

## McClellan groundwater cleanup making steady progress

For more than two decades, protecting and restoring groundwater has been a main component of the Air Force's cleanup program at the former McClellan Air Force Base. The contaminants in the groundwater underneath the former base resulted from fuels, solvents, cleaners, and other chemicals used while the base was active. Over time, they percolated down through the soil into the underlying aquifer where the groundwater is stored.

The McClellan groundwater cleanup program has two major components, a groundwater pump-and-treat system and a soil vapor extraction (SVE) system. The pump-and-treat system pumps approximately 1,500 gallons of groundwater per minute through a central water treatment plant where the water is cleaned and then released into the nearby Magpie Creek.

The Air Force uses a network of more than 500 monitoring wells and some 100 extraction wells to track the volume and flow of groundwater. As expected, the concentrations of contaminants are decreasing over the lifetime of the cleanup. As the concentrations decrease, so also does the volume of contaminants removed from the groundwater.

For example, the groundwater treatment system removed an estimated 501 pounds of volatile organic compounds (VOCs) in 2009. An additional 76 pounds of non-VOC contaminants were removed. In 2008, an estimated 658 pounds of VOCs were removed. In 2007, approximately 802 pounds of VOCs were removed.

The SVE system removes the slow-moving VOCs from the approximately 100 feet of soil above the groundwater, before they have a chance to seep down into the groundwater. This is generally quicker and less costly than removing them from the groundwater later.

In 2009, approximately 31,105 pounds of contaminants were removed from the soil through SVE. Approximately 1,531,560 pounds of contaminants have been removed through SVE since the system was first implemented in 1993.



The McClellan Groundwater Treatment Plant treats some 1,500 gallons of groundwater per minutes before discharging the clean water to nearby Magpie Creek.

**Just In:**

### Operating Properly and Successfully will Aid Property Transfer

On March 1, the Air Force received concurrence from the U.S. Environmental Protection Agency (EPA), that its groundwater treatment program is operating properly and successfully (OPS).

"This is great news for the Air Force and McClellan redevelopment," said Steve Mayer, McClellan environmental coordinator for the Air Force Real Property Agency.

With OPS in hand, the Air Force can now transfer properties that are impacted only by ongoing groundwater cleanup as if the cleanup were complete. Without OPS, transferring that same property would be a much more costly and time consuming process.

## Air Force signs cleanup decision for park, museum parcel

The Air Force marked a milestone in the cleanup and revitalization of the former McClellan Air Force Base with the signing of a Record of Decision (ROD) for the cleanup of a 25-acre parcel, (designated AOC G1) at the corner of Dudley Blvd. and Freedom Park Dr. This parcel, still owned by the Air Force, is home to the Aerospace Museum of California and Freedom Park.

“With the signing of this document and implementation of the remedy, we can transfer ownership to the community where it will continue to serve as a resource for the entire region,” said Steve Mayer, McClellan environmental coordinator for the Air Force Real Property Agency.

The Air Force acquired the property in 1967 and used it only as a recreational area. However, prior to 1967, a small automotive repair facility had a disposal area on a portion of the site. Fill dirt for low areas on the site included debris such as concrete, asphalt, tar paper, bricks, glass, burnt wood, ash, and auto-related metal scraps.

The ROD details the remedy for protecting human health from contaminants in the disposal area. The contaminants include volatile organic compounds in soil gas and non-volatile organic compounds in soil including semi-volatile organic compounds, metals, petroleum hydrocarbons, and polycyclic aromatic hydrocarbons.

The remedy calls for “institutional controls” to prohibit residential use and restrict some digging in the disposal area. With the signing of this ROD, the Air Force’s institutional control remedy is officially in place. In the next few months, 6.5 acres will be transferred to the Aerospace Museum of California and 18.5 acres will be transferred to North Highlands Recreation and Park District.

The ROD is a legally binding document signed by the U.S. Environmental Protection Agency and the State of California, represented by the Department of Toxic Substances Control.

The remedy protects human health and the environment, and complies with the federal Comprehensive Environmental Response, Compensation and Liability Act. The public provided comments on the Air Force’s proposed plan during a 30-day public comment period from June 8 to July 8, 2009. These comments and the Air Force’s responses are in the Responsiveness Summary of the ROD.

The AOC G-1 ROD is available for public review in the McClellan Information Repository. For an appointment to review the document, call (916) 643-1250, ext 201. The document also may be viewed online at <https://afarpaar.lackland.af.mil/ar/docsearch.aspx>. Select “McClellan” as the base and enter 7114 as the AR document number.



The Air Force is preparing to transfer the property containing Freedom Park to North Highlands Recreation and Park District and the property containing the Aerospace Museum of California to the museum.

## McClellan RAB welcomes two new members

*The McClellan Restoration Advisory Board added two new members in December 2009: Carolyn Gardner, representing McClellan Park residents, and Tina Suarez-Murias, representing the environmental community.*

### Carolyn Gardner, McClellan residents

Carolyn Gardner grew up in North Highlands in the 1950s and 60s and graduated from Highlands High School. After travelling the world and living and working as a singer/entrepreneur (she is one of the founders of the Famous Amos Cookie Company) in southern California for years, she returned to her roots some six years ago to help care for her mother. When looking for a place to live, she fell in love with the renovated officers’ housing at McClellan and has been living on the former base ever since.

In her daily walks with her dog, Gardner has noticed much more activity on the former base in the past several years.

“I’ve watched the progress here in the last six years and it’s just phenomenal,” Gardner said. “All of a sudden it has just exploded. There’s something very vibrant about the park now.”

Gardner decided to apply to join the RAB because she wants to understand what is going on at McClellan — how the cleanup and redevelopment are working together; and she wants to spread the word.

In fact, even before becoming a RAB member, Gardner was regularly attending meetings, suggesting to Air Force representatives new ways of reaching the community, and even spreading the word on her own to friends and neighbors.

A creative, “out-of-the-box” thinker, Carolyn is emphatic that she is not a “rocket scientist.” As such, being a part of a technical program is a new opportunity for her and she is looking forward to contributing her creativity to the RAB.

### Tina Suarez-Murias, environmental community

A Maryland native, Tina Suarez-Murias moved to Antelope in 1997. “When I moved out here, one of my friends back east had a son serving in the Air Force at McClellan, so I felt a connection to the base as soon as I came here,” Suarez-Murias noted.

A board member of the Environmental Council of Sacramento and Save Our Sand Hill Cranes, Suarez-Murias said the groups she represents are looking for models of land development and land reuse.

“It’s nice to have good models of redevelopment and infill to work from,” she said, “I think we can come up with some good examples at McClellan.”

McClellan’s location is ideal for redevelopment, which Suarez-Murias feels is far preferable to converting farmland,

open space, and natural areas for growth within the county. She sees the former base as providing tremendous opportunity for business and job development while maintaining wildlife habitat.

“I am especially interested in maintaining the natural areas on the base and linking them to adjacent corridors for preserving wildlife habitat,” Suarez-Murias explained.

In addition, Suarez-Murias looks forward to sharing the McClellan cleanup and redevelopment story with her neighbors in Antelope

as well. She sees it as an opportunity to integrate history, science and technology, and habitat protection into everyday conversations with her neighbors.



New McClellan Restoration Advisory Board members Tina Suarez-Murias (left) and Carolyn Gardner (center) tour the Groundwater Treatment Plant as part of their new RAB member orientation with McClellan Community Relations staffer Mary Hall.



## Feasibility Studies lay groundwork for final remedy

The Air Force environmental cleanup team is in the midst of finalizing four remedial investigations/feasibility studies covering more than 100 potentially contaminated sites at McClellan. This remedial investigation and feasibility study phase is a critical requirement of the environmental cleanup program defined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

"The remedial investigation phase determines the nature and extent of contamination at a site," explained Steve Mayer, McClellan environmental coordinator. "In the feasibility study we test possible treatment technologies, and evaluate all the potential options that could be implemented to protect human health and the environment at the site."

A feasibility study presents a detailed analysis of all the possible cleanup alternatives. The Air Force and the regulatory agencies use the feasibility study analysis to develop a preferred alternative, which is presented to the public for public comment during the Proposed Plan stage. As always with remedial actions at the former base, the Air Force's cleanup goal is to ensure protectiveness of human health and the environment.



- Steve Mayer  
McClellan Environmental Coordinator

The remedial investigation phase determines the nature and extent of contamination at a site.



In 2009 the Air Force conducted a 100 percent scan for radiological contamination in Building 252, which housed a radium dial painting facility, as part of the remedial investigation to help determine a cleanup plan for the site.

### Building 252

Building 252, at the corner of Peacekeeper Way and Luce Ave., operated from 1937 through the 1980s initially as a radium dial painting facility and later as a manometer repair shop. The feasibility study for this site also includes the adjacent Building 253 which was used as a storage shed.

Consistent with the past use of the building, the primary contaminants of concern are radium and mercury. The building itself is part of a separate radiologic investigation. Cleanup of the radiological contamination in the building is ongoing and should be complete in 2010. This feasibility study focuses specifically on the soil beneath the buildings, the adjacent underground storage tanks, and sewer and disposal lines beneath the building and south of the building.

The Building 252 Feasibility Study evaluates alternatives to address impacts on human health from direct contact with contaminated soil, and the contaminants' impacts to surface water and groundwater.

A proposed plan with a preferred remediation alternative is scheduled to be issued in mid to late 2010.



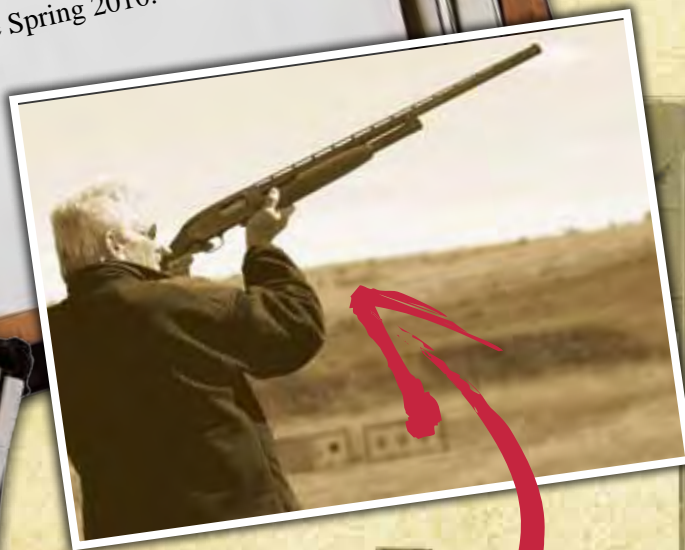
Regulators from the U.S. Environmental Protection Agency, the California departments of Public Health and Toxic Substances Control, toured Bldg. 252 during the radiological scan as part of their oversight of the cleanup activities at McClellan.

### Skeet Range

The Air Force used the McClellan Skeet Range in the northwest portion of the former base from 1971 until no later than 1985. The approximately 50 acre study area includes the six former shooting stations (four skeet and two trap stations) as well as surrounding land onto which shot pellets and clay shard may have landed. Metals and polynuclear aromatic hydrocarbons (PAH) associated with shot pellets and clay shard (from clay pigeons) in soil and sediment at the site are the primary contaminants of concern.

The current and anticipated future use of the site is primarily industrial. The site consists of buildings, parking areas, an unmaintained baseball field, grassy areas, and landscaped areas. Taxiway 7611 is present along the northeastern portion of the site and is not currently in use. Several vernal pools are also present on the sites.

Cleanup alternatives to address impacts to human health and the environment are evaluated in the feasibility study. The Air Force's preferred alternative, along with a description of all the alternatives considered, will be presented with a public comment period in late Spring 2010.



### Ecological Sites

McClellan's ecological sites are primarily on the west side of the base and include portions of Don Julio Creek, Magpie Creek, Second Creek and Robla Creek, as well as several vernal pools and sediment tailings piles. The contaminants of concern for these sites, dioxans/furans, polycyclic aromatic hydrocarbons, polychlorinated biphenyl, and metals, came from spills, discharges, and runoff through years of industrial activities on the base.

For most of the ecological sites, these contaminants are not present at a level that presents a risk to human health. However, they do pose a potential risk to the environmental resources. The feasibility study for these sites focuses primarily on those risks to the environment.

The Ecological Sites Proposed Plan is anticipated to be issued in September 2010 with a public comment period to follow.



Don Julio Creek in the West Nature Area is one of several ecological sites being evaluated for soil and sediment cleanup of contaminants from past industrial practices at McClellan.

### Small Volume Sites

The Small Volume Sites Remedial Investigation and Feasibility Study examines 91 sites on 212 acres along Dudley Blvd. in the southeast portion of the base. A heavy industrial area, the sites include former maintenance/repair buildings, hazardous waste storage areas, industrial waste lines and a former sewage treatment plant.

The remedial investigation phase of the study looked for a number of contaminants that resulted from spills during past industrial practices. Those contaminants, now in the soil and shallow soil gas, include volatile organic compounds and metals, total petroleum hydrocarbons, semivolatile organic compounds, and radium.

The feasibility study phase evaluates the impacts on human health from exposure to these contaminants. The study also investigates impacts to the environment, including surface water and groundwater. The cleanup goals are to protect human health, surface water and groundwater, and the environment.

The specific alternatives selected will vary by site depending on the type and amount of contaminants present, the anticipated future land use, site geology, and other factors. The proposed plan for these sites is anticipated to be issued in September 2010.



The small volume sites are in the southeast portion of McClellan, along Dudley Blvd. The sites include a number of industrial areas, some lined portions of Magpie Creek, and some old industrial waste lines.

### Remediation Toolkit

The Air Force has a wide range of general remedial alternatives at its disposal for protecting human health and the environment from the contaminants present in the soil at McClellan. These include:

#### Institutional Controls (ICs)

Methods that protect human health and / or the environment by restricting access to contaminants. Restriction tools may include zoning or ordinances, deed language, permitting requirements, and informational devices.

#### Removal

Removal of contaminated soil from a site.

#### Treatment

Thermal, physical, chemical, and/or biological processes that are applied to the soil (in place or off site) to reduce the toxicity, mobility, and/or volume of contamination.

#### Disposal

Soil is removed from a site and disposed of at another location. Treated or untreated soil may go to an offbase landfill, treated, clean soil can be reused as construction backfill, or treated and untreated soil collected from multiple sites can be transported to an onbase consolidation unit.

#### Engineered Controls

Physical actions, such as fencing or surface covers, that contain soil (including sediment) to minimize or eliminate the movement of contaminants, prevent direct exposure to contaminants, and restrict access to the contaminated site. These actions would be necessary for most cleanup alternatives before and during the construction and operation phases.

### Evaluation of Alternatives

The U.S. Environmental Protection Agency (EPA) has established nine criteria for evaluating remedial alternatives in the CERCLA process. These criteria include:

1. Overall protectiveness of human health and the environment
2. Compliance with state and federal environmental requirements
3. Long-term effectiveness
4. Reduction of toxicity, mobility or volume of contaminants through treatment
5. Cost
6. Short-term effectiveness
7. Implementability
8. State acceptance
9. Community acceptance

The final remedy must meet the threshold criteria (1 and 2). Criteria 3-7 are considered balancing criteria which are used to weigh effectiveness and cost tradeoffs. The last two criteria (8 and 9) are modifying criteria that are evaluated prior to the Record of Decision.





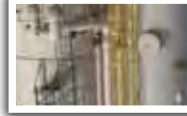
Page 4  
Feasibility studies lay  
groundwork



Page 3  
New RAB members



Page 2  
Air Force signs Record  
of Decision



Page 1  
Groundwater cleanup  
progress

Top Stories

AFRPA Western REC  
3411 Olson Street  
McClellan, CA 95652



Environmentally sound: McClellan's successful,  
continuing cleanup has enabled its simultaneous  
transformation to a thriving business park.

## Get involved and be heard at the McClellan Restoration Advisory Board



The McClellan Restoration Advisory Board (RAB) is a community board that meets quarterly to advise the Air Force and regulators about community concerns and provide feedback about the cleanup programs. The RAB includes representatives from the Air Force, state and federal regulatory agencies and community members with a wide variety of interests and backgrounds, such as local government, residents, businesses, environmental groups, churches, educators, and students. ***The public is encouraged to attend all RAB meetings.***

For more information about the RAB or the cleanup programs at McClellan, contact **Mary Hall**, [mary.hall.5.ctr@us.af.mil](mailto:mary.hall.5.ctr@us.af.mil) or call, **916-643-1250, ext 232.**

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