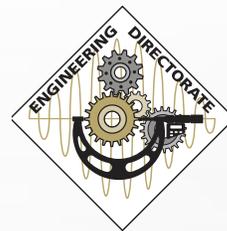


THE ENGINEERING EDGE

EDGEWOOD CHEMICAL BIOLOGICAL CENTER

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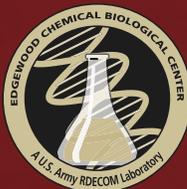
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This newsletter was published through the Balanced Scorecard.

For article suggestions, questions or comments please contact **Ed Bowen** at edward.c.bowen8.civ@mail.mil.



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The Engineering Edge Readership Survey

We want to hear from our readers – that's you!



Please take this readership survey on Survey Monkey, <https://www.surveymonkey.com/s/ecbcEngEdgeReadershipSurvey>.

It will take less than five minutes of your time. Please submit your responses by **Friday, Feb. 20, 2015** and help shape the content of the 2015 issues of *The Edge*. 

Ask a Tech Tip: Make Your Own Mercury Glass

Mike Kauzlarich, of the Pyrotechnics and Explosives Branch, reveals how the techniques and lessons learned in labs can help you solve your household problems. Submit a question to him at usarmy.APG.ecbc.mbx.engineering-directorate@mail.mil.

Mercury glass (a.k.a. silvered glass) is a glass that is silver in appearance. But did you know that mercury glass does not contain silver or mercury? It is actually clear glass, mold-blown into double-walled shapes and coated on the inside with a liquid silver nitrate solution. In the past, glass makers attempted to line the glass with small bits of mercury, but due to the toxic nature of mercury and the expense, this practice was short-lived. However, the practice explains the origin of its name. You can easily make your own mercury glass décor at home! My colleague Ameer La Bonte shared a few tips on how you can master your own mercury glass project.



First, you will need an object with a glass surface, one can of Krylon Looking Glass® Mirror-Like Paint and a spray bottle filled with water. Next, take the object and spray the inside with a quarter-sized amount of paint. Next, swirl the paint around, and allow to dry. To speed up the drying process, use a hair dryer placed on a low setting. Once the paint is about 90 percent dry, mist the object with water. Let it dry completely and – TADA! You have made your own mercury glass. Enjoy! 

Chem-Bio Defense at Edgewood: A Recent History



1970

Edgewood Arsenal (the command) consolidated with Aberdeen Proving Ground and was designated as the Edgewood Area, APG.

1971

The Biological Weapons Convention opened for signature.

1972

All remaining biological weapons at Pine Bluff Arsenal, Rocky Mountain Arsenal and Fort Detrick were destroyed.

1973

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Knowledge Management Initiative Emphasizes Retention of Core Expertise and Customer Relationships

If you are retiring soon, what can you do to help transition your project and customer knowledge to your teammates? Or, if someone on your team is retiring or transitioning to a new position, how can you glean the important information from them that will help carry on their work, and ensure a seamless transition for your team, customers and stakeholders?

The Engineering Directorate's Knowledge Management (KM) initiative team has developed tools and techniques to assist the Engineering Directorate workforce in these specific situations.

"Our team's goal is to develop a process for knowledge retention that works for both employees and managers," said Sally Edler, Engineering Business Manager for Joint Interagency Activities and a member of the KM initiative team. "So when someone retires or leaves the Engineering Directorate, they can have ways to pass along their expert knowledge and insights, and their management and teammates can be confident that there will be a smooth transition for their project and customers."

Integral to the Directorate's Balanced Scorecard Strategy, the KM initiative establishes a plan for retaining knowledge and expertise relevant to Engineering's core competencies. Led by Division Chiefs Jim Duhala and John Wheeler, the team—Mike Brown, Connie Collins, Edler, Barry Elliott, Jonathan Grzeika, Kevin Joubert, Raymond Miller, Dawn Minor, Mary K. Peck and Chris Ritchey—has varied professional backgrounds and positions, with a total of 250 years of government service.

The team decided to first develop a checklist of all of the tools and processes that could assist a division, branch or project team in facilitating a KM program. "The checklist is comprehensive and a good prompt for navigating a transition," said Edler. "The checklist helps identify key information that must be transferred or captured before a person leaves their current program or position. It is intended to be tailored to fit the individual position or program, and can also be used as the primary tool for a long-term shadowing program or exit interview process."

Then the team developed the following KM tools to support the workforce.

- Knowledge Retention Stand-Down Process** – A suggested means for personnel within an organization to share knowledge on an on-going basis. In addition, the process may be used to train personnel who will eventually replace incumbent members of the organization. This process is especially useful for groups that share a particular area of expertise and want to capture "lessons learned" about specific projects or customer engagements.
- Flow Chart** – Documenting unique or internal recurring processes is a practice that can be used to train new personnel, maintain group skill levels and retain existing senior-level expertise. Sample flow charts are provided that illustrate one recommended method to document these processes.
- Exit Interview** – A quick, final method to capture the views and recommendations of departing personnel. The sample format provided is that of the now-discontinued ECBC Exit Interview. The checklist, modified to suit the circumstances, may be used to document an exit interview.
- Knowledge Retention Decision Chart** – A chart that suggests which knowledge retention tools should be used based on

the time remaining before the employee leaves the program or position.

All tools are available on SharePoint, and the workforce is encouraged to use them and provide feedback to the initiative team. "We developed these tools with the Directorate's technical jobs in mind," explained Edler. "However, all of the tools are applicable to any job at Engineering, and customizable for how you want to use them."

Shadowing is another tool recommended in times of transition. Team member Chris Ritchey put this in practice when taking a position vacated by retiree Nick Yura. Ritchey and Yura followed the checklist, and Ritchey participated in program meetings with Yura to gain first-hand knowledge of the work required.

Edler noted that implementation of KM programs need not wait until a transition is about to occur—they can be utilized by teams throughout the year. "ECBC has a very rich history, with many subject-matter experts who have a lot of wisdom and experience to offer their teammates, especially to young professionals and rising leaders. Through knowledge management processes, your team can take advantage of work that has already been done, and further grow your project skills and customer relationships by learning from each other."

The workforce can start using the KM checklist and tools by accessing them on SharePoint at <https://cbconnect.apgea.army.mil/ENG/bsc/ip/IP11/KMretentiontoolbox/Forms/Everything.aspx> [apgea.army.mil/ENG/bsc/ip/IP11/KMretentiontoolbox/Forms/Everything.aspx](https://cbconnect.apgea.army.mil/ENG/bsc/ip/IP11/KMretentiontoolbox/Forms/Everything.aspx).



Edgewood Arsenal (the command) was abolished and the main chemical research organization became the Chemical Systems Laboratory (CSL).

The Biomedical Laboratory was separated from CSL and transferred to the U.S. Army Medical Research and Development Command.

Randy Laye Retires After 34 Years of Steadfast Service to ECBC



The *Engineering Edge* bids a fond farewell and best wishes to Randy Laye as he retires in January after 34 years of government service. He takes a look back on his career, provides thoughts on where the Directorate is headed in the future, and gives some final advice to the workforce.

When did you know you wanted a career in science? What inspired you?

As a child, I was always very curious about my surroundings; the Earth, nature and the weather. I wanted to know why things acted as they did, or why they looked a certain way. I enjoyed playing with chemistry sets and looking at things under a microscope. I also enjoyed building things with my erector sets. That natural curiosity continued to develop as I got older, and fed my interest in science and engineering. My family constantly encouraged me to go to work for the government. Both my family and my wife's family are deep rooted in civil service. My father and stepmother both worked and retired from Edgewood. My grandfather worked at APG and my wife and her family transferred to APG in 1966 upon the closing of the Erie Army Depot in Ohio.

You began your career here as a research scientist. What are some of your favorite memories from your early career?

I am the poster child for a local guy who started out small and worked my way up through the government ranks. In 1981,

I took the Civil Service Exam, applied for and was selected the first job that I could find—a GS-3 engineering aid. Back then, the Chemical Systems Laboratory (CSL) was hiring a lot of people and as luck would have it, my name soon showed up on a referral list for a GS-5 intern position. Thankfully, my supervisor selected me and my career got a real jump start. During these early years, I acted like a sponge—learned as much as I could; listened and asked for advice; met people with influence; and built relationships. I did that simply by showing interest, asking questions and asking for help. I really loved project work and had the opportunity to build a capability that didn't exist at the Center—the Protection Factor (PF) Test Facility. We were a young, high-energy team that had a lot to learn in order to get the task completed. For example, my first TDY was to Los Alamos National Lab to learn all I could about aerosols. I am proud that the PF test facility is the backbone of our mask testing capabilities and is still used today to support our customers.

Tell us about your experience working in the ECBC Chemical Biological Applications and Risk Reduction (CBARR) Business Unit.

In 1992, I joined CBARR to help set up their project management group. I initially went there on a 120 day detail and wound up staying for 10 years. I was Tim Blades' deputy, and also became a supervisor during this time. This was an awesome job—I got to travel the world, work in the field, wear Level A suits and work hands-on with agent. I figured what better way to be able to scope projects, and defend our processes and costs to customers if I understood it first-hand. It also helped me build credibility with my staff and co-workers.

What were your first goals in your leadership positions as Protection Engineering Division Chief and Deputy Director? What were the challenges?

As a Division Chief, I had to form a totally new organization, bringing together groups of people who had never worked together and mold them into a cohesive team. When



CSL became the Chemical Research and Development Center (CRDC), and reported to the U.S. Army Armament, Munitions and Chemical Command (AMCCOM).

Congress created the Chemical Warfare Review Commission.

Congress passed Public Law 99-145 authorizing production of binary chemical weapons, and two years later, President Ronald Reagan certified to Congress that all their conditions had been met.

CRDC became the Chemical Research, Development and Engineering Center (CRDEC).





AJay Thornton asked me to be Deputy Director, I had to expand my world to learn the inner workings of the entire Directorate. I spent a lot of time with my mouth shut, and my ears and eyes open. Later on when I joined the Center's leadership team, I had to expand my circle again to include the entire Center, the major players in D.C., and learn who had influence and who could be our advocate. Being a project guy at heart, every step further away from that world was hard. I eventually learned to accept that I had to have my sights on the bigger picture and I could no longer afford to focus on any one particular thing. I had to trust others to lead and manage the technical work.

What was the biggest “change of mind” you had as a leader?

Over the years I had visited the Engineering Front Office often and noticed everyone was always in their office, on the phone or busy at their computers, and I wondered what they were doing. Now I know! They were busy providing top cover and doing all the things that are necessary to allow the workforce to do their jobs. That is what we do. There are lots of unexpected daily tasks and many difficult decisions to make. I also learned how important it is for the Directorate leadership to be transparent and keep open lines of communication.

We need to bring a positive attitude and energy to the daily challenges that we face because people take cues from their leaders and pay attention to how they react when things get tough.

One of your legacies is your commitment to customer service. How will the Directorate continue this commitment to the JPEO and other customers? What are your recommendations?

We have come a long way in cultivating relationships and making customer service our normal way of doing business. The Center-level customer service initiative has done a lot to institutionalize this mindset. I believe we are perfectly postured to continue excellent customer service. All of Engineering's leadership have the same mindset and together they will continue to be champions for exceptional customer service within the Directorate.

In your opinion, what is the “next big thing” in chembio defense?

Developing integrated technologies that will produce multi-functional capabilities in a single piece of equipment is the key to the strength of the future force. There is a big push for lightening a Soldier's load, while constantly improving their protection and maneuverability. A near-

term example of this is our effort to build an explosive detection capability into the Joint Chemical Agent Detector. A longer-term effort is integrating communications, sensors, ballistics and CB protection into one system.

What is your career advice for the Engineering workforce?

Everyone learns career lessons by trial and error; through success and failure. Take ownership of your career—don't expect anyone else to manage it. Set realistic goals and work toward them every day. Be open-minded, and don't be afraid to say you don't know or to stretch outside of your comfort zone. Always be respectful of others, and be sure to thank those who help you along the way.

What are your plans for retirement?

Aside from spending time with my family, especially my grandchildren, I don't have any set plans—and I like it that way. I'll make it up as I go along, but I don't think I'll get bored. Above all, I will miss the people of ECBC the most; all of the friends I have made here. I have deep family roots here so I'll be staying in the area and plan to continue to come to the gym regularly to play racquetball. So...I'll see you all around! ⚙️

The PEO-Chemical Nuclear was established and consisted of the PM-NBC Defense, PM-Smoke Obscurants, and PM-Binary.

PM-NBC Defense, PM-Smoke Obscurants, and PM-Binary incorporated into CRDEC, and PM for Chemical Munitions was reorganized to become the PEO-Program Manager for Chemical Demilitarization.



The U.S. and Soviet Union signed the bilateral chemical weapons destruction agreement. Operation Desert Shield begins.

Operation Desert Storm begins.

AMC established the Chemical and Biological Defense Command (CBDCOM). CRDEC was renamed the Edgewood Research, Development and Engineering Center (ERDEC). The Chemical Weapons Convention opened for signature.

1987

1988

1989

1990

1991

1992

1993

New Engineering Director Comes to ECBC Knowing its Capabilities Well



Credit: ECBC Public Affairs

Prior to joining ECBC, Abaie served as the product support manager for the Joint Portfolio at the Joint Program Executive Office for Chemical and Biological Defense.

Arriving at Michael Abaie's office as he is moving in as the new Director of Engineering, the first clue to his leadership style can be seen on his bookshelf. Nestled amongst books with titles such as "Applied Thermodynamics" and "Mechanical and Design Engineering" is "7 Habits of Highly Effective People."

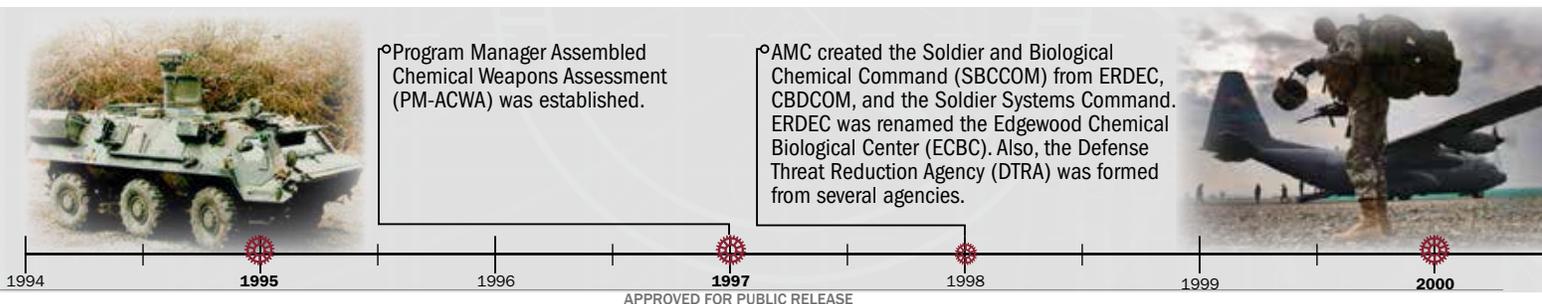
This impression is reinforced as he describes the successive leadership positions he has held before arriving at ECBC. "My experiences have taught me that an effective leader takes a team approach in order to accomplish the mission and at the same time allows the members of the team to be free-thinkers and respecting them as individuals," he said. "Communication is the key, and I err on the side of sharing too much information," he added.

His first taste of leadership, and his first experiences with the Edgewood Chemical Biological Center, came in 1997 after leaving private industry to return to government service with the Naval Service Warfare Center at Dahlgren, Virginia. As a Program Manager for the Joint Non-Lethal Weapons Directorate, he was working with smoke and obscurants, which led directly to ECBC. "It was immediately obvious to me when I met with ECBC, that that's where all the expertise was located. When ECBC spoke, everyone listened," he recalled.

His contact with ECBC was just starting. After a little over a year with the non-lethal weapons division, a program manager position for the Navy with the Chemical, Biological, and Radiological Division at Dahlgren became available. The Navy team at Dahlgren was working closely with ECBC on the Joint Biological Remote Early Warning System. He continued to be impressed by ECBC. "I remember having a problem and I turned to ECBC subject matter experts for assistance. Within four months, they had a simple solution that

was to the point and effective. I applauded the design. In fact, I recall saying it was brilliant!"

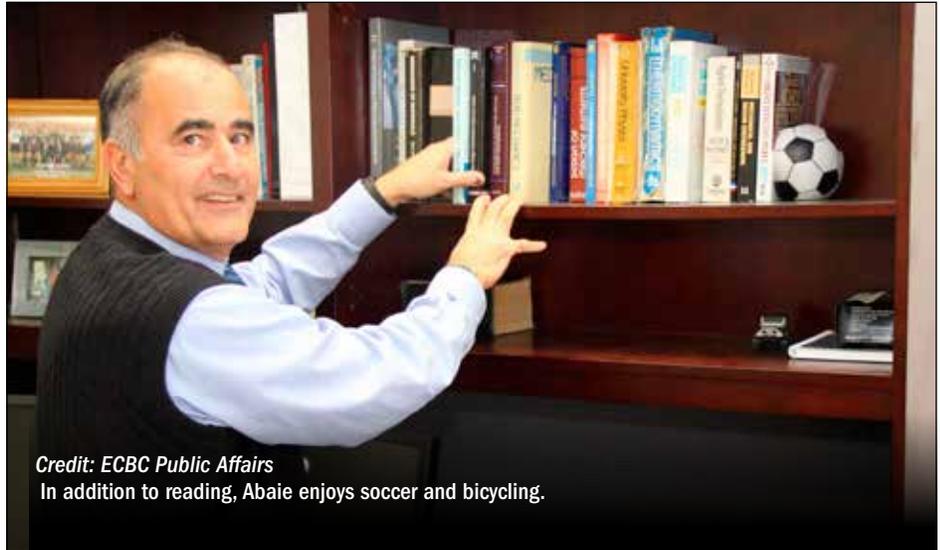
In 2003, Abaie was selected as the Deputy Joint Program Manager (JPM) for Collective Protection (ColPro) under the newly formed Joint Program Executive Office (JPEO) for Chemical and Biological Defense. Abaie established a team of experts from across the services to manage the various programs within the JPM ColPro portfolio. All the programs under the newly formed JPM were supported by ECBC technical personnel. "In fact, more than half the organization consisted of ECBC matrixed personnel, and I was extremely impressed with the professionalism and the in-depth knowledge that ECBC experts had about carbon filtration and ColPro technologies," he said. In 2008, Abaie was selected as the JPM for ColPro and continued to work closely with the same ECBC team.



Abaie's career took another leap in 2010 when JPEO reorganized to place collective protection, individual protection and decontamination into a single JPM called Protection. At the same time, the Office of the Secretary of Defense was expanding the medical side of Chemical, Biological Defense Program, and Abaie was selected to lead a White House initiative at JPEO as the JPM for Medical Countermeasure (MCM) Advanced Development and Manufacturing (ADM). The DoD needed a manufacturing capability that could rapidly produce MCMs to meet the new threats; Abaie assembled a team of experts who stood up a facility that could rapidly produce vaccines and prophylactic treatments using new technologies.

As the lead of the White House initiative, Abaie had to interface with a lot of different stakeholders. "I learned to really listen to all of the stakeholders to find out what they really wanted. This allowed me create win-win solutions," he said. "Consensus isn't getting everything you want; it's getting most of what you want and being able to live without some things that you could not get. I was able to do that because I pulled together a good team that could contribute different perspectives and think creatively while staying focused on the task."

Abaie's gift for leading and appetite for increasingly complex challenges was noticed within JPEO, and in 2013, he was selected as the product support manager for the Joint Portfolio at JPEO to address the high cost of sustaining chemical and biological equipment. Using his vast and diverse experience Abaie was able to craft a strategy that addressed the needs of the services while cutting costs. This strategy is in the process of being implemented.



Credit: ECBC Public Affairs
In addition to reading, Abaie enjoys soccer and bicycling.

Abaie has always seen change as opportunity, and he comes to the Engineering Directorate at a time of organizational change. "The breadth of knowledge possessed by the Engineering Directorate's personnel and their 'can do' spirit is incredible," he said. "During our current fiscally constrained environment I am fully confident that we, as a team, can address the evolving threat and seize upon the opportunities to grow and further flourish as a national asset. I know the leadership at JPEO and the JPMs well, and I will ensure that the Engineering Directorate will work closely with them, helping them determine their strategic direction in this changing fiscal environment. My goal is to position the Engineering Directorate to be part of their solution."

Leadership can benefit a family as much as a technology and science organization, and Abaie has spread his love of soccer to his wife of 29 years, Maureen, and his 24-year-old twins, a boy and a girl, Zach and Sierra.

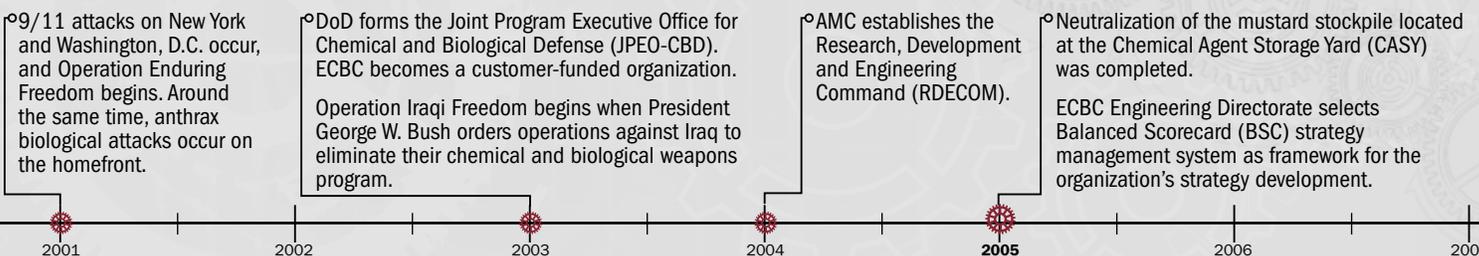
He played soccer in high school in Teaneck, New Jersey, and he started his children playing soccer at age five. They both went on to play soccer at the collegiate level.

He is also a firm believer in the importance of personal fitness. At a previous job, when Abaie was younger, he would bicycle 11 miles each way to work and back plus do ten push-ups and ten sit-ups in his office every hour. These days, he exercises an hour a day. "My wife and I will go for a five mile walk, or bike for about 15 to 20 miles, or I will circuit train with a jump rope or dumbbells in my basement in bad weather. "I encourage everyone who works for me to have a good work/family balance in their lives; Happy at home, happy at work."

Michael Abaie is, indeed, a person who lives the "7 Habits of Highly Effective People." 



Read Michael Abaie's bio at www.ecbc.army.mil/leadership.



What Was Your First Job at ECBC?

Engineering Roundtable is a new column for *The Engineering Edge*. From time-to-time, we will invite several employees to participate in a discussion about a single question. In the first installment of the Engineering Roundtable, we asked a few members of the Engineering workforce, “What was your first job at ECBC and how did it prepare you for your current position?”



Mark Ciampaglio
Acting Chief, Protective Equipment Test Branch, Engineering Test Division

“I joined the Technical Assistance Team at ECBC a few months after graduating from Virginia Tech, in June 2003. The primary focus

for this team was fixed site collective protection. My responsibilities included conducting vulnerability assessments of large buildings and key infrastructure, with a focus on chemical and biological defense. This often involved the design and implementation of whole-building collective protection filtration systems. This gave me valuable first-hand experience with air filtration, with the unique perspective of an end-user. Working with HVAC designers and personally installing and testing filters gave me an appreciation for the trade-offs inherent in filter design, while also providing an opportunity to begin developing project management skills. I’ve relied on the knowledge and experience gained in this position throughout my career. In fact, the lab I manage now recently tested the performance of the filters I installed years ago, and the people I worked alongside then are now customers.”



Kerrin J. Dame
Physical Scientist, Detection Engineering Branch, Detection and Decontamination Engineering Division

“I joined the Detection Engineering Branch in Oct. 2005 after transferring from

another agency on post, and was assigned to the Military Applications in Reconnaissance and Surveillance (MARS) Unmanned Ground Vehicle (UGV) project. The MARS project was seeking to provide additional sensor payload capabilities for the CBRN Unmanned Ground Reconnaissance (CUGR) Advanced Concept Technology Demonstration. As the MARS project manager, I worked with Dr. Peter Stopa to oversee the research, development and testing of several different types of CB technologies that could be mounted onto the CUGR UGV. I loved learning about how the UGVs could be used to protect and help Soldiers with CB related tasks, such as sending a UGV into a potentially contaminated area to determine if chemical warfare agents or other toxic chemicals were present, providing the soldier a real-time visual feed of the area, as well as taking samples. The CB world was completely new to me, so I had a steep learning curve as I learned about chemical warfare agents and how they are detected and decontaminated. Managing the MARS project provided me the knowledge and experience to go on to manage other large test programs for customers such as the Defense Threat Reduction Agency and U.S. Department of Homeland Security.”



Joe Maheady
Systems Engineer, JSAM Rotary Wing Branch, Protection Engineering Division

“In August 2009, I was hired as a systems engineer in the Joint Services Respirator Sustainment and Test

Technology Branch. It was my first job out of college. I had some job options in industry, but

this opportunity with the government interested me the most. My role was mostly configuration management and sustainment on legacy mask programs M40, M42 and M45, performing reset missions and inspecting equipment in the field at Ft. Hood, Ft. Riley, Ft. Benning, and even in Germany and Jordan. It was great to interact directly with soldiers, hear their feedback and think about potential mask improvements. After two and a half years, I became matrixed to the Joint Project Manager for Protection. Now I work on the Joint Service Aircrew Mask (JSAM) Rotary Wing program. This caused me to go from a sustainment role to a development role, taking what I learned about the masks in my previous job, and combining it with critical thinking, technical writing and management across many stakeholders.”



Emily Iverson (Rasmussen)
Quality Data Management Specialist, Knowledge and Information Management Division, ECBC-Rock Island

“I started at ECBC-Rock Island as a student aide

in June 2003, when I was just 19 years old. I was initially only supposed to be a summer hire. I was the youngest employee at ECBC-RI and I’ve been here since the organization was stood up. The first program that I was placed on was executing a Department of Homeland Security Center for Domestic Preparedness (DHSCDP) program for a critical training operation involving Weapons of Mass Destruction (WMDs) for the COBRA training facility for First Responders. In this role, I tracked requisitions, executed funding, monitored shipments and deliveries, and coordinated supply discrepancy reports and followed their progress to assure the quality of customer satisfaction. Being placed on a program immediately allowed me to broaden my knowledge of Army systems. The chance to learn right away about the CBRN commodities the Army utilizes prepared me for all the jobs that I have had since that first summer.”

