

Thanks to the hard work of our staff and partners, the EHP has now officially transitioned from Setup to Development during the second week of August.



EHP Test charge # 002-D: 15 grams of TG-40 explosives (TNT & RDX) recovered from USSR PMN-2 Anti-personnel mine cast into a 16 mm x 70 mm long plastic tube.

Target: 5 mm plate steel.

Result: Complete penetration of the plate, producing an 11 mm diameter hole.



The Explosive Harvesting Project is a Research and Development program funded by the US Department of Defense Humanitarian Demining Directorate. The system was designed by Golden West and is being jointly developed with the Cambodian Mine Action Center (CMAC)

The goals of the program include:

- Develop environmentally friendly means to remove explosives from munitions such as artillery, antitank mines, and aircraft bombs.
- Develop field-supportable means to assess the safety of the recovered explosives.
- Develop the methodology to convert the explosives into neutralization and/or disposal tools for demining and EOD teams.

Instead of building the system in a Western or European country then shipping it abroad; Golden West elected to construct and develop the system in

Cambodia, importing only those critical items that could not be found elsewhere.

The reason behind this approach is simple; R&D efforts designed in “Developed” countries sometimes fail once it is sent to the field. The most common reasons are logistics and spare parts.

By building the EHP in Cambodia; the project is literally being developed “In the field”. While this poses challenges initially; once complete, the logistical and spare part issues will have been identified and resolved.

After some long months of building, testing, changing and adjusting; the GW staff and our Quality Assurance monitor (QAsia Ltd) agreed the EHS was ready for limited tests

For part of the test; a US 105 mm M-1 Howitzer projectile loaded with Composition B was selected as the first “live” cut on explosive filled ordnance (shown right).



The projectile was cut twice lengthwise to “clam-shell” the casing using the DiaJet “Osprey ©” water-abrasive system.

After the Osprey was finished and casing separated, half of the explosives fell free while the other half remained adhered to the casing. The remaining explosive was successfully dislodged with high-pressure water, cleaned, and safety tested.



After basic safety was verified; a series of test charges were cast using various initiation techniques to assess which method would be the most cost and time effective in field conditions.

In addition to the recovered Composition B explosives; a small quantity of Russian TG-40 (TNT/RDX mix) explosive was made available to the EHP from a CMAC demilitarization training course for PMN-2 Anti-personnel mines.

With this; a total of eleven charges were cast and tested at the CMAC demolition range in Kampong Chhnang. Of the eleven charges; four stood out as extremely effective: the 15 gram charge shown on page #1 and three others:

One was a 100 gram charge of Composition B cast into a cut-down PVC pipe reducer. This charge was tested against two 5 mm thick steel plates.



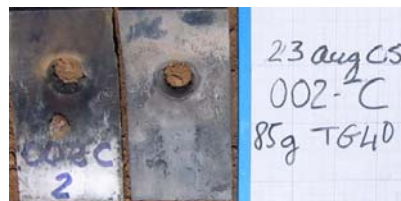
The charge successfully penetrated both plates and continued approximately 40 mm into the ground.



Another test charge that impressed the entire staff was made from 85 grams of the Russian TG-40 cast into a locally available PVC pipe fitting.



The performance of this small charge surprised everyone and made two of the other test charges redundant by fully penetrating two 5 mm thick steel plates with power to spare. The design of the PVC fitting allows for a simple and reliable casting process.



The fourth charge that stood out used only 25 grams of the Russian TG-40 explosive.



This was originally designed to be inserted into the empty fuze-wells of unfired Russian 122, 130, and 152 mm projectiles; however it also proves to be quite sufficient for anti-personnel mines.

The charge effectively cut a clean hole through the 5 mm steel plate and penetrated approximately another 20 mm deep into the hard-packed soil afterwards.



Adjustments are now being made from the lessons learned during our first series of tests; the next series should be extremely interesting.

The testing and development continues, and thanks to our partners and the excellent cooperation of the Cambodian Authorities; the project is off to a very good start.