

# Report to STAKEHOLDERS

August 1996

## Bioventing Cleanup Method Successful Base Turns Off Switch at Site 43

July 12 marked a milestone for the Edwards Installation Restoration Program as Vice Commander Colonel Vernon Saxon officially flipped the switch to turn off the remediation equipment at Site 43.

Located beside the main base Flight Operations Building 1200, the cream-colored 'dog house' structure and its enclosed bioremediation equipment may not look like much, but its significance is great.

Site 43 was one of the first three Edwards AFB sites to be included in the Air Force Center for Environmental Excellence (AFCEE) Bioventing Initiative in 1993. It is the site of a removed underground storage tank that leaked diesel fuel once used to power an emergency generator next to Base Operations.

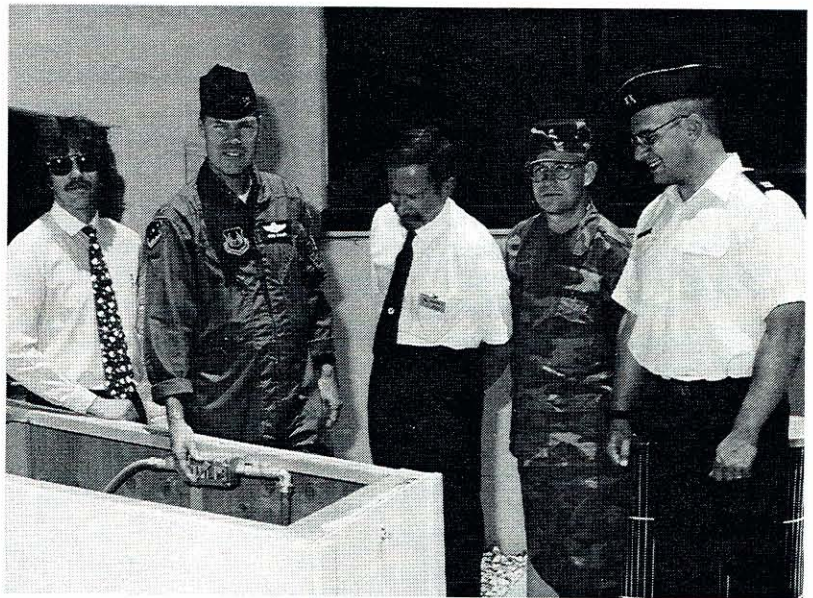
According to David Steckel, main base operable unit 1 project manager, it is the first site to be successfully remediated and closed in Southern California, under the AFCEE Bioventing Initiative.

The process of bioventing puts oxygen into the subsurface soil of the contaminated area, which in turn stimulates naturally-occurring microorganisms to feed on the fuel hydrocarbons — in this case, diesel.

"The bugs need oxygen to survive," said Steckel, "then they use the diesel contamination as food."

Sites 43, 65 and 66 were among the first test sites included in the original AFCEE initiative, which encompassed more than 135 underground bioventing tests at 48 Air Force installations throughout the country, he said.

At Site 43, the cause of the contamination — a 165-gallon underground storage tank, the bottom of which was about 4 feet below the surface — was removed in May 1991. A visual inspection of the tank provided a clue that the area may have been contaminated by leakage.



WP Photographic

According to Don Cowan, project manager of the underground storage tank investigation program, "Once there's damage to the outer surface of the tank, it erodes into the metal and appears as a rusty spot."

Under the Bioventing Initiative, AFCEE installed a bioventing unit with a vapor well and a monitoring point consisting of nested wells at depths of 5, 10 and 15 feet. One monitoring well is also operating nearby.

Soil gas and soil sample analyses were taken during the installation of the bioventing equipment in September 1993 and one year later. Vapor and soil samples were taken in November 1994.

Bioventing proved so successful at Site 43 that closure soil sampling conducted in December 1995 revealed no fuel present in the soil or groundwater. As a result, site closure documentation was submitted to Kern County in March of this year.

"Once we abandon the venting and vapor monitoring well at Site 43 we'll move the bioventing unit to its new home," said Steckel.

Col Vernon Saxon (second from left), Air Force Flight Test Center vice commander, turns off the power to the bioventing unit at Site 43. Watching are David Steckel, main base operable unit 1 project manager (left); Richard Wood, main base Restoration Advisory Board public representative (third from right); Eric Diel, Restoration Advisory Board public co-chair (second from right); and Capt Scott Hansen, Chief, Installation Restoration Program Field Studies Branch (right).