



Radford AAP wins Environmental Award

By Joy Case
Radford AAP Public Affairs

RADFORD, Va. -- A new process design for making trinitrotoluene at Radford Army Ammunition Plant, garnered the Army's top pollution prevention award this year.

Formerly, Radford TNT was produced by adding acids to toluene, a volatile organic compound. The results of that process were air pollution from volatile organics, ground and water pollution from "red water," and waste in the form of

off-isomers of TNT.

In 1984, the Army thought it would never produce TNT again and the Radford TNT works closed. The Army had a large enough stockpile of materiel that it suspended new production in the U.S. Newer, more environmentally friendly TNT replacements that were in development at the time led the Army to believe the age of TNT had passed.

Later, the Army realized that there was a continued need for TNT as the supply had dwindled with no cost effective replacement available. Thus, Radford AAP

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Howitzer approved for full materiel release



U.S. Army photos by Robert McElroy

Army Soldiers fire the new lightweight 155mm Howitzer during a training exercise with the 2-11 Field Artillery at the Pokakuloa Training Area on Hawaii.

Picatinny Arsenal Public Affairs
News Release

PICATINNY ARSENAL, N.J. — The Army has approved full materiel release status for its newest field artillery weapon, the M777A1 lightweight 155mm howitzer,

according to the system's Joint Program Manager Jim Shields.

The designation means the service has determined the weapon is safe to fire, meets the services requirements and is supportable logistically.

The M777A1, which includes a new advanced digital fire control system called Towed Artillery Digitization (TAD), was unconditionally approved for use by Army units Jan. 12.

The addition of TAD to the basic M777 design currently used by the Marine Corps and Canadian Army makes the weapon more accurate, lethal and survivable, Shields said. "The upgraded weapon is being fielded to the (2nd Battalion, 11th Field Artillery) at Schofield Barracks, Hawaii, a component of the Army's fifth Stryker Brigade Combat Team," he said.

"Before receiving the M777, the 2-11 FA was a 105mm battalion that used the older M119A2 howitzer," he said.

The M777A1 will receive a software upgrade later this spring that will enable the system to program and fire the Army's first guided projectile, the XM982 Excalibur round, when it is issued to units in Iraq later this year, Shields said.

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From the Commanding General's Desk

March is Women's History Month. Women have been an intricate part of the military establishment since the beginning of our nation's history.

During our nation's Revolutionary War as well as Civil War, a few women hid their gender to enlist in support of their country, while others, such as camp follower Molly Pitcher sometimes found themselves in extraordinary circumstances that required they pick up arms and serve on the front lines alongside the male troops.

Here at the installations covered by the Joint Munitions and Lethality Life Cycle Management Command, during World War II, when men were called away to battle the enemy on distant shores, new opportunities opened to women, who readily learned skills to support the war effort and serve in Rosie-the-Riveters type positions.

To find their places in the JM&L



Maj. Gen. Paul S. Izzo

LCMC, women no longer need to wait for men to be called away to war. Today, women serve in civilian attire and military uniforms shoulder to shoulder with their male counterparts.

Also, on the battlefield women are demonstrating their abilities. Recently,

for the first time since World War II, an Army woman was awarded the Silver Star, one of the highest military decorations for valor. Sgt. Leigh Ann Hester was recognized, along with two other members of her unit, for their actions during an enemy ambush on their convoy in 2005.

We must never forget that it is for Sgt. Hester and the men and women she serves with that we are here. We must also never forget that it is for the men and women in uniform who will never return home that we are here.

Here at the Joint Munitions and Lethality Life Cycle Management Command, we provide products of value and importance that allow our warriors to fight more effectively and efficiently as well as ensure our Soldiers remain superior to the enemy.

We must always remember the warfighter. It is often true courage and selfless duty that spurs them to serve their nation.

AMC showcases technologies at AUSA meeting

Army Materiel Command News Release

FORT LAUDERDALE, Fla. - The U.S. Army Materiel Command will showcase key initiatives and equipment supporting warfighters in the Global War on Terrorism at the Association of the U.S. Army Winter Symposium March 7 through 9 in the Broward County Convention Center, Fort Lauderdale, Fla.

AMC's exhibit, located in booth # 1426, will feature some of the following:

Future Force Warrior - The FFW program works in conjunction with the Future Combat System program to develop the next generation of Soldier in conjunction with the next generation of vehicle platforms.

The FFW program also works collaboratively with other Army commands and industry to address

current and future needs for the Soldier so that technology is developed and inserted to enable and protect the Soldier while participating in a range of war and peacetime missions. A FFW demonstrator will be on-hand to show the capability and functionality of the system.

Gunners Protection Kit - The newest Gunner's Protection Kit was designed to protect Soldiers on the top

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The editorial content of The Bullet'n is the responsibility of the Public Affairs Office at Joint Munitions Command Headquarters. Contributions to The Bullet'n are welcome; contact information follows.

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ARDEC supervisor lauded

By **Tonya K. Townsell**
Picatinny Arsenal Public Affairs

PICATINNY ARSENAL, N.J. — The chief of the Armament Research, Development and Engineering International Office was recently named its international employee of the year.

Dr. Jerry Rubin was recognized for his “leadership and aggressive management” of the Army’s Engineering and Scientist Exchange Program. Under Rubin’s guidance, his office’s efforts have resulted in the assignment of 27 foreign scientists at ARDEC, including the first exchange scientist from Japan, according to the award.

It goes on to point out that under Rubin’s management, ARDEC will have five visiting international scientists for 2006-2007, with two more planned for 2007-2008.

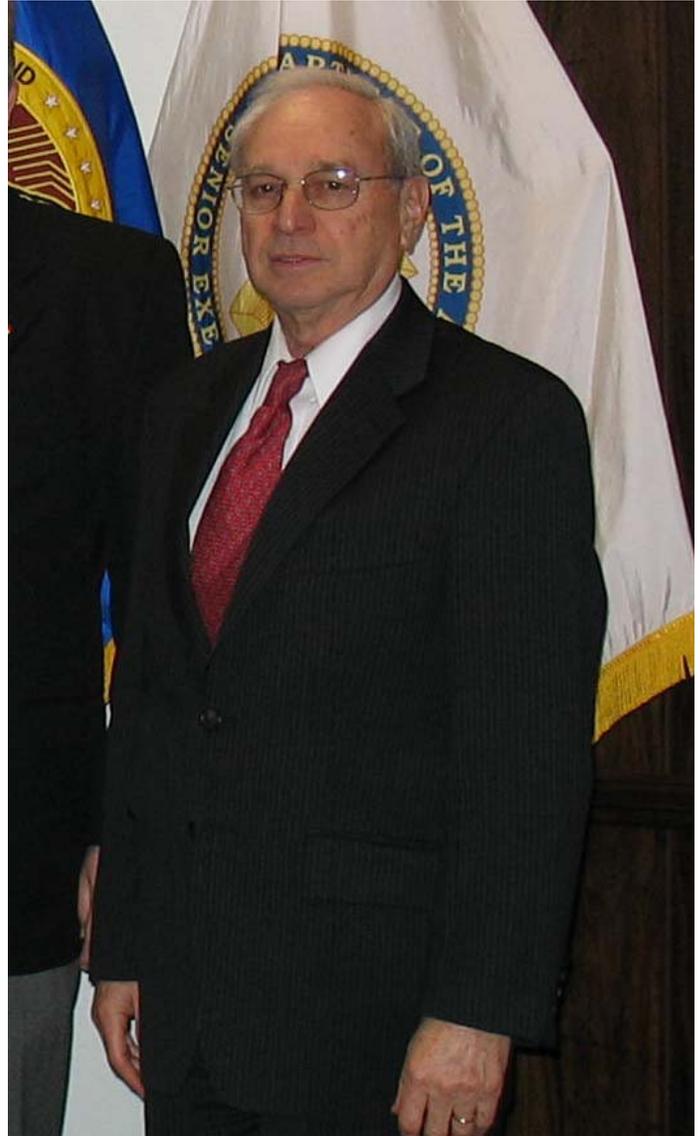
Rubin said that he will retire this year in a very different place than where he started his career. He said that when he came to Picatinny 39 years ago with a Ph.D. in chemistry, he began work in the packaging laboratory, which was then located at the Polymer Research Branch.

Because of reductions in force, office splits and dissolutions as well as career-enhancement opportunities, Rubin’s work experiences took him through many different environments and provided him with a wide variety of job exposure.

In the mid 1980s the office where Rubin worked, which dealt with domestic technology transfer and international technology transfer, split to create the International Office. The split came after Rubin made a pitch that international transfer was so important it should be separate from domestic transfer, Rubin said. Then, in 1988 Rubin took over as chief. Technology transfer is important between countries and data-exchange agreements are extremely complex. Rubin’s office provides annexes to these agreements. Because of their intricacy, a lot of correspondence involves such offices as foreign disclosure, legal and foreign intelligence.

Not too many years ago, Rubin said, sending letters was the way to accomplish correspondence, something which could take months to staff. Then came the fax machine, which, he said, became a great asset by allowing sending and receiving to occur in just hours. With the advent of the computer, he said information sharing has become almost instant.

Because of these communication improvements, the



Dr. Jerry Rubin

International Office staff can now focus more on the people and technological aspects of their jobs rather than the paperwork.

During Rubin’s tenure, he has dealt with the evolution of what has become a very important office in ARDEC’s research-and-development mission as well as with numerous agreements and scientists of different nationalities. To visualize a bit of Rubin’s and the International Office’s contributions to ARDEC, Picatinny employees were able to stop by building 1’s lobby to view the display case with some of the mementos of the office’s history.

BGAD, local company partners on recycling rubber boots and gloves



U.S. Army photos by Darryl Howlett

Processes in the recycling of chemical defense equipment include: separating the boots and gloves from the packaging paper and plastic (top left); transporting the CDE via Bobcat to the assembly line (top right); grounded CDE after going through a grinder (bottom left) and the finished product (bottom right) .

By Darryl Howlett
Joint Munitions Command Public Affairs

RICHMOND, Ky. – Officials at the Blue Grass Army Depot and a Kentucky recycling company believe in recycling – and keeping unwanted items out of landfills.

A pilot program recently ended where chemical defense equipment (in this case rubber boots and gloves) was shipped from the depot to Blue Grass Regional Recycling Corporation for recycling. And although the pilot program ended, the program has been approved for BGAD to receive more CDE items from other depots and commands.

“Prior to this pilot program, the rubber boots and gloves were transported from Blue Grass to a DMRS (Defense Reutilization and Marketing Service) facility in Ohio for accountability and then hauled to a landfill,” said Joseph Haupt, chief of BGAD’s chemical defense equipment. “Nothing was being reused: we had transportation costs and there was no recovery.”

Through its continuous improvement initiatives the depot saw right away the benefits of using a recycling program.

“Rubber boots and gloves are recyclable items that if demilitarized properly, the raw material can be sold to private industry for reuse,” he said. “Recycling would be an environmentally friendly process.”

In August 2006, BGAD shipped five truckloads of rubber boots and gloves to Ohio for processing and disposal with a total cost of \$34,093. In using the recycling program, that same truckload cost \$8,400, or savings of \$25,000.

Haupt said BGAD received the rubber boots and gloves for a number of reasons: expired shelf life, used and obsolete items.

Mickey Mills, executive director for Bluegrass Regional Recycling Corporation, has been with the company for 16 years.

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The benefits of Lean Six Sigma

Organizations participate in symposium



U.S. Army photos by Darryl Howlett

Michael George Sr., chairman and CEO of the George Group, listens to a question from a Lean Six Sigma symposium attendee in Davenport, Iowa.

By Darryl Howlett
Joint Munitions Command Public Affairs

DAVENPORT, Iowa – The benefits of Lean Six Sigma served as the centerpiece of a recent mid-winter symposium.

“Discovering the Reality of Lean Six Sigma” was held Feb. 14 and 15 at the Radisson Quad City Plaza Hotel in downtown Davenport. The event was sponsored by the local chapter of the National Defense Industrial Association.

Providing opening remarks, Brig. Gen. James E. Rogers, commanding general, Joint Munitions Command, offered his thoughts on the journey that is Lean Six Sigma.

“We have to find a way to get our hands around the (Lean Six Sigma) process,” Rogers said. “Most of our manufacturing plants and depots were already using the Lean process, so they were familiar with it. Our headquarters is focused on doing those projects with the most

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Howitzer

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The M777A1 provides the deployability and mobility advantages of a light howitzer but delivers the firepower of a 155mm system, he said.

Shields pointed out that all Marine Corps howitzers previously delivered are being upgraded to the M777A1 configuration, and that they would be transportable by the Marine Corps’ MV-22 tilt-rotor aircraft.

The program is managed by an Army-Marine Corps Joint Program office located here.

Both services are presently taking delivery of M777A1’s under a multi-year contract with BAE Systems that was awarded in March 2005.

The successful development, production and fielding of the LW155 illustrates the outstanding coordination and cooperation between services on this joint program, Shields said, explaining that “It has been a true team effort where everyone — the user, materiel developer, independent evaluator, the systems command, the program executive office and the Departments of Army and Navy leadership — had a hand in its success.”

The weapon is manufactured by BAE Systems with final integration and assembly taking place at the firm’s Hattiesburg, Miss., facility.

The new digital fire control system was developed and is being manufactured for BAE Systems by General Dynamics Armament and Technical Products of Burlington, Vt.

Shields said that the M777A1 will replace all the Marine Corps’ current M-198 towed howitzers and be the artillery system for the Army’s Stryker Brigade Combat Teams.

It is the first ground-combat system that makes extensive use of titanium to trim structural weight and is 7,000 pounds lighter than the M198 weapon it replaces.

“The weight reduction improves transportability and mobility without impacting range or accuracy,” said Shields.

The Marine Corps provided six M777s to the Canadian Army in November 2005 and is in the process of furnishing an additional six weapons. The Canadian’s weapons are seeing extensive use in combat operations in Afghanistan.

Lean Six Sigma streamlines training at MCAAP

By Mark Hughes
McAlester AAP Public Affairs Officer

McALESTER, Okla. -- Most people think of a Lean Six Sigma project as dealing with the manufacturing or logistics side of the house. Not so for the green belt project headed up by Karen Crews of the continuous improvement office at McAlester which looked at hazardous waste training. Her team members were Larry Burnett and Wade McMath.

Also participating in the project were Darrell Elliott, director of environmental management; Scott Sullivan, director of risk management; and Robert Mabray, chief of continuous improvement.

Crews and her team were to address four issues: excess number of people receiving hazardous waste handler training each year, lack of knowledge on the types of hazardous training, confusion on who receives the training and spending of unnecessary money on hazardous training.

The green belt team decided to leave the hazardous communication 40-hour initial training untouched. New production, logistics and engineering employees receive this training upon employment and no refresher training is required.

Hazardous waste handler, hazardous waste operator and emergency response training requires training of employees "relevant to the positions in which they are employed . . . The program must ensure that employees are

able to respond to emergencies and must include training on emergency procedures, equipment and systems," according to the Federal Code of Regulations.

The hazardous waste operator and emergency response training involves a select few employees, mainly first responders like the fire department, so that training was left untouched.

This left the green belt team looking at the hazardous waste handler class. One of the first questions the team asked was who is required to attend this training?

According to FCR two types of employees must attend. The first are facility workers who work in open burn/open detonation, the deactivation furnace, hazardous waste storage facility and the 90-day storage building.

The second type of employee required to attend this training are the waste handlers or employees who label the containers with proper labels and transport the waste to a permitted area.

Prior to the Lean Six Sigma project, the hazardous waste training course was involving 310 employees for a total cost of \$81,212, and this was just for the 8-hour refresher course.

Once the green belt team completed its project and crunched the numbers, they had reduced the number of employees who needed to take the annual 8-hour refresher training course from 310 employees to 95—a \$56,603.76 yearly savings.

Senator Webb visits Radford AAP



U.S. Army photos by Gerry McCarthy and Melanie Rader

Left: Local and regional media interview U.S. Senator Jim Webb, D-Virginia, outside of Radford Army Ammunition Plant on Feb. 21. Right: Brig. Gen. James E. Rogers, commanding general, Joint Munitions Command, speaks with Webb, second from left, after touring one of the production lines. Surrounding Webb and Rogers are far left, Troy Levison, product center manager for rockets and tactical tank propellants, and far right, Kent Holiday, vice president & general manager, ATK energetic systems division. Webb thanked the employees for their work in support of the Global War on Terror.

Izzo recognizes outstanding civilians

By **Tonya K. Townsell**
Picatinny Arsenal Public Affairs

PICATINNY ARSENAL, N.J. — The Joint Munitions and Lethality Life Cycle Management Command commander recognized four Picatinny employees for recent outstanding civilian service during a ceremony Jan. 19.

During the ceremony, Picatinny Commanding General Maj. Gen. Paul S. Izzo presented David Banashefski, Chris Berkowicz, Kevin Leondi and Andrew Perich with commander's awards for civilian service.

Banashefski, Berkowicz and Leondi were recognized for their efforts in completing the enhanced use lease between the Army and InSitech Inc., in September.

The EUL, which took more than five years from concept to completion, sets the stage for work that could see as much as 1.1 million square feet of developed space here. It is the largest of its kind in the Army and could conceivably be valued at about \$500 million for the Army during the 50 year lease.

Izzo said the EUL will propel Picatinny into the future and help ensure the installation remains open while bringing in industry to do like-mission work with Picatinny. Perich was recognized for his work with the rapid prototyping facility here.

The skilled staff of the manufacturing facility supports the research-and-development mission here and their work allows Picatinny concepts to reach the warfighter in a very timely fashion. The equipment they use is for prototype development and fabrication of test quantities on a wide variety of munition components for armaments.



U.S. Army photos by Erin Usawicz

From left: Andrew Perich, David Banashefski, Kevin Leondi and Chris Berkowicz stand with JM&L LCMC Commanding General Maj. Gen. Paul S. Izzo after Izzo presented them with commanders' awards for civilian service Jan 19.

Izzo said he was impressed by what Perich and his team "up on the hill" are doing behind the scenes in fabrication to move pieces quickly to where they need to go.

Perich recognized his coworkers and said that even as some move on to other organizations, they carry with them the spirit of the teamwork done at the facility.

Izzo also said that after high-ranking officials visit Picatinny and are shown the rapid prototyping facility and briefed on the EUL, they come away impressed by how Picatinny supports the warfighter and plans for the future.

Blue Grass Army Depot to improve its dam

By **Darryl Howlett**
Joint Munitions Command Public Affairs

RICHMOND, Ky. – The Blue Grass Army Depot is improving a valuable natural resource.

The depot received \$8.5 million in Operation & Maintenance Army funding to repair the dam at Lake Vega, a 135-acre lake located within the depot boundaries.

Lake Vega is the sole source of water usage for the depot and is also utilized for recreational fishing for depot employees and public-escorted small game and deer hunting. The lake has a 600 million gallon capacity from which the depot processes 720,000 gallons of water per day.

The U.S. Army Corps of Engineers, Louisville District, will head the project. The repairs should be completed in late fiscal year 2007.



U.S. Army photos by Darryl Howlett

A view on top of the Lake Vega dam at the Blue Grass Army Depot.

HWAD gains propellant test capability



U.S. Army photos by Rick Nelson/HWAD and Lawrence Livermore National Laboratory Forensic Science Center

Left: Hawthorne Army Depot Commander Lt. Col. Hardee Green stands with newly-graduated TLC technicians, trainers, and key members of his staff. Right: HWAD QASAS John Walls prepares propellant sample.

**By Elena M. Graves
Defense Ammunition Center**

McALESTER, Okla. -- Following a successful fielding of the Thin-Layer Chromatography Propellant Stability Test Kit at the Tooele Army Depot in August 2006, Hawthorne Army Depot on Feb. 1 became the second JMC installation to acquire the capability to conduct real-time, on-site stability testing of gun propellants.

Ten years of research and development by the Lawrence Livermore National Laboratory's Forensic Science Center has led to a field-portable test kit that gives trained Quality Assurance Specialists (Ammunition Surveillance) and others the ability to produce lab-quality results in an on-site, real-time mode. The commercial firm PIKA International led a fielding team that consisted of personnel from PIKA, Pelatron Inc. and scientists from LLNL. Working as a team, PIKA and Pelatron are under contract to assume final and future development, distribution, maintenance and management of the TLC Test Kit on a commercial basis.

With its single-person portability and capability to operate with 110V wall current or under self-contained battery power, the TLC Test Kit can go most anywhere to test for safe levels of remaining effective stabilizer in solid propellants that are stabilized with Diphenylamine, 2-nitrodiphenylamine, Ethyl Centralite or Akardite II.

The TLC Test Kit was developed by the Army to be used as a screening tool to determine the range of stabilizer contained in solid propellant not in the active stockpile.

When directed by the JMC-managed Propellant

Stability Program, the TLC method may be used to test propellants in the active stockpile, as well. Anticipating the installation of a blasting agent manufacturing facility on the depot during 2008, the ability to conduct on-site TLC testing will allow Hawthorne personnel to screen propellant from the demil stocks just prior to becoming a component of the blasting slurries.

The Joint Propellant Safety Surveillance Board (PSSB), a component of the Joint Ordnance Commanders Group Quality Assurance Subgroup, has evaluated the TLC Test Kit and its methodology. The Joint PSSB is chartered to "Establish criteria used to evaluate the safety of propellant inventories" and developed an exhaustive test plan that led to an endorsement, which reads:

"Upon review and analysis of the validation test data, the Joint Propellant Safety Surveillance Board has determined that the Thin-Layer Chromatography Field Portable Kit for the Analysis of Propellant Stabilizer to be suitable for use in screening known solid propellants..."

The training at Hawthorne was conducted at an explosives-licensed facility, the Ammunition Surveillance Workshop. The students included a chemist and two quality assurance employees from Day & Zimmerman Hawthorne Corporation, three QASAS careerists, and two personnel from the Army Propellant Surveillance Laboratory at Picatinny Arsenal, N.J., participating so that the Army's propellant lab could gain intimate familiarity with the field test kit. Prior to the fielding team's departure, two TLC kits were signed over to HWAD control for continued retention and use.

MCAAP employees commended for Excalibur work



U.S. Army photos by Mark Hughes

MIDDLETON, Iowa -- MCAAP employees Jeremy Beck and John Robert Farris are presented the "You made it happen!" award by Col. Ole Knudson, program manager for close air support. Their participation in assembling the Excalibur resulted in the Excalibur being shipped to Iraq and Afghanistan two months earlier than schedule.

By Mark Hughes
MCAAP Public Affairs Officer

McALESTER, Okla. – On his way to Ft. Sill, Okla., Col. Ole Knudson, program manager, close air support, stopped at McAlester Army Ammunition Plant to present explosive workers Jeremy Beck and John Robert Farris awards commending their work on the Excalibur 155mm projectile. The Excalibur is made by the Raytheon Company.

Knudson said their work, along with that of the Raytheon team, allowed the Army to complete its testing of the Excalibur two months earlier than planned and "is an item urgently needed for our forces in Iraqi and Afghanistan."

The projectile allows Soldiers to precisely engage targets with this new 155mm projectile which is GPS guided and "provides accurate, first round fire-for-effect capability to all current and future 155mm howitzers," according to Raytheon's Web site.

"By using precise artillery rounds you have greater responsiveness than most other attack means. You can engage the enemy in two to three minutes and keep on engaging them until the mission is complete. The Excalibur is a 24/7 weapon," Knudson said.

The Excalibur's range is almost 25 miles and is accurate within 23 feet and much more lethal than other weapons, according to Knudson.

And Knudson had some more good news for the plant. MCAAP will be making the Excalibur for many more years.

New operating officer for Iowa AAP

By Doug Hanify
American Ordnance LLC

MIDDLETOWN, IOWA -- American Ordnance LLC, the operating contractor of the Milan Army Ammunition Plant and the Iowa AAP, appointed Thomas Rudy as the new chief operating officer for the company on January 1. He replaces Ken Karr, who retired at the end of 2006.

Chief operating officer duties include responsibility for all activities associated with production in the company's five business units including close combat, energetics, direct fire, indirect fire, and warheads & special projects.

"Our focus needs to be on continuous improvement of our operations – not just our production operations, but the systems that drive our business at each plant. Safety is key, along with quality and the ultimate delivery of our products. We'll never forget the true customer for our products – our military around the world, and we will do whatever is necessary to support them," said Rudy, when discussing his new position in the company.

Rudy, an Iowa native, lives in Burlington with his family and graduated from the University of Iowa with an Industrial Engineering Degree. He received his MBA degree from St. Ambrose University in Davenport, Iowa.

Holston AAP completes ISO 14001

By Nancy Gray
Holston AAP Public Affairs

KINGSPORT, Tenn. — Holston Army Ammunition Plant has successfully completed an International Standards Organization 14001 registration audit of its Environmental Management System (EMS) and has received third-party registration of its EMS.

Holston began implementing the ISO 14001 EMS in 2004 in response to Executive Order 13148. Although full EMS conformance is not required until 2009, the plant and its operating contractor, BAE Systems, decided to pursue third-party registration ahead of schedule. The cross-functional team leading this endeavor was Bob Winstead, Pam Wigle, Karin Burnette, Mark Marshall, Bruce Cole and Paul Gebhardt.

ISO 14000 is a series of environmental management standards that strive to establish an organization's environmental ethic and enhance its ability to attain and measure environmental performance. The standards influence all



U.S. Army photos by Nancy Gray

ISO 14001 team members: Paul Gebhardt, BAE; Pam Wigle; Karin Burnette, BAE; Bruce Cole, Bob Winstead, BAE. Not pictured: Mark Marshall, BAE.

aspects of the industrial process from design through manufacturing.

The audit team came from NSF-ISR, an independent third-party registrar.

Recycling

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"We have three uses for the recycled material," he said. "Of course mulch and landscaping material. Second, we use it as crumb rubber for running tracks, tennis courts walking trails – things of that nature. Also, we will take some of the material and use it for playground cover."

Charles Parrish, the recycling center's plant manager, explained the process during a tour of the plant. The boots and gloves arrived at the plant in cardboard boxes.

"The boots and gloves are inventoried," Parrish said. "We separate the rubber from paper, plastic, and cardboard. The plastic we send to companies for plastic lumber and the paper to insulation companies. From there the gloves and boots are put onto the (assembly) line before going through a grinder. (The customers) tell us what form to get it in."

Parrish said about 10 employees work on the line for the gloves and boots.

Mills also lauded another aspect of the program, providing jobs for formally incarcerated persons.

"The recycling program is a career development program," Mills said. "We receive inmates on their last leg of coming out of institutionalized programs. They are a

AUSA

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of any version of HMMWV that is equipped with a gunner's turret and machine gun. It features protective glass that allows the gunner to remain fully engaged during a fire fight.

CUGR Robot - For the first time ever, warfighters will be able to conduct sampling and detection of contaminated surfaces while traveling at high rates of speed or remotely

minimum security threat. These are individuals who are on their way out. We've been doing this program for eight years and they learn skills such as operating a Bobcat, forklift, or obtaining their CDL Class "A" trucking license. Working here, they understand working on a job site and about teamwork. We've had good success with the program."

Hauptert said the recycling program is a win-win situation and is only just the beginning.

"This process makes us stewards of the environment. Socially, we're supporting a work release program and economically we're saving the government money. Another benefit in moving the material, is that it frees up valuable storage space," Hauptert said. "The program is getting ready to expand with the end of the pilot program. Pine Bluff Arsenal is going to ship some of their boots and gloves here and Blue Grass Army Depot will assist in coordinating the effort."

"The main thing about the program is we're working on a zero-waste program, thus helping the environment," Hauptert concluded.

by robot. The Chemical Biological Radiological Unmanned Ground Reconnaissance robot will demonstrate the scientific breakthrough and engineering design that has led to this capability getting into the hands of the warfighter far more quickly than is typical for new technology.

Leadership and subject matter experts will also be available for interviews.

Symposium *Continued from page 5*

amount of benefit done first.”

Rogers said he’s convinced Lean Six Sigma is the way to go for JMC.

“It’s a continuous improvement process,” he said. “We are transforming our whole organization through Lean Six Sigma. We have black belts, green belts and “just do it” projects. It’s a lot of work, a data-driven process, but the payoff is huge.”

Rogers said JMC’s early focus was on training personnel to be green belt and black belts. A year into the program the focus has changed to completing projects.

Rogers also said JMC started to value stream map its processes to identify high impact projects.

“From the top of leadership on down, we realized we’re all change agents,” he said. “The process will take about three or four years. Some people have struggled with change for years and years and years, but the empowerment of Lean Six Sigma is with the individual.”

Following Rogers, Michael George Sr., chairman and chief executive officer of the George Group, discussed both the history and future of Lean Six Sigma and its relationship with the government.

“The Secretary of the Navy is in green belt training,” George said in reference to Donald Winter. “His project was on Congressional responses and asking the question ‘Why does it take so long to get a response?’ – that’s the foundation of lean.”

George told the audience that in order for an organization or company to run more efficiently, non-value tasks must be eliminated.

“The Lean process is terribly important to our war production capability,” he said. “If you decrease the time dedicated to non-value added activities, it vastly speeds up the value added projects. How do you drive out the rework in manufacturing? By understanding the requirements of your customers.”

George also mentioned not only is the Secretary of the Navy in green belt training, but also the Chief of Naval Operations and Vice Adm. Walter B. Massenburg, commander of Naval Air Systems Command.

“Training creates understanding. Practice creates belief,” he said.

Walt Songaila, JMC LSS deployment director, provided details on the day-to-day successes and setbacks within JMC. Songaila said JMC has three critical components for LSS success: strategy integration, LSS support infrastructure and project execution. Songaila said “JMC is more effective and efficient than a year ago.”

Songaila said JMC has projected 120 green belt/black belt projects on-going across the command and is seeking \$30 million in benefits in fiscal year 2007.

The biggest challenge, according to Songaila, is reduc-



U.S. Army photos by Darryl Howlett

Brig. Gen. James E. Rogers, commanding general of the Joint Munitions Command, gave opening remarks at the Lean Six Sigma Symposium in Davenport, Iowa.

ing the cycle time of green belt/black belt projects, but JMC is modifying its approach to improve.

Songaila also said JMC is scheduled to develop several master black belts later this year.

Col. Bruce Elliot, commander of the Rock Island Arsenal Joint Manufacturing & Technology Center, spoke on the successes of the JMTC.

“Our goal is to be the supplier of choice for arsenal work and manufactured products throughout the DoD,” he said. “It is my belief to have 100 percent reliable products. We can’t have 99 percent. We can’t afford to fail any Soldier one time.”

RIA JMTC is a Gold Shingo Prize for Excellence in Manufacturing winner.

Elliot said he believes in leading by sight.

“I would say we’ve solved 90 percent of problems on the (production) floor through vision management,” he said. “I believe in leadership by walking around. I’m on the floor every day.”

The symposium also included an industry panel featuring representatives from American Ordnance, ATK, the George Group, HON Industries, John Deere, and Rockwell Collins.

The second day of the symposium involved participants touring the JMTC.

Award *Continued from page 1*

entered the competition to produce TNT.

However, since the last production of TNT at Radford in 1984, much had changed, particularly in the environmental regulatory arena. With the more modern and restrictive environmental requirements, the plant knew changes would be needed to meet the current environmental climate.

A multi-disciplinary design team from the plant developed a unique TNT production design that virtually eliminates the environmental risks associated with the older technology. This new TNT synthesis technology, chosen by the Army in a competitive process, goes far beyond traditional North American TNT manufacturing technology, combining various proven European technologies into a hybrid TNT process that had never before been used. The result: an innovative and highly efficient design capable of producing ultra-pure TNT in sufficient quantities with significantly reduced environmental risk. The Radford process designers went back to the drawing board in designing Radford's new TNT process.

"Radford's TNT process design team, including the Pollution Prevention team, took a daring and proactive approach," says Brad Jennings, Radford's environmental coordinator. "They did their research and determined that a process could be designed to help Radford produce a world class TNT product and still meet the demands of modern environmental regulations. But, that is often not enough in a competitive bid process. In this process, Radford employed great science AND proposed a low cost per pound. Amazing!!"

With process development well underway, installation personnel worked with the Virginia Department of Environmental Quality and the Environmental Protection Agency in defining future requirements, developing permits and preparing or revising various plans to ensure a smooth operational transition and process start-up.

Radford's new TNT process boasts a number of significant pollution prevention innovations. In fact, "green design" was seen as a foundational item from the project's inception. The new technology focuses on improved and more efficient TNT manufacturing centered around a base chemical feedstock material substitution, a change in the TNT purification process, and the subsequent elimination of hazardous "red water," a major environmental drawback of the previous manufacturing technology at Radford.

The new base feedstock, ortho-nitrotoluene (ONT), is more environmentally friendly than toluene. Compared to toluene, ONT is less toxic, less hazardous and less flammable. ONT is not listed in the EPA toxic release inventory, nor is it on the EPA's list of hazardous air pollutants.

The old process produced ten pounds of red water for

every 11 pounds of TNT produced. If Radford's former TNT process were still used, proper disposal of the red water would cost the plant \$1 million per year. Under the new Radford process, no red water is produced.

The new process allows for greatly improved TNT purity while simultaneously eliminating the generation of tremendous quantities of pollution. The process also provides for the potential for significant material recycling opportunities while virtually eliminating air emissions. Additionally, the new process is designed to greatly reduce environmental regulatory burden and risk while providing a significant reduction in overall TNT production operating costs for Radford's customers. As a result, the Radford process design allows the plant to meet the Army's mission requirements by providing TNT of the highest quality while eliminating many of the historic environmental risks of the traditional TNT manufacturing process.

Since production of TNT began in late 2005, the facility has been busy incorporating the new TNT operation into its established ISO 14000 Environmental Management System in an effort to identify and manage the environmental aspects and impacts by establishing objectives and targets aimed at minimizing and controlling those aspects in an environmentally sound manner. Pollution prevention (P2) and waste minimization initiatives are submitted to the installation's Environmental Department for evaluation of technical feasibility and cost savings associated with the initiatives.

In conjunction with the P2/waste minimization program, the facility uses other systematic continual improvement approaches like Six Sigma / Lean Enterprise and the new Alliant Techsystems' Performance Enterprise System to address its process and environmental issues. Combining environmental and continual improvement tools allows Radford to reap tremendous benefits in support of the Army's mission at the Radford facility.

Combining the best of former manufacturing technologies with the best of modern process design techniques, Radford seeks to offer its customers an ultra-pure TNT product at an acceptable unit cost.

"ATK is excited to be recognized for their environmental stewardship. From the initial program conception, the entire team has been focused on minimizing pollutants. The team has been extremely successful, and are pleased that the customer has acknowledged their continuous efforts. This award demonstrates to the industrial base that environmental concerns are a factor in determining contract awards," said Earl Lemon, Director of Energetics for ATK, the operating contractor at the plant.