

ITRC PROJECT PROPOSAL: On-Site Demilitarization Technologies

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Proposal Contact:

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Problem Statement

The focus of demilitarization of UXO, stockpiled munitions, and range residue/scrap is shifting from fixed-base facilities to mobile, on-site treatment. This is due primarily to increased security and related costs associated with transporting munitions/UXO over public roads, increasing amounts of munitions requiring demilitarization that are unsafe to move over the public highways due to unstable propellants, as well as the skyrocketing cost of fuel, and increased scrutiny of smog generation/air quality as a result of over-the-road truck traffic. The DoD estimates that there are over 500,000 tons of munitions stockpiled at approximately 4000 sites throughout the United States. This does not include the increasing amounts of confiscated explosives, consumer fireworks, small arms ammunition, homemade explosives and other explosive items that are currently held by police and fire departments nationwide. These items, which were formerly disposed of by police or military personnel at ranges using Open Burning/Open Detonation (OB/OD) are now simply being stockpiled due to OB/OD environmental concerns and the fact that the Armed Forces are no longer accepting this material for disposal.

This problem goes beyond the United States. We have many bases throughout the world where UXO and discarded munitions are present. When we eventually leave Iraq and Afghanistan, we will need to deal with these constituents that are left behind.

The problem is increased by the fact that there are so many types of munitions to be treated. This project will use USEPA's Handbook on the Management of Munitions Response actions to match technologies to the type and characteristics of munitions. ITRC can build on this document by concentrating on the technological solutions to this problem.

As technologies are identified we will concentrate efforts on those with the highest treatment efficiencies, as well as the ability to provide metal recovery that can then be recycled. The ability to recycle, recover, and re-use these materials will be very important.

Solution / Impact

A valid solution to this problem would be to bring the treatment technology on-site. Technologies that can be assembled on-site could treat thousands of tons of material. Afterward, disassembled and taken to the next site. The potential savings materials transport would be tremendous while at the same time reducing traffic and greenhouse gas emissions. In addition, there is a solid market for the re-use of these metals. Prices for recycled metals are at an all time high.

On-site technologies will be particularly important in dealing with overseas legacies.

Success Measures

It is the goal of this project that the Tech/Reg document will:

1. Provide a solid understanding of the scope of the problem.
2. Review the state of the art with regard to on-site technologies.
3. Review regulatory requirements for these technologies, identifying regulatory barriers, and particularly concentrating on the recovery and recycling of metals.
4. Provide solid case studies to demonstrate the effectiveness of these technologies in the field.

We will identify key states and ask them to provide members on the team to facilitate concurrence and use of the documents within their states. As we identify issues, we will work with the POC network to resolve these issues early on and request feedback so that the final work product will be useful to the states.

We will also work with our DoD partners to insure that all pertinent issues are addressed.

The success of this project will also result in decreased review time for permits. It is hoped that when appropriate, technologies can be recognized for their ability to produce recyclable materials, potentially reducing regulatory burdens.

A reduction in the amount of munitions currently stockpiled will be the ultimate success story for this project. We believe that when viable cost effective technologies are available, particularly on-site technologies, they will be deployed.

Summary of Deliverables

We plan on producing an ITRC Tech/Reg document along with Internet based training. We will also prepare a 4 hour short course that can be delivered in conjunction with a conference setting.

Project Schedule

January – June 2009 - Team development. We will use this time to build an effective team. Educate members on the issues and develop a tech/reg decision tree outline.

July 2009 – December 2010 – Write tech/reg document.

Jan 2010 – July 2011 - Finalize and publish document.

July 2011 – June 2013 - Implementation.

Target Audience

The target audience for this project will be State members, consultants, DoD environmental managers, and others involved with UXO/munitions management.

It is hoped that the contents of the tech/reg document will educate regulators about these on-site technologies, particularly the benefits of complete destruction of residues and recycling of materials.

Resources Required

Personnel:

- **Team Leader** – Robert Mueller, NJDEP
- **Team Members** - Mark Begley, MA; Gary Beyer, TX; select states will be solicited as members due to potential DoD sites.
- **Team Mix** – We will invite DoD, particularly Picatinny Arsenal's Demil Technology Branch within ARDEC, AEC, USEPA, technology developers, consultants, academic participation, public stakeholders, and potentially economic expertise to help evaluate cost savings from this technology.

Related Work:

We will work closely with the current ITRC UXO team to glean expertise when appropriate. We will attempt to build on previous work by the USEPA, particularly the 2005 Handbook mentioned earlier.

We understand the ECOS is starting workgroup with states to look into munitions issues. We will work closely with them to identify issues for our team and provide them with expertise as needed.

Finally, we will work with our DoD liaisons to insure that we identify the technologies that will go the furthest in reducing the inventory of stockpiled munitions throughout the USA and the world.