ENVIRONMENTAL MONITOR

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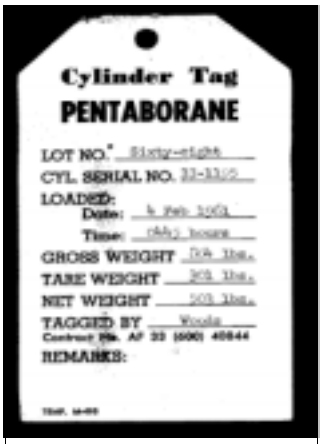
REDSTONE SLAYS 'GREEN DRAGON'

Bob Mashburn - SREO - Atlanta

A portion of the Article was taken from the U. S. Army Aviation and Missile Command News Release dated 12 Sep 00; approved for use by the U. S. Army Aviation and Missile Command - Public Affairs Office, Redstone Arsenal, AL 35898-5020



Tag taken from one of the 800-lb. Target cylinders

What started some 50-plus years ago as a national effort to produce a "SUPER FUEL" to power advanced, high-speed bombers and later, missiles and rockets for space exploration was put to rest in August of this year at Redstone Arsenal, Alabama. The last known government stockpile of pentaborane, an extremely hazardous material, was successfully destroyed by a team of professionals who took on the "Green Dragon" and won.

Owing to the chemical's extremely toxic nature and a tendency to burn with a deep green flame on contact with air, pentaborane has been nicknamed the "green dragon."

After a six-month effort that began last February, 1,747 pounds of the chemical pentaborane were successfully destroyed. Stored in four 800-pound cylinders, along with several smaller canisters, the contents were destroyed using an innovative, water-based, remote-controlled processing system. Redstone teamed with the Alabama Department of Environmental Management (ADEM), the Army Corps of Engineers, and environmental contractors led by Vista Technologies, Inc. of Huntsville. This close partnership and cooperative efforts among the military, regulatory community, technology community and the public were essential elements in resolving the many serious environmental, health and safety challenges.

Inside cylinder storage igloo at Redstone Arsenal

Craig Northridge, the team leader for the Pentaborane Destruction Project for Redstone Arsenal for the past three years stated, "The goal of this project was to dispose of the pentaborane to meet

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Inside...

EXECUTIVE ORDER

New Executive Order

Executive Order (EO) 13148, "*Greening the Government Through Leadership in Environmental Management*," was signed on 22 April 2000. The EO, one in a series of "Greening the Government" initiatives, is intended to enhance performance in environmental management, environmental compliance, and public "right-to-know." The Order (along with the previous six EOs) directs federal agencies to conserve energy and natural resources; prevent pollution; reduce waste generation; eliminate usage of ozone depleting substances; purchase recycled, energy-efficient, and environmentally preferable products; and reduce usage of toxic substances. EO 13148 states that "the head of each federal agency is responsible for ensuring that all necessary actions are taken to integrate environmental accountability into agency day-to-day decision making and long-term planning processes, across all agency missions, activities, and functions." To this end, the EO requires that environmental management systems must be implemented at select agency facilities by 31 December 2005. Additionally, each federal agency must reduce its toxic release inventory (TRI) releases and off-site transfers by 10 percent annually, or by 40 percent overall, by 31 December 2006. Each agency must also reduce its use of "selected toxic chemicals" or its generation of hazardous and radioactive waste types at its facilities by 31 December 2006. The EPA will identify 15 or more priority chemicals for this requirement, however individual agencies may develop their own list of at least 5 priority hazardous or radioactive waste types (with EPA approval). Also, where an agency has previously reduced the use of a priority chemical by 50 percent, this particular goal may be waived. This new EO addresses specific goals in other areas such as Pollution Prevention (P2), life cycle assessment, environmental cost accounting, landscaping, ozone-depleting substances, and affirmative procurement. A copy of the new EO can be obtained from PRO-ACT at DSN 240-4214, or by e-mail at pro-act@hqafcee.brooks.af.mil.

Reprinted from ProAct Crosstalk 74 edition

THE LIGHTER SIDE...

SUBMISSIONS

Environmental Monitor welcomes article and photo submissions. Please send articles and photos to:

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ENVIRONMENTAL MONITOR

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"A REGIONAL PERSPECTIVE"

"Let's Talk!"
George Carellas - SREO Chief

The AEC Army Regional Environmental Offices (REOs) celebrated their five-year anniversary on 5 September 2000 — my birthday also. It's hard to believe that the Army's RECs have now been around for 5 years and that I've been around for … well, we won't go there.

Wow! What changes! So much so, that "change" sometimes seems to be the only constant. From a basic beginning and continuing over these past 5 years, the REOs' have undergone significant change — change in staff - change in location — change in the way we do business. Roles, functions and responsibilities have changed dramatically in response to growth, development and maturing of the office operations. Everything that we strive for in this business is focused on our customers; and it is great when we are able to help "where the rubber meets the road." It has been our pleasure to know and work with so many great, dedicated, hard-working professionals

The #1 thing that I have realized while working here is the importance of **Communication**. Having spent most of my professional career in a MACOM, I may have a slightly different perspective on the value of the REC concept in expanding communications, but I look at it this way: The military is excellent at communicating information vertically — up and down the chain of command; however, that strength makes it more frustrating when information does not easily flow horizontally. This probably comes as no surprise as that is one of the hardest challenges for any organization or group of people — or even in one's own family — especially when problems occur inadvertently. A simple illustration of the information challenges that we face today is in how the proliferation of cubicles in offices has really reduced the open communications between co-workers sitting side-by-side. Add in e-mail and the Internet, and the challenges become even more apparent. While we are able to pass "information" more readily, "communication" is not always good.

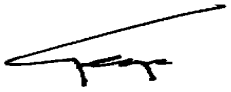
While there has always been an extreme awareness of the EPA Regions and States by DOD, the fact remains that the Major Commands and installations were not corporately structured to effectively work with those organizations. Consequently, a military installation might be unaware of environmental actions at a nearby military installation much less what was going on in an EPA region or a particular state. Hopefully, the regional offices are able helping to bridge some of those gaps. The Air Force recognized this need over 20 years ago, and I'm glad to report that all four Service Components now have an organizational entity to facilitate regional/state environmental issues within the military chains of command.

The encouraging aspect of our environmental business is that most people really exhibit some very common traits…proud of the military and its heritage in the Southeast; anxious to protect the military training and readiness requirements that are so vital to our nation defense; but still committed to protecting the environment. Someone in one of the major commands once commented that "the environment is one of only a few national priorities that is really local".

In the past 5 years, I have seen many, many barriers broken down. Principal stakeholders — Military Commands, Regulatory Officials, government agencies — have shown great respect for the challenges of others. Other "communications success stories" that quickly come to mind are (1) a Kentucky clean-up program that has really taken off, (2) the first regional P2 partnership in the country, (3) a regional clean-up approach that is being adopted in other EPA regions, (4) numerous collaborative initiatives in various media, and the list goes on and on … but, in the end, a good environmental program feeds on collaboration, results in better business practices, and actually solidifies the military's future in the Southeast.

Each of the four Army REOs have been involved in working with stakeholders and regulators to mold emerging environmental issues. The Kansas City office helped with a fee issue to insure its legality. The Denver office worked to clarify some issues with a legislative proposal on air. But to me, the clearest example of success was an effort in Virginia, headed by the Navy, where a piece of legislation was targeted to address some specific problems resulting from commercial shipping. As originally drafted, the law would have unintentionally cost the military hundreds of millions dollars. As it turned out, the legislators inserted the word "commercial" in front of the word "vessels", and the disconnect was avoided.

The Army Regional Environmental Offices are leaning forward in the foxhole, positioned to deal with change, and committed to our installation support mission. It's really all about communication as problems can normally be avoided if everyone is talking. Bob Mashburn, Jamie Higgins, Ed Engbert, Adrienne Willis, Linda Sohns, and I want to thank everyone for your cooperation and support during these past 5 years. We look forward to many more years of assistance to you and the Army.



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waste disposal laws in a safe and environmentally conscious manner." He emphasized that "extra care was taken throughout the entire process to ensure we had the best technical experts for the job and that we worked hand-in-hand with the ADEM staff on the environmental requirements. We also devoted a lot of attention to making sure the community leaders were kept appraised of the total effort, even from the start."

For almost 40 years, approximately 1800 pounds of pentaborane, a hypergolic rocket fuel, was stored at Redstone Arsenal undergoing evaluations for military applications. Redstone Arsenal is a research and development facility for the U.S. Army's Aviation and Missile Command. In the early 1990's, the Department of Defense (DOD) and the National Aeronautics and Space Administration (NASA) determined that pentaborane was unacceptable for large-scale application as a fuel. Even though the materiel was determined to be excess, there were no known, acceptable storage or treatment alternatives available. Because of its instability and explosive potential, the pentaborane could not be moved from its storage location at Redstone Arsenal.

Target cylinder being transferred from igloo to processing area

Beginning in 1995, Redstone Arsenal undertook a major initiative to dispose of the pentaborane stored there. Mike Hubbard, Director of Environment and Public 'Works at Redstone Arsenal stated, "This was not an easy process since the material posed such extreme health, safety and environmental risks and there were no proven safe large-scale treatment systems for the destruction of pentaborane. Extraordinary effort went into pulling this all together and a lot of people get credit. The staff from ADEM was super and I can't say enough good things about the contractors, Vista and Integrated Environmental Services (IES, Inc.), for the great work they did."

Pentaborane (Boron Hydride - B5H9) is a listed “extremely hazardous substance” in Section 302 of the Superfund Amendment and Reauthorization Act. A highly toxic and unpredictable compound, pentaborane was developed in the 1930s as a potential fuel for air-breathing planes and rockets. A legacy of the Cold War, pentaborane was produced during the 1950s under both Air Force and Navy contracts as part of a boron hydride "Super Fuels" effort to power advanced high-speed bombers, missiles and rockets. Difficulties in handling the material became evident during its production and use. This later led to it being abandoned as a viable fuel. Unused pentaborane stocks of several hundred cylinders remained mothballed in storage for almost three decades at Edwards Air Force Base, Calif., Redstone Arsenal, and various research facilities around the country. The cylinders at Edwards were detonated in the desert last year but this was not an option for Redstone Arsenal given its proximity to populated areas.

As a “Super Fuel,” pentaborane releases extreme heat from hydrogen combustion generated during the reaction process. In terms of acute toxicity, pentaborane is comparable to several chemical nerve agents. The explosive and toxic nature of the material combined with the unknown composition of the breakdown products places a premium on using proper disposal procedures. Starting with these parameters as a basic framework, the project team identified the information necessary for design of a system, oversaw a pilot study to provide the necessary information, designed a full scale treatment system, implemented that system, and successfully completed treatment of the pentaborane with final site closeout.

Placing target cylinder into CMC before processing

Integrated Environmental Services, Inc. of Atlanta Georgia, a specialized sub-contractor, designed the full-scale treatment system and successfully operated the remote-controlled system. They set up near the secured bunker where the pentaborane was stored and destroyed the chemical by combining it with steam under controlled conditions. This process converted the pentaborane into hydrogen and boron. The hydrogen was vented from the system while the boron combined with water to form a harmless solution of mild boric acid. This system used only water to attain complete chemical conversion. The pentaborane was successfully treated using remote vapor phase hydrolysis. Direct contact was limited to the moving and handling of the cylinders. During these operations, personnel attired in gas-tight suits took cylinders from their storage location and placed them into a sealed, environmentally controlled chamber. Air from the chamber was removed and replaced with nitrogen to minimize chances of air leakage into the cylinder or connecting piping during processing. An exten-

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PARTNERSHIP

MILITARY SERVICES SOUND ALARMS ON TRAINING RANGE ENCROACHMENT

(Adapted from article taken from Defense Environmental Alert 01 August 2000 edition)

All four Military Services are sounding alarms that public challenges to training ranges across the United States — based mostly on environmental concerns — will degrade their readiness to achieve military missions, according to a report the Pentagon sent to Congress in July.

The Defense Department's Monthly Readiness Report for July 2000 says Service training and test facilities are under fire from the public, which has raised a variety of concerns ranging from noise levels and commercial competition for airspace to urban growth around military bases.

"Environmental lawsuits are becoming more commonplace, and environmental laws are, in some cases, affecting the Services' air, ground and naval training," the report adds.

"Encroachment on DOD ranges and training centers presents a serious and growing challenge to force readiness," states the new report, obtained by Defense Environment Alert's sister publication Inside the Pentagon. As a result, the Defense Department has launched "an analysis of range encroachment issues and will be developing a comprehensive plan to address these issues," according to the report. A copy of the report is available on our online document service, IWP Extra.

Monthly readiness reports are intended to flag issues that the military services will spend time and effort on in order to recover from any damage caused to readiness, said Navy Deputy Assistant Secretary for Environment & Safety Elsie Munsell in a July 27 interview with Defense Environment Alert. And Rear Admiral Larry C. Baucom, Director of the Environmental Protection, Safety and Occupational Health division for the Chief of Naval Operations, said in the same interview that these encroachment issues now are receiving more attention and having a greater impact on readiness and the military's ability to sustain readiness.

No overt references to the most widely publicized training range issue of late - the Navy's training range on Vieques Island, PR- appear in the three-page document. But Baucom said the environment-related issues at Vieques are an example of the "vagueness of laws" that can be used by some groups to halt naval activities. Baucom says the Navy needs standard interpretations - essentially clarifications - of certain laws such as the Marine Mammal Protection Act (MMPA) to deal with such challenges (see related story).

In Vieques, local politicians and activists have called on the Navy to close its bomb-training facility and allow for commercial development, and have said many years of training there have resulted in environmental and health consequences. After months in which protesters occupied the Vieques training range, preventing visits by Navy ships preparing for deployment, the service complained its force readiness in the region had declined.

The new seriousness with which the encroachment issue is viewed reflects a growing realization on the part of the services that training ranges they had counted on indefinitely are no longer a certainty.

"The department has traditionally viewed its major air, land and sea ranges and training centers as being available over the long term to support the readiness of U.S. armed forces," the report states. "Increasing challenges resulting from different types of encroachment suggest that the department needs to develop a comprehensive strategy to ensure that our forces continue to have adequate access to training and testing ranges, and that those ranges have the capabilities to support the readiness of our forces over the long term."

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At the same time, the military is increasingly utilizing instrumentation and simulation to substitute for certain types of training. Instrumentation of the kind built into DOD's major training "allows our forces to conduct realistic simulated weapon engagements while providing feedback to tell who shot whom and how," the report says.

"By using instrumentation to better replicate the realities of combat, we can minimize potential environmentally destructive aspects of training," according to the report. But shrinking funds to modernize these facilities remains a challenge, the report says

Meanwhile, with environmental issues often managed and decided at the local, state or regional levels by federal or state agencies, it frequently falls to military commanders on the scene to fight to maintain readiness. "With this decentralization, local military commanders have had to engage the issues directly -a task for which they may be under-resourced and untrained," the report states.

The report describes other examples of training range encroachment that the services briefed at a June 20 meeting of the Pentagon's Senior Readiness Oversight Council. The briefing was a "mature recognition of where we sit," said Munsell, noting that these issues have been worked on for years. Service representatives reportedly told the panel they all face similar encroachment issues, but highlighted a few examples of their particular concerns.

Navy officials chose to call attention to the effect their use of war-fighting systems, like active sonar, may have on marine mammals, according to the report. "Laws protecting marine mammals could impede the development of new shallow-water sonar technologies," the report states. But the Navy officials in the interview emphasize that the Navy is not suggesting it wants to change the law so that it can then cause harm to marine mammals. Rather, active sonar was presented at the briefing as an example of how laws can affect the Navy's ability to train, Baucom said. The Navy wants some laws clarified because they're so poorly drafted that one interpretation can call for stopping an activity even if no harm will be caused to a marine mammal, he said. "The language in the [MMPA] leaves open a lot of really wild interpretations," added Munsell.

For its part, the Marine Corps cited the "rapidly expanding urbanization [that] has affected air and ground training at Marine bases in several states." One example is the approximately 60,000 acres proposed as "critical habitat" at Camp Pendleton, CA, which could reduce the area available for amphibious force training, according to the report.

Finally, "the Air Force highlighted a variety of issues, such as noise abatement, unexploded ordnance and environmental regulation that affect air-to-ground training," the report states. "Similarly, [Air Force officials] explained how demographic shifts and population growth have increased commercial demand for airspace and present an emerging challenge for the Air Force in accommodating the needs of all airspace users safely and efficiently."

Air Force Deputy Assistant Secretary for Environment, Safety & Health Tad McCall told Defense Environment Alert that an Air Force environment committee will continue to examine how environment, safety and health issues that relate to range management are integrated into so-called road maps for sustaining ranges. "We think that this is a crucial issue to the Air Force that we have a strategy that allows us to train in America. We believe it's crucial that our ranges be seen as part of the ecosystem of any region" in which they are located "so that they can contribute to regional solutions to environmental issues," he said.

REGION 4 SPECIFICS

RECYCLING PAYS AT ANNISTON ARMY DEPOT

By Joan Gustafon, PAO—Anniston Army Depot

The solid waste crisis in our country is no illusion**.** As landfills overflow and regulations become more restrictive and costly, great initiatives are being demonstrated across the Army to reduce or eliminate solid waste whenever and wherever possible. Efforts at Anniston Army Depot serve as a prime example.

Anniston Army Depot's Recycling Crew - the ones who make it all happen.

Anniston Army Depot's (ANAD) recycling program began as early as 1982 but got into full swing in 1990. Currently, 15 full-time Non-Appropriated Fund (NAF) employees are responsible for the program to include:

Kenneth Henderson, Jr. & Angela Rudolph at the shredder-conveyor-horizontal baler where all of the shredding of paper products takes place.

- reducing the need for landfill usage through systematic recycling operations.
- reintroducing materials into the operating processes.
- finding profitable and qualified markets for materials resale.
- collecting, processing, and transporting recyclable materials in an economical and safe manner.
- reducing overhead operating expenses through cost-avoidance processes.

The depot's recycling operation is one of several components of an Integrated Solid Waste Management (ISWM) approach that includes source reduction, recycling, treatment, and disposal.

Judith Powers and LaTonya Andrews at the vertical baler/ compactor where all corrugated materials received are baled before being shipped to market.

Under the auspices of the Department of Defense ***Adopt-A-School*** program we show children how to become good environmental stewards and why it is important. These programs, although challenging, are still fun for the children.

The ***Bring Recyclables from Home*** program allows employees to bring in items that would normally be discarded through garbage disposal means to include newspapers,

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plastic containers, glass jars, steel cans, cardboard packaging, aluminum cans, and magazines.

Damon Harrison uses a forklift to move bulk recyclables to their designated places at the depot's recycling center.

Then on Saturdays ***Scrap Wood*** is offered to the public for a nominal fee and includes wood chips, mulch, topsoil, and sawdust.

Additionally, the depot has a partnership program with the ***Talladega Prison*** wherein we recycle their corrugated and office mixed paper as well as scrap wood from their furniture making process.

Through these and other activities, the depot's recycling program collects annually:

- over 9 million pounds of aluminum, brass, copper, ferrous, and steel and aluminum cans.
- more than 3 million pounds of wood products to include pallets, boxes, telephone poles, cross ties, wood chips and sawdust.
- approximately 1.1 million pounds of corrugated cardboard, mixed paper, newspapers, magazines and other paper products.
- about 679,000 gallons of used oil, 17,500 pounds of compost, and 96,500 pounds of plastics and miscellaneous items.

These and other efforts, have allowed the depot to generate nearly $600,000 annually, avoiding nearly $575,000 in solid waste disposal and management costs, and to divert more than 56 percent of its solid wastes from entering disposal facilities.

Designated as a ***Qualified Recycling Program (QRP)***, all proceeds from the sale of recyclable materials are returned to the program account to first pay all operating expenses associated with the program. Then, any excess monies are used to support environmental, health and safety, and Morale, Welfare and Recreation (MWR) activities at the depot.

The recycling program at Anniston Army Depot is alive and well thanks to the dedicated efforts of all concerned, and should become even more viable in the years ahead as additional markets for recyclable items come into being. Protection of the environment is a never-ending challenge and is the responsibility of everyone.

In order to maximize the recycling processes state-of-the-art equipment is used. Here Donald George uses a roll-off truck with a 30 yard pan.

Using dozer equipment, Robbie Brooks makes more land space at the depot's woodyard where even the dirt is recycled.

Remember –
it's your environment too!

ANNOUNCEMENTS

ARMY WORLDWIDE ENVIRONMENTAL AND ENERGY CONFERENCE 2000

December 4-7, 2000

Atlanta, Georgia

THEME — "Sustainable Installations and Operations: Transforming the Army"

OVERVIEW —

- Hosted by the Assistant Secretary of the Army for Installations and Environment (ASA(I&E)), the conference will bring together Army leaders and installation managers to discuss installation, environmental and energy challenges related to Army Transformation and address actions recommended by the Senior Environmental Leadership Conference (SELC) 2000.

- The conference will feature senior speakers from the Department of the Army, the Presidents Council on Environmental Quality, the Environmental Protection Agency, the Department of Energy and the U.S. Fish and Wildlife Service. Discussion topics will include SELC 2000 Campaign Plan, energy management, green construction, ecosystem management, land use, sprawl, sustainable ranges, unexploded ordnance (UXO), Native Alaskans/American Indians, and Technology Transfer.

- The conference format will consist of five plenary sessions and associated breakouts discussing critical installation, environmental and energy sustainment issues facing the Army as it transitions into the 21st Century.

WHO SHOULD ATTEND — Army HQ and MACOM environmental and energy leadership; Garrison Commanders; installation environmental, legal, energy, training, range and facility managers; Army Regional Environmental Coordinators (REOs); and military R&D coordinators.

CONFERENCE LOCATION/HOTEL RESERVATIONS — The Omni Hotel at the CNN Center in Atlanta. Call 1-800-THE-OMNI and ask for the Army Worldwide Environmental and Energy Conference by 4 November to guarantee the conference room rate of $85.00.

CONFERENCE REGISTRATION AND MORE INFORMATION — The Web site for electronic registration and conference information will be available after October 15. CHECK BACK ON DENIX, AEPI HOMEPAGE (www.aepi.army.mil), OR AEC HOMEPAGE (aec.army.mil) FOR THE WEB SITE ADDRESS AND DIRECT LINK TO THE SITE.

CONTACTS — For additional conference information contact Ms Keera Cleare, at AEPI, (404) 524-9364 or DSN 367-4142. For registration questions contact Amy Konopacky at Versar, Inc., (703) 750-3000, ext. 380.

WINNING INSTALLATIONS

Fort Knox Program Wins White House Award

The recycling program at Fort Knox, Ky., won the 2000 White House Closing the Circle Award in the military recycling category for initiatives stressing professional training and community leadership.

The White House Closing the Circle Awards program recognizes federal employees and facilities for efforts resulting in significant contributions to or significant impact on the environment under Executive Order 13101, Greening the Government through Waste Prevention, Recycling, and Federal Acquisition.

Army teams also received two honorable mentions for their use of recycled plastic in place of wood. In the Affirmative Procurement category, Fort Belvoir, Va., and the U.S. Army Corps of Engineers' Construction Engineering Research Laboratory (CERL) were honored for using recycled-plastic lumber for a boardwalk, an observation platform and handrails around handicap-accessible fishing piers at Fort Belvoir's Jackson Miles Abbott Wetland Refuge.

CERL also won an honorable mention in the Environmental Preferability category as part of a joint-service team that built the world's first railroad turnout to use recycled-plastic crossties at the Naval Surface Warfare Center, Crane, Ind.

The winning Fort Knox recycle program has four operational goals:

- Conserving natural resources by maximizing diversion of materials from the waste stream
- Saving Fort Knox appropriated funds
- Paying operating and capital expenses out of program income
- Returning the maximum amount of dollars for use on Fort Knox

Key to the program is professional training, in areas such as customer service, and human effectiveness. Trainers from the Defense Logistics Agency (DLA) provide on-site instruction for the team, and the team visits the program's customers, including paper mills and metal processing facilities, within the area.

Reprinted from AEC Environmental Update, Summer 2000

POLLUTION PREVENTION

FORT BRAGG SOLVES A PRESSING DILEMMA

A mix of creativity and technology helped Fort Bragg, N.C. purchase new printing equipment that is preventing pollution and saving money. The military base reduced ,500 gallons of hazardous waste from its printing operations and slashed its chemical purchasing and disposal costs by more than $100,000.

As recently as two years ago, the installation's U.S. Army Special Operations Command, 4th Psychological Operations (PSYOP) print shop was using 15-year old lithographic technology. In his quest to reduce the resulting adverse environmental impacts, Sgt. Gregory Hemsley, environmental coordinator for the 3rd PYSOP Battalion, researched various options, eventually deciding on a digital image press. These presses eliminate the use of aluminum plates, developers and fixers – three waste streams – dramatically improving environmental performance.

In addition, the new machines save both money and time. The print shop cut annual chemical purchasing and disposal costs by 73 percent and can print 10,000 copies an hour, a much faster rate.

The Pollution Prevention Investment Fund, managed by the U.S. Army Environmental Center for the Assistant Chief of Staff for Installation Management (ACSIM), funded this pollution prevention project.

The U.S. Army Training Center and Fort Jackson, S.C.

Fort Jackson won the Natural Resources Conservation award for a large installation by providing realistic training for more than 33,000 resident soldiers while preserving a habitat that supports three endangered species.

Fort Gordon Community Uses DoD Grant to Restore High-Risk Erosion Areas

By Dave Schulte
Fort Gordon Environmental & Natural Resources Management Office

A Department of Defense grant helped Fort Gordon, Ga., volunteers plant more than 1,000 trees and shrubs in high-risk erosion areas as part of an award-winning restoration project.

The installation received the DoD Streamside Forests: Lifelines to Clean Water grant on April 29, 1999. These funds were used to purchase the plants to maintain, protect and restore riparian areas.

The project helped the Fort Gordon Environmental Office earn a Certificate of Distinguished Service in the Keep Georgia Beautiful program. Georgia Lieutenant Governor Mark Taylor presented the award March 9.

The project took place in December 1999. More than 180 soldiers, local scouts, local clubs and citizens rallied to plant the trees and shrubs in high-risk erosion areas.
Nineteen species of native trees and shrubs, including Red Cedar, Pond Cypress, Crabapple and azaleas, were strategically planted to absorb excess nutrients from sediment and reduce stream bank erosion.

Enhanced vegetation areas that surround Fort Gordon's streams, lakes and ponds (riparian zones) are critical habitat for many wildlife species, including waterfowl and other birds, frogs, fish, insects, mammals and deer. The newly planted trees and shrubs will provide food, shelter and shade. These same banks provide a healthy habitat for local fish and mussel populations. Riparian plants purify water by removing sediments and other contaminants, which have a negative impact on native fish and other aquatic life.

To ensure the survival of the trees and shrubs, the Fort Gordon Environmental and Natural Resources Management Office continues to monitor their growth. Fort Gordon recognizes that the ecosystem of these streams and lakes affect the animals' habitat and community recreation activities.

Reprinted from AEC Environmental Update, Summer 2000

(Continued from page 10-Recycling)

The program also stresses educating the community on reducing waste, buying recycled products and increasing recycling efforts.
Fort Knox also partners with local federal agencies, state agencies, counties, municipalities, school districts, waste haulers, and businesses to increase recycling within the region.
On a regular basis, the program sorts, processes, and markets 38 separate grades of material, from household and office materials to industrial materials, wood products, metals and demolition debris.
Now in its sixth year, the Closing the Circle award is given in eight categories: Waste Prevention, Recycling, Affirmative Procurement, Environmental Preferability, Model Facility Demonstrations, Sowing the Seeds for Change, Outreach and Executive Order 12856 (Federal Compliance With Right-to-Know Laws and Pollution Prevention Requirements).

Submitting Nominations
Nominations may be submitted online at http://www.ofee.gov/ctcawrd/award-00.htm.

From Office of the Federal Environmental Executive releases

PUBLIC HEALTH ASSESSMENT PROCESS

Public Health Assessments (PHAs) augment the remedial investigation process by evaluating the effect of hazardous waste sites on the community. PHAs are conducted by the Agency for Toxic Substances and Disease Registry (ATSDR) through a Memorandum of Understanding between DOD and ATSDR and are required by law at all National Priorities List sites.

The PHAs evaluate hazardous substance releases, community health concerns, and health outcome data. The assessment has three parts:

a. Assessment of past, present, and future impacts on public health, through the evaluation of potential exposure pathways
b. Evaluation of community health concerns which are collected through community outreach programs, and
c. Development of health advisories and recommendations which may consist of identification of studies or actions needed to evaluate, mitigate, or prevent adverse human health effects, such as disease registries, epidemiological studies, health surveillance programs, or health education programs.

The key to a PHA is the evaluation of exposure pathways. An exposure pathway consists of five elements. All five elements must be present or the pathway is incomplete. The five elements are and the questions they tend to answer are:

a. Source: Is there contamination?
b. Environmental Media: Can the contamination move away from the source through the air, soil, water or sediment?
c. Point of Human Exposure: Is there a place where people can come into contact with the contamination?
d. Biological Route of Exposure: Can the contamination enter into the human body and if so will it cause a health effect?
e. Presence of People: Are people present at the point of exposure and are they doing things that would allow the contamination to enter into their bodies?

Again, if the answer to any one of the questions above is no, there is no exposure pathway.

An example of an incomplete pathway:

> An old underground storage tank leaks material into the water, which is under the ground. The groundwater moves away from the tank, but there are no wells in the area. Nobody has the ability to use the water for drinking or bathing. Therefore, nobody is exposed. The pathway is incomplete.

An example of a complete pathway:

> An old underground storage tank leaks material into the water that is in the ground. The groundwater moves away from the tank through the soil into a well. Well water is then drawn up and used for drinking and bathing. People who use the water for drinking or bathing are exposed. The pathway is complete.

If the pathway is complete, then the other programs within ATSDR are initiated. Thus, while the remedial action process would recommend an alternate water supply to address the completed pathway described above, the PHA process evaluates whether or not the exposure has the capability of causing a health effect in the community. If the contamination is present in concentrations high enough and the exposure occurs long enough, then ATSDR follows the PHA with health studies, health education, or other activities as indicated in the figure above. The health studies evaluate the relationship between exposure and adverse health outcomes. For health education, ATSDR works with community members and local health professionals to gain an understanding of the unique characteristics and needs of the community and provides education and case studies on the diagnosis, treatment and surveillance of environmental illness to the local health professionals. ATSDR also prepares ToxFAQs, health summaries answering the most frequently asked questions (FAQs) about hazardous substances:

a. What is it?
b. What happens when it enters the environment?
c. How might I be exposed?
d. How can it affect my health?
e. How likely is it to cause cancer?
f. Is there a medical test to show if I've been exposed?
g. Has the Federal Government made accommodations to protect human health?

As the DOD Lead Agent for the Deputy Under Secretary of Defense (Environmental Security) and the ATSDR, the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) executes the Memorandum of Understanding between DOD and ATSDR. They work with each military component to identify yearly requirements and negotiate an annual plan of work with ATSDR. The DOD Lead Agent ensures consistency across the components, and serves as the first line dispute resolution authority. USACHPPM is also the Department of Army Liaison for ATSDR activities on Army installations. DOD personnel can access ATSDR services through the DOD Lead Agent Program or their service liaison.

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Fort Stewart Studies Shortnose Sturgeon

By Thomas D. Bryce , fort Stewart Fish and Wildlife Branch

In keeping with the installation's Endangered Species Management Plan (ESMP), Fort Stewart's Fish and Wildlife Branch is monitoring the endangered resident shortnose sturgeon.

This species occurs in the Ogeechee River, which forms the eastern boundary of the installation, and in the lower portions of the Canoochee River, which flows diagonally through Fort Stewart.

The shortnose sturgeon, Acipenser brevirostrum, was federally listed as endangered in 1967. Before this, it was commonly taken as "bi-catch" in commercial fishing for its cousin, the Atlantic sturgeon. The virtual disappearance of the shortnose from commercial landings led to the species' listing.

Biologists believe several other factors affect the shortnose throughout its range. The quality of its waters is degraded by discharges from agriculture, commercial forestry and urban development. Dam construction, spawning habitat degra-dation, and loss of cool water refuges for the hot summer months also affect the fish.

The current project follows up on and expands a baseline 1992-1995 study that confirmed the species' presence in waters on and adjacent to the installation. The first study found the Ogeechee River system population to be small (approximately 300 individuals) and dominated by adults.

An attempt was made to radio tag 18 individuals in 1994 and track them through the 1995 spawning season. Only one tagged sturgeon made a run up the Ogeechee River. Unfortunately, this fish was accidentally intercepted by a commercial shad gillnet fisherman.

Because of the sturgeon's presence, Fort Stewart began to informally consult with the National Marine Fisheries Service in 1991. Through the consultation process, an ESMP was prepared for the species and the installation agreed to establish a monitoring program.

The ESMP spells out the need for an extensive water quality monitoring program, a multi-year sturgeon population study and implementation of an information and education initiative. This second phase of the population study began in May 1999 and will continue through 2001, if funds remain available.

The current project is a joint effort between Fort Stewart's Fish and Wildlife Branch and U.S. Army Corps of Engineers Waterways Experiment Station (WES). WES has extensive experience with several listed sturgeon species along the Gulf coast.

Fish and Wildlife Branch biologists and technicians are using gillnets to collect the sturgeon. Once captured, the fish are weighed and measured. Magnetic pit tags are inserted just beneath the skin, radio tags are attached, a short segment of pectoral spine is removed for aging purposes, and a snout barbel is removed for genetic evaluation. The radio-tagged fish will be tracked throughout the year with particular emphasis on the spring spawning period.

Investigators will evaluate population trends, determine growth and mortality statistics, monitor water quality and locate spawning habitat in the Ogeechee River system during this multi-year project. In addition, they will make genetic evaluations to determine if this population is genetically distinct from other Atlantic shortnose sturgeon populations.

The role of deep cool water refuges in sturgeon survival will also be examined during the study. The disappearance of cool water springs flowing into these deep holes in the river has been linked to the drop of the Floridian aquifer because of significant industrial and residential water withdrawals during the last 30 years.

This may be an example of how the disappearance of a species serves as an early indicator of a greater problem affecting man — the availability of fresh water.

Because of this work, Fort Stewart will have a better understanding of the sturgeon to ensure that its mission does not jeopardize this species.

(Reprinted from FORSCOM Environmental Grapevine, Autumn 1999)

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sive array of sensors and air sampling equipment was used to monitor all aspects of the operation including ambient air quality to ensure the system was operating at peak efficiency.

The system used in the destruction process has been dubbed "Dragon Slayer" by the system's designer, Jeff Gold of Integrated Environmental Services, Inc. of Atlanta Georgia. As Mr. Gold so aptly stated, "The entire undertaking had all the makings of a great screenplay — formidable objective, innovative technology brought to bear on that problem, initial success followed by near defeat by the "dragon," dogged perseverance by the protagonists, and eventual victory!"

Kristy Wright, ADEM Project Manager, played an important role in moving the project forward in serving as the regulatory lead for the review and permitting process. She performed quick review and approval of the treat ability study and pentaborane treatment work plan, as well as expeditious action on two emergency RCRA permits, allowing the project to proceed at a rapid pace. Under the overall direction of Craig Northridge, the Redstone/ ADEM/contractor team members were in constant communication to assure that all actions were reported and any unusual events were handled accordingly.... Kristy gave credit to Vista Technologies and IES for "the key role they played in the technical definition, hardware development and execution of this complex process."

Repair work on pentaborane feed line

As if the chemical nature of this extremely toxic material were not enough of a challenge, several others factors were thrown into the equation. Since the material was some 40-50 years old and the cylinders in various stages of deterioration, the physical handling and transport of the containers was a difficult problem in itself. Add to this the startup complications related to solids formation in the system, inclement weather at the site, specifically in the form of high winds and violent electrical storms that resulted in damage to the structural and system control components, and an apparent electrical surge (possible lightning strike) that destroyed the computer interface module located on the processing skid. At times, progress was measured in bench scale results, integrity of the operational system, unclogging blockages, and then on to processing a few pounds of pentaborane per day. This was not unexpected since this was the first run at using a controlled destruction process to get rid of such a highly reactive and extremely toxic material. As so well stated by Mr. Gold, "Pentaborane is extremely unpredictable and potentially very dangerous in its behavior and that “taming the dragon” must be done both very cautiously and patiently."

Through dogged perseverance, diligence, caution, patience and good old fashioned hard work, the "Dragon Slayer" team has made this process available for treatment of any remaining pentaborane or other extremely hazardous materials found across the United States.

Cylinder decommissioning at the end of the project. Empty/rinsed cylinders were cut in half using a demolition saw

NOTE: While the cylinders at Redstone constituted the last known government stockpile, Army officials say small quantities of pentaborane could still exist at research centers and university laboratories across the country. The "Dragon Slayer" system moved directly from the Redstone Destruction Site to Houston, Texas where as similar operation is ongoing.

Mr. Craig T. Northridge received the EPA Region 4 Environmental Merit Award for his work as the team leader for the Pentaborane Destruction Project at Redstone Arsenal, Alabama. This is the first large scale, non-detonation treatment/disposal performed for pentaborane. Mr. Northridge is an employee of Redstone's Environmental and Public Works Directorate

AIR FORCE NEWS

Charleston Air Force Base Artificial Reef Project - Coastal America
By Vic Verma REC for the US Air Force

Charleston Air Force Base (AFB) joined forces with the South Carolina Department of Natural Resources (SCDNR), Coastal America, the South Carolina Army National Guard (SCARNG) and others to construct a near-shore artificial reef just off of the coast of Charleston. A strong partnership was formed between these various agencies to make this project a reality.

Saltwater fishermen and sport divers have realized for years that their success and enjoyment can be greatly improved by fishing and diving near almost any type of solid structure in the water. Whether this structure is found on the bottom, suspended in the water column, or floating on the surface of a body of water, the results are the same; locate the structure and you will almost always find fish.

South Carolinians first put their knowledge of this natural phenomenon to good use 100 years ago when coastal fishermen began placing wooden crib-like structures in estuarine waters to enhance fishing results for sheepshead and other popular inshore species. As saltwater fishing activities grew over the years, so did the use of various types of man-made structures in both inshore and offshore waters. These structures have become known as artificial reefs.

The Marine Resources Division (MRD) of the SCDNR first developed the Marine Artificial Reef Program in 1973 as a part of the Office of Fisheries Management (OFM). The OFM currently holds permits for the continued development of 40 reef sites along coastal and offshore waters. The materials used in the construction of these structures range from scrap steel to bridge sections, steel-hulled vessels, aircraft and concrete.

Charleston AFB, as a result of several C-17 aircraft beddown construction projects, accumulated a large quantity of concrete debris and rubble. Beginning on July 15, 2000 the SCARNG, in cooperation with the SCDNR and the Charleston AFB Environmental Flight, loaded and transported approximately 12,000 tons of concrete debris to a staging area located at the former Charleston Naval Base. From there the rubble was loaded onto a barge and hauled to locations predetermined by the SCDNR for disposition. These sites include the Charleston Nearshore Reef located 2.5 miles from the Charleston Harbor, the North Edisto Nearshore Reef located 1.5 miles from the North Edisto channel, and the Low Country Anglers Reef located 2.4

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Air Pollution Prevention (P2) Guide

Although there is considerable information in the pollution prevention (P2) arena, compliance managers needed to be able to readily identify P2 options that would apply to specific sources and regulations. To fill this gap in the air quality sector, USAEC supported a new P2 guide: *Air Quality Management Using Pollution Prevention: A Joint Service Approach*. This guide provides information to air compliance managers on P2 projects that have been implemented at various military bases and their associated benefits. The guide will be a living document, updated periodically, as new information becomes available. USACHPPM spearheaded this effort with cooperation from the Naval Facilities Engineering Services Center and the U.S. Air Human Systems Center. This guide is currently available on the DENIX system in the DOD Library Area *(DENIX account and password required)*.

An abridged version, approved for public release, is also available from this site in Portable Document Format (517kb PDF).

miles from the Stono River inlet. The effort to transport the concrete debris from Charleston AFB to the former Charleston Naval Base effort took approximately two weeks to complete. Weather permitted the Charleston AFB to complete this project August 2000.

By successfully completing this project, Charleston AFB saved the Air Force approximately $450,000 in solid waste disposal costs and avoided the use of valuable and rapidly diminishing landfill space.

This project has received the highest level of commitment throughout Charleston AFB and its headquarters, Headquarters Air Mobility Command (HQ AMC). Senior leadership at Charleston AFB and HQ AMC immediately recognized the opportunity to execute this project for the benefit of the environment. Other organizations, such as the SCDNR, the SCARNG, the Army Corps of Engineers (ACOE), Coastal America and others, willingly and unselfishly responded to this effort.

Coastal America is a partnership that was created to more effectively address critical coastal environmental issues and problems. The partnership operates through a national, regional and local team structure. Coastal America provides leadership to protect, preserve and restore coastal resources. Partners include: Dept. of Agriculture, Dept. of the Army, Dept. of the Navy, Dept. of Commerce, Dept. of the Air Force, Dept. of Defense, Dept. of Energy, Dept. of Housing and Urban Development, Dept. of the Interior, Dept. of Transportation, Environmental Protection Agency and the Executive Office of the President.

The SCARNG was essential to the success of this project. The SCARNG executed this project as part of a training exercise. Their yeomen efforts over a two-week period was startling.

Of course, the local SCDNR and ACOE coordinated all permit issues that allowed the concrete debris to buildup existing artificial reefs. Finally, Charleston AFB entered into a no-cost agreement with the Navy Caretaker's Office to allow the use of a quay wall located between piers Q and R at the former Charleston Naval Base for this project.

Charleston AFB, in its continuing endeavor to foster community environmental stewardship, is excited about the opportunity to partner with other local, state and federal agencies to enhance marine fisheries and create opportunities for both saltwater fishermen and recreational sport divers.

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