

ATF Introduces FfREDD Disposal Technique in AEDT Course

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Advanced Explosives Destruction Techniques ~ Fort A.P. Hill, VA

Fast-forming Reliable Explosives Disposal Device (FfREDD) was developed in the ATF Advanced Explosives Destruction Techniques course (AEDT). This course was developed through the cooperative efforts between ATF and State/Local Bomb Technicians. AEDT is a two-week school delivered by the ATF Explosives Training Branch at Fort A.P. Hill in Bowling Green, Virginia. The purpose of this training is to teach safe explosives disposal methods. Any State, Local or Federal bomb technician or ATF Certified Explosives Specialists may attend this course.

Hundreds of bomb technicians, both foreign and domestic, have completed the AEDT course since its first delivery in 2000. As a result of the repetitive building/firing of numerous explosives disposal counter charges, the AEDT course effectively conducts research on disposal methods. Through this process it has become apparent that many of the explosives disposal counter charges were very time consuming to design and implement, required too much “time on target” and, in some cases, were cost prohibitive. The sheer volume of disposal shots conducted throughout this course has afforded the staff significant knowledge and recognition of effective disposal methods and materials.



FfREDD was born out of necessity – bomb technicians need fast, reliable, safe and inexpensive disposal tools and techniques that can be easily deployed in the field. FfREDD is a technique that uses everyday, inexpensive material (foam pipe insulation and cable ties) with readily available explosives (detonating cord) to form an explosives disposal counter charge. FfREDD maximizes the efficiency of the explosives while minimizing the net explosives weight (TNT Equivalents) used for explosives disposal counter charges. Calculation and awareness of the net explosives weight of the counter charge is very important when conducting disposal operations in locations that can not sustain a large detonation or on explosive ranges that have low explosive range limits.

The problem with most explosives disposals is finding the right explosives counter charge that maximizes the coverage of the surface area of the disposal problem without drastically increasing the net explosives weight of the explosives. The key to an efficient counter charge is employing an explosive material that possesses a high detonation velocity, creates a suitable cutting and thermal effect, and covers a substantial surface area of the disposal product.

Cast Boosters are a very effective counter charge with a long shelf life. Conversely, cast boosters have a poor surface area unless the number of boosters used is increased. Unfortunately, this also increases the net explosives weight of the counter charge. ANFO can also be a viable counter charge in certain disposal situations. However, ANFO cannot be easily stored, carried or deployed by disposal operators. ANFO has a high net explosives weight and requires a minimum critical diameter and boosting to function ideally. ANFO also possesses a low detonation velocity which does not afford the desired cutting and thermal effect to mitigate many disposal problems.

The AEDT practical applications have shown that Detonating Cord is an excellent explosive for disposal work. It is relatively inexpensive and readily available. The speed at which detonating cord detonates (approximately 23,000 ft/sec) makes it a good cutting tool and it has an excellent thermal effect. One significant problem in using detonating cord as a disposal tool is shaping the cord in a manner that maximizes surface area. This can be a time consuming process and presents an increased risk for detonating cord cut-offs. Secondly, a stand off of a few inches can drastically reduce the effectiveness of the detonating cord as a counter charge.

Employing the FfREDD technique can eliminate or reduce these problems.



continued on Page 70

Commercially available sizes (length and diameter) of foam pipe insulation allow the use of various amounts of detonating cord pieces. By virtue of its design, the pipe insulation affords the use of any grain detonating cord to build the appropriate counter charge. Once encased in the pipe insulation, the detonating cord pieces are held tightly together (to prevent cut-offs). The pipe insulation is self-sealing, eliminating the use of tape. The counter charge is “tailored to fit” the specific disposal problem in order to maximize the coverage of its surface area. Utilizing the FfREDD technique controls the net explosives weight of the counter charge. The foam pipe insulation can be purchased for approximately \$1.75/per 6 foot length.



FfREDD can be preassembled reducing the disposal operator’s “time on target” when disposing of deteriorated or sensitive explosives and can be deployed via a robot, if necessary. Because FfREDD maximizes the use of a very efficient explosives, the net explosives weight of the counter charge can be reduced.

There are four basic shapes of the FfREDD tool. They are: 1) Horseshoe charge; 2) Platter charge; 3) Coil charge; and 4) Linear charge. The proper way to build and use the FfREDD tool is currently taught in ATF’s Advanced Explosives Disposal Techniques course delivered at Fort A.P. Hill in Virginia. **NOTE: Construction and deployment of this technique is not recommended without attending**

the AEDT training or serving as an Assistant Instructor in the delivery of the course. Questions about FfREDD are addressed in the AEDT course. Enrollment requests can be directed to AEDT Program Manager Jon Mitchell at 804-633-1555 ext. 16. 🍀*