



Guardian

America's First Choice for Environmental Restoration

A Publication of the Environmental Restoration Program

Travis Air Force Base, California

October 2015

INSIDE

Viewpoint:

After a successful membership drive, the Travis Restoration Advisory Board now has a group of new members, thanks to the effort of our Public Affairs coordinator. The Travis AFB Restoration Program Manager discusses the role that the new members will play in the coming years and what they can expect at the next RAB meeting..... **2**

Next RAB Meeting:

The next Restoration Advisory Board meeting will be held on November 5, 2015 at 7 p.m. at the Office of the Northern Solano County Assn. of Realtors. All members of the public are welcome to attend..... **4**

Acronyms

EVO: Emulsified Vegetable Oil is a food-grade carbon source that is injected into solvent-contaminated groundwater. The emulsion allows the vegetable oil to be distributed throughout soil with a high clay content. Microscopic organisms consume the oil and create an environment that supports the breakdown of solvents into harmless compounds.

GET: Groundwater extraction and treatment is a proven technology for preventing contaminated groundwater from migrating and reducing contaminant concentrations.



(Photo by Glenn Anderson)

A Bird's Eye View: Field crews use a hollow step augur rig and a water development rig to install injection wells and prepare them for a groundwater demonstration project during a busy flight training day on Travis AFB. Special permission is needed to allow field work so close to the flight line.

A Construction Marathon

Field Crews Hustle to Finish Groundwater Cleanup Actions

By Lonnie Duke

Travis Environmental Project Manager

In the July 2015 Guardian, we described the preparation needed to allow environmental construction work to take place on Travis AFB. In summary, it takes a lot of coordination to ensure that a field team can start their field activities once they arrive on base. Without diligent preparation and careful planning, a drill rig will sit idly until the team receives permission to drill its first boring.

With the preparation behind us, we had a lot of work to do to implement the groundwater cleanup strategies that had been negotiated between the Air Force and environmental regulatory agencies. Basically, the field work

can be divided into three categories.

Tried and True Technology

The U.S. Environmental Protection Agency considers engineered technologies, such as groundwater extraction and treatment (a.k.a., "pump and treat"), to be effective at stopping the flow of contaminated water into clean areas and reducing contaminant concentrations. Travis AFB has successfully used pump and treat for over 13 years, and a part of the field work involved the improvement of pump performance and the connection of new extraction wells to existing treatment systems.

Innovation Application

In 2014, the Air Force and regulatory agencies approved the use of Emulsified Vegetable Oil (EVO) injections, an innovative bio-

See **CONSTRUCTION** page 3

Visit our Environmental Restoration Program web site at <http://www.travis.af.mil/enviro>



Travis Air Force Base, California

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Col. George Dietrich, *Air Force Co-Chair*

David Marianno, *Community Co-Chair*

Nadia Burke, *U.S. EPA*

Adriana Constantinescu, *Regional Water Quality Control Board*

Jim Dunbar, *City of Fairfield Representative*

John Foster, *National Association for Uniformed Services*

Ben Fries, *CA Department of Toxic Substances Control*

Michael Reagan, *City of Vacaville Resident*

The *Guardian* is published by the Air Force Civil Engineer Center's Western Region Restoration Support Team, located at Travis Air Force Base. The newsletter is designed to inform and educate the public about the ongoing environmental cleanup program at Travis Air Force Base. Contents expressed herein are not necessarily the official views of, or endorsed by, the U.S. government, the Department of Defense, or the Department of the Air Force. Additional information about the program can be obtained from the public web site at <http://www.travis.af.mil/enviro>. Questions and comments about the program may be sent to this address:

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A RAB Rejuvenation

Back in April, I put out a call for new members for the Travis Restoration Advisory Board, a group of interested community members that has been supporting the base Environmental Restoration Program for over 20 years. Thanks to the support of local leaders, as well as a little encouragement from our public affairs officer, Merrie, the Travis RAB roster is now much larger. You can read more about the purpose and need for our RAB by clicking on the following link to the April 2015 Guardian (<http://www.travis.af.mil/shared/media/document/AFD-150813-039.pdf>) and reading my Viewpoint.

This addition of new RAB members comes at a great time. We still have cleanup decisions to make, so the feedback from an expanded group of professionals will be welcome. Also, a larger RAB membership will increase Travis' exposure to the community and offer more opportunities for community members to learn about the progress we are making to clean up the environment. In fact, this exchange of information and ideas is the most important service that an individual RAB member can provide. Many of the new RAB members serve on other boards, which gives them a greater understanding of local concerns and more avenues to communicate with our neighbors. A knowledgeable, involved and vocal RAB is an effective RAB.

I have already met with most of the new members to describe the Travis restoration program and to give them an idea of what the future holds for them. As I write this Viewpoint, I look forward to taking the new members on a base tour so that they can see firsthand the cleanup technologies that we use and the challenges that we still face. It is easier and more fun to show the fruit of our labor on a tour than to describe cleanup progress in some conference room with slide presentations.

One comment I heard from several new members is the concern that they do not have an extensive technical background, so they were not sure what they could contribute to the Travis AFB restoration program. Ironically, I have always considered the diverse education and experience



VIEWPOINT

Mark H. Smith
Travis AFB Restoration
Program Manager

levels of our members to be a considerable strength of the RAB. If I need a technical expert or scientist that is not on the RAB, I can always acquire the needed services from the Air Force Civil Engineer Center or an environmental contractor. However, if I need to translate challenging technical concepts into easy-to-understand ideas that non-scientists can understand, I turn to a non-technical member. If I cannot communicate with a RAB member, I certainly will not have much success with other community members.

Next month, we officially meet with the "New – Larger Size" Travis RAB for the first time, during which we will present more background history to describe the amount of cleanup we have achieved to date and the current technical strategies that we are using to complete the cleanup tasks. It is likely this meeting will be educational to both the new members and my staff, because RAB members bring with them fresh and different perspectives and often ask questions that we have not even considered. When that happens, one can easily see the value that a RAB offers.

If you would like to read the types of questions that RAB members ask (and how we answer them), you can find them in previous RAB meeting minutes. Once the RAB approves the minutes of a previous meeting, we publish them on our library website (<http://www.travis.af.mil/enviro/library/index.asp>).

In the next couple of Guardians, we will introduce you to the new RAB members so that you know who to contact with questions and concerns. As always, if you have a question or concern that you want to have addressed sooner, you can send an email to our public account at the following address: enviropa@travis.af.mil. We check our inbox routinely through the week and respond to incoming messages as promptly as possible.



Construction

■ From page 1

ogy-based strategy that was proven to be effective at Travis AFB, to complete the cleanup of our most challenging groundwater sites. The Travis AFB Groundwater Proposed Plan (<http://www.travis.af.mil/shared/media/document/AFD-121010-034.pdf>) describes this strategy and where we are applying it. What it doesn't describe is the amount of effort needed to get the EVO into the ground. The subsurface soil beneath the base has a high clay content, and the injection pressure has to be carefully monitored to prevent the EVO from "daylighting" (squirting through cracks to the surface). Daylighting wastes vegetable oil and creates a non-hazardous sticky mess that has to be cleaned up. Fortunately, our engineers injected almost all of the EVO into the subsurface where it could do the most good.

More Studies

EVO injections can achieve cleanup levels at a contaminated groundwater site in a green and sustainable manner, but this is still an innovative approach, and we have yet to learn

how to get the most cleanup out of every gallon of EVO. So, we are conducting three demonstration projects to identify the best way to distribute EVO throughout a solvent plume without having to install a large number of injection wells. These demonstrations are taking place at sites with established extraction systems, and the idea is to encourage the recirculation of EVO between an extraction well and specialized EVO injection points, such as gravel chimneys and infiltration trenches. If successful, we will be able to create large solvent treatment zones without having to install large numbers of injection

wells and supporting infrastructure.

One demonstration takes place in an industrial part of the base with buried utilities that limit where treatment infrastructure can be placed. A second demonstration is located in an open field that is covered with protected wetlands and the potential home of protected species, such as the California Tiger Salamander. The challenge is to use existing extraction wells to set up a groundwater treatment cell while avoiding adverse impacts to protected areas. To accomplish this, the field team uses a wildlife biologist to oversee the project. The third demonstration will determine the maximum length that

safety and fire prevention.

- A fast-moving brushfire along the southern base boundary caused minor damage to extraction pump wiring that had to be quickly repaired.

In fact, the field work schedule resembled a challenging game of leapfrog. Each construction task required the services of multiple specialists, and each service was performed in a specific sequence. First, a biologist cleared the area for work, ensuring that no protected species were impacted. Then, an air knifing crew removed the surface soil down to five feet to ensure that no utilities blocked the drilling location. Next, the auger rig crew drilled and properly

built the new well. Then, a well development team removed water from the well to ensure the well is working as designed. And finally, the sample collection team collected a groundwater sample from the new well to send to the laboratory for analysis. Each week, field crews bounced from one site to another, fulfilling their part of the construction process and moving on to the next



Haay Miss, got Carrots?: Residents of the Travis AFB Equestrian Center offer assistance to a field crew that is collecting groundwater samples from a new well. [Photo by Mia Marek (CH2M HILL)]



Aftermath: Two portable storage units that contained spill response equipment were severely damaged in the recent grass fire and stand as a reminder that fire safety is everyone's responsibility. [Photo by Glenn Anderson]

an EVO treatment zone can be extended in an area with few industrial or environmental restrictions. By evaluating the results of these three demonstration projects, the field team hopes to use the lessons learned to optimize all EVO cleanups on the base.

Throughout the summer, the field team faced multiple challenges that could have impeded progress:

- Sample collection near one runway required an Airfield Waiver and the temporary shutdown of the runway over Labor Day to not interfere with the base mission.
- Triple digit temperatures and strong winds increased emphasis on worker

assignment. While much of this scheduling quietly took place in the background, the timing had to be perfect to keep every team member busy.

All in all, it has been a busy construction season, and it is not over yet. Once the winter rains arrive, work in open fields will stop to avoid damage to wetlands as well as stuck heavy equipment, so it is a race against time to complete as much field work as possible. By the end of 2015, we will have a better description of this year's accomplishments and the amount of work that is scheduled for the 2016 construction season.



Meeting Agenda

6:30 - 7:00 p.m. Open Forum:

The open forum allows RAB and community members to discuss ongoing Travis AFB restoration program activities with the Travis AFB environmental staff on a one-to-one basis.

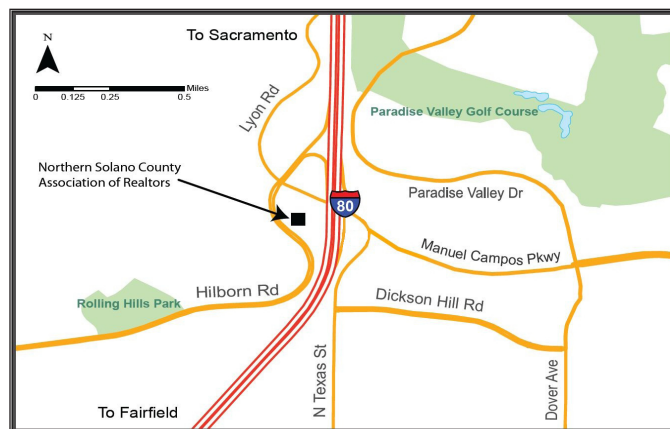
7:00 - 9:00 p.m. RAB General Meeting

- I. **Welcome and Introductions**
 - Introduction of new Board Members
 - II. **Approval of Minutes**
 - III. **Additional Agenda Items and Questions**
 - IV. **Discussion Topics**
 - Performance Based Contracts and Funding
 - Break*
 - V. **Cleanup Program Status**
 - 2015 Field Work Report
 - VI. **Regulatory Agency Reports**
 - VII. **Focus Group Reports**
 - VIII. **RAB/Public Questions**
 - IX. **Set Time and Place for Next RAB Meeting**
 - X. **RAB Member Photo Session**
- Adjourn*

Travis AFB Restoration Advisory Board Meeting

November 5, 2015
8 p.m.

Northern Solano County
Association of Realtors
3690 Hilborn Road
Fairfield, CA



LOCATION OF INFORMATION REPOSITORIES

Vacaville Public Library

1020 Ulatis Drive
Vacaville, CA 95688

(707) 449-6290

Monday-Thursday: 10 a.m. - 9 p.m.

Friday-Saturday: 10 a.m. - 5 p.m.

Sunday: 1 p.m. - 5 p.m.

Fairfield-Suisun Com. Library

1150 Kentucky Street
Fairfield, CA 94533

(707) 421-6500

Monday-Thursday: 10 a.m. - 9 p.m.

Friday-Saturday: 10 a.m. - 5 p.m.

Sunday: 1 p.m. - 5 p.m.

Mitchell Memorial Library

510 Travis Boulevard
Travis AFB, CA 94535

(707) 424-3279

Monday-Thursday: 10 a.m. - 9 p.m.

Friday: Closed

Saturday: 12 p.m. - 6 p.m.

Sunday: 12 p.m. - 6 p.m.

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If you would like more information or need special accommodations for the RAB meeting, please contact Mark Smith, (707) 424-3062.

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