Report to
STAKEHOLDERS

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Report to
STAKEHOLDERS

Report to Stakeholders is a publication of Edwards Air Force Base, 95th Air Base Wing, Civil Engineer Division, Environmental Management. Its purpose is to inform and educate the public, base workers and residents about continuing environmental and safety efforts on base. It currently has a circulation of 6,000, including about 2,000 subscribers.

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WHAT'S ON THE COVER?

A restoration worker conducts a pump test at the Environmental Restoration Program's Site 325. The base is responsible to clean up past contamination and work with federal, state and local regulators to meet all requirements. See article on page 4.

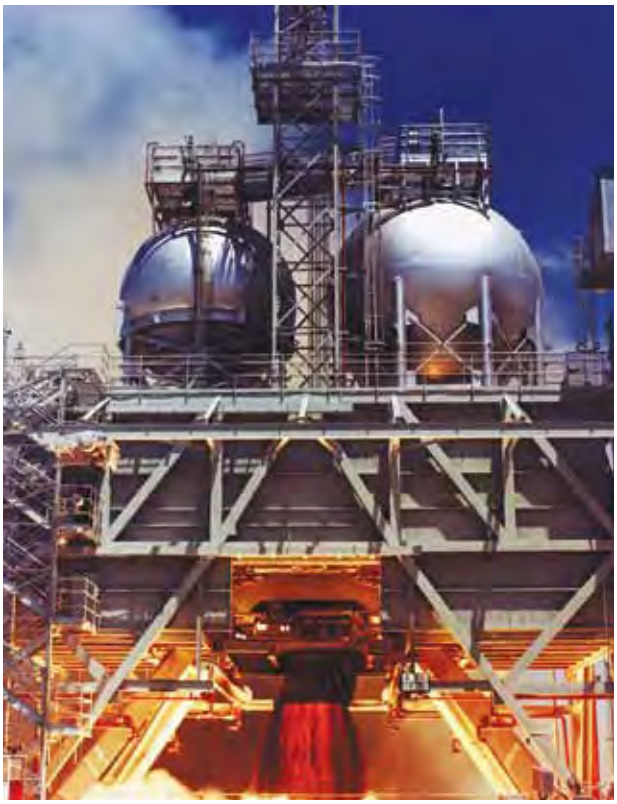
Contents

April showers bring out more than May flowers

When it rains at Edwards, the Hazardous Waste Support Facility (HWSF) crew members know they're going to get some business. They deal with the aftermath — nonhazardous wastewater that collects primarily in containment areas.

"When it rains around here, we collect copious amounts of wastewater to avoid discharging possibly contaminated water into the ground or sewers," said Cat McDonald, lead hazardous substances specialist at Environmental Management.

The HWSF crew collects anywhere from 5,000 to 20,000 gallons of wastewater from base locations during significant rainstorms. Depending on the annual rainfall, this can add up to 650,000 pounds of wastewater in a year.



COOL WATER *— Water used to cool jet engines or rocket motors, and even some rainwater, needs to be slurped up by hazardous waste specialists and analyzed before being disposed of properly.*

"Our biggest source is actually the secondary containments around aboveground storage tanks and hazardous substance storage areas," McDonald said. Secondary containment is a cemented dike around the base of the tanks, which traps anything that otherwise would leak from the tank or be dripped onto the soil during hazardous substance transfers. Rainwater collects in these areas and if there is any kind of sheen from oil or fuel floating on the water, someone from the HWSF's crew has to pump it out.

Besides secondary containment areas, rainwater also collects in the tops of floating tank lids, within jet-fuel pits and around hazardous waste storage areas.

But hazardous and nonhazardous wastewater isn't limited to water that falls from the sky. McDonald said his team regularly collects water: from floor-cleaning machines used to clean building and hangar floors; from condensation that drops to the bottom of fuel tanks; that is pulled from the ground during environmental restoration projects; used to clean aircraft parts or to cool jet engines tested on the ground; and landfill "juice." The landfill team members collect what

leachate they can from the waste cells and from under the machines in the recycling and baling facilities.

Hazardous waste specialists know wastewater is contaminated with small amounts of oil, fuel, solvents, soaps and other contaminants, but there probably aren't enough of these contaminants to make the water hazardous. Often, even clean water can't go down the sewer because it is too clean in one sense: it doesn't have the right kind of food for the bacteria at the wastewater treatment plant (the bacteria prefer household wastewater).

Whenever the time comes to take the wastewater away from where it is generated or collected, hazardous waste employees arrive onsite and pump out the location's tank or containment area with their 1,500-gallon vacuum pump truck. Then, the dirty water is transported to the Bulk Waste Segregation Facility and pumped into one of four 5,000-gallon tanks used for hazardous waste management.

With a little bit of settling time, the oils and fuel float to the top of the tank. Hazardous waste specialists use this to their advantage and drain the tank from the bottom and pump the water into another tank. This segregates the oil or fuel in the original tank, and it can be consolidated with similar waste in a separate fuel or oil tank for hazardous waste management.

When they are ready to dispose of the segregated water, hazardous waste workers take a sample and send it to a laboratory for analysis. If tests show the water is hazardous, it goes through the normal channels and is disposed of as hazardous waste through the Defense Reutilization Marketing Office (DRMO). However, if the result is nonhazardous, it is not considered a hazardous waste under the Resource Conservation and Recovery Act or state regulations. It can be disposed of without going through the DRMO.

Avoiding DRMO presents significant cost savings: DRMO charges $2.98 per gallon to dispose of nonhazardous wastewater, while other qualified non-DRMO transporters and recycling facilities charge $0.46 per gallon. It is actually cheaper to dispose of if it is hazardous because DRMO charges only $1.53 per gallon for hazardous wastewater disposal.

The price difference causes the water that is shipped by DRMO to be classified as a state-regulated hazardous waste, instead of a nonhazardous waste. This, in turn, increases the total amount of hazardous waste the base is required to report to the state each year.

In an attempt to save even more money and keep with hazardous waste reduction goals , McDonald and his team investigated the possibility of cleaning up the water to meet discharge requirements for the Edwards Wastewater Treatment Plant. It would cost nothing to dump the water into the sewer. In 2003, Edwards conducted pilot tests for treating the wastewater, but found that treating the water was difficult because of the variety of hazardous wastewater at Edwards. "Treatment of our water failed because the types and concentrations of contaminants are too variable," McDonald said.

The base continues to segregate the nonhazardous wastewater from the hazardous water for discharge and offsite recycling, while Environmental Management employees evaluate new technologies for future onsite treatment.

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Airborne Laser program lights up with wastewater savings

When Boeing fires the Airborne Laser (ABL), there is leftover salty water — a lot of salty water. "For a while, ABL was creating approximately 500,000 pounds of wastewater a month," said Cat McDonald, lead hazardous substances specialist at Environmental Management.

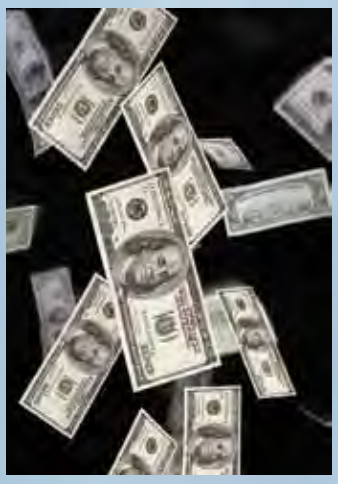
How salty is it? One gallon of the ABL wastewater weighs 9 to 10 pounds — regular tap water weighs 8.35 pounds per gallon. The salt consists of a combination of table salt, potassium chloride and lithium chloride. The salts are produced when the hydrogen peroxide and other chemicals left over from firing the laser are neutralized with sulfuric acid.

Although it isn't considered hazardous, the water is too salty to go into the sewer — the salts would kill the bacteria that make the Edwards wastewater treatment plant work. So, for a while, the 500,000 pounds of salty water cost the Air Force $0.18 per pound to dispose of as hazardous waste through the Defense Reutilization Marketing Office (DRMO), adding up to almost $90,000 a month. On top of that were overtime costs because Environmental Management employees worked extra hours dealing with the waste stream to keep the test program on schedule.

In early 2005, Environmental Management started working with the Airborne Laser program to get a waiver from the Air Force Material Command so that the Airborne Laser program could use an outside contractor to dispose of the wastewater without going through the DRMO. They were able to do this because after rounds of tests, the Hazardous Waste Support Facility team was able to prove that the wastewater, although very salty, was nonhazardous.

A business agreement went into effect in late 2005. Through the agreement, the Airborne Laser program was able to contract with multiple outside waste haulers that could remove the wastewater with very little notice.

In 2009, Environmental Management employees assisted the Airborne Laser program in acquiring a waiver for managing other hazardous waste, in addition to nonhazardous wastewater through non-DRMO providers. According to Kathryn Curtis, Environmental Management Hazardous Waste program manager, that waiver is saving Edwards about $150,000 a year in hazardous waste disposal costs.



DOLLARS SAVED — *Using a new process to dispose of nonhazardous wastewater, the Airborne Laser Program was able to save the base about $150,000 a year.*

Besides the costs savings, the Airborne Laser program can have their 20,000-gallon tanks pumped out on very short notice. "The contract allows them to meet their test schedule more easily," Curtis said.

"Also, it keeps tests from being delayed because of waste disposal." McDonald added, "Not only do they get a huge amount of savings, they get instant service while eliminating test schedule interference."

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Interagency teamwork provides key to overcoming base cleanup challenges

Change is inevitable. Very little, if anything, remains the same forever. Just ask Environmental Restoration Program chief Ai Duong, who took over the Edwards Air Force Base cleanup program in February 2006. With three new regulators weighing in on cleanup decisions and new Air Force management, Duong has had to deal with more than his fair share of changes. That may be why, from the start, one thing Duong fought to keep the same was the way Edwards conducts business.

Play Nice with Your Peers

By the time Duong took over the Edwards cleanup program, there had been multiple turnovers of regulators within the previous five years. The new regulators were unfamiliar with the base program and uncertain of what to expect. Duong's first order of business was to reconnect with the regulatory agencies and build their confidence in Edwards.

"I came in and clearly defined what we wanted to do, our direction, our strategy, how we wanted to get along overall with the agencies — as a team, not adversaries," he said. "Nothing is more important than teamwork. With so many agencies involved, if you don't have teamwork, there's no way you can get anything through their review and approval. Each agency has its own regulations and policies that must be followed."

"Now that we're at the point where we're preparing our RODs [Records of Decision], everything has to be really well documented," said Rebecca Hobbs, who has been a restoration program manager at Edwards since 1993. "All the regulatory agencies have to agree with the selected remedy or explain why they don't agree. It's much more important now that we're at the point of selecting final cleanup remedies for many of our sites."

A ROD is a final cleanup plan that must be signed by federal and state regulators and the base commander before final cleanup of contamination in a specific area can begin. Obtaining everyone's signature means establishing a cleanup approach that is approved by all parties.

For Kevin Depies, a regulator with the California Environmental Protection Agency, Department of Toxic Substances Control, teamwork is the driving force behind the base cleanup program. "I enjoy working with Ai and his group because they foster goodwill and a cooperative team approach," Depies said. "For us to make efficient forward progress, we need to work together. Teamwork is critical to achieve this."

Without teamwork, it would take much longer to reach consensus on cleanup decisions.

"At this point in the program, there's a world of possibilities on how to clean up the contaminated sites," Hobbs explained. "Now we need to figure out the best way to do it from a regulatory standpoint, from a public perception standpoint, from a cost standpoint, from a time standpoint. We need to take all those things into account, whereas before, we used obvious methods to clean up small problems.

"We got rid of the sites that were easy to clean up; now we're left with the hard stuff. Not hard from a technology standpoint, but hard from a site limitations standpoint or from magnitude," Hobbs said. "It's the difference between a mile-long plume and 10 yards of soil we needed to remove."

Reaching consensus on how to clean up the hard stuff is not always an easy feat. Regulatory policies may conflict with the budget and mission of the Air Force. But Duong doesn't see this as an insurmountable hurdle.

"We understand the regulators have their rules and policies to follow. But we find a way so everyone will be satisfied with the end result. In order for everyone to sign a ROD, we have to work together," Duong said.

Get On Board with Management

Duong is using the same teamwork approach with the base cleanup program's new management. In October 2008, the Air Force Center for Engineering and the Environment (AFCEE) took over the management of all Air Force restoration programs.

"AFCEE is a recent challenge for us because we operated so differently with AFMC [Air Force Materiel Command] at the lead," Duong said. "With new leadership and centralized management of the restoration programs came modified policies and procedures. It has taken time for us to understand how AFCEE wants us to operate."

To help bridge the gap, a large group of technical experts from AFCEE visited Edwards for two weeks last winter. As a part of that visit, Duong gave the AFCEE leaders an extensive briefing regarding the base's cleanup program.

"The [AFCEE] team developed a clearer under-

CLEANUP EFFORTS THROUGH THE YEARS *— 1) A base restoration program worker examines a Groundwater Extraction and Treatment System, 2) Another restoration program worker conducts a pump test, 3) A worker reviews the horizontal well installation accuracy, 4) A well in Operable Unit 2 is filled with pellets during a dismantling of cleanup systems, 5) An image of a plume of groundwater contamination on Main Base, 6) Cleanup workers hand-pump treatment chemicals into the groundwater at an Environmental Restoration Program site.*

standing of Edwards' cleanup difficulties and provided recommendations for possible improvement," said Dave Leeson, the AFCEE program manager for Edwards' Environmental Restoration Program. During this two-week period, multiple briefings and meetings included AFCEE leadership, technical experts, base personnel, regulators and prime contractors.

"It was a team effort," Leeson said of the visit. "Communications regarding the Edwards program is a long-term effort involving all parties and stakeholders. There are difficult goals ahead for the Air Force and Edwards to meet, such as having remedies in place for all sites by the end of fiscal year 2012. Identifying the difficulties and setting a plan of action requires a tremendous amount of effort and teamwork by all involved in order to be successful."

"Right now, in our program, our goal is to have all remedies in place by 2012," Duong said. "However, I have informed AFCEE many times — after discussions with our regulators — that the number one reason we may not make the deadline is because of very limited manpower and resources from the regulatory agencies. The [Edwards] program is so big, many documents are generated each month. The number will get bigger and bigger every year; there's no way the agencies can keep up."

Face Challenges Head On

The inevitable document pileup has not stopped Duong or the restoration program managers from pushing forward in every effort to meet the 2012 deadline. Some of their efforts have included standardizing RODs to reduce redundancy and the amount of document pages, and the use of interim removal actions that require briefer documents. Still, the reduction in pages has not meant a reduction of documents that must be reviewed.

"When we accelerate one site, it results in a delay in another site," Duong said. "The regulators want to know what needs to be reviewed first. They still have to spend time reviewing the interim removal action, so something else has to wait to be reviewed."

The regulators' jobs are made even more difficult by the fact that Edwards is not the only base under their review. Also, state cutbacks have reduced the number of working hours a regulator can spend reviewing documents.

In addition, because of more strongly enforced Department of Defense regulations and changes in the AFCEE business models for competitively awarding work, it is taking longer to award work and resulting in new contractors coming to Edwards to do the work. It takes time for new contractors to become familiar with Edwards' large and complex program and to understand how to operate on the base.

This learning process will extend to Duong's restoration program managers. He expects his group's workload to increase as they help new contractors get situated and monitor their work more closely.

"This will affect the timing of the program's progress," Duong said. But, "until we are told otherwise, we are aiming for all remedies to be in place by 2012."

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Restoration Advisory Board

Meeting Highlights

(May 20, 2010)

The following report highlights the May 20 Restoration Advisory Board (RAB) meeting in Boron, Calif.

Cleanup Technologies — Environmental restoration program manager Tom Merendini provided RAB members with an overview of the technologies used for cleaning up soil and groundwater contamination at Edwards. Merendini explained that no single technology meets all needs for all sites. Site conditions, types of contamination, how much contamination is in the soil or groundwater and cost all factor into what method is chosen for a particular site. He discussed removal and containment technologies, technologies where the contaminated soil or groundwater is removed from the site to be treated, technologies that treat contamination in the ground and monitored natural attenuation.

Compliance Restoration Program — The scope of the cleanup program has now been expanded to include spills and releases that occurred after 1986, according to environmental restoration program manager Bruce Oshita. Previously, the restoration program at Edwards could only work on spills and releases that happened before 1986. The later spills were handled under the compliance program.

Mr. Oshita explained that in fiscal year 2011 (starting October 2010), Edwards can consolidate the programs. This will optimize priorities and resources and will save the Air Force money in sampling groundwater. Another important plus will be that the new program will allow for more consistent relationships across regulatory agencies.

Right now, seven compliance sites have been identified at Edwards. Of those, five will get funding in FY11— Edwards staff have already developed site-specific funding requests called narratives. Mr. Oshita said the site inventory is not complete and he suspects that Edwards may have more. A team of investigators from the Air Force Center for Engineering and the Environment will conduct more visits in 2011 to determine if Edwards has additional sites. They will produce a final report by mid-2012.

Other items briefed by individual program managers:

- Edwards officials will be contacting landowners to get permission to clean up surface metal debris from three off-base areas to help in the search for unexploded ordnance and other safety issues near former bombing targets along the edge of the base.
- Program managers plan to completely clean up a former landfill at Site 29, recycling much of the buried contents. They've already cleaned up 150,000 tons of surface debris left over from the demolition of structures at South Base in the 1980s.
- Two cleanup projects at North Base are being instituted to get cleanup started well ahead of schedule. The project at Site 231 will involve removing contaminated soil so the U.S. Army's Sky Warrior Program will have a clean parking lot.

The next RAB meeting is scheduled for 5:30 p.m., Aug. 19, 2010 in Rosamond, Calif. Venue is to be determined. (See page 8 for meeting or representative information.)

Buildings from yesterday contribute to the future at Edwards Air Force Base

You might expect a premiere flight test center like Edwards Air Force Base — home to cutting-edge technology and innovative concepts — to live by the motto "out with the old and in with the new." But while officials here have their eyes firmly on the future, they do nurture links to the past.

"We're preserving our heritage," said Dr. David Ruggles, former base historic preservation officer (BHPO). "Historic buildings hold significant importance to understanding why we are where we are today, and where we'll be tomorrow."

The Foundation of a Rich Legacy

Many buildings on base fostered significant developments in aircraft and aerospace. The origins of America's first jet engine can be traced back to a portable World War II hangar still in use at Edwards. The hangar is the former home of the Bell XP-59 Airacomet, the first American jet fighter aircraft. Flight testing began in 1942, at the height of World War II and not long after the Japanese navy attacked Pearl Harbor, Hawaii.

The jet engine development was so secret that, in an effort to keep the technology under wraps, "a propeller was placed on the front of the turbo-jet aircraft to make it appear as a regular prop-type aircraft," said Bryan Reid, who is part of the site support team currently using the hangar for an unmanned aerial vehicle program.

The Jet Propulsion Laboratory, or JPL, was another first of its kind. The JPL Edwards test station was one of the earliest rocket test facilities in the nation.

In a similar vein, projects conducted at the Air Force Research Laboratory (AFRL), also referred to as the Rocket Lab, advanced the nation's efforts during the Cold War era and with aerospace in general. The Rocket Lab buildings and test stands were essential for the Cold War development of intercontinental ballistic missiles — such as the SM-65 Atlas, Thor and LGM-30 Minuteman — and solid rocket propellants for the Minuteman, Titan Solid Rocket Booster and LGM-118 Peacekeeper.

"Edwards has a long history of testing emerging military technology," Ruggles said. "And buildings built during World War II and the Cold War are part of that heritage."

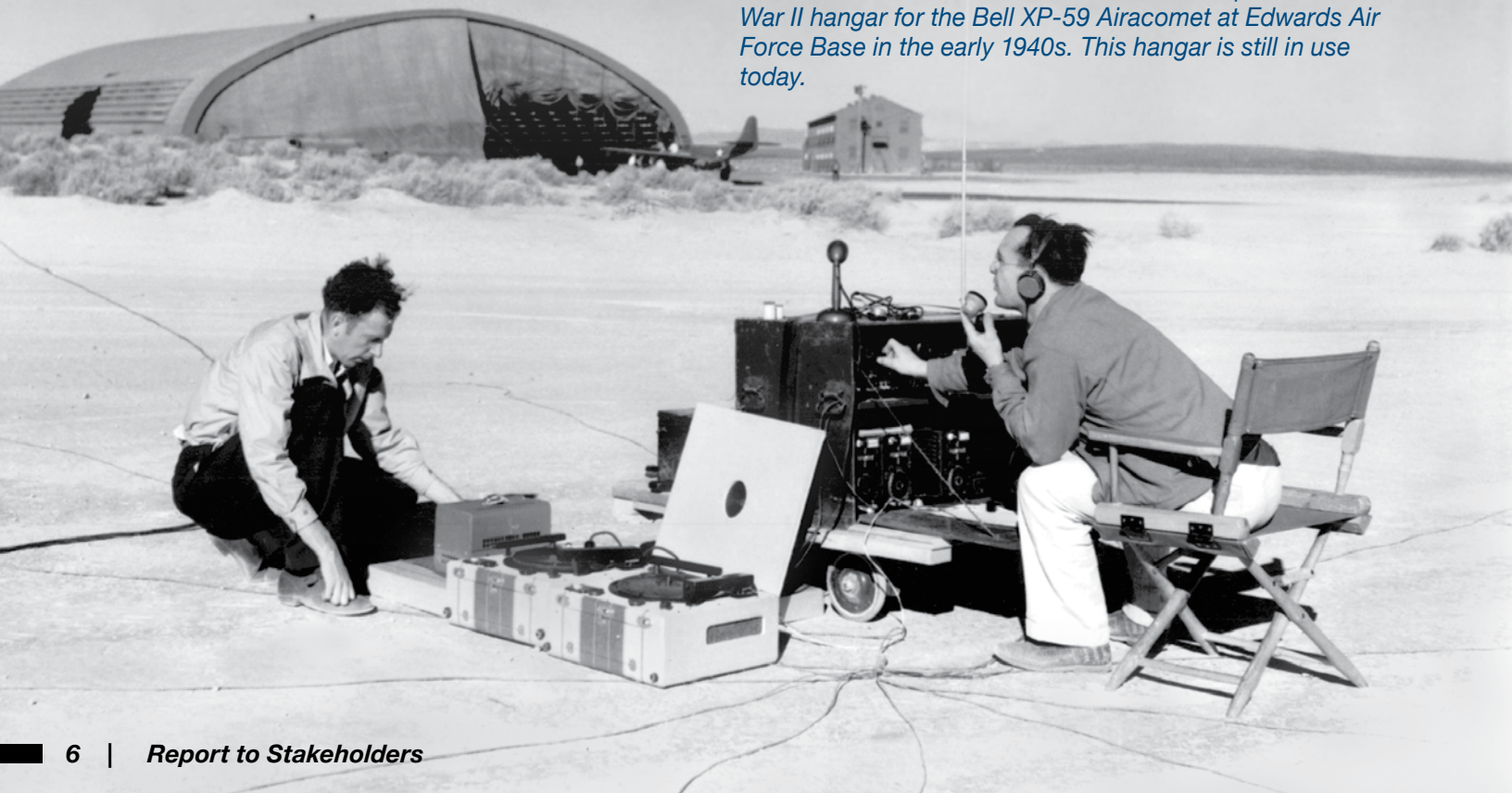
Identifying a Historic Building

Not every building built during a significant event can be preserved for future generations. "The activity in the building had to have a significant impact on history," said architectural historian Theresa Carwise.

Take the jet engine as an example. "Think about how commonplace a jet engine is in today's society," Ruggles said. "We see a jetstream in the sky or hop on a jet plane to travel the world. None of this would have been possible if not for the testing that was done here."

Because of this association and its unique construction, the XP-59A hangar has been determined eligible for the National Register of Historic Places (NRHP). Similarly, many of the structures within the JPL and AFRL collectively qualified as historic districts, which also have been identified as eligible for protection under the NRHP.

Tracking a building's contributions



BEGINNINGS *— Two men work outside the portable World War II hangar for the Bell XP-59 Airacomet at Edwards Air Force Base in the early 1940s. This hangar is still in use today.*

Volunteering Opportunities at Environmental Management

Interested in learning new skills? Do you need community service hours? Are you environmentally conscious? The Environmental Management Volunteer Program is looking for volunteers with base access. If you are interested, you may contact the Environmental Management Customer Service Desk at: *95abw.cev.customer.service.helpdesk@edwards.af.mil* for more information. Or you may obtain an application at *https://bsx.edwards.af.mil*, after clicking on "Edwards Air Force Base - Environmental Management," and then "Volunteering Opportunities at EM."

to history can be a daunting task when you consider the sheer number of projects in development at Edwards. For this reason, the Civil Engineer Directorate established a system for identifying historic buildings.

The Real Properties team tracks every building on base, paying particular attention to its age. Once a building reaches 50 years of age, it is ready to be evaluated by the Environmental Management Cultural Resources team.

***TODAY** — The XP-59 hangar, front left, is eligible for placement on the National Register for Historic Places, because of its unique construction and significant impact on national history during World War II.*

"The way the law reads is you should let a building mature to 50 years so that you have enough historical context in which to evaluate it," Carwise said. Under the *National Historic Preservation Act of 1966,* Edwards must locate, take inventory and nominate historic properties for placement in the *National Register of Historic Places*. The register is the official list of the nation's historic places worthy of preservation.

Every base building that reaches maturity must be evaluated by a qualified architectural historian, such as Carwise. Using archival records and current research, the historian makes a recommendation to the BHPO.

"The law also requires a consult with the state historic preservation officer," Carwise said, "but Edwards has a programmatic agreement with the state. Under that agreement, the BHPO can act in their stead. This means decisions stay local, because the BHPO understands the Air Force mission and knows what is in the best interest of the cultural resources."

Keeping the History Alive

Once a building is determined to be eligible as a historic property, Edwards must take extra precautions with it. The property cannot be sold, demolished, significantly altered or allowed to deteriorate, without triggering a mandated review process. Even buildings that have the potential to be eligible — 50 years or older and not yet evaluated — receive the same protection. The preservation also extends to vacant or abandoned buildings.

"You can ignore a building to its death," Ruggles said. "We have a regulatory and legal responsibility to preserve those buildings if they have historical significance."

Any maintenance or rehabilitation of a building must meet the U.S. Department of the Interior standards. The Department of the Interior oversees the National Park Service, which maintains the *NRHP* list.

"If you perform maintenance or repairs, we need to evaluate if the action is going to have enough of an impact to affect the building's eligibility," Carwise said. "If there will be an impact, then we need to find alternatives. If there is no alternative, that needs to be documented.

"There comes a point where the building is no longer eligible because it's been changed so much," she continued. "Those are the kinds of things the base is trying to avoid or minimize."

For example, if flooring in a historic hangar needs to be updated because it's not up to code, extra thought must go into the materials, equipment and methods used. This is why identifying historic buildings is so important to the Air Force mission.

"The most important part of our job is to support the military mission," Ruggles said. "The bulk of base buildings are not eligible, so these can be used for future missions or demolished for newer construction."

For more information about the protection and preservation of historic buildings, you can visit the *National Register of Historic Places* Web site at *www.nps.gov/nr/*.

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Where to find more INFORMATION

Published data and documents relating to Environmental Management 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 Air Force Base. 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*. Here is a list of our current information repositories:

Edwards Air Force Base Library
5 W. Yeager Blvd.
Edwards AFB, Calif.
(661) 275-2665
Hours of operation: Mon-Thu 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
Wanda Kirk Branch
3611 Rosamond Blvd.
Rosamond, Calif.
(661) 256-3236
Hours of operation: Tue-Thu 11 a.m. – 7 p.m.
Sat 9 a.m. – 5 p.m.

Los Angeles County Public Library
601 W. Lancaster Blvd.
Lancaster, Calif.
(661) 948-5029
Hours of operation: Mon-Wed 10 a.m. – 8 p.m.
Thu-Fri 10 a.m. – 5 p.m.
Sat 11 a.m. – 5 p.m.

For general information about Edwards or other documents of public interest, you may visit the following link: *www.edwards.af.mil/library/environment*.

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Restoration Advisory Board (RAB) Information

The RAB is made up of appointed representatives from communities in and around Edwards Air Force Base, regulators from federal and state agencies and base officials. The board's purpose is to provide a forum for two-way communication among base restoration officials, regulators and the community representatives regarding the cleanup of contamination from past military activities.

The board meets quarterly, rotating meeting locations in communities surrounding the base. The public is welcome to attend. Those who have questions or concerns about the cleanup activities at Edwards may contact any RAB member or Gary Hatch, Environmental Public Affairs, at (661) 277-1454.

NEXT QUARTERLY MEETING
Date: Aug. 19, 2010
Time: 5:30 p.m.
Location: Rosamond, Calif.
Venue to be determined

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