



June 2001

Envision

a cleaner environment

Arnold Engineering Development Center Installation Restoration Update

Additional probes drilled near school

Four sets of soil gas probes were drilled March 26-30 near the Coffee County Central High School to enhance the monitoring of methane in the area. The new probes are in addition to the nine sets of probes that were already in place near the school.

“These probes were drilled on the school’s south and northwest side near the front entrance and athletic playing field,” said Clark Brandon, deputy chief of the environmental management division. “The probes supplement our continuing effort to monitor for methane gas in the soil around the Coffee County Landfill.”

Miller Drilling Company of Huntsville, Ala, accomplished the drilling of the soil gas probes.

Extensive monitoring of methane in the soil has been conducted since January 1999 when methane was discovered in the neighborhood across from Highway 55 and near the high school. Soil gas probes were installed in the areas north and west of the landfill to enable sampling for methane.

Discovery of methane resulted in a gas collection system being installed along the north and west perimeter of the landfill to prevent migration of additional methane offsite and to pull back methane that had already migrated offsite.

Another project at the landfill was completed in May with the construction of 11 trenches at the Coffee County Landfill. This program upgraded the interior landfill

gas system removing gas from the landfill and transporting it to a landfill flare where it is burned.

The interior and perimeter gas collection systems are effective as the methane gas concentration at the flare stack has significantly increased from 10 to 25 percent.

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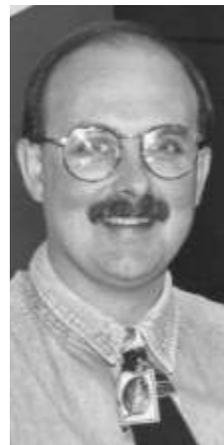
Clark Brandon departs AEDC environmental

After more than 10 years in the environmental management division, Clark Brandon has moved to a new position at AEDC. He served as the deputy chief in the division since January 1991.

Brandon is now the senior program manager for the Business Management Office at AEDC.

He holds a Bachelor of Science degree in analytical chemistry from David Lipscomb University and is pursuing a Masters of Business Administration from Middle Tennessee State University.

Brandon was born and raised in Manchester. He and his wife, Valerie have four children—Megan, Adam, Graham and Anna Rose.



**A publication for
Coffee and Franklin
county residents**

*Environmental
Public Affairs*

*Arnold AFB,
Tennessee*

CAB meets July 17

The next Arnold AFB Community Advisory Board meeting is set for 4:30 p.m., Tuesday, July 17 at the City Hall Council Chambers, 123 North Jackson Street in Tullahoma.

Members of the public are welcome and encouraged to attend.

Gas probes...

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Daily monitoring of the Coffee County High School and weekly monitoring of 56 gas monitoring probes outside of the landfill boundary continues to indicate no methane gas detection," Brandon said.

The Joint Coffee County Landfill Commission operated the Coffee County Landfill for residents of the county from 1971 to 1989. The landfill was used as the primary dumpsite for residential and business refuse disposal for several local communities in Coffee County including Manchester and Tullahoma.

According to Brandon, "Since 1984, the Air Force has spent roughly \$96 million in environmental restoration programs at Arnold AFB with nearly \$17 million used to restore the 97-acre Coffee County Landfill site."

Did you know?

- That nearly half of all the energy used in our homes is wasted?
- That one out of every eleven dollars that Americans spend on food goes exclusively for packaging?
- That for every dollar spent on disposable diapers the taxpayer spends eight cents to dispose of them?
- That Americans utilize 2 1/2 million plastic bottles every hour?
- That each year 28 million acres of tropical rain forest are destroyed? That is equivalent of 50 acres per minute.
- That the electricity needed to run a refrigerator over its lifetime can cost several times as much as the refrigerator itself?
- That Americans receive almost 4 million tons of "junk" mail every year?

AEDC RESTORATION PROGRAM SITES - Of the 14 active hazardous waste sites (see site listings page 7) being worked at AEDC, site investigation plans are being prepared for Sites 1, 3, 11, 19 and 22 (See map above). The Tennessee Department of Environment and Conservation along with the EPA are reviewing site investigation plans at Site 4, 9, 10, 12, 14, 20 and 22. Three sites (6, 7 and 8) have corrective measure studies underway.

Where to get environmental information

Published data and documents relating to the AEDC restoration program are available for public review at the information repository located at the Coffee County Lannom Memorial Library, 312 North Collins Street in Tullahoma.

The repository is a collection of documents containing studies and other work compiled through the installation restoration program.

Summer is time to enjoy nature at AEDC

If you engage in hunting, fishing or just enjoy bird watching, the coming of summer at AEDC is a special time of the year. Spring flowers, migrating birds and other wildlife can be observed in this area free from the encroachments of housing and other developments.

AEDC's 39,081 acres are managed by the Environmental Management Division under a program called ecosystem management. This approach integrates all land uses to promote sustainable resources for future generations.

Clark Brandon, deputy chief of the environmental management division, said "by taking this approach to natural resources management and avoiding the single species approach, AEDC supports the Air Force's mission by keeping the base ahead of compliance issues such as those presented by the Endangered Species Act."

Things to look forward to include spring wildflowers especially on the floodplain of Bradley Creek at Bud Lander's Road that bursts forth with a wildflower show. This area has



Eggert's sunflower
(Photo by Dr. Richard Clements)

trees such as the swamp-chestnut oak, Ohio buckeye, black walnut, river birch and Beech. Flowers to be seen include the trout lily, cut-leaved toothwort, tall white violet, creamy violet, bird-foot violet, jack-in-the-pulpit and many others.

Bald eagles can be seen fishing and roosting at Woods Reservoir. Our national bird, the bald eagle is a success story for the Endangered Species Act. Once on the brink of extinction, the bald eagle, through conservation and restoration efforts, has moved from the "endangered" to the "threatened" listing. A good vantage point to watch for eagles is the grassy area near the dam. While at this area also watch for waterfowl such as the common loon.

Great blue herons arrived in March and began congregating at Sinking Pond. These large birds can be observed squawking and swooping through the trees of Sinking Pond or may be seen flying back and forth, building nests and bringing food to their young. Care should be taken not to get too close to these birds as they have sharp beaks and tend to jab at the eyes when threatened.

April was wild turkey hunting season, a sport that is growing in popularity in this area. That was also the time of the year that the gray bat colony that resides at the Woods Reservoir Dam will return from their hibernation sites. An endangered species, care should be taken not to disturb the bats. One of the primary reasons for the decline of this species has been disturbance of maternity colonies. Under the regulations of the Endangered Species Act, a fine of up to \$25,000 may be



Our national bird, the bald eagle

assessed for violations.

Throughout summer watch for the many migratory bird species that will be passing through AEDC on their return trip from wintering grounds as far away as South America. Also, many of the birds that will nest on base, such as the common yellowthroat, will arrive. The peak time of the year for birding is June, when males are in full breeding colors and can be heard singing to attract females. A tri-fold titled "Checklist of Birds: Arnold AFB" is available from the Environmental management Division Conservation office. This checklist tells you which birds to see on base during different times of the year.

A blue-purple iris called the "slender blue flag" and the pink lady's-slipper, a member of the orchid family can be seen in mid-to-late May and June. Look for the iris in wet open areas and the orchid in dry, forested areas. Late summer wildflowers include the state-endangered prairie gentian which grows near the airfield, the only known location in Tennessee. Another endangered flower

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NCOs run environmental health program

Two Environmental Management Division NCOs ensure that AEDC is complying with all industrial hygiene and environmental health guidance and regulations. This pair of specialists is Master Sgt. Whitney Wildfeuer, non-commissioned officer-in-charge, Bioenvironmental Engineering, and Technical Sgt. Rusty Fohner, NCOIC, Public Health and Health Promotions

“We are assigned to the Medical Aid Station on base but are located in building 1100 and are members of the Environmental Safety Health and Quality (ESHQ) Team,” said Sergeant Wildfeuer. “AEDC is one of the first to implement this highly effective team concept.”

Sergeant Wildfeuer monitors base water quality at base beaches and in the base water distribution systems. He ensures the base work force and the military family housing residents are informed of the potential hazards they may encounter with chemicals and materials in base facilities and family housing. He also deals with indoor air quality issues such as dust, mold and maintaining adequate ventilation and humidity levels for the dif-



Sergeant Wildfeuer installs a deionizing unit in the AEDC History Office. The unit along with a HEPA filtration system purifies the air in that facility.



Sergeants Fohner and Wildfeuer check a chemical locker in the office equipment repair shop in Building 100. This is one of their tasks in looking for health hazards in AEDC facilities.

ferent tasks being accomplished in AEDC work areas.

In addition, the Fulda, Minnesota native provides oversight while working with environmental management division team members to accomplish noise and lighting surveys in base facilities to ensure there is a safe work environment. Program evaluations are also accomplished under hazard communication, respiratory protection, ergonomics, personal protective equipment, and emergency response.

“I recently installed a deionizing unit in the AEDC History Office to go along with a HEPA filtration system,” said Sergeant Wildfeuer. “These units are cleaning and purifying the air in that office.”

Sergeant Fohner from Akron, Ohio, monitors employee health issues and oversees the occupational physical program at AEDC. He oversees contract food facility inspections at the base cafeterias and is the food facility inspector for

the Arnold Lakeside Club and Commissary. Sergeant Fohner also oversees and conducts the mosquito and vector surveillance program on base and runs the Air Force Fitness Testing program.

“Both Sergeant Wildfeuer and I get involved in industrial hygiene and occupational medicine issues on base,” Sergeant Fohner said. “I do the public health aspect and Sergeant Wildfeuer collects data such as air samples and noise measurements to verify workplace exposures.”

The sergeant also said that both NCOs accomplish public facility inspections at base beaches to ensure safe sanitary conditions and water quality. They are also involved in supporting the AEDC Environmental Compliance Assessment and Management Program (ECAMP).

“We both have spent considerable time investigating environmental concerns on base,” said Ser-

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Photo Lab uses new silver recovery system

A new chemical precipitation method for silver recovery from photographic processing is providing the Photo Lab an effective system for recovering silver from photographic effluents.

The new method, trimercapto-s-triazine or TMT, purchased for \$2500 in June 2000 allows the Photo Lab a more efficient recovery method and reduces the amount of equipment and recovery cartridges to less than half. AEDC receives approximately \$2,000 every year from the recovered silver at the Photo Lab.

Kent Turner, supervisor of visual ***NCOs manage....***

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gent Fohner. "I provide epidemiological support and research while Wildfeuer evaluates on-site conditions for potential exposure hazards."

The two sergeants are the OSHA (Occupational Safety and Health Agency) representatives for AEDC and also work with the EPA (Environmental Protective Agency), the TDEC (Tennessee Department of Environment and Conservation), and the CDC (Center for Disease Control).

Summer...

(Continued from page 3)

species, the eggert's sunflower can be seen in September.

Whether you are participating in one of the scheduled hunts or enjoying the natural beauty found on base, have a good time and remember to leave the land in the same condition you found it. If you have questions on the AEDC conservation program, call 454-4066.

services, said the TMT system is much cleaner and efficient. In addition, the TMT system uses only three or four of the \$150 cartridges per year instead of the 20 cartridges used in the metered ion exchange recovery equipment.

"We have consistently discharged around one part per million of silver into the sanitary sewer system, which is well below the Environmental Protective Agency's mandate of less than five parts per million," Turner said.

Before receiving the TMT machine, the Photo Lab utilized two systems, an electrolytic and ion-exchange recovery systems. According to Turner, "the electrolytic system did a great job but it was not the cleanest process and left 50-100 parts per million of silver unrecovered. We then had to process the solution through the ion exchange unit to recover the silver at less than five parts per million in order to meet EPA standards."

Silver at a level of 2,500 to

3,000 parts per million from 16 mm film, color and B&W film and color and B&W paper, is pumped to the TMT recovery unit. The Photo Lab also recovers silver from chemicals for the General Physics x-ray laboratory and the AEDC Dispensary. Until recently silver recovery was also recovered from microfilm chemistry produced by Real Property. All of the work at Real Property is now done electronically.

"Another advantage of using the TMT method is that it saves us time," said Turner. "Under the old system we had to use separate systems, one for the color paper chemistry and another for the rest of the chemical effluents, the TMT system can process all of the chemicals at the same time."

"Eddie Wright manages the recovery program while continuously monitoring the program," he said, "we keep a close eye on the effluents by sampling the almost silver free solution before it is discharged into the sanitary sewer system."



Lab photographer Eddie Wright checks out the new silver recovery equipment.

AEDC celebrates 50th anniversary with air show

AEDC is celebrating its 50th anniversary in June with events that include an air show at the Tullahoma airport on June 23-24 and a rededication ceremony and open house on June 25 at the base.

The Air show is open free to the public and will feature the USAF aerial demonstration team Thunderbirds flying F-16 Fighting Falcon aircraft as well as many aircraft tested at the center and aircraft from the World War II and the Korean and Vietnam conflicts.

AEDC is the nation's premiere flight simulation test facility. The Center operates 58 test facilities worth more than \$7 billion that simulate flight from sea level to outer space at speeds up to Mach 20 (20 times the speed of sound). President Harry Truman dedicated AEDC on June 25, 1951 in honor



of the only Air Force officer to hold 5-star rank, General of the Air Force Henry H. 'Hap' Arnold, World War II commander of the Army Air Forces.

The Center has tested every new high performance military flight system developed since the mid 1950s. It also has played a key role in the nations space programs, testing every manned NASA system as well

as military rockets and satellites. Today, AEDC plays a key role in civilian aircraft testing, as about 15 percent of the Center's workload is testing aircraft like the Boeing 747 and 777 and their large jet engines.

In 2000, AEDC employed almost 3,000 scientists, engineers, technicians and support personnel. The Center's economic impact on Tennessee was almost \$500 million. AEDC has been a good steward to the environment, aggressively working to protect the environment, winning accolades in recent years including The Nature Conservancy's Presidents award.

For more information on AEDC and the 50th anniversary events including the free air show, visit the AEDC Web site at <http://www.arnold.af.mil>.

Earth Day leads to environmental awareness

On April 9-10, AEDC joined thousands of communities, organizations and countries in the celebration of Earth Day 2001 to promote environmental awareness.

According to the Environmental Protection Agency there are signs of environmental improvements over the past 31 years since the beginning of Earth Day. The following are representative improvements:

- From 1970-1993, total air pollution emissions declined by 24 percent.
- Since 1990, the number of metropolitan areas failing to meet air quality standards dropped by two-thirds, from

199 cities to less than 70.

- Oil spills in the nation's waters declined from 22 million gallons per year in the mid-1970s to 2 million gallons in 1992.
- The number of people served by secondary sewage treatment plants increased by 83 percent from 1972-1992.
- Between 1976 and 1988, pretreatment by industries yielded a 95 percent reduction of the toxic metals discharged to sewage plants (and thereafter to surface water).
- As of 1994, 108,000 leaking underground storage tanks had been completely cleaned up.
- To date, 291 (of about 1,300)

top priority hazardous waste sites have been completely cleaned up.

- Banning the use of DDT in the U.S. led to the recovery of the bald eagle, our national symbol, and other threatened bird populations.
- Through recycling and composting, domestic waste recovery for other uses has increased from 7.1 percent by weight in 1970 to 21.7 percent in 1993.
- The area of land and water placed under protected status increased by 300 percent from 1970 to 1990.

Status report on IRP sites

The status of all 24 installation restoration program sites as of April 30, 2001. Ten sites have been closed and no further action is planned.

Site 1, Landfill 2 and leaching pit 2: Construction of a \$1.56 million modified clay cap with a geosynthetic clay liner was completed in November 1997. Groundwater treatment facility treats approximately 1,700,000 gallons of water per month. Private water wells were sampled west of airfield as a precautionary measure. Site investigation plan being prepared.

Site 2, Retention reservoir and J-4 draining area and Site 11, chemical treatment pond: Preparing site investigation plan.

Site 3, Landfill 4: Construction of a \$2.1 million cap completed in November 1998. Groundwater treatment facility treats about 17,000 gallons of water per day. Permanent gas ventilation system installed in January 2000. Private wells in area sampled. Construction of 11 trenches completed in February 2001. Site investigation plan being prepared.

Site 4, Surface drainage, Bradley Creek: Site investigation plan being reviewed.

Site 5, Surface drainage, Rowland Creek: No further action based upon the RCRA facility assessment.

Site 6, Camp Forrest water treatment plant: Corrective measure study underway included sampling of private water wells in Spring Creek area. Interim corrective measure in the form of a groundwater treatment facility that treats about 400,000 gallons of water per month. A waterline from Estill Springs was completed in April for residents in this area. Corrective measures study being prepared.

Site 7, Main test area: Corrective measure study underway. Interim corrective measure in the form of a groundwater treatment facility in operation.

Site 8, Leaching pit no. 1: Corrective measure study underway. Groundwater treatment facility operational. Interim corrective measure in the form of a groundwater treatment facility in operation. Supplemental site investigation plan being prepared. Private water wells east and southeast of the industrial area sampled as a precautionary measure.

Site 9, Surface drainage-Brumalow Creek: Site

investigation plan being reviewed.

Site 10, Fire Protection Training Area 2, Landfill 1, Burn area 2: Site investigation plan being reviewed.

Site 12, Retention leach/burn area: An interim corrective measure to biologically treat soils and RCRA facility investigation is complete. Site investigation plan being reviewed.

Site 13, Fire Protection Training Area: Proposed for no further action.

Site 14, Surface drainage-Crumpton Creek: Proposed for additional sampling and long-term monitoring. Site investigation plan being reviewed.

Site 15, High energy fuel burn/burial area: No further action based upon completed confirmatory sampling results.

Site 16, Beryllium leaching area: No further action based upon completed confirmatory sampling.

Site 17, Burn area no. 2: No further action based upon completed confirmatory sampling results.

Site 18, Building 1421 area: This site is proposed for no further action based upon confirmatory sampling results.

Site 19, Camp Forrest area: Thirty six monitor wells installed at nine former Camp Forrest gasoline stations/motor pools. A site investigation work plan for Camp Forrest is being developed.

Site 20, Steam plant ash pits: Site investigation plan being reviewed.

Site 21, Three hazardous waste storage buildings and one non-hazardous waste storage building: No further action on all four buildings. These were previously permitted storage units that underwent RCRA closure.

Site 22, Main Test Area: Some areas required more study and some areas are no further action. Corrective measure study work plan being prepared. Final site investigation plan being reviewed.

Site 23, Salvage yard: No further action.

Site 24, Camp Forrest Asbestos Area. No further action.

AEDC Recycles