



Guardian

America's First Choice for Environmental Restoration

A Publication of the Environmental Restoration Program

Travis Air Force Base, California

July 2015

INSIDE

Viewpoint:

Over the last dozen years, there have been a number of technological advances that have improved cleanup times and reduced overall cleanup costs. The Travis AFB Restoration Program Manager looks back on the last 12 years and comes up with his own guesses as to what the future of environmental cleanup will look like in the next dozen years..... **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. The meeting agenda is forthcoming..... **4**

Editor's Corner

She's Back!

There has been a change in the support that we receive from the Travis AFB Public Affairs office. Ms. Merrie Schilter-Lowe took over the Environmental PA responsibilities from Mr. James Spellman, who took a job in southern California. For long-time readers of this environmental newsletter, her name will sound very familiar, because Ms. Schilter-Lowe worked in the PA office in the past, contributing to numerous newsletters and public notices that supported the final selection of groundwater remedies. Welcome back, Merrie!



Going with the Flow: Ms. Nadia Burke from the U.S. Environmental Protection Agency checks the flow of vegetable oil that is injected into multiple wells at a solvent-contaminated groundwater site. Microbes in the groundwater consume the oil, triggering the breakdown of the solvents.

Just Drill, Baby!

High Tempo Field Work Needs High Tempo Coordination

By Lonnie Duke

Travis Environmental Project Manager

Imagine that you finally landed a job with the Air Force Civil Engineer Center's Installation Support Team at Travis AFB, America's First Choice for Environmental Restoration. Congratulations on joining a successful team of environmental professionals!

A year ago, your team celebrated a significant milestone: the selection of groundwater remedies for 19 groundwater sites on Travis AFB. The selection process was long and required a cooperative effort from base officials, regulatory agency representatives, environmental

contractors, and interested community members.

However, that celebration was short-lived, because the end of remedy selection marked the beginning of the remedy design and construction phases, which is why your participation in the cleanup program is so important. A field team cannot just drive through the main gate and start drilling wells; there is still a lot of planning and coordination to accomplish before the field team can mobilize on base.

For example, every step in the selected remedy for a particular site has to be carefully described in a work plan so that the driller knows exactly what to do. The

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



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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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My Crystal Ball Predictions

Recently, I took some time to reflect on my last dozen years as the Travis AFB Restoration Program Manager and specifically the progress our team has made in cleaning up the environment and supporting the base mission.

When I first started this job, the preferred groundwater cleanup method involved the construction of large extraction and monitoring well networks to manage contaminated groundwater and their connection to heavily engineered oxidation or activated carbon systems for water treatment. Today, we know that microscopic organisms can break down contaminants in clay soils and achieve cleanup levels that were considered unlikely to reach with older technologies.

Back then, groundwater sampling was hard work. A field team member with a strong back was needed to remove three well volumes of water from a well before collecting an accurate groundwater sample, worthy of laboratory analysis. Today's modern sample collection methods are much easier and quicker to carry out, and often do not generate a lot of waste water that requires disposal. Today's laboratory methods can accurately detect smaller amounts of contamination, without a substantial increase in cost. Technological advances have really improved the way we work. It is a good feeling when you can increase the efficiency and effectiveness of cleanup at the same time.

Advances in computer and network technology have also helped us to reduce the time to make decisions and the overall cost of doing business. For example, you are reading a newsletter that was published with a laptop and easy-to-use software, eliminating the need to work with desktop publishing specialists. Not that there's anything wrong with desktop publishing specialists, but if you can do it yourself and for less money, that's a good thing right? Software improvements also allow us to monitor the performance of and troubleshoot our southern treatment plant from the comfort of our office, saving the



VIEWPOINT

Mark H. Smith
Travis AFB Restoration
Program Manager

time and fuel a field technician needed to drive onto and around the base to visually inspect them. Rather than carrying a pile of paper to our sites to record field observations and keep track of sample IDs and requested analyses, our lead technicians do all of that and more with a tablet and proprietary software, improving accuracy and saving a lot of time. As in any other business, saved time = saved \$\$\$.

The future of cleanup: So, what will environmental cleanup look like a dozen years in the future? Will we laugh at the archaic methods we use today to get the job done? Will new technologies reduce cleanup times from decades to months?

I'll imagine that I have a crystal ball and share with you what the restoration future holds for the next dozen years:

Worldly Astute Guess-timation
(WAG) #1: Miniature Lab per Well – By the year 2028, chemical analytical equipment will shrink in size so much that a portable unit could be dedicated to each monitoring well. Of course, these mini-labs will communicate with our computer software, so we will be able to see changes in plume shape and concentration on an hourly basis. This will generate lots of data that could be used to turn groundwater cleanup into a computer strategy game with an environmental flair. Maybe "Clash of Contamination!"

WAG #2: Buzzing Bugs – A biochemist will discover the gene that allows a strain of microorganisms to turn certain fuel compounds into a harmless chemical that acts like caffeine. This revolutionary discovery will speed up groundwater cleanup by orders of magnitude, turning an aquifer into a large energy drink pool, resulting in cleaner water and increasing productivity for

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Field Work

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driller must know boring locations, the depths of the boring, and which observations to record during the drilling. If a well is to be installed, it must be built to exact specifications (well diameter, screened interval, screen slot size, well construction materials, location of filter pack, and type of casing) to function properly. For example, the diameter of an extraction well has to be large enough to house a water pump. Since water enters a well through slots in a pipe, the size of the slots and their placement next to water-bearing soil will determine the volume of water that a well can produce.

But there's more! Much more. Equally important to the well's design is the layout of wells and the piping that connects them to a treatment facility. The piping is buried underground, so every effort must be taken to not trench through a wetland or across known utilities. For this reason, regulatory agency representatives review work plans to verify that they comply with legal requirements and to look for ways to improve the overall remedy design to ensure that the treatment system will operate efficiently and achieve the desired results. So, what are you waiting for? Start writing!

After a few months of negotiations with Air Force officials and regulators, you have a final work plan in hand, but you still have to jump through some hoops before the construction phase can start. Travis AFB operates aircraft on runways and taxiways, so all drilling activities must be conducted in accordance with Federal Aviation Administration regulations. For example, if the drilling is to take place near an active runway, a temporary airfield waiver is needed. Luckily, the base

community planner can help you with this task.

Travis AFB is also home to a number of threatened and endangered (T&E) species of plants and animals, so even environmental cleanup actions have to be coordinated with the U.S. Fish and Wildlife Service (USFWS). A biologist must identify all nearby wetlands, breeding pools, and other sensitive habitats in a formal assessment report. The USFWS will then issue a biological opinion report that lists steps to be taken to avoid harming T&E species or their habitats.

Months later, you complete your coordination with outside agencies. Now you can begin to work with base and tenant organizations to make sure that your activities do not interfere with base activities. Fortunately, there are procedures in place to contact the proper base personnel and work around

tion will take, because your team is responsible for bringing the drillers on base as soon as the last coordination step is finished. Since California is in the middle of a severe drought, drilling services are at a premium and not always easy to schedule, especially at the last minute. When the drill rig shows up on base, you want the drillers to get to work immediately; timing is critical for a successful field effort. If the field work interferes with a base mission, you may have to spend a few weekends or holidays on the flight line when the operational tempo is much lower.

By now, it is probably clear that a successful field effort requires a high level of flexibility and dogged determination from your team. One way to ruin everyone's day is to drill through a water line or fiber optic cable that was not shown on utility maps, so you may

want to bring a utility locator to every site. If a utility is discovered beneath a location where a well is to be placed, an alternate location has to be quickly selected and cleared through the appropriate base offices.

Even though the multiple layers of coordination involved with cleanup activities can seem arduous most of the time and a juggling act all of the time, they are necessary to ensure that the base is in



Don't Cut My Cable: To prepare for the installation of a monitoring well, field technicians remove the upper soil layers, using air knitting equipment. This technology uses compressed air and vacuum excavation to safely uncover any buried utilities without damaging them. [Photo by Erin Crandall (CH2M HILL)]

their schedules. The Civil Engineer Work Request and the Excavation Permit are two documents with which you will become very familiar, because approval signatures are needed on both documents to proceed with each groundwater cleanup action. It could take weeks to obtain the signatures, unless you hand-carry the documents to every reviewing office to fast-track the process. Piece of cake, right?

Hopefully, you have correctly guessed how much time this coordina-

compliance with environmental laws and regulations, the cleanup actions avoid adverse impacts to the base mission, and the field team completes the construction activities both safely and accurately. This is why each member of the field team is so valuable and how Travis AFB earned the reputation as America's First Choice for Environmental Restoration.

It is a tough job, but someone has to do it. Are you ready to take on the challenge??



Viewpoint

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humankind by adding a nice jolt to our morning Cup o’ Joe.

WAG #3: Critter Gitters – The October 2014 Guardian reported on damage to extraction well and treatment system wiring by field mice and other local ecological residents. To solve this costly maintenance problem, university students will build a fighter robot that can be modified to scare away small rodents during all hours of the day and prevent environmental vandalism from occurring. Part of the cost savings will go toward scholarships for advanced environmental, engineering and veterinary medicine degree programs.

Hey, these could happen. Let me know if you have any predictions on the future of environmental cleanup. Email your best and brightest ideas to enviropa@travis.af.mil, and we will publish the most likely ideas in a future Guardian.

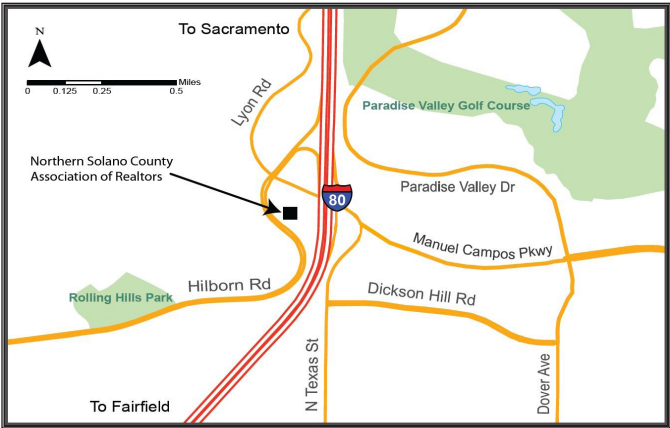
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Travis AFB
Restoration
Advisory
Board
Meeting

November 5, 2015
7 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. You can also view our web site at <http://www.travis.af.mil/enviro>

For more information about Travis AFB's restoration program, please contact:

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