

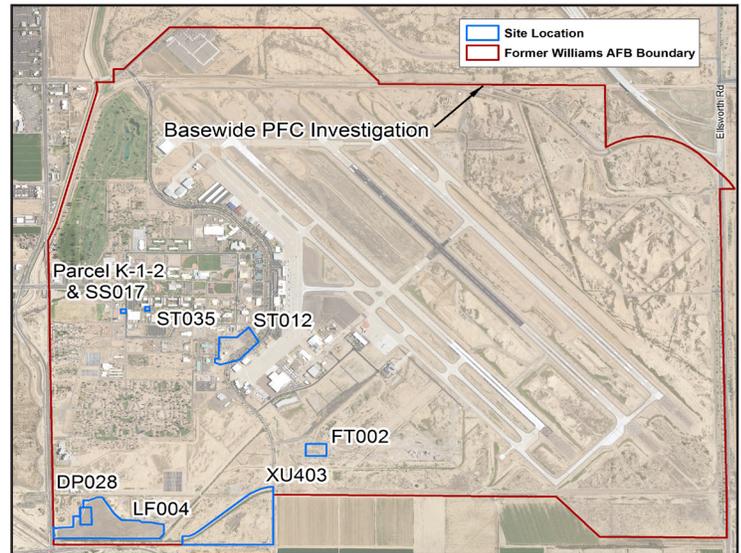
Environmental Action UPDATE

January 2017

AIR FORCE ENVIRONMENTAL ACTIVITIES AT WILLIAMS

The Air Force is cleaning up environmental impacts at the former Williams Air Force Base (AFB) with regulatory oversight from the United States Environmental Protection Agency (EPA), Arizona Department of Environmental Quality (ADEQ), and Arizona Department of Water Resources. As a result of efforts spanning several decades, the Air Force has completed restoration activities at 74 of 83 environmental sites. For seven of the completed sites, EPA and ADEQ approved closure with land use restrictions which the Air Force continues to monitor. The Air Force is continuing to take cleanup actions to ensure protection of human health and the environment at the remaining nine open sites, which are shown on the figure to the right. The status of these open environmental sites, as well as other aspects of the Air Force's environmental restoration activities at the former Williams AFB, is summarized in this Environmental Status Update.

Based on completed environmental investigations and cleanups, the Air Force has transferred 96 percent of the



Nine open sites, including two sets of co-located sites and one basewide site, remain at the former Williams AFB.

former base's 4,043 acres to state and private ownership, including the Phoenix Mesa Gateway Airport and Arizona State University.

SITE FT002, FORMER FIRE TRAINING AREA No. 2

Site FT002, a former fire training area, was used from 1958 to 1991. The property is less than an acre in size and the Air Force retains ownership. Contaminants of concern at FT002 are benzene, chloroform, and 1,4-dichlorobenzene in soil. A bioventing remedy was implemented at the site, but since it was not effective at achieving cleanup levels, land use restrictions were placed on the property in 2007 to protect public health. A soil vapor extraction (SVE) treatment system operated from June 2014 to June 2015 and removed over 2,200 pounds of contaminants. In addition, small excavations completed in 2015 and 2016 removed shallow soil contaminated with petroleum hydrocarbons.

Soil and soil gas sampling results confirm the SVE and extraction actions were successful. As a result, the Air Force submitted a draft FT002 closure report for regulatory review in November 2016. Transfer of the property to the Phoenix Mesa Gateway Airport is planned for 2017.



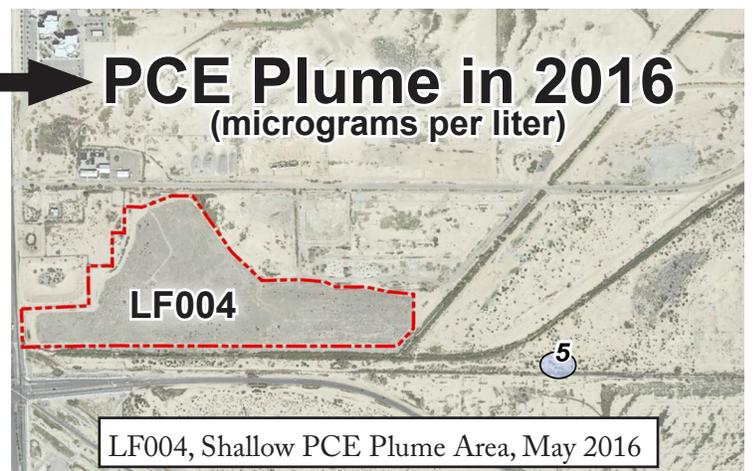
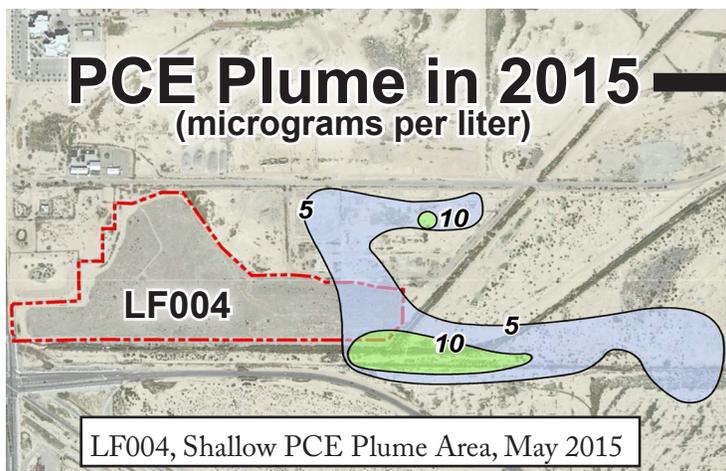
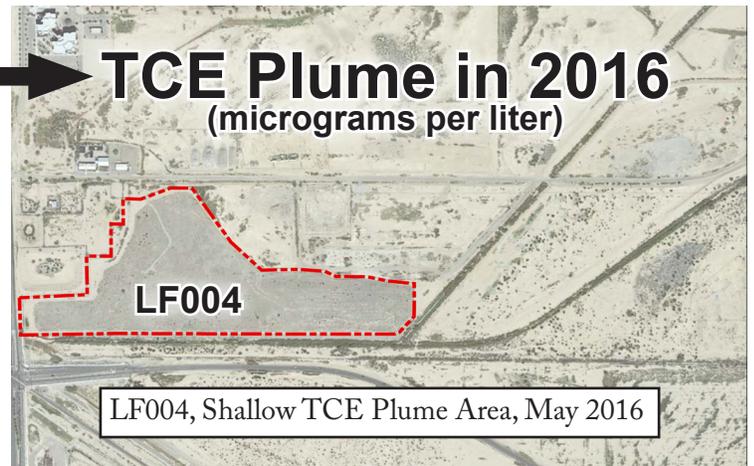
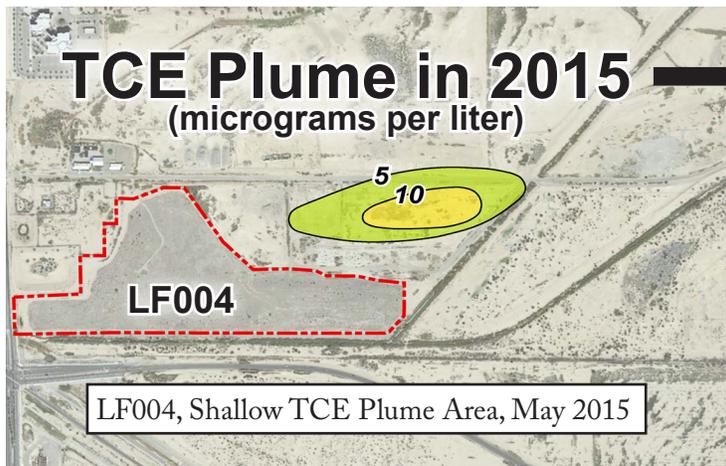
The former Fire Training Area was once the location of two burn pits that were excavated in the early 1990s. The remediated site is now a flat field with sparse vegetation.

SITE LF004/DP028, FORMER SOLID WASTE LANDFILL AND SEWAGE SLUDGE TRENCHES

Operating at the southwest corner of the former base from 1941 to 1976, LF004 is a closed 34-acre landfill that also includes DP028, the former sewage sludge trenches. Contaminants of concern present at the site are dieldrin and beryllium in the surface soil and trichloroethene (TCE) and tetrachloroethene (PCE) in the groundwater and soil gas. Remedies for the site include capping for the landfill, In-Well Air Stripping (IWAS) and oxidation for groundwater, SVE for soil gas, and land use restrictions to protect public health.

Post-closure maintenance and monitoring of the landfill has been ongoing since it was capped in 1995. The groundwater and soil gas remedies were initiated in 2014. The property is currently unoccupied and remains under Air Force ownership.

Two IWAS and oxidation systems have been cleaning up groundwater at LF004 since September 2014. Both the concentrations and areas of groundwater contaminated with TCE and PCE have been greatly reduced and the contaminants are approaching drinking water cleanup levels.



Figures above show dramatic cleanup of TCE and PCE groundwater plumes between 2015 and 2016.

Two SVE systems are cleaning up TCE and PCE in soil gas in order to prevent future potential impacts to groundwater and to reduce contaminants to levels protective of potential future building occupants. One is located in the former Aboveground Storage Tank area north of the landfill cap and one is in the southeast landfill cap area. After operating since August 2014, both SVE systems were shut down in May 2016 to evaluate whether cleanup levels have been reached, or if further SVE is needed. Through September 2016, the LF004 groundwater and

soil gas remedial systems have removed over 140 pounds of contaminants.

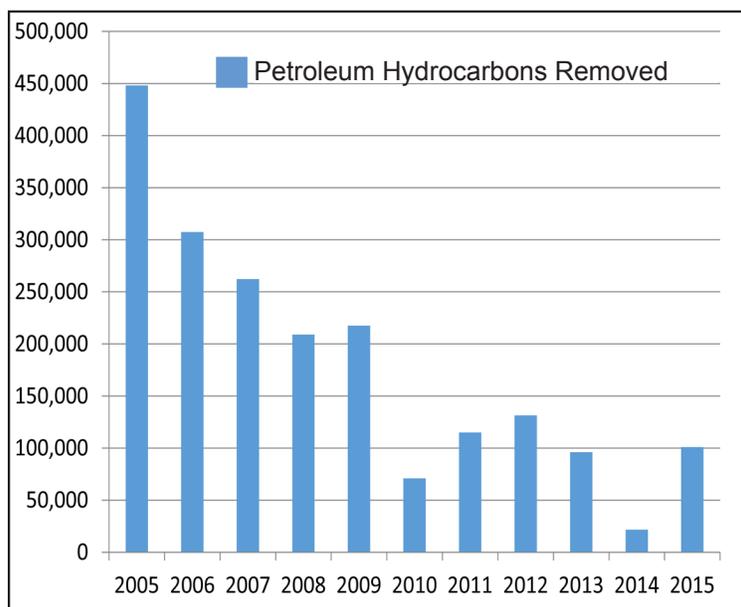
The Air Force will continue maintenance and monitoring of the landfill cap indefinitely and will continue operating the groundwater and soil gas remedial systems until cleanup objectives are achieved. A report is being prepared to document that the LF004 remediation systems are operating properly and successfully. Regulatory approval of the Operating Properly and Successfully determination will support the planned transfer of the property in 2017.

SITE ST012, FORMER LIQUID FUELS STORAGE AREA

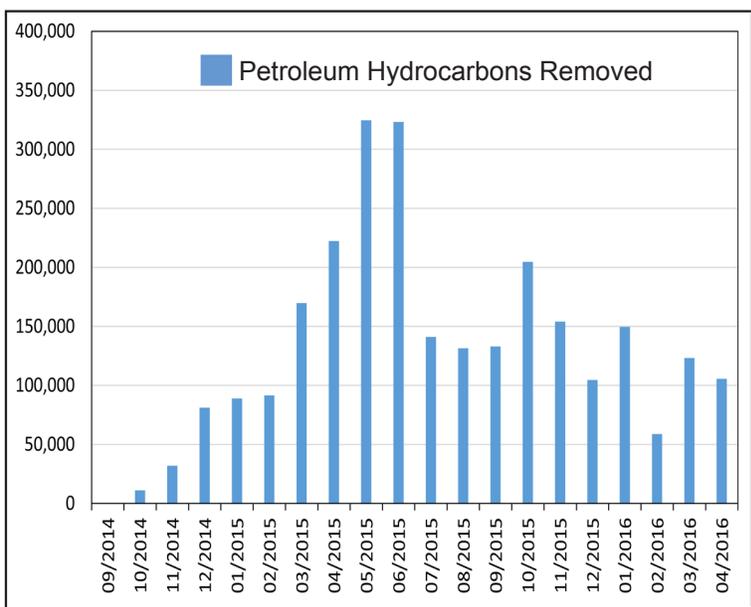
Site ST012 is a 12-acre former liquid fuels storage area used from 1941 through 1991 where historic releases of jet propellant fuel (JP-4) and/or aviation gasoline contaminated the soil and groundwater. Contaminants of concern present at the site include benzene, naphthalene and other petroleum hydrocarbon chemicals. Cleanup remedies include Steam Enhanced Extraction (SEE) followed by Enhanced Bioremediation (EBR) for groundwater contaminants, SVE for soil contaminants, and land use restrictions to protect public health. The SVE remedy has been operating since April 2005 and

has removed over 2,000,000 pounds (over 300,000 gallons) of petroleum contaminants. The SEE remedy operated from September 2014 through April 2016 and removed over 2,600,000 pounds (nearly 400,000 gallons) of contaminants. The Air Force continues to operate the SVE system for soil cleanup and is evaluating the quantity and distribution of groundwater contaminants remaining after operation of the SEE remedy. The property was transferred to Phoenix Mesa Gateway Airport but use is limited while the Air Force makes further progress on the cleanup.

**ST012 SVE Performance 2005-2015
(pounds per year removed)**



**ST012 SEE Performance 2014-2016
(pounds per month removed)**



SVE and SEE systems have successfully removed over 4 million pounds of petroleum hydrocarbons from the soil and groundwater at Site ST012.

Throughout the second half of 2016, the Air Force has been completing soil borings and monitoring wells as part of an investigation to provide additional site characterization information and monitoring capability for ST012. The Air Force, EPA, and the ADEQ will be evaluating the investigation results to determine

the best path forward for cleanup of ST012. In addition, the Air Force is constructing a groundwater extraction and treatment system to prevent migration of contaminants from the site pending evaluation of investigation results and regulatory approval to proceed with further groundwater cleanup.

SITE ST035, FORMER BUILDING 760 USTs

Site ST035 is the location of the former base gasoline service station, which operated for more than 20 years and included six underground storage tanks (USTs). The site was part of a larger property transfer for establishing Arizona State University's campus on the former Williams AFB. Petroleum-contaminated soil and groundwater were identified during removal of the USTs. An SVE treatment system operated from October 2010 to December 2013 and removed over 115,000 pounds of contaminants.

Groundwater monitoring has been performed at Site ST035 since 1997. Since November 2014, all groundwater contaminants except the fuel additives methyl-tert-butyl ether (MTBE) and 1,2-dichloroethane (1,2-DCA) have decreased below regulatory standards in all wells. All groundwater monitoring wells at the site were sampled in May 2016. Results indicate the area impacted by 1,2-DCA has decreased significantly in the last 15 months and MTBE exceeds criteria in only one well.

As the source area contamination has been removed and monitoring data indicates the groundwater plume is characterized, attenuating (lessening), and not



Part of the ST035 SVE system operates within a block wall treatment building on the ASU Polytechnic Campus.

migrating, the Air Force intends to seek site closure in accordance with Arizona state regulations. A closure report for ST035 is currently being prepared and will be submitted for ADEQ review prior to the end of 2016. Groundwater monitoring will continue at the site until site closure is achieved.

PARCEL K-1-2 & SITE SS017, OLD PESTICIDE/PAINT SHOP

Parcel K-1-2 is a 1.8-acre Air Force-owned property where the former base's water tower and Site SS017, the Old Pesticide/Paint Shop, are located. The tower and associated tanks were part of the base water distribution system. During recent maintenance of the tower and removal of storage tanks, lead-based paint from historic painting of the towers and tanks was detected in soil samples within the fenced area. The Air Force will be excavating and providing proper disposal of the impacted soils to achieve lead cleanup standards.

Site SS017 is the location of a former pesticide shop where unused pesticide mixtures were disposed on the ground surface outside the building. The contaminant of concern is dieldrin (a pesticide formerly used by the Air Force) in soil and groundwater. The

Air Force completed a cleanup action in 2001 to remove contaminated soil up to approximately 13 feet (4 meters). Annual groundwater monitoring and land use restrictions are currently ongoing pending a final remedy decision for the site.

The Air Force, EPA and ADEQ have been in formal dispute over selecting the remedy for Site SS017 since February 2015. The Dispute Resolution Committee is currently approaching an agreement and a final Record of Decision (ROD) for the site could be completed in early 2017. The final remedy is expected to be consistent with the groundwater monitoring and land use restrictions currently in place for the site. Completion of the ROD will allow for transfer of Parcel K-1-2 to ASU.

SITE XU403A/B, PARCEL N DEBRIS AREA 1

Site XU403A/B is located on Air Force-owned property in the southwest portion of Williams. The site was the focus of a 2014 munitions response to excavate several small disposal pits where munitions debris, explosives, and small amounts of chemical warfare materiel were once buried. The project is complete and all items found have been removed from the site. The Final Site Inspection (SI) Report was issued in October 2016 and presents the results and conclusions of the 2014 munitions response. The Air Force plans to collect a few more soil samples from the site in 2017 to ensure adequate information is available to support evaluation of future site alternatives in a focused Remedial Investigation/Feasibility Study.



Site XU403A/B debris pits following excavation.



Site XU403A/B following site restoration.

BASEWIDE PFC INVESTIGATION UPDATE

The Air Force has been implementing a nationwide initiative to evaluate the presence of perfluorinated compounds (PFCs) that may have been released as a component of aqueous film forming foam, a firefighting foam used by the Air Force since the 1970s. At Williams, the Air Force has completed a records review and interviews as part of a basewide Preliminary Assessment that identified areas where PFCs may have been stored, handled or released. A Site Inspection/Investigation Work Plan addressing sampling of the potential PFC areas is currently being prepared for regulatory review. After completion of the Work Plan, sampling will be performed in 2017. EPA has issued a drinking water health advisory for two specific PFCs: Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS). As the Air

Force conducts sampling, several factors such as depth to groundwater and contaminant pathways to drinking water sources will be considered. If a drinking water source that could potentially be impacted by PFCs from Williams AFB is identified, it will be tested. If the test confirms levels above the EPA's Health Advisory in drinking water, the Air Force will take immediate action to protect public health.

A Fact Sheet for EPA's PFOS/PFOA Drinking Water Health Advisory can be found on line at:

www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos

In 2017, find the Final Site Investigation Report at:

www.AFCEC.af.mil/Home/BRAC/Williams

FOURTH FIVE YEAR REVIEW

The Air Force conducted the Fourth Five-Year Review to determine whether implemented site remedies will be protective of human health and the environment as required by law. Public notice of the Five-Year Review was published in the East Valley Tribune, Queen Creek/San Tan Independent and East Mesa Independent in December 2015. Interviews, document and data review, and evaluation of site remedies were conducted in the first half of 2016, and the Draft Report was submitted for regulatory review

in August 2016. The Air Force determined all remedies were protective, with some recommended actions to ensure long-term protectiveness. The EPA decided to defer a protectiveness determination for some sites where results from the ongoing PFC investigation described above could potentially require further investigation or action. The Final 2016 Five-Year Review Report including responses to regulatory agency comments will be issued by the end of 2016 and a public notice of availability will be published.