

## The Birth of the Combined Explosives Exploitation Cell

Stephen Phillips

*In the summer of 2003, IED attacks in Iraq increased dramatically with the emerging insurgency. A group of intelligence, law enforcement, and explosive experts responded, forming the Combined Explosives Exploitation Cell – CEXC.*

Though the IED released its energy more than an hour before, the chaos it created was still palpable in the post-blast scene. The security force protecting the investigators possessed unparalleled professionalism. Nonetheless, Lieutenant Commander Joseph “Digger” DiGuardo stopped and surveyed the area surrounding the Iraqi Police Station periodically. By nature, EOD Technicians are curious. In EOD school, students are taught to look at things differently. What some who operate with EOD Technicians perceive as dawdling is really persnickiness. DiGuardo looked for secondary devices, avenues of approach, and anyone who may be observing his team. He noted each team member combed the charred and melted detritus with the same fastidiousness. Satisfied that his current perspective did not reveal anything new on the horizon, DiGuardo focused again on the ground around him. He walked carefully, looking amongst the rubble to discern vehicle parts from IED components.

Something at the edge of the road caught DiGuardo’s eye.

“Damn,” he muttered to himself.

DiGuardo recognized the circuit board at his feet. It incorporated a particularly large capacitor on one side. It looked exactly like the one the team was dissecting back in the shop.

As DiGuardo picked it up, an Iraqi police officer approached him. He sensed the importance of DiGuardo’s find. Still a little shell-shocked from the explosion, he silently pointed up. DiGuardo looked up to a broken lamppost. Before the day was over the team would send a FLASH message to all EOD forces in theater.

*Special Projects*

His official title at the Joint Special Operations Command (JSOC) was Special Projects Officer. DiGuardo is a U.S. Navy Special Operations Officer, commonly referred to as an “1140” due to the Navy’s designation code for officers trained in diving, salvage, and explosive ordnance disposal.

DiGuardo’s tenure as an EOD detachment Officer in Charge (OIC) included a measure of Special Operations Force (SOF) deployments and operations that surpassed most of his 1140 peers. While stationed at EOD Mobile Unit Eight in Sigonella, Sicily he deployed with Green Berets in the European theater. Then as an OIC in Bahrain he operated with Green Berets and SEALs in the Persian Gulf region. DiGuardo even led Detachment Bahrain during its response to the USS *Cole* attack in Aden Harbor, Yemen. With all of this experience, DiGuardo was immediately recognized as an invaluable asset to JSOC.

DiGuardo’s job description at JSOC called for him to apply his expertise as an EOD Technician to develop concept of operations (CONOPS), tactics, techniques, and procedures (TTPs), countermeasures, and equipment to aid special operations forces. In the summer of 2002, DiGuardo focused on the war in Afghanistan. Conventional and SOF elements there suffered from anti-tank/vehicle mines initiated by radio control. DiGuardo realized very little data collected on the radio-controlled IEDs (RCIEDs) and no one gathered their remains for evidence. He sought to remedy this by using expertise from the U.S. Naval EOD Technology Division (EODTECHDIV) in Indian Head, Maryland, leveraged with the intelligence community. DiGuardo initiated dialogue between JSOC, the EOD community, and the newly formed Joint Intelligence Task Force Counter-Terrorism (JITF CT) Weapons branch. Intrinsically, DiGuardo knew that developing measures for IED defeat would save lives. More importantly, the remains of an IED may lead to the bomber, and subsequently the bomb-maker. Tracking down these terrorists in order to kill or capture them would have a profound effect.

DiGuardo met a lukewarm response for three reasons. First, while U.S. history is marred with terrorist bombings, before 9/11 there were few sustained IED bombing campaigns. Therefore, U.S. military EOD Technicians and the intelligence community did not possess robust experience in forming a counter-IED campaign. Second, improvised weapons in Afghanistan did not have a devastating effect, they did not create a large number of casualties, and they were not recognized by the media as implants of terror. Finally, all notions of responding to improvised landmines in Afghanistan were soon overcome by planning in anticipation of war in Iraq.

### *Conglomeration*

After removal of the Hussein regime an IED insurgency began led by al-Zarqawi and the remnants of the Al Ghafiqi Project, IED assassins from Iraq’s former intelligence body – the Mukbarat. This marked a dramatic increase in IED incidents in the summer of 2003. As one of JSOC’s EOD assets, DiGuardo was sent into the fray to respond. He arrived in Baghdad with the intention of developing counter-IED CONOPS and TTPs. Shortly after arriving, DiGuardo found a group already working to address the IED problem. It was a conglomeration of British and American, civilian and military, EOD technicians and

intelligence analysts. Though from different backgrounds, each member possessed the imagination and foresight to realize that a counter-IED effort would take the fight to the terrorists. Beyond realizing the need, these men each had the initiative to address it. They formed a cell, not unlike that of their nemeses.

The JITF CT Weapons branch of the Defense Intelligence Agency (DIA) is recognized for starting the entire counter-IED effort in Iraq. British representatives formed the backbone using corporate knowledge from combating the sustained IED campaign in Northern Ireland. The FBI added investigative expertise and security forces to protect the newly formed team. DiGuardo brought one imperative element — focus.

As one of their first actions, these men adopted a framework for rapid analysis and dissemination of IED intelligence employed by the U.K's Weapons Intelligence Specialist (WIS) Teams and their Defense Service Technical Lab (DSTL) in Northern Ireland. Specifically, each IED incident response would include gathering post-blast forensics, concerted engineering and intelligence analysis, followed by an after-action report replete with recommendations for bomb disposal personnel.

DiGuardo immediately saw areas where he and JSOC could assist this group, which yet had a formal name or charter. First, he persuaded Special Operations Command (SOCOM) to provide a webpage where all IED post-blast information would reside. This enabled the process already developed to move to a higher level. Second, he lobbied to obtain formal sponsorship from Coalition Joint Task Force Seven (CJTF-7), support from the FBI, and the formal inclusion of other interagency partners. DiGuardo knew elements such as EODTECHDIV and the Technical Support Working Group (TSWG), coupled with support from the CENTCOM Staff, would act as a force multiplier for success. Finally, as the senior man present DiGuardo emerged as the first recognized leader or Officer in Charge (OIC). Shortly after he arrived the unit received a “sexy” name, the Combined Explosives Exploitation Cell, or CEXC.

### *Capacitor*

While an IED's design is limited only by the bomber's imagination, the EOD Tech's ability to render safe is constrained by his available tool sets, his knowledge, and time. The IED phase of EOD school mitigates all of these by imparting upon students the means to quickly discern the bomb-maker's design and apply methods to disarm or render safe. Students who do not clearly demonstrate this ability do not graduate.

One lesson hammered into each EOD student and repeated in training throughout his career is the collapsing circuit.<sup>1</sup> This is an electronic device within an IED designed to appear as a point that can be exploited. In fact, it is a decoy that when disrupted will detonate the device, likely killing the EOD Tech. A booby trap within a bomb, the

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<sup>1</sup> See “Breakwire,” Definitions, Office of Naval Research Science and Technology Expeditionary Warfare (35), [http://www.onr.navy.mil/sci\\_tech/special/353\\_exped/definition.asp](http://www.onr.navy.mil/sci_tech/special/353_exped/definition.asp).

collapsing circuit is asymmetric warfare in its purest form. It pits the bomber's strength, an improvised design, against the EOD Tech's weakness – a lack of time.

Upon returning to the CEXC compound, DiGuardo compared the circuit board from the police station bombing to the one recovered from the bombing a few days before. They were exactly the same. The large capacitor would draw the attention of the most seasoned EOD Technician. DiGuardo suspected that a bomb-maker somehow obtained a number of the streetlamp circuit boards and re-wired them within his IEDs, possibly as collapsing circuits.

The 1140 shared his theory with the other CEXC members. A British Ammunition Technical Officer (ATO) on the team, brilliant in the area of improvised electronics, attempted to reconstruct the device. Drawing on expertise from several tours in Northern Ireland, he quickly confirmed that the circuit board with the large capacitor was in fact a collapsing circuit. This single component held a mixed message. Unfortunately, the bombers were growing more sophisticated in their methodologies. Conversely, the incorporation of such countermeasures for EOD exploitation indicated EOD's positive impact throughout Iraq.

CEXC drafted and distributed an after-action report describing the collapsing circuit. Now EOD Techs deployed or preparing to deploy to Iraq would expect the streetlight circuit board, and would thus look past it for another means to disarm any IEDs that incorporated it into their design. It is impossible to quantify the positive impact of this discovery. It is certain that as a result, many EOD Techs were able to "render safe" rather than become victims. Additionally, the CEXC added another bomb-maker's signature to their database.

### *Al Rasheed*

The driver was likely miles away that Sunday morning in October 2003 when the rocket launcher disguised as a generator launched a barrage into the Al Rasheed hotel — aimed at the room where Deputy Defense Secretary Paul Wolfowitz slept. A number of the rounds did impact just below his room. Wolfowitz was not injured, but the attack killed one U.S. soldier and injured 16 others.<sup>2</sup>

Like an episode of "CSI Baghdad," CEXC arrived in minutes to collect intelligence on the improvised rocket launcher. As they departed DiGuardo noted that the team was now much more robust than when he first stepped foot on Iraqi soil the previous summer. CEXC now included representatives from the FBI and EODTECHDIV. The team swarmed over the rocket launcher, collecting and analyzing it from multiple perspectives including engineering, ordnance, and forensic disciplines. One can easily imagine EOD

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<sup>2</sup> Donna Miles, "Wolfowitz Vows Al Rasheed Hotel Attack Won't Deter Coalition," American Forces Press Service, [http://www.defenselink.mil/news/Oct2003/n10262003\\_200310262.html](http://www.defenselink.mil/news/Oct2003/n10262003_200310262.html).

Techs studying the initiation train and the safe and arming switches while FBI agents tested explosive residue and collected traces of DNA.<sup>3</sup>

DiGuardo and the other CEXC members realized immediately that though this was an improvised attack, the bombers were well trained and clearly knew what they were doing. The terrorists repeated the fire set from the Al Rasheed Hotel attack the previous month. Lessons were learned from that incident which subsequently enhanced the device's efficiency. Additionally, the bomber added a bonus...a secondary device intended to consume all the evidence. Fortunately, it failed to function.

In hours CEXC collated intelligence and evidence that would eventually lead to a cell responsible for the attack. On this particular investigation it was not DNA, chemical analysis, nor ordnance identification that led to the terrorists. The first domino to fall was blue paint.

Shortly after the bombing, CEXC members brainstormed on how to proceed. Someone realized only a handful of welding shops in the Baghdad metropolitan area were capable of constructing the improvised rocket launcher. While searching one of the identified shops in the Mansur district, investigators noted that pieces of scrap metal and the shop walls were painted the same royal blue as the generator.<sup>4</sup> As the investigation delved further, the intelligence community found connections between the shop and a group of men in Mansur already suspected in insurgent activities.

To mitigate risk for the take-down team, an Iraqi informant got close to the cell and gathered valuable information.

### *Proven concept*

Due to superior intelligence and professionalism on the part of the U.S. soldiers, a series of coordinated raids were successful. While taking the Al Rasheed bombing cell members into custody, the soldiers also seized cell phones, over \$50,000 in cash, and computers. The combined captures of men and material would prove to be a "cash cow" for more intelligence analysis. Equally important, it raised awareness on the potential for the CEXC concept. If effectively managed, the impact of EOD Technicians going down range to render safe multiplied tenfold. Now, with each and every bombing, analysis conducted by CEXC led not just to the bombers, but into the whole terrorist infrastructure. Thus, CEXC emerged as a focal point for thwarting the IED insurgency in this case by tackling its asymmetric order of battle in the form of DNA, welding techniques, and blue paint.

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<sup>3</sup> "PREVENTING TERRORIST ATTACKS: Finding the 'DNA' of Terrorist Bombs...and USING it," FBI Headline Archives, <http://www.fbi.gov/page2/aug04/jordan081104.htm>.

<sup>4</sup> "U.S. arrests 35 Iraqis in hotel strike," The Washington Times, online edition, <http://www.washingtontimes.com/world/20031110-120738-7694r.htm>.

Due to the heightened visibility, CEXC became the catalyst for an entire structure of intelligence analysis and operational response, called Technical Intelligence (TECHINTEL). Before the end of DiGuardo's tour in Iraq, CEXC enjoyed membership from many federal agencies to include FBI, ATF, and DIA. CEXC formally connected to the FBI's Terrorist Explosive Device Analytical Center (TEDAC), The JITF- CT Weapons branch at DIA, and EODTECHDIV. Subsequent orders were written and executed that formally stated the structure and functions of the CEXC in Iraq. Briefings at the Pentagon and CENTCOM resulted in the inclusion of CEXC products as a building block for the Joint IED Defeat Organization (JIEDDO), the formation of the CENTCOM Counter-IED Operational Planning Team, and the writing of the first counter IED doctrine in the history of the Department of Defense. The CEXC concept is now a warfighting capability that will be brought to bear whenever American servicemen face an IED campaign.

*Stephen Phillips is a member of the Senior Professional Staff at the National Security Analysis Department of The Johns Hopkins University Applied Physics Laboratory. He served in the U.S. Navy as a Special Operations Officer and Explosive Ordnance Disposal Technician at EOD Mobile Units Six, Eight, and Ten and is the author of Proximity: A Novel of the Navy's Elite Bomb Squad. CDR(s) Phillips is currently a naval reserve faculty member at the National Defense Intelligence College.*

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