

case study

ARGON™

World leaders in CBRN/
HazMat training systems

The rise of 21st century CBRN training

How the Fort Leonard Wood
CBRN Marine Corps Detachment
integrated Argon's simulator
detector systems into its
program of instruction

Introduction

Proficiency in chemical hazard detection is a crucial aspect of CBRN reconnaissance and decontamination training for the US Marine Corps.

But being able to provide trainees with realistic training that reflects the physical and psychological complexities of real-world chemical hazard scenarios has always presented its challenges.

Traditional training methods can often lack authenticity, they can place limitations on the locations in which scenarios can be conducted and they can add a substantial administrative, regulatory, and Health and Safety consideration.

Importantly too, CBRN training that requires the use of actual combat stocks can accelerate the wear and tear of equipment and compromise operational readiness across the Corps.

As a growing number of CBRN training organisations are discovering however, there is a solution that addresses these challenges - the integration of simulator detector training systems.

For Chief Warrant Officer 5 Christopher Joy, former Commander of the CBRN Instruction Company Marine Corps Detachment at Fort Leonard Wood, the decision to invest in fifteen of Argon Electronics' JCAD-SIMs in 2019 would prove to be a significant turning point.

In this case study, CWO5 Joy (recently retired) explains how the introduction of Argon Electronics' simulator detector technology enriched the CBRN training experience - both for student and instructor - and how it led to the complete rewriting of the centre's Program of Instruction (POI).

The rise of 21st century CBRN training

The potential applications of simulator training first came to CW05 Joy's attention in 2007, when he was introduced to the PC-based Deployable Virtual Training Environment (DVTE) simulation system which was being used in the Marine Corps at the time.

"In 2013, I saw an upgraded version DVTE, which was running VBS2 at the time as one of its programs, and I thought, 'Hey maybe I can start doing some CBRN-specific training on this?'"

"Then, in 2015, I was having a discussion with one of our Marine officers from the Beltway and he said, 'You do know that there are simulation systems out there that mirror our hand-held equipment?'"

"And that was when I first came across Argon Electronics."

Taking the decision to invest in any form of new training naturally brings with it certain expectations and reservations.

As CW05 Joy explains, he entered the procurement process with an open mind as to the value that could be obtained.

"Oddly enough, I had no expectations in regards to the simulators," he says.

"Although I saw vast potential in how Argon could be used and what training objectives could be met, I went into the process with an open mind as to how the systems could be used and the value that could be gained from them."

In terms of reservations about introducing the technology new, Joy admits that he had just one: Would it be able to replicate real-world Marine combat systems to a degree that a student wouldn't know that they weren't using the real thing?

That reservation was quickly eased, however, once he took delivery of his first order of fifteen of Argon's JCAD-SIMs.

Getting hands-on with the JCAD-SIM

"You have no idea how impressed I was with the system," Joy explains.

"Handling the Argon simulators was just like handling the real equipment - and that was something that was huge.

"My first reaction was, 'This is exactly what we need. We don't have enough of these - we need more!'

The Marines themselves have also had nothing but positive responses in regards to the simulators, he says.

"The greatest outcome that I've seen from introducing the systems is watching the level of proficiency go up exponentially.

"They like how the system provides them real feedback, and how it allows them to see and hear how the real gear will act in a real environment.

"That's not something we can normally replicate with a real JCAD or a real AN/PDR77. Using a check source for a JCAD doesn't really provide anything for a Marine - but this does and in more ways than we could ever have anticipated."

"We all know that the JCAD makes a different noise when it detects a blood agent - we know that because it's in the manual. But no one had actually heard that faster beeping noise, because we had no way of simulating a blood agent - until now, with Argon.

"Using the JCAD-SIM we can now set up sources as blood agents and the simulators respond just like the manual said they will. That difference in sound that we finally get to hear - that makes a huge impact on training."



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Enhanced training in the field

The introduction of simulator technology has substantially increased the scope of what trainees are able to experience out in the field, Joy explains.

“Argon’s simulators enable us to provide better training scenarios that test the Marine’s abilities - not only in how they use their equipment but in how they make decisions and how they make recommendations based on what their simulator tells them.

“In the past we would simply have handed our trainees a three by five card which said ‘Here is what the JCAD is telling you - and, by the way, this is happening...’

“You were literally feeding your students everything.

“Well, now you can step back and you can observe how they react - ‘Hey I’m getting two bars G on my JCAD, what should I do now?’

“As an instructor, being able to see your Marines learning and figuring things out on their own - that’s wonderful to watch.”

Another outcome of employing the use of simulators, says Joy, is that there is no longer the need to keep as many real-world detectors at the CBRN schoolhouse.

“That frees up more of the limited inventories of our combat stocks that are needed in the fleet,” he explains.

“And because combat stocks are used and worn out at a less accelerated rate, this saves money and increases the readiness across the Corps - keeping the equipment where it’s needed, downrange and deployed.”

A re-envisioned POI

The introduction of simulator technology has also had a profound impact on the way in which the Marine Corps is now able to teach and evaluate its CBRN marines, Joy explains.

“Our POI has been completely rewritten in response to introducing Argon’s technology.

“It’s transformed how we run our classes, how we instruct and in particular how we conduct performance evaluations.

“Students don’t slip through the cracks like they used to because the Argon system records everything a student does - or fails to do - and we’re able to see that - whether they forget to put in a sieve pack, they leave the storage sieve pack in, or they don’t do the test for G.

“In the past if we didn’t see it then it didn’t happen. We’d simply check the box that said ‘you passed - good job.’

“Now we have a record of it, whether we see it or not, and that’s a valuable learning point.”

Joy has also seen economies in terms of time-saved when using the JCAD-SIM.

“We did an analysis and, for every student that we test, we save eight minutes in comparison to using a real JCAD,” he says.

“Eight minutes may not seem like much - but when you have fifty students to evaluate that’s significant and it allows us to focus that time in other areas of the POI.

From a cost-saving perspective, there have also been some significant changes.

“Here at the schoolhouse, we don’t work in huge numbers of pieces of equipment like we would out in the Fleet - so when you look at cost savings in terms of using consumables, it’s not necessarily a big number.

“But just for having fifteen Argon JCAD-SIMs, we save on average \$4,000 a year on sieve packs alone. That’s a huge number for our budget, and it’s \$4,000 that we can put into something else.”

Looking to the future of CBRN training

So what future training challenges does Joy predict for the CBRN community?

"For the Marine Corps, the future challenges aren't going to come from the outside," Joy believes.

"They're not going to come from the enemy; they're going to come from the inside and how we restructure as the Marine Corps shifts its focus to return to its expeditionary and amphibious roots.

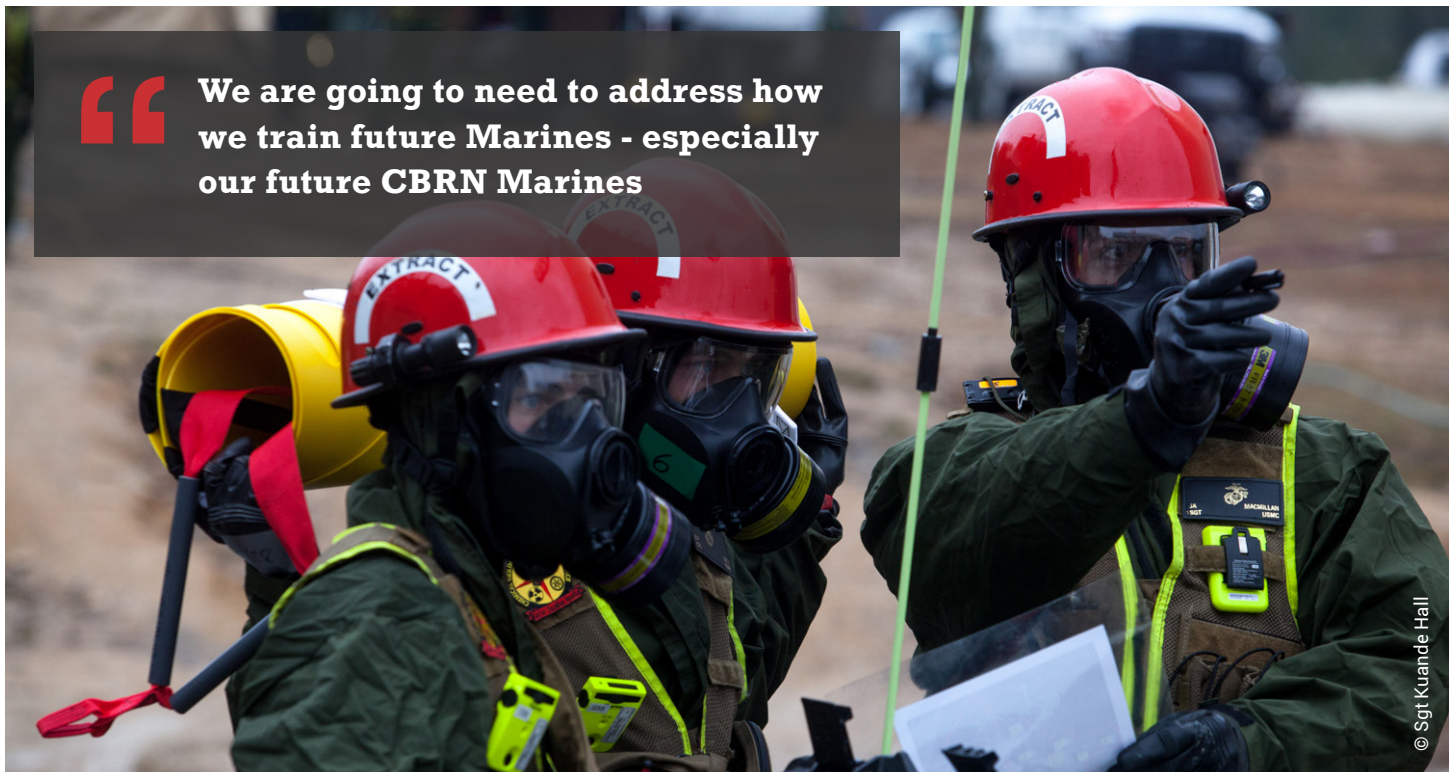
"These changes are going to dramatically alter the number of CBRN Marines available in the Fleet and the ongoing support of maneuver forces that are widely distributed across the battle space.

"We are going to need to address how we train future Marines - especially our future CBRN Marines - and how they can best support the mission.

"We need to ensure we have the technical capability and the subject matter experts we need to evaluate the information we receive. How exactly is that going to affect our training? We don't know that yet."



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Conclusion

For the CBRN Training Centre at Fort Leonard Wood, the benefits of introducing simulator detector technology have been substantial, says Joy.

“We are always working to innovate when it comes to training and I can only see our practice improving.

“Moving away from the traditional industrial-age learning and towards 21st century learning is how we’re really going to engage this next generation of Marines.

“It allows students to use the technology that they’re familiar with - which increases their learning, knowledge and retention. I can only see simulators and computer simulations continuing to play a much more significant role.

“Technology has taken it to where we can take a Marine and put them into an environment that won’t harm them but that simulates all the bad stuff that could harm them.

“I am thoroughly impressed with Argon. As we speak, Marine Corps Systems Command is looking into procuring simulation systems. They’ve seen the benefit at the schoolhouse, they’ve seen other units wanting to have this capability, and they recognise the value in it”

CWO5 Joy believes Argon’s simulator systems have created a paradigm shift in how the CBRN Training Centre conducts its training.

“They’ve increased the level of proficiency and they’ve boosted the confidence that our Marines have in employing their equipment when they leave here.

“Our CBRN training programme is exponentially better than it was before we had Argon - and that right there is worth any dollar amount that we paid. We might only save \$4,000 in consumables, but you know what, we get \$400,000 of experience.”

CWO5 Christopher Joy



Chief Warrant Officer 5 Christopher Joy enlisted in the Marine Corps in 1992.

Over his twenty-eight year career, CWO5 Joy has been the recipient of multiple personal and service decorations including Meritorious Service Medal (w/ 2 gold stars); Navy and Marine Corps Commendation Medal (w/ 1 gold star); Army Achievement Medal and the Combat Action Ribbon (w/1 gold star).

In July 2018, he was promoted to the role of Company Commander, CBRN Instruction Company, Marine Corps Detachment, Fort Leonard Wood - a position he retained until his retirement in August 2020.



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