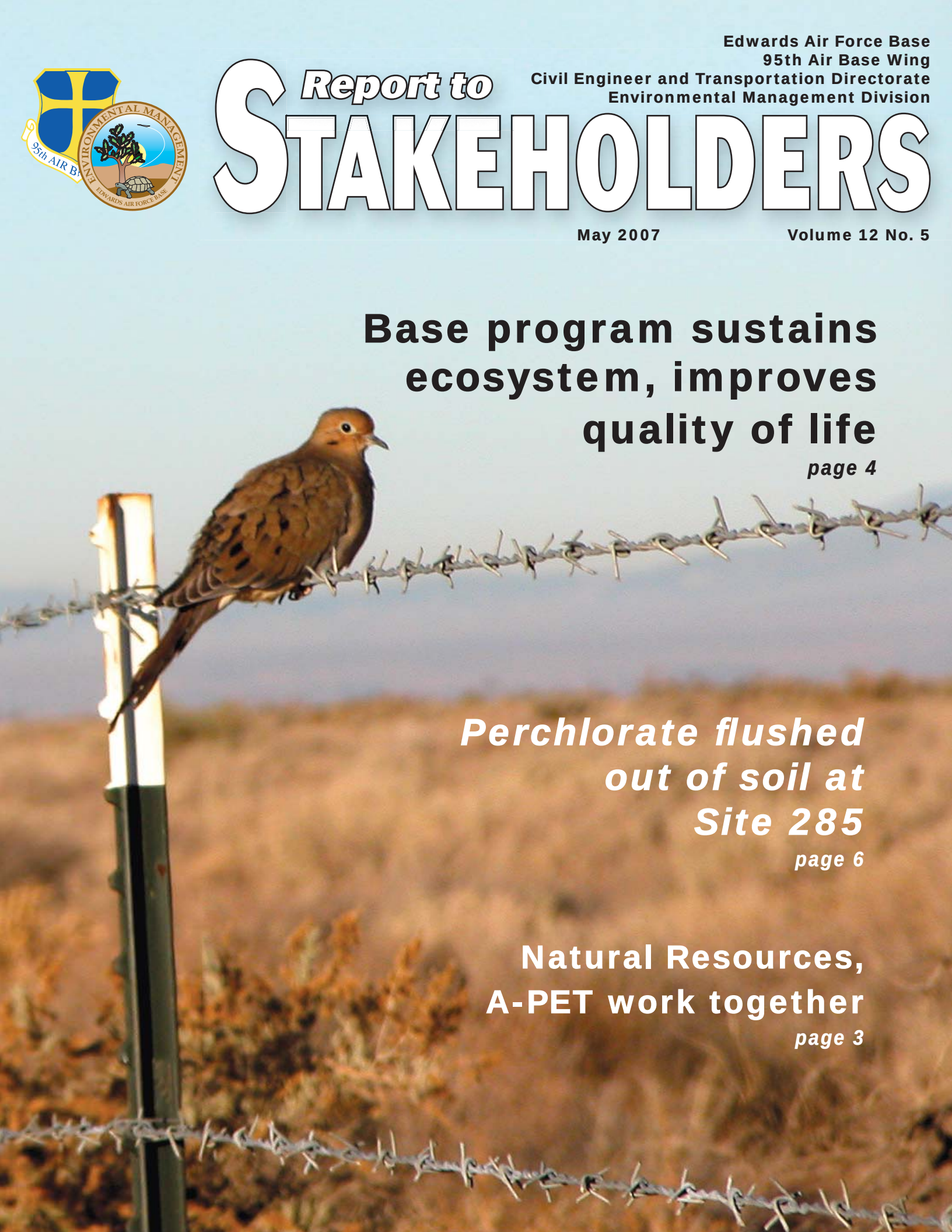
Edwards Air Force Base
95th Air Base Wing
Civil Engineer and Transportation Directorate
Environmental Management Division

Report to STAKEHOLDERS

May 2007 Volume 12 No. 5



Base program sustains ecosystem, improves quality of life

page 4

Perchlorate flushed out of soil at Site 285

page 6

Natural Resources, A-PET work together

page 3

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.

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.

All photos are property of the Air Force.

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.

E-mail: ***95ABW.PAE@edwards.af.mil***

Website:
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

August 2007
5:30 p.m.
Location and Venue
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*

Stakeholders Forum

Q. What should I do to interact safely and responsibly with the wildlife found on Edwards Air Force Base?

A. Wildlife abounds at Edwards Air Force Base, where hundreds of species of wild animals and birds live. Because many people also live, work and visit the base, wildlife safety and responsibility are important in keeping both people and animals free from harm.

Our responsibility begins with recognizing that the desert ecosystem involves the interrelationships of all living organisms (plants, animals, etc.) with the surrounding physical environment (rocks, soil, etc.).

Because all parts affect each other in many different ways, anything we do that affects one organism, also affects other organisms in the ecosystem. The goal of the base is to have a healthy, balanced ecosystem, and this can be accomplished with the help of everyone. Below are a few guidelines.

Wild Animal Safety Guidelines:

- Watch wild animals from a distance
- Never feed wild animals, even by throwing food on the ground (bird feeders are an exception)
- Never corner a wild animal where it has no place to go except toward you
- Never harass wild animals
- Never collect plants or animals

If you see an injured animal, note the location and call Environmental Management at 277-1401.

RTS

ON THE COVER:
A Mourning Dove perches on a barbed-wire fence.

A-PET organization volunteers take care of wildlife, much more on base

An amazing display of caring for animals is shown by the volunteers who devote their time to A-PET Rescue and Kennels, Inc., at Edwards Air Force Base (AFB). A-PET, originally known as Adopt-A-Pet, is a nonprofit organization, founded in 2001, that provides shelter, food and medical care for dogs, cats and even injured wildlife.

Wildlife remain at the kennel until they can be transported to rescue facilities or released back into the wild with the help of biologists from the Environmental Management Division. Domestic pets are housed at the A-PET facility until they are adopted by a new family.

For AnnaGrace Jaquish, a home schooled 14-year-old, it's not just a love of animals, but also a sense of duty that brings her in to volunteer for her three-hour shifts, three days a week.

"I just love animals in general, but I also like the responsibility of helping them. It's important," Jaquish said. She has been volunteering with A-PET for two years.

Kelly Glaser, a prior military member and the current president of A-PET, has been with the organization for four years and has seen a significant increase in the number of animals being rescued.

"I just stopped in one day and there were six cats and two or three dogs," Glaser said. "Since then, we have become a tax-exempt, nonprofit organization and have grown tremendously."

A-PET is staffed by volunteers from 4 a.m. to 10 p.m. seven days a week. Funding for the organization is completely through donations, fundraisers and the Combined Federal Campaign in which donors can choose a charity to receive their donations. According to Glaser, donations can also come in the form of products, such as food, dog houses and cleaning supplies.

***FEEDING TIME** — An owlet is fed by an Environmental Management biologist before being taken to A-PET for transport to Ojai, Calif., for rehabilitation.*

"Vet bills and medications are our biggest expenses," Glaser said. "We have at least two or three emergencies a year."

One of those emergencies involved a cat named Sophie. Initially, volunteers thought she had been hit by a car, but later realized she had been attacked by coyotes. While she lost one eye and will probably be on medication to prevent seizures for the rest of her life, she has certainly not lost her sweet personality, purring as she rolls over waiting for the next chin scratch.

For the volunteers at A-PET, Sophie is just one of many stories with a happy ending. Animals housed at A-PET have found homes not only on base, but also in northern California, Arizona, Nevada and Utah. But perhaps, the most successful story is one about a cat whose military owner was stationed in Iraq. While overseas, the service member's wife separated from him and left his cat, Jeffrey, locked up in their California City home. When the real estate agent discovered the cat, she took it to an animal shelter. While searching the Internet, the service member found a cat that looked very similar to his. While that one was not actually his pet, A-PET volunteers were able to track Jeffrey down. The volunteers then retrieved the cat from the animal shelter and kept it at the A-PET facility until the service member's mother arrived from New York to pick it up. According to Glaser, it's a story like this one that makes their hard work worthwhile.

"The most amazing thing about the A-PET volunteers is that they are just that...volunteers," said Wes King, a biologist at Edwards AFB. "They are willing to volunteer their time and energy to accomplish things that many other people get paid to do."

"The best part is seeing the animals go to a good home. The most challenging part is taking care of 60 animals on a shift," said Fulvio Fontana, referring to the 15 hours he spends volunteering each week.

Fontana, who is retired from the military and currently works in civil service, has been volunteering with A-PET since September of 2004.

"Without A-PET providing information to the public about spaying and neutering dogs and cats, the base may have a much larger population of feral animals," King said. "These feral animals can be dangerous to people and often cause major problems to the wild animal populations in sometimes irreversible ways."

Providing information on spaying and neutering is just a portion of the outreach work in which volunteer Stacy Choi participates. "I live on base and just love animals," Choi

See A-PET, page 7

Hunting and Fishing Program sustains delicate ecosystem on base, improves quality of life

Environmental Management, in conjunction with the 95th Services Division, is improving the quality of life for the base community while upholding the Air Force Flight Test Center's mission through its support of the hunting and fishing program at Edwards Air Force Base (AFB).

"The hunting and fishing program gives the base community members an opportunity to hunt or fish locally, improving the quality of life for those who enjoy these outdoor activities," said Mark Hagan, natural resources manager for Environmental Management.

For decades, base personnel, their dependents and Rod and Gun Club members have used Edwards AFB to hunt for waterfowl and upland game and to fish. Hagan says it's not uncommon to talk to hunters whose fathers and grandfathers once hunted on base.

The Rod and Gun Club had hunting activities on base before the Hunting and Fishing Program started; and, according to the their Website, legendary aviator Chuck Yeager is a lifetime member as was fellow aviation pioneer Jimmy Doolittle.

The base offers five areas for hunting and one area for fishing. Hunting at Edwards AFB requires a base hunting permit as well as state and federal stamps and licenses. A base fishing permit is required to fish, but a state license or stamp is not required.

The hunting areas are open during hunting seasons set by the California Department of Fish and Game and the fishing area is open year-round.

The hunting program and its reporting requirements also support the base's flying mission. Some wildlife has the potential to interfere with flight testing. For instance, when migratory birds arrive on base, biologists in Environmental Management can advise flight operations and they can plan accordingly.

"The hunting and fishing program gives us a way to monitor when migratory birds are coming into the area," Hagan said, "Without the hunting portion of the program, we would not be able to offer timely notification of potential bird problems to flightline operations."

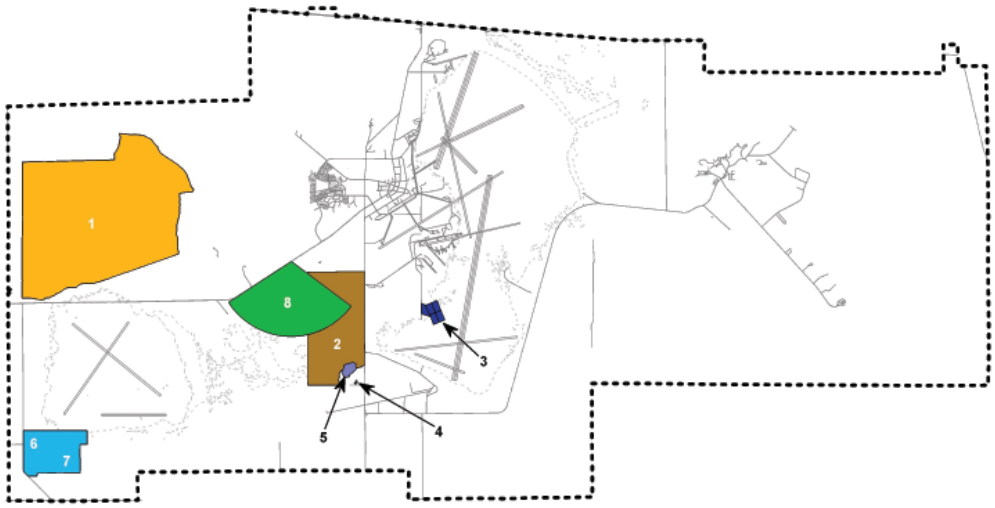
Biologists monitor harvest levels through hunter checkpoints; or in the absence of a checkpoint, hunters and fishers are required to submit a survey form within two weeks of each hunting or fishing activity. With the information provided, biologists can manage the wildlife populations to support mission activities and sustain the delicate ecosystem on base.

The program is open to active duty military members, retired military members, employees and contractors assigned to Edwards AFB, their dependents, grandfathered members of the Rod and Gun Club and guests of any of these. Each hunting area is open during the hunting season up to half an hour before sunrise to sunset, and the fishing area is open year-round, 24 hours a day unless otherwise posted.

Wildlife that can be hunted include: waterfowl, such as American coot or common moorhen, brant, ducks and geese; and upland game, such as quail, chukar, doves, snipe, jackrabbits and cottontails. Branch Memorial Park Pond is stocked with bass and catfish.

For more information about hunting seasons for each species, you may go to *www.dfg.ca.gov*. For more information about the hunting and fishing opportunities on base, you may go to *https://bsx.edwards.af.mil/environmental*, click on conservation and then open the hunting and fishing program folder. You may also call Environmental Management with any questions or comments at 277-1401.

RTS



MAP *— Hunting and fishing program areas are located on the map above. See chart at right for information about what can be fished or hunted at each area.*

ROAMING *— Waterfowl walking around the grounds at Edwards AFB.*

Guide for Hunting and Fishing Areas On Base

The types of fish and game that can be harvested at each hunting and fishing area, located on the map to the left of this page, are listed below:

Area 1 — *Rabbit, dove, chukar and quail hunting area.*
Area 2 — *Rabbit, dove, chukar and quail hunting area.*
Area 3 — *Closed to hunting and fishing, along with the rest of the unmarked base.*
Area 4 — *Bass and catfish fishing area.*
Area 5 — *Waterfowl hunting area.*
Area 6 — *Waterfowl hunting area.*
Area 7 — *Dove hunting area.*
Area 8 — *Closed to hunting and fishing, along with the rest of the unmarked base.*

Perchlorate flushed out of soil at Site 285

A study at Site 285, located near the northern boundary of Edwards Air Force Base (AFB), demonstrated the effectiveness of soil flushing to extract perchlorate from soil. An estimated 50 pounds of perchlorate were removed from a test area located near Building 4283.

"The results are impressive when you consider the groundwater extraction and treatment system at the site has removed 134 pounds of perchlorate, and it has been in operation since March 2003," said Kathryn Curtis, environmental program manager for the site. "The soil infiltration gallery flushed 50 pounds of perchlorate from the soil into the groundwater in about 20 weeks."

Data from boreholes drilled into the soil confirmed that concentrations of perchlorate were significantly decreased by the soil flushing. Perchlorate concentrations in the soil decreased from a maximum of 110 milligrams per kilogram to 0.30 milligrams per kilogram.

"The preliminary remediation goal for perchlorate in soil is 7.8 milligrams per kilogram," Curtis said. "The soil flushing worked better than expected because our confirmation samples show perchlorate concentrations substantially decreased in the soil."

Perchlorate acts like a solid in soil but will dissolve like table salt when mixed with water.

Soil flushing uses a buried sprinkler system to inject clean water at the top of a column of soil contaminated with perchlorate. The movement of the water through the soil is tracked using an organic tracer and moisture probes. The water dissolves the perchlorate and moves it through the soil into the groundwater.

"We knew the soil flushing was working because of the spike in groundwater perchlorate concentrations," Curtis said. "Perchlorate concentrations had been relatively steady before the soil flushing. The jump in concentration meant that we were moving perchlorate out of the soil and into the groundwater."

The soil infiltration gallery was connected to an existing groundwater extraction and treatment system (GETS) at Site 285 that was part of a treatability study. A treatability study looks at how efficiently and cost effectively a new technology can treat or clean a site over a set amount of time. An extraction well removed the contaminated groundwater and sent it through the GETS. Using an ion-exchange resin technology, the GETS removed the perchlorate from the groundwater. The treated water was then introduced back into the gallery to flush more perchlorate out of the soil.

"We tied the soil-flushing study into the ongoing treatability study at Site 285," Curtis said. "It made sense to clean up any perchlorate from the soil that would be moved into the groundwater."

Data collected from the soil-flushing study will be used to create a feasibility study alternative for cleaning up soil throughout Operable Unit 5/10. The feasibility study presents a selection of options or alternatives to clean up contamination within each of the nine operable units. Each operable unit corresponds to a different section of the base, divided up geographically. Alternatives for cleaning up the soil in Operable Units 5/10 may include physically digging up and removing the contaminated soil.

"We tested soil flushing as an alternative for cleaning up soil contaminated with perchlorate," Curtis said. "The soil infiltration gallery proved to be highly successful in removing perchlorate from the area we tested. We do not yet know if this method will be as effective when applied to other perchlorate-impacted sites that have different soil properties, larger areas of contamination or higher levels of perchlorate concentrations in the soil."

The area outside of Building 4283 was selected because of the soil type and concentration levels of perchlorate found there. The soil is primarily sandy and depth to groundwater is about 130 feet. The test area was approximately 14 feet by 28 feet to a depth of 130 feet.

Building 4283 was used by the NASA Jet Propulsion Laboratory to process and grind solid rocket propellant. The ground waste containing perchlorate was washed onto the floor and the waste liquid was piped into the surrounding desert area. A common oxidizer in rocket fuel, perchlorate can affect the thyroid gland if ingested at high levels. Maximum contaminant levels of perchlorate in groundwater have not yet been established by state or federal regulators.

At the February 2007 Restoration Advisory Board meeting, Curtis assured community members that there is no danger from the studies being conducted at Site 285. "The soil flushing did not affect perchlorate concentrations outside of the test area," Curtis said. "The ratio

***WATER TRACKER** — Moisture probes, like the one pictured above, were used to track the movement of water through the soil at Site 285.*

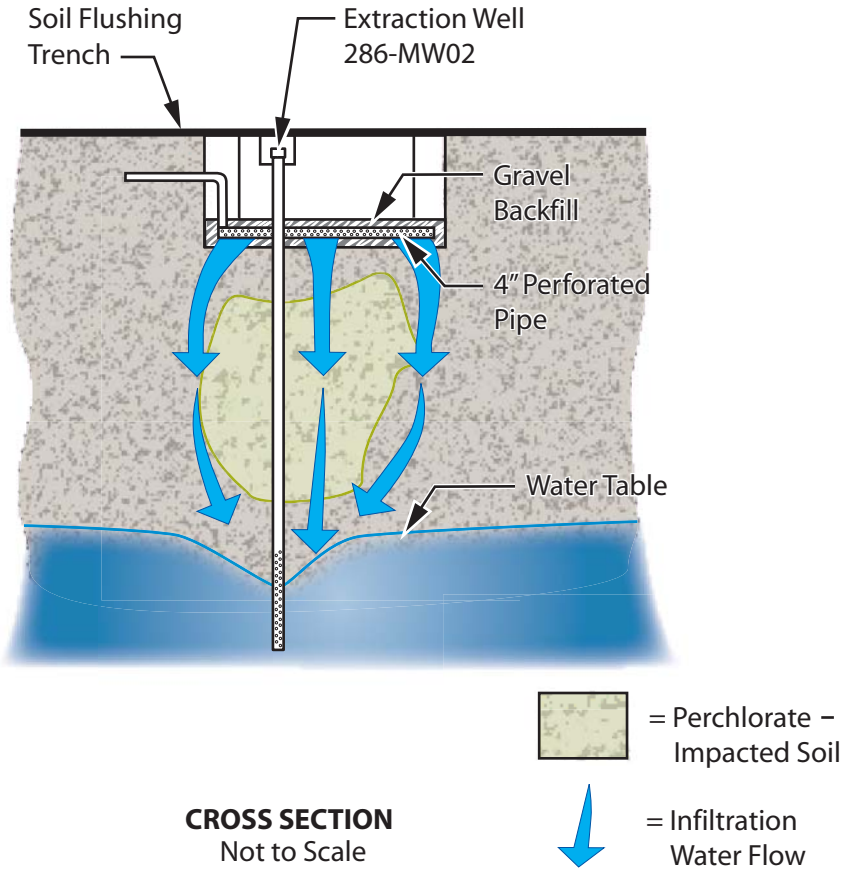
of the extraction rate to the injection rate was very high. The flushed liquid had nowhere to go but up, through the extraction well."

Water was injected at a rate of about two gallons per minute and extracted at about 20 gallons per minute. Groundwater perchlorate concentration levels have returned to the levels present before the soil flushing was conducted.

Site 285 is one of the sites within Operable Unit 5/10, North Base, currently in the remedial investigation phase of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), or Superfund process. The remedial investigation identifies the extent and type of contamination present in each operable unit.

Originally slated to end in December 2005, the Site 285 treatability study using the ion-exchange resin technology remains in operation because of new guidance from the Department of Defense (DOD). Data collected through January 2007 shows that the system has treated more than 32.1 million gallons of groundwater and removed 133.7 pounds of perchlorate.

RTS



***INSIDE LOOK** — Cross section view of the soil infiltration gallery demonstrating how the flushed water dissolves the perchlorate suspended in soil and drives it into the groundwater, which is then pumped up by the extraction well to the treatment system.*

A-PET

From page 3

said. "I basically help with the adoption committee, making publicity fliers, and with the Web site."

"Volunteers must be 12 years old or older, and can help out in a variety of ways, from just walking the dogs and playing with the cats, to working in the office or helping with publicity," Glaser said. "We have service members, moms, ROTC members and many junior high and high school students who walk over after school to help out. We are always in need of volunteers."

In addition to domestic animals, A-PET has been instrumental in helping base biologists with wildlife rescues. According to King, approximately two dozen injured wild birds, including hawks, falcons, ravens, owls, turkey vultures and a brown pelican, were given aid last year. Often, A-PET volunteers will provide care for the animals, and even drive them to wildlife sanctuaries or help with their release.

***A LITTLE ATTENTION** — A-PET President Kelly Glaser is seen here petting one of many cats at the A-PET facility on base.*

According to Glaser, A-PET has also cared for a chinchilla, guinea pigs, song birds, a duck and goldfish. Turbo, a baby desert tortoise that can fit in the palm of your hand, is currently residing at A-PET as well.

A-PET is located on Forbes Avenue and is open every day from 3:30 p.m. to 5 p.m. and 7 p.m. to 8 p.m., or by appointment. The adoption prices are $80 for a cat and $135 for a dog, which includes all vaccinations, spaying or neutering, microchipping and deworming. A $100 donation covers the adoption of a young kitten; however, half of that fee is refunded once the new owner provides certification of spaying or neutering. Details on adopting a new family friend can be found at *www.edwardsapet.org*.

RTS

- New subscription
- Change of address
- Cancel subscription

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

Name _____

Organization _____

Address _____

City _____ **State** _____ **Zip** _____

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@cityoflancasterca.org
ALTERNATE: Mayor Henry Hearns (661) 723-6019 Work
hhearns@cityoflancasterca.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
dnewman@ispwest.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
Patrick Dwyer (661) 277-5291 Work
patrick.dwyer@edwards.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.V.Fregoso@nasa.gov
ALTERNATE: William Brandweiner (661) 276-3339 Work
William Brandweiner@dfrc.nasa.gov

North Base
Vacant

South Base
Vacant

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

Report to STAKEHOLDERS

EDITOR
Miriam Horning

WRITING and DESIGN SUPPORT
Heidi Gesiriech
Vanessa Green
Patti Kumazawa
Leilani Richardson
Paul Rogers

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 Boron, 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*.

Location	Days	Hours
Edwards AFB Library 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.
Kern County Public Library **Wanda Kirk Branch** 3611 Rosamond Blvd. Rosamond, Calif. (661) 256-3236	Tue & Wed Thu-Sat	Noon - 8 p.m. 10 a.m. - 6 p.m.
Los Angeles County Public Library 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.
Col. Vernon P. Saxon, Jr. Aerospace Museum 26922 Twenty Mule Team Road Boron, Calif. (760) 762-6600	Mon-Sun	10 a.m. - 4 p.m.

95 ABW/CEVR
5 E. Popson Ave., Bldg. 2650A
Edwards AFB, CA 93524-8060
Official Business

Standard Rate
U.S. Postage
PAID
Edwards AFB CA
Permit No. 3

ADDRESS SERVICE REQUESTED

Edwards Recycles