Composite Risk Evaluation and Assessment Tool – electronic (CREATe) – Perform risk assessments with an emphasis on assessing and reducing risk; allows the user to tailor a risk matrix particular to his/her system.

Designed and developed the following standalone tools:

- Safety Assessment for Explosives Risk (SAFER) – A risk-based explosive safety software tool for use by Government customers.
- Ground Risk Model (GRM) – A risk-based software tool to perform debris hazard analysis.
- Site Assessment of Tornado Threat (SATT) – Provide statistical analysis and threat contour display of all tornadoes matching user-defined criteria.
- Analysis of Death and Injuries Resulting from Explosions for providing personnel protection (DIRE) – A safety software tool that can be used by any organization desiring to assess the potential consequence of a terrorist bomb or other explosions.
- Institute of Makers of Explosives Safety Assessment for Risk (IMESAFR) - A risk-based explosive safety software tool for use by the commercial explosives industry.
- Surface Danger Zone (SDZ) Calculator – Computes safety fans for a variety of ammunition and weapons.
- Served as independent evaluator of analytical software.

APT Point of Contact

Mike Wesoloski
256.327.3373
aptinfo@apt-research.com

A-P-T RESEARCH, INC.

4950 Research Drive
Huntsville, AL 35805
www.apt-research.com

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