



Envision

a cleaner environment

Arnold Engineering Development Center Installation Restoration Update

A publication for
Coffee and Franklin
county residents

*Environmental
Public Affairs*

*Arnold AFB,
Tennessee*



NEW CAB MEMBERS --Stephen Cope (left), Community Co-chair, presents a traditional AEDC coffee cup to new member, Dennis Ham of Manchester, while Charles King (right) AEDC Co-chair, makes a similar presentation to William Roberson who represents the Normandy Lake area. The presentations were made during the Community Advisory Board meeting in Tullahoma on May 16.

ATSDR releases AEDC health assessment

The Agency for Toxic Substances and Disease Registry (ATSDR) issued a public health assessment for AEDC and determined that past exposure by local residents to contaminants in private well water do not pose a public health hazard. Their report is now available to the public.

“ATSDR prepared this public health assessment to evaluate exposure pathways and to respond to community health concerns about past, current, and potential future exposures to environmental contaminants from AEDC,” said Clark Brandon, deputy chief of the Environmental Management Division.

During their Feb. 22-25 visit to AEDC, ATSDR reviewed available data from en-

vironmental monitoring conducted by AEDC and the Tennessee Department of Environment and Conservation. They also attended a Community Advisory Board meeting to learn about community concerns regarding methane migration, groundwater contamination, cancer, and lupus.

The report states that AEDC conducts aerodynamic simulation tests, propulsion tests, and simulation of space environments that generate a number of hazardous wastes. Currently, management of these hazardous wastes is permitted and supervised by the state and the U.S. Environmental Protection Agency.

The report notes that in the past, some

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CAB to meet Aug. 15
The next Arnold AFB Community Advisory Board (CAB) meeting is set for 4:30 p.m., Tuesday, August 15 at the Oak Restaurant, 947 Interstate Drive in Manchester.
Members of the public are welcome to attend the CAB meetings.

ATSDR releases base health assessment...

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wastes were released into the environment resulting in contamination. Volatile organic compounds (VOCs) have been detected in groundwater and VOCs, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons, and metals have been detected in surface soil. In addition, PCBs are being detected in sediments and fish.

Also, the report stated that physical hazards are present at AEDC especially in the old Camp Forrest area that was used during World War II for housing and operations. This area contains uncovered abandoned wells and missing utility hole covers. In addition, unexploded ordnance has been found at two former artillery ranges, one north of the runway and one south of the AEDC industrial area.

“During their visit, ATSDR reviewed our data on environmental monitoring conducted by us and the Tennessee Department of Environment and Conservation,” Brandon said. “They also attended a CAB meeting and spoke to state, EPA and AEDC members about community concerns.”

ATSDR does not believe that contaminants from AEDC are responsible for health problems such as cancer. Also, the report said, there is not known relationship between chemicals in the environment at AEDC and lupus.

ATSDR identified and evaluated the following possible exposure pathways at AEDC to determine the level of hazard presented: methane migration to wells and into homes; consumption of contaminated cat-

fish and turtles from Woods Reservoir; unexploded ordnance and other physical hazards; consumption of contaminated groundwater; and contact with contaminated soil, surface water, and sediment.

“ATSDR studied the December 1998 methane gas migration from the Coffee County Landfill and our response to that situation,” Brandon said. “They concluded that methane migration from the landfill currently poses no apparent public health hazard.”

The report stated that although some contamination has been identified in fish collected at Woods Reservoir, fishing restrictions have been in place to warn the public that eating catfish could be a hazard. Recent sampling reveals that contaminant levels are declining and if this trend continues, fish may be edible in the future.

The ATSDR report addressed the two former artillery ranges and various physical hazards on Arnold AFB such as remnants of structures, open utility holes, and abandoned wells on AEDC property.

Also, according to the report, various areas of groundwater contamination have been identified at AEDC. Sampling of off-site private wells potentially affected by these contamination and filtration systems or connections to the public water supply have been provided to residences with affected wells. The report said, “AEDC monitoring and mitigation measures should prevent current and future health hazards.”

The report also said that soil, surface water, and sediment contamination at AEDC poses no apparent public health hazard. Most of the contamination is within the AEDC fenced security area, thus, the public and most AEDC personnel do not come into contact with it. Any sporadic exposure to contamination by on-site workers or in areas outside the fenced area does not pose a public health hazard.

The Health Assessment is available for public review and comment. It is on file at the Coffee County Lannom Memorial Library, 312 North Collins Street in Tullahoma. . Written comments can be sent to: Chief, Program Evaluation, Records and Information Services Branch, ATSDR, 1600 Clifton Road, NE, Mailstop E-56, Atlanta, Georgia, 30333.

Comments received will be logged and become part of the administrative record for the health assessment. Comments (without indication of who made them) and responses will be included in an appendix to the final health assessment. Although names of those who submit comments will not be included in the final health assessment, they are subject to release under the Freedom of Information Act.

Community members seeking information on the procedure or content of the health assessment should contact Jeff Kellam, ATSDR environmental health scientist, toll free at 1-888-422-8737. Callers should refer to the “Arnold AFB site” when asking to speak with a health assessor in the Division of Health Assessment and Consultation.

Next construction phase set for Coffee County

Phase II construction at the Coffee County Landfill started in June 2000, at a cost of \$1.2 million. A network of trenches on the 97-acre landfill will capture the methane gas as it is generated within the landfill. The trench network will remove the gas from the trenches and transport it to the existing flare where it will be burned.

“This is the next logical step in the restoration process at the landfill,” said Doyle Brittain, senior remedial project manager with the U.S. Environmental Protection Agency. “It has been on the drawing board since the perimeter gas collection system was designed and installed in early 1999,” he continued. “This combined gas collection system will ensure no gas will migrate from the landfill in the future.”

Two to three-foot deep trenches will intercept methane where it is generated. After the trenches are dug, they will be fitted with a pipe extraction system. The trenches will then be covered with gravel, a geomembrane, and backfilled with soil. A vacuum on the pipe extraction system will remove the methane from the trenches.

“Design work on the interceptor trench phase was completed by the end of May 2000,” said Clark Brandon, deputy chief of the AEDC environmental management division. “We can start construction in August and will have the project completed by September 2000.”

Extensive monitoring of methane in the soil has been conducted since January 1999 when methane was discovered in the neighborhood across Highway 55 and near the



LANDFILL FLARE --The Coffee County Landfill flare facility burning off methane gas from the landfill gas collection system will also be used to burn off landfill gas from the planned gas interceptor trench system. The flare system has the capability to burn off up to 600 cubic feet of landfill gas per minute.

Coffee County Central High School. Soil gas probes have been installed in the areas north and west of the landfill to enable sampling of the methane. Methane sampling has also been conducted in private drinking water wells.

Discovery of this methane resulted in a gas extraction 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. This gas extraction system was installed after sampling by AEDC, the Tennessee Department of Environment and Conservation, and the U.S. Environmental Protection Agency confirmed that the methane in the community around the landfill had originated within the landfill.

“Except for a couple of isolated areas, methane levels have been reduced significantly,” Brandon said.

“We did find a pocket containing

60 percent methane near the school in February 2000,” Brandon added. “But after investigation, we believe this was an isolated pocket of methane probably caused by decaying debris buried during construction of the school. To be on the safe side, we sampled underneath the school and found no trace of methane. AEDC conducts routine methane sampling within the school building and no trace of methane has ever been measured in the school.”

A permanent flare system installed in January 2000 burns the methane gas off at the rate of 250 standard cubic feet of landfill gas per minute. The permanent flare replaced a temporary flare that was installed near the high school in January 1999.

“Designed to burn off methane at the rate of 600 cubic feet per minute, the flare system will have

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Results of ground water study east of base released in July

AEDC environmental officials have completed a comprehensive investigation of the groundwater flow in the Bradley and Brumalow Creek areas east of the base. During the program that started last fall, 150 private wells, eight springs, and nine surface water sites were studied.

The investigation was conducted with the cooperation of residents in the area and the Environmental Protection Agency and the Tennessee Department of Environment and Conservation. The investigative area included the Bradley Creek area near Hillsboro, south to Woods Reservoir and north along Highway 41A.

"The project was undertaken to see if any volatile organic compounds, primarily chlorinated solvents identified in the ground water at AEDC, had migrated off base and impacted private water sources," said Clark Brandon, deputy chief of the environmental management division.

The wells studied ranged in depth from 18 to 125 feet and water level elevations ranged from 946 to 1081 feet above sea level. All the private wells sampled draw water from the Manchester aquifer.

All samples were analyzed for volatile organic compounds and other contaminants. Results of the \$120,000 study were mailed out to property owners in late July.

"All the private wells were free of contaminants except for three wells where traces of toluene and chloroform were found. Toluene is commonly found in ground water in this

area and not believed to be a contaminant from AEDC. Chloroform is a common by-product of the water disinfection process. Levels from both of these chemicals did not exceed Environmental Protection Agency safe drinking water limits," said Pam King, AEDC installation restoration program manager.

The information gathered during the study will help AEDC understand the regional ground water flow pathways and their relation to base activities. Water level elevations collected from the wells and base flow data are being used to construct a regional potentiometric surface map.

King said, "by understanding the ground water flow direction in this area east of the base, we can establish a long-term monitoring program for the area that will be protective of human health."

Clark Brandon wins Air Force Association award

Clark Brandon, deputy chief of the Environmental Management Division, has been named the Air Force Association's Civilian Program Manager of the Year.

"Throughout this year, Brandon has performed in an exceptionally superior manner providing program leadership in the critical area of environmental management," said Navy Capt. Elmer Standridge Jr., AEDC vice commander.

In 1999, Brandon was honored with the Exemplary Civilian Service Award, Special Act/Service Award and the AEDC Team Excellence Award.

CAB discusses landfill project

Projected work on a \$1.2 million trench network at the Coffee County Landfill and an update on other restoration program activities were the main topics discussed at the Arnold AFB Community Advisory Board (CAB) meeting held at the City Council Chambers in Tullahoma May 16.

The board learned that the trench network will collect gas from the landfill and transport it to the existing flare where it will be burned. Clark Brandon, deputy chief of the environmental management division, told the CAB members that "design work on the interceptor trench phase is finished and we can start construction in June."

In other business, the CAB approved the applications of two new members and welcomed them to the board. The newcomers are Dennis Ham of Manchester, and William Roberson, representing the Normandy Lake area.

Other CAB members present at the meeting were Stephen Cope, Community Co-chair; Charles King, AEDC Co-chair; William Prince of Winchester; Ted Hackney, Manchester; Jack Turner of Manchester; and David Griffith of Tullahoma.

All CAB meetings are open to the public and copies of the meeting minutes are available for public review in the Information Repository located at the Coffee County Lannom Memorial Library, 312 North Collins Street in Tullahoma.

The next CAB meeting is set for Aug. 15 in Manchester.

Bats patrol AEDC's nighttime skies

Flying the night skies at AEDC feeding on insects are at least seven species of bats. They forage on a variety of insects including mosquitoes.

According to John Lamb, AEDC zoologist, bats are misunderstood animals. Movies and folklore, such as Dracula, often cast them in a villainous role, when in fact they are very beneficial. A typical bat will eat more than 50 percent of its body weight in insects every night.

Bats are often perceived as a nuisance due to the risk of rabies. Although bats can contract and transmit rabies, the incidence of rabies in bats is very low and they do not usually become aggressive. In fact, fewer than 40 people are known to have contracted rabies from bats in the past 40 years, a miniscule number compared to those that have been killed by dog attacks, bee stings, or lightning strikes. "However, since it is possible for bats to carry rabies, they should never be



AEDC zoologist, John Lamb, displays an eastern pipistrelle caught in a net on Arnold AFB.



One of the seven species of bats that call AEDC home is this red bat.

handled especially those found on the ground, as they may be unhealthy," Lamb said.

Bat surveys are being conducted on AEDC to more fully understand the occurrence and distribution of bat species in diverse habitats. To date, seven species have been documented as occurring on Arnold AFB out of the 13 species whose ranges are thought to overlap in this area. The seven species are big brown bat, red bat, gray bat, northern long-eared bat, little brown bat, eastern pipistrelle, and evening bat.

According to Lamb, mist netting is the most commonly used technique in bat surveys as the nets are used to intercept and capture flying bats. These nets are made from very fine nylon material that is difficult for bats to detect when using echolocation.

Of the 45 species of bats in the United States, six are considered to be in danger of extinction and 20 are considered to be of special concern by the U. S. Fish and Wildlife Service. The only endan-

gered bat species currently known to occur at Arnold AFB is the gray bat. The gray bat was federally listed as endangered in 1976 because of declining numbers with the loss of habitat. The bat is endangered because they use caves for both summer homes and winter hibernation, and many caves suffer from human disturbance such as vandalism and commercialization.

Maintaining the Woods Reservoir gray bat population is just one aspect of the AEDC ecosystem environmental program.

"We consistently seek to better integrate the management of irreplaceable species such as the gray bat within the overall framework of AEDC's test mission," said Clark Brandon, deputy chief of the environmental management division.

For more information on bats or to get a bat poster contact AEDC Conservation at Ext. 5378 or Bat Conservation International (<http://www.batcon.org>).

**Arnold Air Force Base
Announces the Availability of the
Airfield Reactivation and Development
Environmental Assessment and Findings of
No Significant Impact (FONSI)**

The United States Air Force (USAF), Arnold Air Force Base, Tennessee, has prepared an environmental assessment (EA) and a finding of no significant impact (FONSI) that evaluates the potential environmental and socioeconomic impacts associated with the reactivation of the airfield and associated development at Arnold Air Force Base (AFB), Tennessee.

The proposed action consists of the following: reactivation of existing airfield; leasing part of the airfield for use by civilian entities; allowing mission-related civilian use of airfield and continuing use of existing facilities by the Tennessee Army and Air National Guard units.

The environmental assessment (EA) and Finding of No Significant Impact (FONSI) are available for public review and comment at the location listed below.

Coffee County Lannon Memorial Library
312 North Collins Street
Tullahoma, Tennessee 35388

Your review of the documents is encouraged and comments welcomed. Comments concerning the document should be postmarked by 21 August 2000, and sent to:

Environmental Public Affairs
Arnold Engineering Development Center/SDE
1100 Kindel Drive
Arnold Air Force Base, TN 37389-1806

Common environmental terms

Groundwater - Water found beneath the earth's surface that fills pores between materials such as sand, soil, and gravel. In aquifers, groundwater occurs in sufficient quantities that it can be used for drinking water, irrigation and other purposes.

Finding of No Significant Impact (FONSI) - A document prepared by a federal agency briefly presenting the reasons why an action, not otherwise excluded will not

have a significant effect on the human environment and for which an environmental impact statement therefore will not be prepared.

Installation Restoration Program -The DoD program to identify the locations of and releases from past hazardous waste disposal sites and to minimize their associated hazards to public health.

Information Repository -A file containing information regarding an IRP site.

Landfill flare...

(Continued from page 3)

the capability to easily handle the increased level of methane coming from the interceptor trenches," Brandon said.

"The performance of the perimeter gas collection system has been studied and adjustments made to optimize its performance ever since it was installed. We now have sufficient information to know exactly what the trench interceptor gas collection system design should be. So, the trench interceptor system comes off of the drawing board this month," Brittain added.

"We will be repairing the cap on the landfill too," said Brandon. "We are evaluating contamination in groundwater around the landfill which may also result in upgrading the leachate collection system at the landfill," he added.

The Coffee County Landfill was under the management of the Coffee County Joint Landfill Commission and operated from 1971 to 1989 under a lease agreement from the Air Force. The landfill was used for the disposal of hazardous and solid wastes including construction debris and household garbage.

Did you know?

* That each ton on recycled paper saves over 3 cubic yards of landfill space and saves 380 gallons of oil.

* That one-third of all private mileage is utilized commuting to and from work.

* That a single quart of used motor oil can pollute 250,000 gallons of drinking water.

* That hot water heaters use more energy than lights and appliances combines.

* That fuel consumption increases by 20 percent when driving 70 miles per hour, rather than 55 miles per hour.

Status report on IRP sites

The status of all installation restoration programs as of July 31, 2000. Eighteen 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 2, Retention reservoir and J-4 draining area: No further action on the retention reservoir and recommended no further action for the J-4 drain area.

Site 3, Landfill 4: Construction of a \$2.1 million cap started in March 1997 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 being sampled.

Site 4, Surface drainage, Bradley Creek: This site is recommended for no further action having completed the RCRA facility assessment and confirmatory sampling.

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.

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 and solvent/water separator brought on-line in May. Interim corrective measure in the form of a groundwater treatment facility in operation. Previous interim measures include low temperature thermal desorption soil treatments.

Site 9, Surface drainage-Brumalow Creek: Ad-

ditional effort will include long-term monitoring. This site is recommended for no further action.

Site 10, Fire Protection Training Area 2, Landfill 1, Burn area 2: No further action on all three areas with long term monitoring.

Site 11, Chemical treatment pond: No further action. This former site is not part of the retention reservoir flow through treatment process.

Site 12, Retention leach/burn area: An interim corrective measure to biologically treat soils and RCRA facility investigation is complete. The site is proposed for no further action with long-term monitoring.

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 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 results.

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 work plan for Camp Forrest is being developed.

Site 20, Steam plant ash pits: No further action based upon source removal and sampling results.

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, Entire RCRA corrective action program: Some areas required more study and some areas are no further action. A corrective measurement action focused on groundwater is underway

Site 23, Salvage yard: No further action.