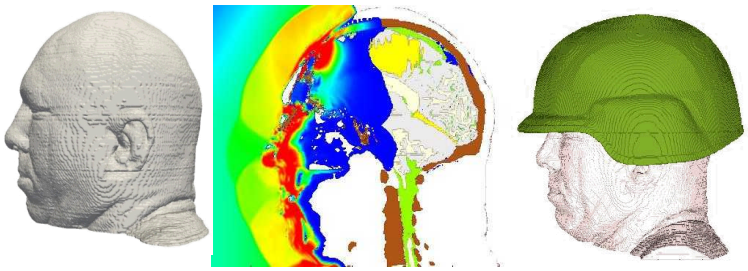
Institutional Programs – Sandia National Laboratories



Digital head/neck model (left) exposed to frontal blast (center) & wearing Marine Lightweight Helmet (right). Computational simulation is being used to determine threshold stress values leading to Traumatic Brain Injury as part of an assessment protective helmet designs.

Technical/Programmatic Issues and path forward

- A One year waiver is in place for the FY12 DoD/DOE DPAP MOA (DFAR); a permanent legislative solution is desired to facilitate future work with DoD agencies and decrease the funding delays associated with the waiver process.

Two Month Look Ahead

- Upcoming National Security Speaker Series:
  - 11/10 Dr. Victor (Vic) Ries Senior Advisor; Office of the Under Secretary for Science, Department of Energy
  - 12/1 Ambassador Ken Brill

Upcoming Plans/Reports

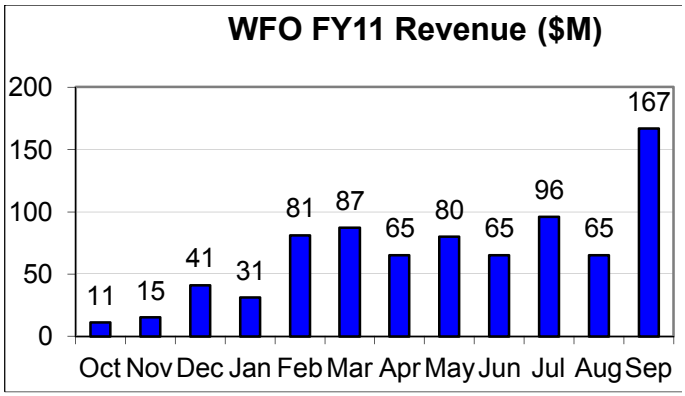
- The Annual Technology Transfer Program (TTP) Plan for FY12 submitted to SSO on 10/31/2011.

Budget Issues

- FY 2012 Continuing Resolution places uncertainty on revenue projections.
- FY 11 cut-off process resulted in lost revenues.

FY12 Budget Projections

- WFO: $***M reduced from FY11 $769M (OFA, IWFO)
- Tech Partnerships: $**M up from FY11 $35M (NFE, CRADAs)
- LDRD: $168M



Highlights/News [including lab's accomplishments]

JBEI Receives ARPA-E Grant to Produce Advanced Biofuels Directly in Plants – Principal Investigators at the Joint BioEnergy Institute (JBEI) are partnering with researchers at the University of Florida (Prof. Gary Peter) on a 4 year $6.4M project to develop terpene biofuels from pine trees. Terpenes are a large class of chemical compounds produced in plants, especially conifers, that have promising potential as biofuels. In this project, a pine tree will be engineered to increase production of turpentine by about six-fold as well as increase the turpentine storage capacity of its wood. The goal is produce 100 million gallons of sustainable domestic biofuel fuel per year from less than 25,000 acres of forestland.

NISAC Provides Modeling/Simulation Support to DHS in Response to Hurricane Irene

The National Infrastructure Simulation and Analysis Center (NISAC) teams at SNL and Los Alamos National Laboratory supported the Department of Homeland Security (DHS) senior leadership with a multitude of accurate and timely analytical products during Hurricane Irene's impact on the U.S. Eastern Seaboard. The teams generated the electrical power disruption areas and inundation/surge maps, which helped DHS analyze impacts across all sectors. Through better automation of maps and data, the NISAC teams provided detailed modeling/simulation feedback within 11 hours after receiving data by the National Oceanic and Atmospheric Administration (NOAA), down from 48 hours three years ago.

News Item - Atlas Copco to Develop High-Speed Geothermal Drilling Technology

Atlas Copco Secoroc and Sandia National Laboratories have been awarded US $3.4M by the Department of Energy (DOE) for a joint research project to develop technology that would significantly increase the speed of drilling deep geothermal wells, effectively reducing the investment cost.

IMS's Traumatic Brain Injury Work Presented at Symposium

Research in Traumatic Brian Injury conducted in Sandia's Integrated Military Systems (IMS) group was featured at the recent Warheads & Ballistics Symposium. As of 2010, 160,000 warfighters in Iraq and Afghanistan have sustained TBI, 69 percent of those as a result of blast exposure from an improvised explosive device (IED). In partnership with the Office of Naval Research and the University of New Mexico Health Sciences Center, Sandia's work focuses on understanding the causal relationship between impulsive loading to the head and the intracranial stresses and wave energies experienced by the brain during a blast event using a modeling and simulation (M&S) approach. Results are being used to evaluate effectiveness of head gear as mitigation strategies.

Recent Visits: