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Report to

STAKEHOLDERS

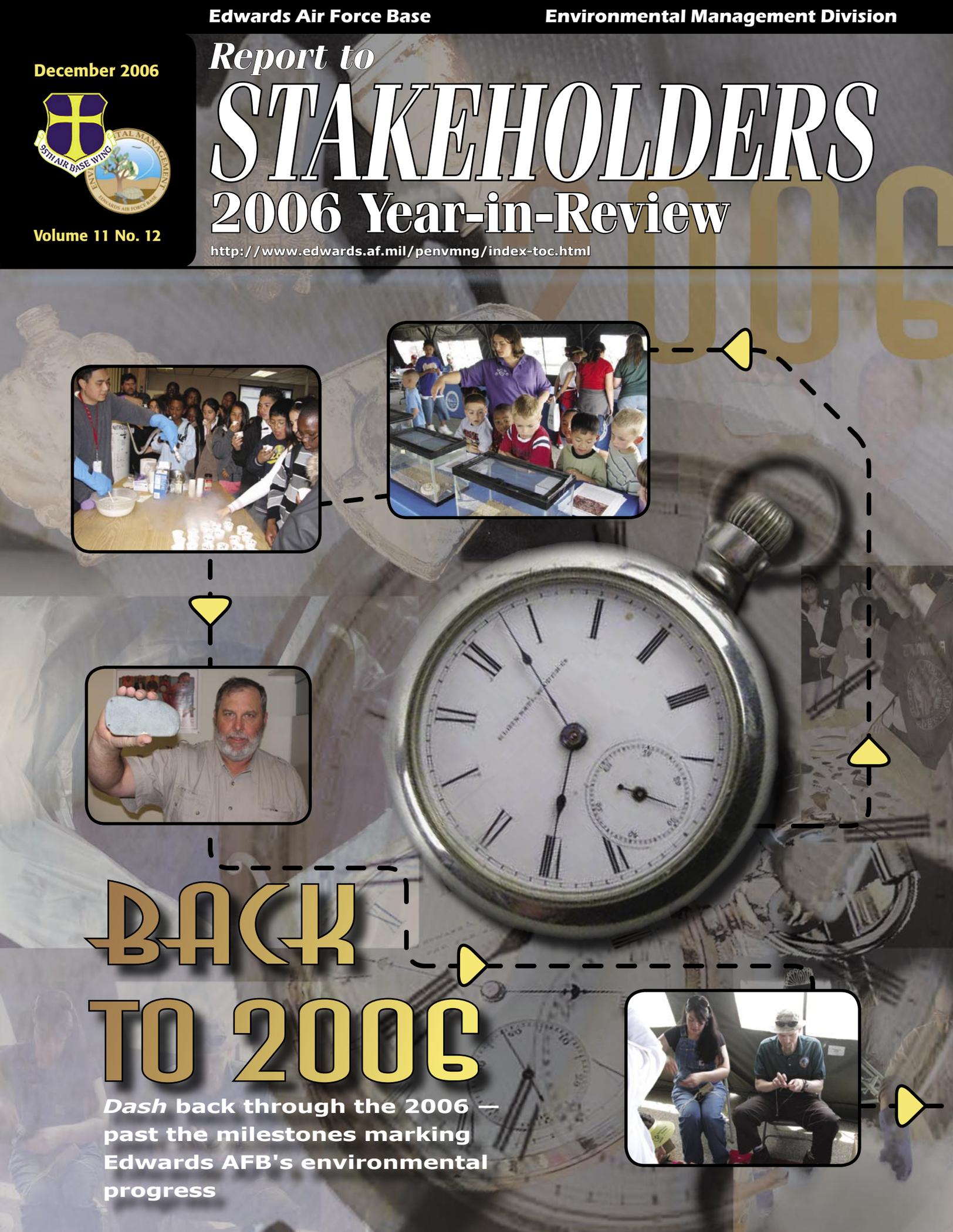
2006 Year-in-Review

<http://www.edwards.af.mil/penvmng/index-toc.html>



BACK TO 2006

Dash back through the 2006 — past the milestones marking Edwards AFB's environmental progress



Report to STAKEHOLDERS 2006 Year-in-Review

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

Contents of the *Report to Stakeholders* are not necessarily the official view of, or endorsed by, the U.S. government, the Department of Defense or the Department of the Air Force.

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

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Gerald Callahan

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Next RAB Meeting

Feb. 8, 2007

California City

Location to be determined

The public is invited.

If you have a question about the Edwards AFB 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.

TOURS AND OUTREACH EVENTS



Students listen to contract biologist, Amber Bruno talk about Edwards AFB's natural resources.

Mojave Environmental Education Consortium

Edwards AFB opened its doors to 400 students and their teachers looking for information about real-world environmental efforts.

Joining the Mojave Environmental Educational Consortium, which enhances educators' knowledge of environmental subjects, Edwards AFB hosted a teacher workshop and a series of student tours for schools from Palmdale, Victorville, Adelanto and other Mojave Desert communities.

Desert Safety Day

Educating base members about how to live, work and play safely in the desert while protecting the environment was the focus of the inaugural Desert Safety Day event at the Base Exchange food court, Aug. 2. Field experts from nine organizations used handouts, display items and live animals to show more than 230 people the common hazards that could be avoided with a little safety know-how. Safety issues ranged from preventing West Nile virus and heat stress to spotting venomous snakes and unexploded ordnance. Event organizer and restoration program manager, Rebecca Hobbs, hopes to make Desert Safety Day an annual event coinciding with the start of the 101 Critical Days of Summer.



Base chemists use nitrogen in a demonstration for the base community.

Earth Day Celebration

Environmental Management hosted an Earth Day event for more than 500 participants, April 20. Various display booths, ranging from base recycling to cleanup activities to cultural and natural resources, lined the interior of four large tents sitting at the Base Exchange parking lot. Workers showcased the types of technology and equipment they use and the types of work they perform around the base.

Students and community members also learned about protecting natural and cultural resources. Many students attended the event including Kenneth Moody, winner of the Earth Day craft contest, his fifth-grade class and other classes sponsored by the Mojave Environmental Education Consortium.

Hands-on activities and tours to Piute Ponds increased awareness about the environment at Edwards AFB. An Arbor Day tree-planting ceremony by the 95 Air Base Wing commander and children from the Child Development Center was also a feature of the day.



Smiles and firehats at Desert Safety Day.

ENVIRONMENTAL QUALITY

The quality of the environment affects everyone and Environmental Quality Branch personnel work to bring innovation and service to the process of maintaining an acceptable environmental quality for base employees, residents and surrounding communities. This year, the air quality team demonstrated that their efforts support the base mission. The hazardous waste team was honored with the Team of the Year Award for their work, and the new Hazardous Material Excess Reutilization Program was launched to save money and prevent pollution at the source for Edwards AFB.



Generators, like this engine, are monitored by the air quality team.

Lower emissions support the mission

The Edwards AFB air quality team works to fulfill the program's purpose to prove compliance with federal, state and local government agencies. Since so many operations emit air pollutants, visible or not, the air quality program team reviews and analyzes a variety of projects from aircraft testing to supporting projects like the Edwards AFB Open House and Air Show.

Because lower pollution levels can increase the number and scale of projects brought to Edwards AFB, the air quality team creates innovative ways to make projects or equipment fit successfully while minimizing environmental impacts. The scope of the air quality program reaches to the outer bounds of the base because as contract air quality coordinator, Elizabeth Rehoreg said, "Everyone breathes the air!"



HazMER Program puts unused items back to work

To save costs for repurchase and hazardous waste disposal, a new Hazardous Material Excess Reutilization Program, or HazMER Program, is taking in excessed items and offering them free to other Hazardous Distribution Support Centers (HDSC).

Many of these items, like spray paint, lubricants and adhesives, were originally purchased for use in aircraft and excessed when a project ended or changed. They can be repurposed for vehicle and facilities maintenance. In addition to saving repurchasing costs for these items, free exchanges between HDSCs help Edwards AFB reduce pollution at its source and meet California hazardous waste reduction goals.



Hazardous waste employees get Team of the Year Award

Contract employees working at the Edwards AFB Hazardous Waste Support Facility (HWSF) won recognition as JT3's Team of the Year after twelve consecutive years of maintaining the facility free from compliance violations.

The role of the HWSF is to manage paint wastes, oil, jet fuel residual, used cleaning solutions and other types of hazardous waste materials generated at Edwards AFB. In continuous operation since 1993, the centralized HWSF processes about 220,000 pounds of bulk or solid hazardous waste each month.

Edwards AFB is committed to providing cost-effective hazardous waste management and might have faced significant fines over the past dozen years had the HWSF not passed all inspections with flying colors.



Hazardous waste team employees (from left): Dave Parker, Ruben Soliz, Sharon Soliz, Cat McDonald, Julian Gumayagay, Glenn Beshara and Jeff Shastid. Not pictured is Tim Lacey.

DID YOU GET A CHANCE TO SEE US???

A raccoon, skunk and injured brown pelican are not commonly seen at Edwards AFB. But this year, these visitors made their way to the housing and business areas of the base.

The raccoon wandered into the housing area, was captured and released in a more suitable area. The skunk was found in a recycle bin filled with soda cans in a business area. Base biologists removed it without getting sprayed, then released it as well. The injured brown pelican was captured by a base biologist and sent to the California Wildlife Center in Calabasas for rehabilitation. But it left the capturer with a memento — pelican lice! Luckily, they wash right off.

These animals can cause harm or be harmed if not handled properly. The best thing to do when animals like these are encountered in housing or business areas is to contact Environmental Management at (661) 277-1401.



CONSERVATION

100-year-old children's tricycle found at homestead

Earlier this year, base archaeologists found a 100-year-old children's tricycle near an early homestead site. The carriage-like tricycle gives base archaeologists a glimpse of the kind of people and quality of life they experienced in the early 1900s living in and around what is now Edwards AFB.

"Its age and the fact that others have not been found on base makes it unique in our area," said Barry Boyer, contract archaeologist for Environmental Management. "The tricycle shows that there were children in the family and that there was enough income to afford recreational toys for them at some point in time," he said.

The tricycle, along with other artifacts found at the homestead site, is on display at the Environmental Management Division Office.



Neapest Supply House on Earth, Chicago. C

Tricycles. Notwithstanding the immense popularity of the bicycle, the tricycle still remains in favor. Many parents prefer them for their children by reason of their safety, convenience, and the ease with which they can be run by the little girl or boy. The tricycle which we illustrate is made for girls or boys from two to seven years. They are constructed with especial care, and will stand the abuse they very frequently receive. They are very easy running and handsomely finished. The improved spring seat takes all vibration, and being upholstered in plush and furnished with back, makes riding easy and comfortable. Frame is enameled black. Quoted with iron tire wheels or O plate rubber tire wheels. The following are our special prices:

| IRON TIRE WHEELS. | |
|-----------------------------------|--------|
| No. 19R509 Rear wheels, 18 inches | \$2.95 |
| No. 19R510 Rear wheels, 20 inches | 3.75 |
| No. 19R511 Rear wheels, 22 inches | 4.45 |
| RUBBER TIRE WHEELS. | |
| No. 19R512 Rear wheels, 18 inches | \$4.45 |
| No. 19R513 Rear wheels, 20 inches | 5.45 |
| No. 19R514 Rear wheels, 22 inches | 6.95 |

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100-year-old children's tricycle found by base archaeologists in a refuse deposit near an early homestead site.



With over 300 homestead sites and even more prehistoric archaeological sites, 200 plant species, over 200 bird species and many other forms of wildlife, Environmental Management's Conservation Branch performs a variety of activities to protect the base's cultural heritage and wildlife for future generations. Highlights from this year include completing a comprehensive site evaluation and data recovery for the town of Muroc, finding a 100-year-old children's tricycle, streamlining the Environmental Impact Analysis Process (EIAP) and conducting a reproductive study for the desert tortoise.

At Edwards, EIAP can be a snap!

Environmental Management efforts to streamline the environmental impact analysis process, or EIAP, and provide expert assistance while minimizing environmental impacts are paying off. The process is a planning tool that ensures environmental issues are addressed early in the development of programs, projects and activities. The process integrates environmental considerations in the decision-making phase. But more, it fulfills the law.

At Edwards AFB, an average of about 120 EIAP-related applications are processed each month. Instead of months, the EIAP can now take minutes or only a few days to complete. Rather than reams of paperwork to fill out, the most commonly used EIAP forms can be found online. With these advances, the professional level of experience and expertise provided by Environmental Management workers should be of considerable advantage to program managers and base customers.

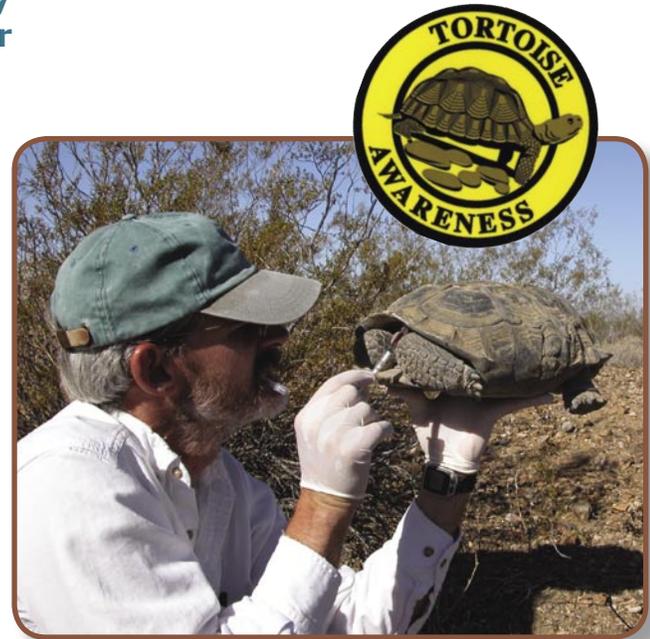
Reproductive study an effort to recover desert tortoise

Base biologists analyzed the DNA of desert tortoises at the Juvenile Tortoise Hatchery Edwards Study Site, also known as the desert tortoise headstarting program, to find the likelihood and extent of genetic diversity among the hatchlings in the program.

The first phase of this study looked at 24 mothers, 25 potential fathers and 49 juvenile tortoises. This was to assess the genetic diversity expressed in the clutches, or litters.

Biologists found that all of the female tortoises brought in to lay their eggs in the program pens had more than one mate represented genetically among their hatchlings, expressing a level of genetic diversity.

The second phase of this study is currently taking place to study the genetic



A biologist takes a blood sample from this tortoise for a study of the reproductive behaviors of wild desert tortoises.

diversity of desert tortoises over a larger geographic range. Genetic diversity is a critical issue for wildlife management and recovery of the threatened species.

Artifacts attest to Muroc's final days

Base archaeologists completed an evaluation and data recovery effort of the historic town site of Muroc. This helped clear the way for the replacement of the Main Base runway. The old town of Muroc, founded in 1883, existed until 1953 when the area was dedicated for military use.

To evaluate this historic site's cultural significance and lessen impacts according to the California Environmental Quality Act, archaeologists excavated 35 units and

catalogued and analyzed 129,541 artifacts. This is because a cultural resource study is required for potentially sensitive historic and prehistoric sites ahead of any construction activity.

After the study, archaeologists prepared a final report that tells about the day-to-day life of homesteaders, railroad employees and military workers who lived in the town from about 1946 to the early 1950s. The archaeological work will support or refute what is in the historical record for this area.



Artifacts found during the evaluation and data recovery at the town site of Muroc.

RESTORATION

Environmental Restoration Program workers tested a number of technologies at cleanup sites around the base. In one study workers used a whey powder solution to break down contaminants. In another study, they used bacteria. To identify munitions-related features, Military Munitions Response Program workers used a combination of aerial technologies and historical data. With the 2007 budget allotting an increase in funds for cleanup, program managers will focus on cleanup of sites using previously selected technologies.



The hopper hatch is where dry whey powder and potable water are mixed.

Air Force tests whey to destroy solvent at Site 19

The Air Force used whey powder in an effort to remove or neutralize solvents in the groundwater at Site 19. The pilot test involved injecting a solution, made of whey powder and potable water, through two injection wells and tracking the progress of removing or neutralizing the contaminant trichloroethene (TCE), from the groundwater at the site northeast of the Main Base flightline. Interim results show a good distribution of whey from the injection point, a good reduction of TCE, and a good increase of the less toxic chemical dichloroethene. However, there is little production of ethene, a benign compound.

The next step at the former testing facility for the X-15 is to perform one or two more whey powder injections to see if complete dechlorination to ethene, with nutrients alone, will happen. If not, *Dehalococcoides* bacteria, bacteria that help with the breakdown of TCE, will be introduced.

Maximum TCE concentrations in the study area were about 7,000 parts per billion (ppb) while the regulatory limit is five ppb. The pilot test personnel injected about 9,000 gallons of whey powder solution and ten monitoring wells surrounding the injection wells were sampled periodically.

Technology defuses costs of munitions cleanup

Three technologies—Light Detection and Ranging, also known as LiDAR, coupled with orthophotography and helicopter magnetometry—were used under the Military Munitions Response Program to survey the base's five closed ranges and areas adjacent to the base. This was done in an effort to better outline unexploded ordnance and munitions contamination areas that might need response or cleanup. It collected the greatest amount of data with the least amount of time and effort.

The program goal is to ensure that the base's five closed ranges, including Main Base, South Base, North Base, Air Force Research Laboratory and areas around the entrance gates, do not show characteristics of a bombing range.

"Though we still have a lot of data review ahead of us, we think the use of these technologies will help us rule out a lot of areas where there is no sign of past munitions use, based on historical data and records, and focus on the areas where there is a potential risk to human health and the environment," said Paul Schiff, program manager of the Military Munitions Response Program at Edwards AFB.



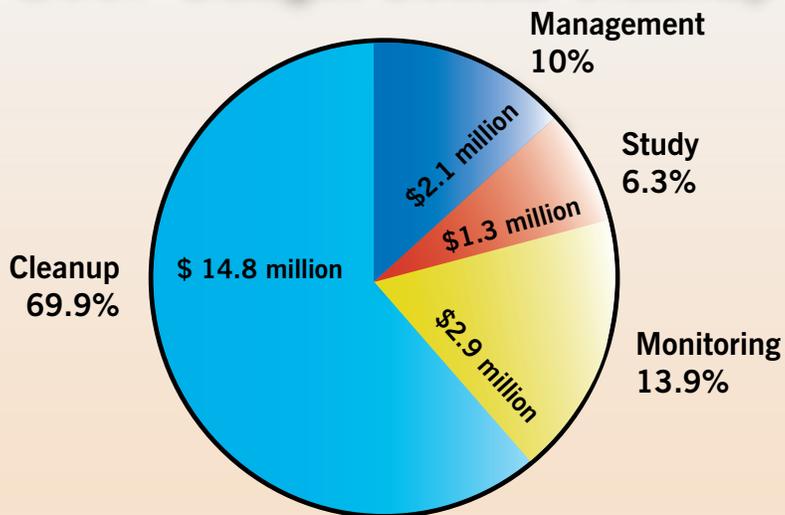
MD 530 Helicopter that housed what is essentially a large metal detector for helicopter magnetometry.



PC-12 Prop Turbo Aircraft that housed the LiDAR and orthophotography equipment.

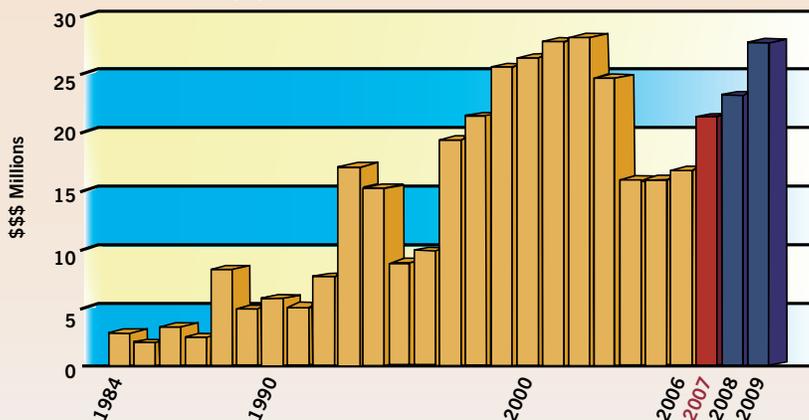


2007 Budget Boosts Cleanup



Year-to-year comparison

(actual 1984-2006 and projected 2007-2009)



Charts include rounded numbers which may not equal 100%



A bucket of CL-Out® is injected into the groundwater at Site 86.

Hungry bacteria injected into groundwater at Site 86

Environmental engineers conducted a pilot test to find out if the engineered micro-organism solution, CL-Out®, would destroy the trichloroethene (TCE) contamination in groundwater at Site 86.

“The pilot test is being performed to determine if this technology is appropriate for sites with TCE only in the groundwater,” program manager Rebecca Hobbs said.

The site contains localized areas of TCE and the objective of the pilot test was to evaluate the effectiveness of CL-Out®, a cleanup tool that uses bacteria to remove or neutralize contaminants. Results of the study will be published in 2007.

Most of 2007 budget goes toward final cleanup solutions

The Air Force allocated about \$21 million in funding to the Environmental Restoration Program (ERP) at Edwards AFB for 2007. This represents a 20 percent increase over the past fiscal year and will allow the ERP to focus on final cleanup at sites using treatment technologies selected in the Record of Decision (ROD) process of the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*, the law governing Superfund cleanups.

A look back at the Restoration Advisory Board ...

The Restoration Advisory Board (RAB) membership experienced an unusually high turnover rate during the year. Much of the turnover was caused by job relocation, retirement or the expiration of representatives' terms of office. New members attended an intensive one-day training session, June 3, and all RAB members were provided a site cleanup tour led by restoration program managers, Oct. 11.

The RAB is a board of community members whose purpose is to promote two-way communication between the communities within and surrounding the base and program managers. Quarterly RAB meetings are scheduled for February, May, August and November of 2007. At these meetings, program managers present information about the environmental cleanup efforts at Edwards AFB and RAB members speak for their communities. Exact times and locations will be announced in the *Report to Stakeholders* and local newspapers. The public is invited to attend.



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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 Boron, Lancaster and Rosamond, as well as Edwards AFB. They are updated when new documents are released.

If you have any questions about information in the repositories, please contact Gary Hatch, Environmental Public Affairs at (661) 277-1454 or through e-mail at 95ABW.PAE@edwards.af.mil.

**Location****Days and Hours of Operation****Edwards AFB Library**

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(661) 275-2665

Mon-Thurs 9:30 a.m. - 7 p.m.
Fri 9:30 a.m. - 6 p.m.
Sat & Sun 10:30 a.m. - 6 p.m.

Kern County Public Library

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Los Angeles County Public Library

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