

**Testimony by
American Science and Engineering Inc.**

**Hearing on the Technical Support Working Group (TSWG)
House Government Reform Subcommittee on National Security,
Emerging Threats and International Relations**

Mr. Chairman and members of the committee, on behalf of American Science and Engineering Inc. (AS&E), I would like to thank you for the opportunity to speak to you today about our relationship with the Technical Support Working Group (TSWG) and how that relationship has been beneficial to both our company and this nation. AS&E has had a longstanding relationship with TSWG that goes back to 1998. We look forward to continuing our mutual efforts.

Since the tragedy of September 11th 2001, the role of TSWG has become more important than ever. TSWG's mandate to identify appropriate technologies and facilitate the rapid prototyping of these technologies is vital to our nation's security.

American Science and Engineering has been in business since 1958. We have used our pioneering work in detection to advance the fields of x-ray astronomy, medical imaging, non-destructive testing and security screening. Dr. Riccardo Giacconi recently won the Nobel Prize in Physics for his discovery of the first X-ray source outside our solar system and for launching the field of X-ray Astronomy. He did that early work at AS&E. AS&E invented the Forth Generation Medical CAT scanner, which improved the quality of medical diagnostic X-rays. Every Trident missile motor and many other solid propellant rocket motors are X-rayed with equipment developed by AS&E to find flaws. Today, we provide the highest level of security screening to most government

agencies. Everyone in this room passed through a security checkpoint that uses AS&E's equipment. If you had an object X-rayed today, it was with an AS&E system. The same would be true if you visited almost every government building in Washington DC. Our X-ray security equipment is used each and every day throughout the World to inspect a broad range of items. These items range from pocketbooks of people visiting the White House to vehicles delivering goods to Andrews Air Force Base to cargo containers entering the port of Hong Kong.

As terrorists, drug smugglers and thieves perfect new methods for circumventing security measures, companies, such as ours, are continuously challenged with developing new technologies and products to counter their efforts. That is where TSWG comes in. TSWG can support this effort by speeding up the time-to-market of many new technologies. Most recently, TSWG has agreed to help us develop and test a new product called the Z Backscatter Van or ZBV. *(see figure 1 – Z Backscatter Van)* This single-sided X-ray product uses our patented Z Backscatter technology to identify hidden contraband and is built into a small and maneuverable delivery type van. It provides users a quick overt or covert way to look into vehicles and cargo containers. *(see figure 2 – Vehicle Explosive Detection with ZBV)* It can easily find materials such as explosives and weapons. In our war against terrorism and the continuing threat of suicide bombers, the ability to even see under people's clothing can be very effective in situations that demand such measures. *(see figure 3 – ZBV scanning Line of Prisoners)* With the addition of our Radioactive Threat Detection option, ZBV can also identify potential threats from radioactive materials hidden in the cargo simultaneous with the X-ray scanning process. We can detect very low levels of radioactivity from gamma emitters, the material used in making "dirty bombs" or neutron emitters, the fissile material used in making nuclear weapons. We can detect these materials even if they are well shielded. *(see figure 4 – Radioactive Threat Detection)* The detection of emerging

threats of such as dirty bombs or nuclear weapons is an important aspect of any security-screening device these days and should be included in any comprehensive inspection process. Recognizing the potential of the Z Backscatter Van and the application of this device in critical security-threaten areas like Iraq, TSWG has agreed to help us develop additional capabilities for the ZBV. These capabilities include the ability to operate ZBV remotely and enhancing the ruggedness of the equipment for survival in hostile environments. Remote operation allows operators to inspect vehicles or people from a secure area, reducing the risk from any explosion. TSWG is also planning to provide product improvement feedback by testing the ZBV's effectiveness in high threat applications. We are very excited about this collaborative effort with TSWG.

TSWG has a very accessible and user-friendly website that is often the starting point of a project such as ours. As a registered subscriber to the TSWG website, we are kept aware of opportunities for funding through Broad Agency Announcements (BAAs) that are published in the Federal Business Opportunities (FBO) listing. The listing and the supporting package of information describe the projects of interest. Our first submittal to TSWG is through a "Quad Chart" format, whereby we provide a photograph or artist's concept drawing of the project's objectives, a description of how the proposed system would provide enhanced operational capability, our proposed technical approach and the Rough Order of Magnitude (ROM) cost, schedule and deliverables. This is a one-page document that TSWG responds to in as little as 45 days and as long as several months. If the idea were accepted, we would be asked to submit a "White Paper", which includes a higher level of detail. The review of this "White Paper" and a response can also take a considerable amount of time. If TSWG still wants to move forward, we are then asked for a proposal that normally results in a contract. The process is well designed for screening ideas and provides a higher level of focus on

technologies that have merit. As we understand it, TSWG can often have over 12,000 “Quad Charts” submitted in response to a BAA, they select 10% for “White Papers” and then down-select 5% of those “White Papers” for proposal and awards.

We believe that TSWG does an effective job at processing such a high volume of interest in funding. As most companies will probably tell you, we wish the process could be faster. Often large amounts of time can transpire between various stages of the proposal process. The ZBV project took over a year from our “Quad Chart” to contract. TSWG has taken the initiative to periodically host meetings to discuss upcoming projects and to educate companies about how to be more effective in response to a BAA. We applaud this effort and often take advantage of these meetings. This is one example of how TSWG is trying to speed the process.

In addition to speeding up the process, we have two recommendations that should be addressed by TSWG in order to make their process more effective. First, more detailed feedback on why “Quad Charts” or “White Papers” were rejected would be helpful to submitters. Submitters would be better prepared the next time. Second, there appears to be a preference for funding a lot of small projects and very few large projects. At the end of the day, we believe that the impact of the “right” technology on the project goals is the important criteria, not the quantity of technologies.

From the AS&E’s vantage point, we find our cooperative relationship with TSWG to be very beneficial to both parties. TSWG’s personnel appear technically competent, dedicated and hardworking. They also appear to be extremely busy and often juggle multiple projects. The issues that we have brought to your attention today would be mitigated if they had additional staff. TSWG serves a vital role in helping companies, like ours, to

deploy new technologies. We are looking forward to our new Z Backscatter Van project.

Thank you for your kind attention. I would be pleased to answer any questions that you might have regarding our company and our experience with TSWG.

Figure 1

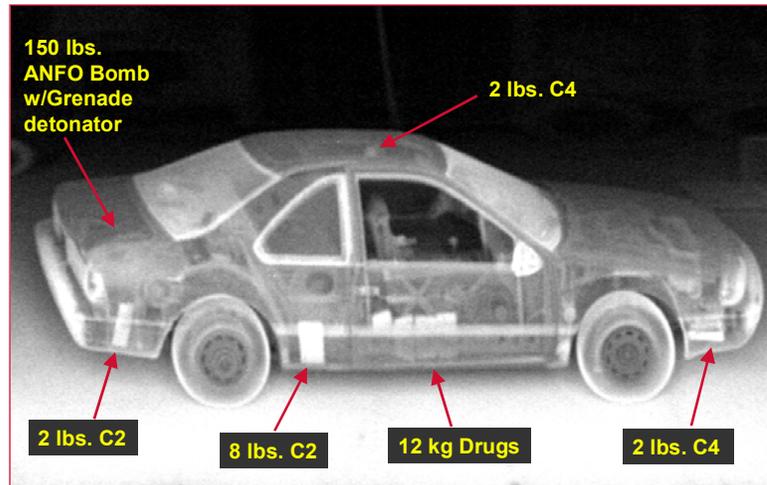
Z Backscatter Van



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Figure 2

Vehicle Explosive Detection with ZBV



Note: ANFO = Ammonium Nitrate & Fuel Oil

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Figure 3

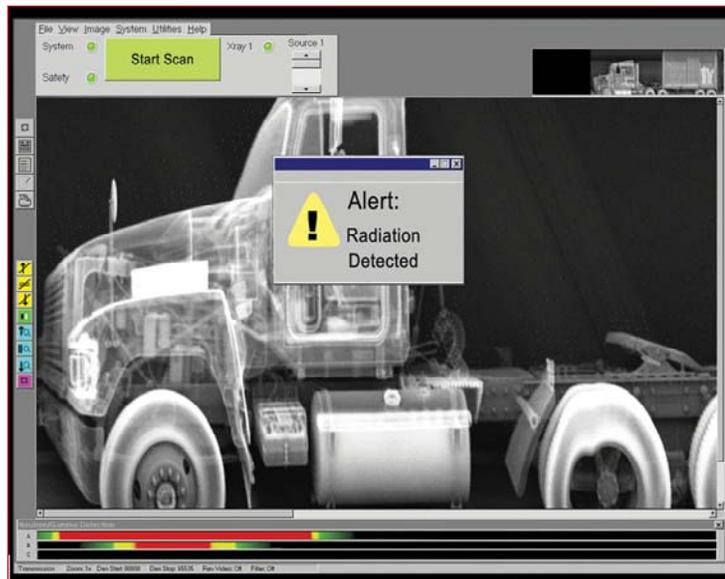
ZBV Scanning Line of Prisoners



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Figure 4

Radioactive Threat Detection



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