



Edwards Air Force Base

95th Air Base Wing

Civil Engineer and Transportation Directorate

Environmental Management Division

# *Report to* **STAKEHOLDERS**

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*Report to*  
**STAKEHOLDERS**

*Report to Stakeholders* is a publication of the Edwards Air Force Base Environmental Management Division. Its purpose is to inform and educate the public, base workers and residents about continuing Environmental Management efforts on base. It currently has a circulation of 6,000, including about 2,000 subscribers.

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**Next RAB Meeting**

**November 2007**  
**5:30 p.m.**  
**Date and Location is**  
**to be determined**

**The public is invited**

If you have a question about the Edwards Air Force Base Environmental Management program, you may address it to Stakeholders Forum, Attn: Gary Hatch or Miriam Horning, 5 E. Popson Ave. Bldg 2650A, Edwards AFB, CA 93524-8060, or send e-mail to: [95ABW.PAE@edwards.af.mil](mailto:95ABW.PAE@edwards.af.mil)



**SPOTTED** — A mother bobcat feeds her cubs. These bobcats were found on Edwards Air Force Base by Environmental Management biologists.

**ON THE COVER** — A couple of active duty Air Force volunteers for the Environmental Management Division take a look at the Off-Road Vehicle Area 2 map with Cultural Resources' Richard Bark and Ivan Sergejev, in background, and Information Services' Cheryl Smith.

# Restoration Advisory Board Meeting

# Highlights



**TAKE A LOOK** — Main Base Test Wing Restoration Advisory Board (RAB) member Dean Baker, right, looks at Environmental Restoration Program information regarding the Air Force Research Laboratory, along with a couple of other people who attended the RAB meeting May 17 in Boron, Calif.

The following report highlights the latest quarterly meeting of the Restoration Advisory Board (RAB) held May 17, 2007, in Boron, Calif.

/// **Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Proposed Plan for Soil and Debris Sites, Operable Units 4 and 9, Air Force Research Laboratory (AFRL)** – Patrice Hallman, ERP program manager began her presentation with a brief background on the CERCLA process and talked about the Proposed Plan at Operable Units 4 and 9 Soil and Debris Sites.

/// **Technical Impracticability (TI) Waiver Update** – There are four designated areas for the waiver of groundwater applicable or relevant and appropriate requirements (cleanup standards) due to technical impracticability.

The draft final of the South AFRL Record of Decision was delivered in May to Remedial Project Managers. Also underway is the Arroyos Feasibility Study.

/// **Fiscal Year 2008 Environmental Restoration Program (ERP) Budget** – Environmental Restoration Program Branch Chief Ai Duong presented the fiscal year 2008 budget to RAB members, showing the projects by category in a pie chart and comparing fiscal year 2007 to fiscal year 2008. An ERP funding graph indicated how much money will be received for fiscal year 2008, and ERP projects were displayed.

The next meeting of the RAB will be November 2007. The date and venue are to be determined.

# Volunteer program connects community **hands** to the **land**

**E**nvironmental Management is offering new volunteer opportunities to base residents and employees who are interested in the environment. The Environmental Management Volunteer Program, started November 2006, is designed to involve community members with environmental work at Edwards Air Force Base (AFB) by providing them with a dynamic opportunity to better their community — from hand to land.

“The volunteer program is a new way for people to learn about the environment and give back,” said Robert Wood, chief of Environmental Management. “A lot of awareness is best taught by getting people to go out and observe, enjoy and participate in the environment. So to better serve all of the customers on base and to let them better understand what is going on in the environment, we decided to start a volunteer program.”

Environmental Management is responsible for educating the base community about the environment, in addition to keeping the base in compliance with regulatory laws and guidelines, conserving cultural and natural resources and cleaning up past contamination. Every year, Environmental Management supports and hosts various tours for school age children, and training seminars and briefs for residents, employees, clubs and organizations on base to promote awareness of the environment.

“The volunteer program gives people a chance to work with an archaeologist, biologist, curation specialist, graphic artist and so forth as an avocation, or hobby, but in a professional way,” Wood said. “Each person has things that they are either really



## Volunteering in the U.S.

- ★ About 61.2 million people in the U.S. volunteered between Sept. 2005 and Sept. 2006.
- ★ According to a study by the Corporation for National and Community Service, released Dec. 6, 2006, “Volunteering reached a 30-year high!” in 2006.
- ★ Last year, 2.5% of volunteers in California volunteered for environmental or animal care causes.

good at or want to learn about. I think that volunteering is a nonthreatening way for people to get involved.

“Volunteering can lead to professional development and can be a resume builder. It is especially useful in situations where someone has always wanted to learn about something and they go out there and say, ‘Ew, I never want to do this again. It’s harder than it looks.’ They can do that and they had the chance to try it at least,” Wood said.

Though young, the Environmental Management Volunteer Program already has a broad range of activities available for volunteers, and the list is growing. These activities can range from participating in historic site documentation to conducting tours or helping out with administrative tasks to monitoring off-road vehicle areas.

“We can provide a laundry list of things that we’d like to have done, but the very best volunteer programs are the ones where the volunteer can say, ‘I’ve got this great idea and the five of us want to go try it,’” Wood said. “The opportunities are really kind of open.

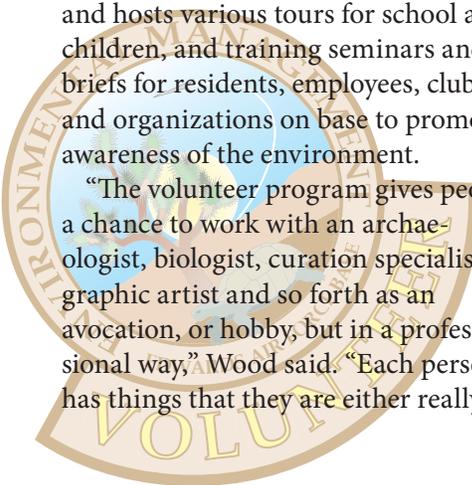
We’ll learn as we go — starting out small and figuring out what is easy to do and what isn’t.”

Though modeled after many volunteer programs for Department of Interior and Department of Agriculture agencies, Wood recognizes that the Edwards AFB Environmental Management Volunteer Program will not be as large as many of these other programs.

“We certainly don’t have the level of people coming in every day that park services do,” Wood said. “We’re just looking for people who want to do things for us in their spare time. I think an active core of 20 to 30 and maybe as many as 40 to 50 volunteers is a reasonable goal for what we have going on here.

“The Environmental Management program here is one of the best in the Department of Defense, especially because of the size of our program and the complexity of it. The volunteer program will give those who live and work here a chance to be a part of this,” he added.

Wood’s goal is that the program



have up to 50 volunteers signed up to do some sort of environmental work by the end of the program's first year. With many other volunteering opportunities on base — such as volunteering at the museum, base clinic or even through Environmental Management's hunting program — Wood said that this program is here to offer new volunteering opportunities but to also support these other activities.

Cheryl Smith, the volunteer program coordinator, said, "Making the connection from hand to land is very important. Volunteering can give a person a sense of ownership and improves the quality of life for that person and the community. When a person sets aside time and energy to care for or improve their community in some way, that person appreciates what it takes to maintain the community."

"Volunteering can be the perfect way for someone to venture into new areas of expertise or to become involved in projects that stimulate learning. The volunteers will be our eyes and ears and can show us where and what sort of things we might want to brief the base community about."

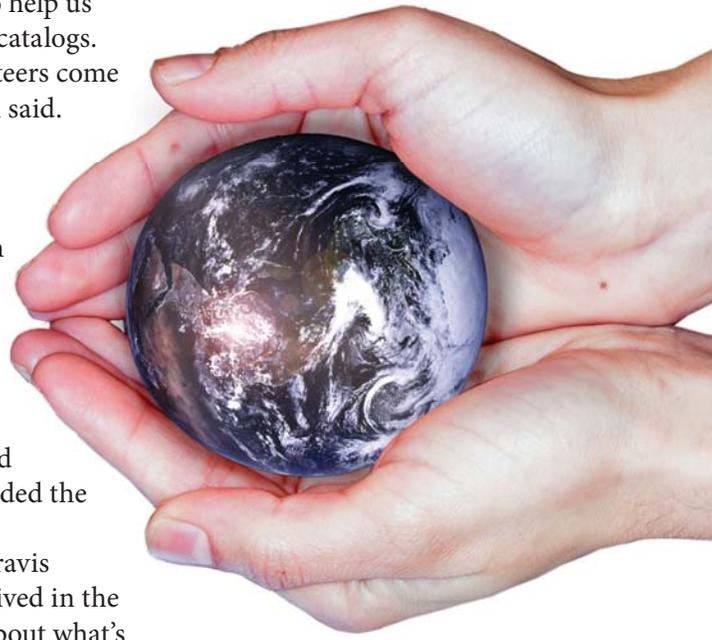
"We already have people signed up to volunteer on weekends, to police the

off-road vehicle areas and to help us with data entry and library catalogs. We've even had some volunteers come in and work with us," Smith said.

At a program briefing, volunteers said that one of the major reasons they have chosen to volunteer through this program is a love of nature. "I like to drive out to the off-road vehicle areas to look at the wildlife. I go out looking for reptiles all the time," said SMSgt Gerald Todd, a volunteer who attended the volunteer program briefing.

Another attendee, TSgt Travis Buckley added, "I've never lived in the desert and I want to learn about what's out here. I came in to volunteer and enjoyed working beside the archaeologists to catalog artifacts. I got to look at some really cool things."

"I've worked as a volunteer for most of my life on many different things," Wood said. "I find it very rewarding to work hard for no money, on something that I care about. There were times that when I was done working, I saw that something new was accomplished — something that wouldn't have been done without my labor and I felt good about it."



The program is currently recruiting volunteers from the base community, including active duty military and their dependents, employees, and contractors assigned to Edwards AFB. Volunteering activities can take place any day of the week and there is no time requirement or age limit for volunteering. Contact the volunteer program coordinator at (661) 277-1417 or Environmental Management at (661) 277-1401, for an application.

## NEW VOLUNTEERING OPPORTUNITIES

*Base residents and employees have new opportunities for volunteering and getting involved in the environmental work on base through the Environmental Management Volunteer Program. Opportunities can vary from guiding tours to administrative tasks and everything in between.*



# Active sodium persulfate tested at Site 18 Treatability Study

**E**ngineers from the Environmental Restoration Program (ERP) began a treatability study in May to determine if *in situ* chemical oxidation using activated persulfate can be used to clean up a site where benzene and trichloroethene (TCE) contaminate the groundwater.

The study will take place at Site 18 in the restoration program's Operable Unit 1, the main base flightline.

A treatability study is a part of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), and is used to determine if a specific technology can efficiently treat particular contaminants.

The term *in situ* means in place, so the treatment will occur underground, where the contamination is found in

the groundwater rather than pumping contaminated water to the surface for treatment. Once injected, the persulfate solution attacks contaminants producing harmless substances such as carbon dioxide and water. Sodium persulfate is activated by mixing it with sodium hydroxide. The activated persulfate mix will react with and destroy the benzene and TCE contaminants.

"Because Site 18 contains a combination of petroleum hydrocarbons and various chlorinated solvents, activated persulfate is the most appropriate oxidant," said Tara MacHarg, senior project director for Earth Tech. "Activation with hydrogen peroxide isn't a consideration because it reacts vigorously, generating large amounts of heat and gases. The reaction between sodium hydroxide and persulfate does not generate these potential hazards."



Activation with hydrogen peroxide isn't a consideration because it reacts vigorously, generating large amounts of heat and gases.

Tara MacHarg  
Earth Tech Inc.



"Activated persulfate remains reactive in the subsurface for a longer period of time than most other chemical oxidants. The persulfate mixture injected into the source area moves along the same path the contaminants travel, treating more than the initial area achieved during injection," said Holly Holbrook, Earth Tech project engineer.



**EARTH TECH** — Contractors mix sodium persulfate with sodium hydroxide into groundwater at Environmental Restoration Program Site 18. One worker stirs the solution with an electric mixer while the other adds water to the tanks.



**SITE 18** — Holly Holbrook, EarthTech engineer, discusses site study progress with a worker.

Site 18 is the first ERP site to study this chemical oxidant. The reaction of the two chemicals is expected to stay active for approximately 45 days.

“We were able to get the persulfate mixture in the ground along the planned screened 80-foot vertical interval (20 to 100 feet below ground surface) in the granitic bedrock,” MacHarg said.

The treatability study will be

monitored for six months. “All of the activated persulfate is consumed in reaction with the site contaminants, thereby leaving no oxidant residue in the ground unreacted,” said Paul Schiff, ERP program manager for Site 18.

“Subsequent monitoring — one day and one week after the injection — has shown evidence that persulfate has reached the surrounding

monitoring wells and is still active within the study area, continuing to degrade contaminants,” Holbrook said.

Observations of the study are conducted to find out if the reaction stopped, which will enable engineers to take samples. The engineers will extract several samples of the groundwater in surrounding monitoring wells over the next six months to determine the long-term effect.

“I have confidence in this cleanup approach because we now know much more from past studies about how the aquifer on base reacts with various oxidants,” Schiff said. “This knowledge allows us to rule out specific chemical oxidants that we know cause problems, and the result is what we think will be an effective chemical oxidation approach.”

“The goal for this treatability study, and others, is to find technologies that will clean up sites with similar contaminants and hydrogeologic conditions and do so cost effectively.”

**SAFE HANDLING** — Wearing a protective glove, Holly Holbrook, EarthTech engineer, holds sodium persulfate. Which is used in the Site 18 study.



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**Where to Find More INFORMATION**



Published data and documents relating to the Environmental Restoration Program are available for public review in information repositories at four locations. The current information repositories are located in the cities of Lancaster and Rosamond, as well as Edwards AFB. They are updated when new documents are released.

For questions about information in the repositories, you may contact Gary Hatch, Environmental Public Affairs at (661) 277-1454 or by e-mail at [95ABW.PAE@edwards.af.mil](mailto:95ABW.PAE@edwards.af.mil).

Location	Days	Hours
<b>Edwards AFB Library</b> 5 W. Yeager Blvd. Building 2665 Edwards AFB, Calif. (661) 275-2665	Mon-Thu Fri Sat & Sun	9:30 a.m. - 7 p.m. 9:30 a.m. - 6 p.m. 10:30 a.m. - 6 p.m.
<b>Kern County Public Library Wanda Kirk Branch</b> 3611 Rosamond Blvd. Rosamond, Calif. (661) 256-3236	Tue & Wed Thu-Sat	Noon - 8 p.m. 10 a.m. - 6 p.m.
<b>Los Angeles County Public Library</b> 601 W. Lancaster Blvd. Lancaster, Calif. (661) 948-5029	Mon-Wed Thu & Fri Sat	10 a.m. - 8 p.m. 10 a.m. - 5 p.m. 11 a.m. - 5 p.m.

**Report to STAKEHOLDERS**

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