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Envision

a cleaner environment

Arnold Engineering Development Center Installation Restoration Update

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WATERLINE CONSTRUCTION — Checking on the process of the Spring Creek Road waterline with trencher operator Stan Amacher, is Matt Cesarz, AEDC program manager. Construction of the eight-inch waterline is underway and should be completed in February.

Spring Creek waterline underway

Work has started on extending a water line in the Spring Creek Road area that will make Estill Springs water available to residents in that neighborhood. The water line is being financed by the AEDC environmental restoration program because contamination was discovered in several drinking wells in that area just south of Arnold AFB.

"With the cooperation from both the Environmental Protection Agency and the Tennessee Department of Environment and Conservation, AEDC sampled private water wells in the Spring Creek Area late last year," said Clark Brandon, deputy chief of the environmental management division. "Several wells were found to have contaminants that could have come from an old industrial waste disposal area located in the Camp Forrest area."

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CAB to meet Feb. 15

The next Arnold AFB Community Advisory Board meeting is set for 4:30 p.m., Tuesday, Feb. 15 in Manchester. The location of the meeting will be announced at a later date.

Members of the public are welcome to attend the CAB meetings and/or apply for membership on the board.

Waterline....

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The waterline is being installed by Chris Holloway Construction from Lynchburg, Tenn., and is expected to be completed by February 2000. Matt Cesarz, program manager for the project, said "The five mile waterline is expected to cost $250,000."

"Although the contamination in the Spring Creek area is below the level in which it would endanger public health, we felt responsible for providing public water to the residents," Brandon said.

The waterline is being installed on areas of Spring Creek Road, UT Farm Road, Reservoir Road, Forrest Lake Road and Buckeye Lane. "Current plans call for the Air Force to provide Estill Springs water only to 20 residences on Spring Creek Road, Reservoir Road and Buckeye Lane,. "Residents who live on UT Farm Road and Forrest Lake Road who want to connect to the waterline should contact the City Water Department in Estill Springs," Cesarz said.

The site that is causing the problem is an old water treatment plant that served Camp Forrest activities during World War II and then was used as a major disposal site for AEDC wastes from 1953 until 1980. The five-acre site has been filled and graded over.

In October 1996, groundwater extraction wells were installed to control and treat (by air stripping and liquid phase carbon desorption) contaminant movement from the site.

WATERLINE MAP — The heavy dark lines show were the waterline is being installed in the Spring Creek area south of AEDC. The five-mile line should be completed in February.

Flare system recovers gases that migrated off base

Some local residents call it the eternal flame but the flare system at the Coffee County landfill is doing what it is designed to do and is burning off gas generated within the landfill. AEDC environment officials report that work continues at the landfill even though the gas collection system is installed and is fully operational.

Doyle T. Brittain, senior remedial project manager with the U.S. Environmental Protection Agency, said that "the soil gas ventilation system will prevent any additional migration of gases from the landfill. In fact, the soil gas ventilation system has recovered almost all of the gases that migrated offsite before the soil gas ventilation system was installed. While trace amounts of soil gas remain offsite now, we expect those traces to be removed soon."

Brittain said, "the integrity of the clay layer beneath the Coffee County Central High School has not been compromised so the soil gases pose no risk to the school or its occupants."

"The soil gas ventilation system is an interim corrective measure program designed to provide boundary protection for the northern and western edges of the landfill," said Dennis Flatt, restoration program manager. "The system is showing favorable results as the landfill gas that migrated across Highway 55 and toward Coffee County Central High School is being sucked back and burned off."

The gas collection system was installed after joint air quality testing conducted in January by AEDC, the U.S. Environmental Protection Agency and the Tennessee Department of Environment and Conservation confirmed that landfill gas migrated from the landfill.

A total of 23 gas recovery wells are in place on the north side of the landfill near the high school and 51 wells have been drilled on the landfill's west side next to Highway 55.

Flatt said the temporary flare will be removed in a few months and a permanent flare will be installed at a more convenient location on the landfill. The flare continues to operate 24 hours a day.

"To date AEDC has spent $2.1 million on gas collection system and other measures to resolve the landfill gas problem at the landfill," said Clark Brandon, deputy chief of the environmental management division. "This does not include the $2.1 million for the clay cap."

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

Construction of the clay cap for the landfill, a major AEDC installation restoration program project, was completed in November 1998. An interim groundwater extraction system became operational at the site in 1995.

"The next major step at the landfill is a corrective measures study," said Pam King, installation restoration program manager. "We will start a work plan for this study later this year which will lead to a decision on a long-term solution for the landfill."

King said in the meantime we are in the process of completing the Resource Conservation and Recovery Act (RCRA) facility inves-

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LANDFILL WELLS — Dennis Flatt, restoration program manager, explains the workings of one of the 77 landfill gas collection wells located at the Coffee County Landfill to MSgt. Bobby Munda. The gas collection system was installed after methane gas migrated from the landfill off base.

Flare system...

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tigation for the Coffee County Landfill. This will probably require additional 16 monitor wells on the north and west side of the landfill.

Several other programs associated with the Coffee County Landfill are ongoing or completed. AEDC environmental personnel completed the sampling of 40 private water wells on Bowling Alley Road and Old Seminary Road south of the landfill. According to Flatt, results from all the wells showed no detection of contaminants associated with the landfill. He also said that the water line along Old Tullahoma Highway is constructed and the homes located across from the landfill are connected to this line by AEDC providing homeowners with Manchester City water.

"Installation of the public water line for the residences and businesses along the Old Tullahoma Highway and the abandonment of the private drinking water wells is a precautionary measure to eliminate the pathway for future human exposure to soil gases, said Brittain.

He also said that the Environmental Protection Agency appreciates the way that AEDC acted as a good neighbor in voluntarily responding to this community problem in a timely and appropriate manner. Manchester, Tullahoma, and Coffee County are to be commended for their voluntary support. "Such teamwork is rare," Brittain said.

Ceilings fans help

Ceiling fans consume as little energy as a 60-watt bulb--which is about 98 percent less energy than most central air conditioners

AEDC celebrates America Recyles Day

AEDC joined thousands for America Recycles Day on Nov. 15 hosting activities in which all team members had the opportunity to participate.

The average American generates nearly 1,500 pounds of trash each year, creating more than 200 million tons of waste annually in the United States. Despite what appears to be a grim figure, there's actually some good news.

Because more Americans than ever are recycling, the nation's recycling rate is now more than 28 percent. Local community programs are starting to make a difference.

The 1999 theme, "For Our Children's Future…Buy Recycled Today," is designed to take recycling to the next step. By purchasing recycled-content products, Americans are building markets for finished products made from the recyclable steel, aluminum, glass, paper and plastic materials placed at the curb for pick-up or in drop-off facilities.

Recycled products are everywhere including the office and grocery store. Many products such as bicycles, appliances, laundry detergent bottles and carpeting contain recycled-content materials.

Recycled-content products are equal in quality and economical for the buyer. Purchasing recycled goods helps conserve resources, reduce waste and aids in the opportunity for economic development.

Activities at AEDC include bringing certain recyclables from home such as paper, cardboard, aluminum, No. 1 and No. 2 plastics, clothing, shoes, belts and purses. We will have containers designated for each at the Recycling Center.

During the day, team members completed entry pledge cards for drawing for local prizes and the grand prize, the American Green Dream House. For more information on AEDC's recycling program, contact Sells at ext. 4788

Model Shop takes steps to reduce hazardous waste

One AEDC organization discovered that new recycling policies go hand-in-hand with changing mission requirements.

Over the past two years, the Model Shop reduced the generation of hazardous waste from their fluid eliminator by more than 50 percent thanks to the purchase of a "coolant wizard." The wizard was used periodically to clean the coolant in each machine and, thus, extend the lifecycle of the coolant. "We cut production from 1500 kilograms of hazardous waste to just 700 kilograms per year," said Ben Partin, senior environmental engineer.

However, decreases in the workload this year pushed the volume of waste generated 200 percent over last year to more than 1900 kilograms of hazardous waste. When the machines are idle the coolant becomes stagnant and bacteria begins to grow in it. This contaminates the coolant which, then must be changed. "This is a reversal of good fortunes," Partin said.

Standard practice at the Model Shop has water added to a coolant concentrate to prepare the proper coolant mixture for the shop's metal working machines. When the coolant is spent it is taken to the eliminator where the volume of waste is reduced by boiling it off.

During this process, residual oils, some water and heavy metals were boiled over into a collection drum that is managed as hazardous waste because of the levels of dissolved metals. The concentrate, contaminated with metals and a small amount of oil, is left behind in the bottom of the eliminator.

VACUUMING OIL — Charles Blevins, an outside machinist at the Model Shop, shows Robert Sotherland, senior associate engineer how to vacuum oil out of the fluid eliminator. The process cuts the accumulation of hazardous waste.

After several operations, this too was removed and disposed of as hazardous waste."Past efforts tried to reduce the hazardous waste through process changes without really focusing on the physical property of the waste," Partin said. "Everyone believed the waste coolant was contaminated with metal fines and small amounts of oil."

Recently, Robert Sotherland, senior associate engineer at the Model Shop, decided to act upon a suggestion made by Charles Blevins, an outside machinist. Blevins told Sotherland that when the spent coolant was emptied from each machine it contained some oil because the coolant wizard was not operated once it was determined that the coolant was to be replaced. "We found a lot of oil when spent coolant from several machines was placed in the eliminator," Sotherland said.

"No one suspected that so much oil was generated in the waste coolant," he said. "But we only discovered this after this particular batch of coolant had set in the eliminator for a longer period than normal." The time delay had allowed the oil to fully separate and float on the top of the coolant.

"It was decided to vacuum the oil off the coolant and operate the eliminator," Sotherland said. "There was no boil over of waste into the collection drum and the only waste was the residue left in the bottom of the eliminator. A small amount of oil separated during the early stages of heating up the spent coolant and was vacuumed off, too."

As a result of this discovery, procedures at the Model Shop have changed to allow the coolant to set in the eliminator for a few hours before the oil is vacuumed off and the eliminator started.

"We anticipate that the residual material at the bottom of the eliminator will have to be removed only a couple of times per year and disposed of as hazardous waste," Partin said. "It is estimated that the waste collected will be less than a quarter of the current generation or about 400 kilograms per year."

"This is truly a reversal of bad fortunes," he added.

Status report on IRP sites

The status of all installation restoration programs as of September 1999. 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. Temporary methane gas ventilation system installed in January. Permanent gas ventilation system should be in place later this year. 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 is planned 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: Additional 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 resutls.

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.