



Edwards Air Force Base  
95th Air Base Wing  
Civil Engineer and Transportation Directorate  
Environmental Management Division

# Report to **STAKEHOLDERS**

August 2007

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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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Comments or questions can be directed to: Gary Hatch, 95 ABW/PAE, 5 E. Popson Ave., Bldg. 2650A, Edwards AFB, CA 93524-8060, (661) 277-1454.

E-mail: [95ABW.PAE@edwards.af.mil](mailto:95ABW.PAE@edwards.af.mil)

Website:

[www.edwards.af.mil/library/environment/index.asp](http://www.edwards.af.mil/library/environment/index.asp)



**Commander 95th Air Base Wing**  
*Col. Bryan J. Gallagher*

**Base Civil Engineer**  
*James Judkins*

**Division Chief, Environmental Management**  
*Robert Wood*

**Branch Chief, Environmental Restoration**  
*Ai Duong*

**Branch Chief, Environmental Conservation**  
*Gerald Callahan*

**Branch Chief, Environmental Quality**  
*Robert Shirley*

**Next RAB Meeting**

**November 2007**

**5:30 p.m.**

***Date and location are 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)

**Volunteers help researchers in burrowing owl study**

The Environmental Management Volunteer Program assisted with a burrowing owl monitoring study June 1. Megan Schwender, a researcher from the University of Arizona, came out to the base to survey for nests, set up traps and capture burrowing owls for the study. Base biologists and Environmental Management volunteers helped survey and set up the traps. Once an owl was captured, Schwender put a band on its leg, and took blood and feather samples.

The blood and feather samples will be used for a genetic study that the university is also working on. For the monitoring study, researchers are looking at why some burrowing owls migrate and others do not. The multi-year study is being conducted on Department of Defense lands, according to Mark Bratton, a contract natural resources biologist at Edwards Air Force Base. The surveys are usually conducted during summer months because juvenile burrowing owls are most active then and there is a good opportunity for researchers to take a look at them.

**TRAPPING**

*Top, Megan Schwender, a researcher from the University of Arizona and a volunteer from the Environmental Management Volunteer*



*Program set up a trap to catch a burrowing owl for a study.*

**BANDED** — *Bottom, Schwender puts a band on a captured burrowing owl to help monitor its migration patterns.*





## Base lab opens doors to new opportunities

**E**dwards Air Force Base (AFB) officials celebrated the renovation and expansion of the Base Environmental Analytical Laboratory (BEAL) with a ribbon cutting ceremony and open house event May 30.

“The BEAL has grown immensely during this past year with the addition of more state-of-the-art equipment,” said Mark Taberner, BEAL manager. “We wanted to demonstrate the lab’s various analytical capabilities used every day to support two primary missions of the Air Force Flight Test Center — flight testing and environmental compliance.”

Col. Bryan Gallagher, 95th Air Base Wing commander, was among several base officials who attended the daylong event that included tours of the facility, demonstrations, a ribbon cutting ceremony and luncheon.

“About 20 years ago when we first stood up the environmental program at Edwards AFB, we knew that we couldn’t have a state-of-the-art program if we didn’t understand chemistry,” said Robert Wood, division chief for Environmental Management. “We didn’t have any chemists, and when we took samples, we sent them to a commercial lab, but we didn’t know what the answer meant when we got it back. So, we decided we needed to build a chemistry lab and we built the BEAL.”

At the BEAL — located in two of the buildings formerly used by the Jet Propulsion Laboratory — chemists can analyze a variety of samples including water, soil, asbestos and plant material.

“We support hazardous waste management, cleanup efforts and spill response efforts, but we also support the Air Force mission,” Taberner said. “We’ve supported F-22, Airborne Laser and the Joint Strike Fighter. We’ve provided



**RIBBON** — Col. Gallagher cuts the ceremonial ribbon at the BEAL Open House while management and staff from JT3, Environmental Management and the BEAL gather for the opening.

**TOURS** — Ed Soto, a chemist at the laboratory, gives Col. Gallagher, Robert Wood and other base workers a demonstration of equipment capabilities at the BEAL.

a lot of support in environmental services for all of these organizations.”

“The BEAL gives us the ability, through the chemists, to take the sample correctly, analyze it at a very high level of quality and give you a complete answer of what’s going on, not just what was in the sample,” Wood said. “The chemists can tell you this is what you asked us to look for, but this is what you need to know.”

For more information regarding the BEAL’s analytical capabilities, you may contact Mark Taberner at (661) 277-9276.

# Zorba's military experience is his source of environmental enthusiasm

**P**eter Zorba's love for his country and the environment has taken him all over the world through investigation and assessment of hazardous waste cleanup projects. His most recent accomplishment has been representing Lancaster on the Edwards Air Force Base (AFB) Restoration Advisory Board (RAB).

Mayor Henry Hearn and Randy Williams, City of Lancaster director of public works, recommended Zorba for the job. Zorba — a native of California — welcomed the opportunity to combine his position with the City of

Lancaster with his military connection and accepted the offer.

"I have more than ten years' experience as an environmental professional, much of that involving environmental cleanup of Department of Defense facilities," Zorba said. "Combine that with my military background, and I think there are significant benefits for my representation of the city on the RAB."

Zorba enlisted in the U.S. Marine Corps in December 1989, and was stationed in San Diego. He attended motor transportation school at the Marine Corps Base at Camp Pendleton, Calif., and was appointed as a chief warrant officer in December 1998. He



was then assigned as a nuclear, biological and chemical defense officer with the 5th Battalion, 14th Marines at the Naval Weapons Station in Seal Beach, Calif.

Zorba is currently the anti-terrorism and chemical, biological, radiological and nuclear defense officer for Marine Corps Reserve Medium Helicopter Squadron 764 at Edwards AFB. He is also an operations and squadron ground training officer.

“My military experience with the Marines has been a source of unparalleled leadership experience, interpersonal and task management skills, as well as a collateral education in chemical, biological, radioactive and nuclear defense measures and capabilities,” Zorba said.

Zorba’s commitment to environmental restoration and military compliance has taken him all over the United States and Russia. Zorba said his most memorable trip involved a mercury site investigation at an industrial facility in Russia. He was the lead field engineer during the first phase of the investigation and worked with Nevskgeologia, a Russian subcontractor. During this investigation, Zorba supervised the installation of numerous groundwater monitoring wells and piezometers, small diameter wells used for measuring high water pressure.

“Regulatory issues were interesting because our interaction with the Russian Environmental Ministry and the Leningrad Region Ministry of Environmental Health and Hygiene was not too different from our own environmental regulatory agencies,” Zorba said.

A communion evolved between the work Zorba performed environmentally and the expertise he obtained in the Marine Corps. Zorba studied geomorphology — the study of the characteristics, origin and development of landforms — in

addition to studying for his line of work with the Marines. After he received a bachelor’s degree in soil science from the California Polytechnic University in San Luis Obispo, he decided to apply his knowledge in an environmental field.

He is currently the environmental engineer and compliance officer for the City of Lancaster. In this capacity, he is responsible for being a central repository for environmental programs, records, criteria and knowledge of the city. Zorba oversees environmental and hazardous waste permitting and compliance; federal, state and local regulatory compliance; hazardous waste management and disposal; and air quality management and compliance. As the city’s initial responder and assessor of environmental and hazardous material situations, he provides guidance and assessment of toxic or hazardous material incidents as they occur.

“I just got tired of cleaning up everyone else’s mess,” Zorba said. “I like the fact that I can clean up my own community first. That is the best thing about my job.”

According to Zorba, he and other city officials are in the process of developing proactive environmental policies for future cleanup assessment.

Zorba brings this expertise to the RAB. He said interest in the soil and water chemistry aspects of environmental



**MARINE** — Peter Zorba rides in a helicopter while on a mission in Iraq. He is currently a member of Marine Corps Reserve Medium Helicopter Squadron 764 at Edwards Air Force Base.

sciences, procedures and regulations helps him better understand the purpose and mission of the RAB.

The RAB is made up of elected volunteers from communities surrounding Edwards AFB, federal and state regulators, and base officials. The board’s purpose is to provide a forum for two-way communication between base restoration officials and representatives from communities surrounding the base regarding cleanup of hazardous contamination left over from past military activities.

As a RAB member, Zorba said he thinks it will be a challenge to establish and maintain the greatest level of two-way communication. “My goal is to represent the City of Lancaster in a way that establishes a proactive environmental posture and creates the greatest amount of information exchange, not only flowing from the RAB to the residents of Lancaster, but also flowing through communication from the city into a collective understanding of Edwards AFB and neighboring communities that make up the RAB,” Zorba said.

He resides in Acton, Calif. where he spends his free time with his wife, Molly, and four-year-old daughter.

“

My experience with the Marines has been a source of unparalleled leadership experience...

**Peter Zorba**  
Lancaster RAB Member

”

# GIS — geographic information just a few mouse clicks away

The Geographic Information System (GIS) at Edwards Air Force Base (AFB) is an interactive mapping and spatial analysis program that can display roads, buildings, environmental factors and much more with a few simple clicks of a mouse.

“GIS is the driving force behind all that we do,” said Robert Wood, division chief for Environmental Management. “GIS creates visual representations of real-time data. The user can apply different layers of information to take a unique snapshot of any geographical area on base.”

Since its creation in the late 1980s, GIS has grown to include more than 400 layers. Each layer contains data linked to a geographic spot on base. GIS is the hub of information for many base functions including facilities conditions and utilization, utilities infrastructure and siting for new projects.

“You can customize a map to include only the factors you want to see,” Wood said. “If you want an elevation map of the base that uses brighter colors to indicate higher elevations, GIS can do that.

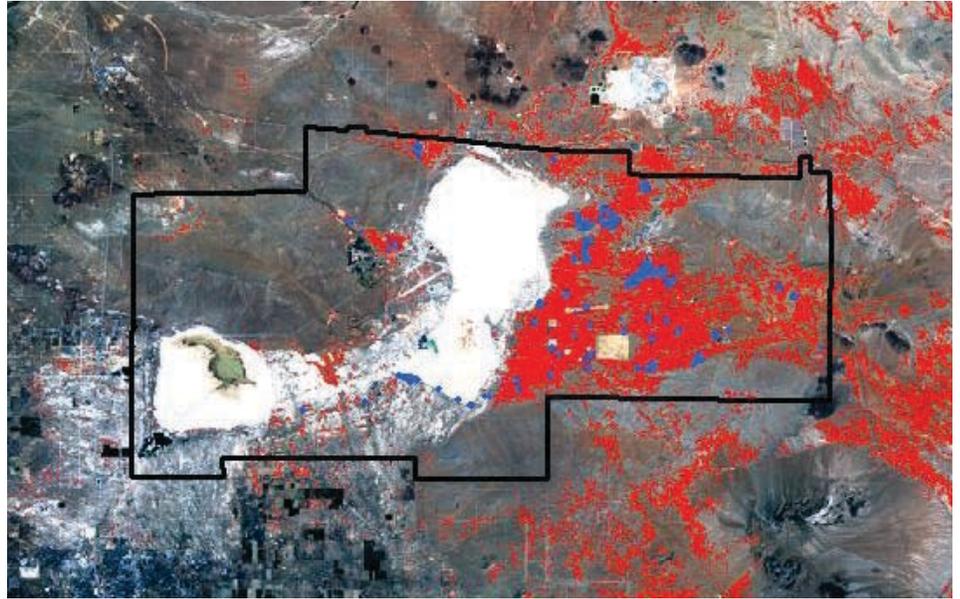
“Maybe you want to check if a site proposed for a new building is in a floodplain. GIS will not only show you if the site is in a floodplain, but it can also show you if the site has any environmental issues, electrical or sewer lines nearby and how level the ground is,” Wood said.

And there is no need to wonder if you are working off of current information.

“The GIS layers are updated continuously, making the latest information readily available to the user,” Wood added. “If we tried to put all of this information into a comprehensive report, by the time the report was finished, the information would be obsolete.”

The ability to quickly access up-to-date information translates into time and money saved.

Without GIS, biological surveys of the 301,000 acres that make up Edwards AFB would be costly and time consuming. According to the Edwards AFB 2004



**PREDICTIVE MODELING** — This GIS model shows predicted and identified habitat of the desert cymopterus. Red represents predicted habitat, blue represents identified habitat.

*Integrated Natural Resources Management Plan*, “GIS has been and continues to be instrumental in the formulation of threatened and endangered species management strategies basewide.”

One of the more important species tracked by GIS is the desert tortoise, a federally listed threatened species. Data on desert tortoise critical habitat areas and population densities can be found on the Edwards AFB system.

The base has been able to use GIS to provide evidence that a plant species was not as rare as was thought. Predictive modeling maps, such as one recently prepared for the desert cymopterus, predict habitat based on the analysis of spectral information taken from satellite imagery. These models are instrumental in identifying new populations and preventing endangered species listing and critical habitat designation where it is not warranted.

“The models help us narrow down the search area and identify potential locations of sensitive species,” explained

Dr. Stephen Watts, conservation team lead and Environmental Management representative for the Edwards AFB GIS working group.

Biological surveys of portions of the predicted habitat for desert cymopterus confirmed that the plant grew there, validating the model. The U.S. Fish and Wildlife Service later decided not to add the plant to the federal threatened and endangered species list. Watts plans to develop a predictive model for Mohave ground squirrels, currently listed as threatened under the *California Endangered Species Act*.

The GIS at Edwards AFB covers more than just the base lands. Consisting of 20,000 square miles encompassing portions of six counties, the R-2508 complex — airspace and associated land used and managed by Edwards AFB, Fort Irwin and China Lake in the upper Mojave Desert region — was established for subsonic and supersonic flight test mission operations.

“Environmental cataloging of the

R-2508 complex relies heavily on GIS because of the amount of land that is involved,” said Keith Dyas, environmental engineer for Edwards AFB. “It would take a massive collaborative effort, time and money to physically manage the data for the complex. The GIS acts as our electronic data repository.”

The GIS is a powerful tool for managing several layers of information about a given area. In addition to natural resources data, the R-2508 complex section contains information on archaeological resources, severe weather areas, sensitive noise areas, water resources and much more.

One of the bigger projects in GIS is the management of hazardous waste cleanup for the Environmental Restoration Program (ERP) at Edwards AFB. There are 10 operable units with 471 sites containing 9,098 sample locations where more than 40,000 samples have been collected. This results in more than 2.5 million analytical results and hundreds of plume contaminant maps.

“Managing land use controls through GIS demonstrated to our federal and state regulators that we are fully capable of monitoring our cleanup areas and protecting human health and the environment,” Watts said.

During the planning stage of a new project, paperwork must be submitted through the environmental impact analysis process, or EIAP. This is to check if there are any environmental conflicts associated with the proposed area. The EIAP group looks for anything that might be environmentally impacted, such as sensitive species, cleanup treatment sites or archaeological areas.

In the past year, Edwards AFB developed a plan to construct a temporary runway to support the flight mission while the main runway is repaired. Infrastructure costs, environmental concerns, airspace requirements and other constraints were considered.

GIS technology provided decision makers with a visual analysis of multiple site options. Light detection and ranging was used to obtain a highly accurate digital elevation model. This three-dimensional perspective with imagery was used to assess possible conflicts and avoid the need for costly field work.

“GIS will take your facts or figures

and turn them into a picture that is easy to interpret,” Wood said. “And you can click on any item in the picture to get more information on what you are looking at.”

For example, an analysis of a South Base area under the ERP displays contaminant plumes near the runway area. Clicking on any of these plumes will bring up information such as the site name, contamination type and any land use controls in effect.

The GIS has expanded its capabilities to include emergency response situations. During a base exercise, a chlorine gas spill was simulated. Using data such as temperature and wind speed, a model was constructed in GIS to determine the direction of plume movement. The model helped emergency respondents decide which buildings needed to be evacuated.

A future use for GIS is to track buildings that contain asbestos material. If a building needs to be remodeled or demolished, it can be quickly determined if abatement or other necessary precautions should be taken.

“The need for GIS will continue to grow,” Watts said. “There is no end to the type of information we can link to a geographical area. Having all of this information in one spot and easy to access

will make it easier to get the mission accomplished.”

GIS is available to most on-base

computer users. A simplified version that contains standard query data is available through WebMap, which can be found under the maps section of the Air Force Flight Test Center’s Intranet site, CenterNet.

“The beauty of WebMap is that you do not need to be a GIS expert to navigate through the site,” Wood said. “There are

standard queries that allow you to search by area or building. You can access all sorts of information right from your desktop.”

Standard queries cover information on infrastructure and utilities, environmental issues and air space, and provide access to aerial photos of the base. Driving route directions, building floor plans and photos are also available for people new to the base or for queried destinations.

If there is a query feature that your organization thinks would be useful to include in GIS, you can contact Environmental Management at (661) 277-1401. Base organizations can use Environmental Management’s GIS department to run more complicated queries that may involve multiple data layers.

“  
Managing land use controls through GIS demonstrated to our federal and state regulators that we are fully capable of monitoring our cleanup areas and protecting human health and the environment.  
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**Dr. Stephen Watts**  
Conservation team lead and  
Environmental Management representative for  
the Edwards AFB GIS working group



**AERIAL** — By accessing WebMap, base personnel and residents can view aerial photographs of buildings on base. In this aerial view, you can see vegetation, utilities, roads and more. These kinds of images can be useful in planning projects or driving routes, but can also be used for more complex functions.

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 95 ABW/PAE  
 RTS Subscription  
 5 E. Popson Ave., Bldg. 2650A  
 Edwards AFB, Calif., 93524-8060

**RAB Members**

**BORON**  
 Hugh Jamison (760) 762-6658 Home  
 hbj@ccis.com

**CALIFORNIA CITY**  
 Bob Smith (760) 373-4317 Home  
 bsmith@ccis.com

**LANCASTER**  
 Peter Zorba (661) 723-6234 Work  
 pzorba@cityoflanasterca.org  
 ALTERNATE: Mayor Henry Hearn (661) 723-6019 Work  
 hhearns@cityoflanasterca.org

**MOJAVE**  
 Victor Yaw (661) 824-2886 Home  
 vyaw@charter.net (661) 275-4296 Work

**NORTH EDWARDS**  
 Ruby Messersmith (760) 769-4357 Home  
 messersmith2@verizon.net

**ROSAMOND**  
 David Newman (661) 722-6433 Work  
 dneuman@aceweb.com  
 ALTERNATE: Leslie Uhazy (661) 256-8209 Home  
 luhazy@avc.edu (661) 722-6417 Work

**EDWARDS AFB Housing**  
 Michelle Tucker (661) 258-9030 Home  
 mztucker@usa.net

**Main Base Air Base Wing**  
 Carolyn Coe (661) 277-6678 Work  
 carolyn.coe.ctr@us.af.mil

**Main Base Test Wing**  
 Dean Baker (661) 277-5649 Work  
 dean.baker.ctr@edwards.af.mil

**NASA Dryden**  
 Gemma Fregoso (661) 276-2817 Work  
 Gemma.Fregoso-1@nasa.gov  
 ALTERNATE: William Brandweiner (661) 276-3339 Work  
 William.Brandweiner@dfrc.nasa.gov

**North Base**  
 Vacant

**South Base**  
 Brenda Weems-Hunter (661) 275-0456 Work  
 brenda.weems-hunter@edwards.af.mil

**AF Research Lab/Propulsion Directorate**  
 Milton McKay (661) 275-5191 Work  
 milton.mckay@edwards.af.mil

**Where to Find More INFORMATION**



Published data and documents relating to the Environmental Restoration Program are available for public review in information repositories at three 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. Bldg. 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**

**EDITOR**  
 Vanessa Green

**WRITING and DESIGN SUPPORT**  
 Heidi Gesirich  
 Miriam Horning  
 Patti Kumazawa  
 Wendelyn Leon  
 Leilani Richardson  
 Paul Rogers



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 5 E. Popson Ave., Bldg. 2650A  
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