

U.S. Army Yuma Proving Grounds Department of Defense (DoD) Site

Boundaries:

The [Yuma Proving Ground](#) (YPG) is located 32 miles northeast of Yuma, Arizona, and occupies approximately 870,000 acres in Yuma and La Paz counties. The YPG Site (Site) is bounded on the west by the Colorado River and on the south by the Gila River. The U-shaped Site is approximately 1,300 square miles in area and extends approximately 60 miles north-south and 50 miles east-west.

Site Status Update:

The Arizona Department of Environmental Quality (ADEQ) and the [U.S. Army](#) continue to develop acceptable Decision Documents for 13 [solid waste management units](#) (SWMUs). The Army's contractor is developing [interim remedial actions](#) and revised Decision Documents for several of the sites currently under discussion.

The final Decision Document (DD) for Site YPG-11 (the Former Pesticide Mix/Storage Facility at Building T-430) has been approved and signed by ADEQ. The remedy is [capping](#) with asphalt paving and institutional controls. In addition, CERCLA Five-year Reviews (FYR) will be conducted because residual contaminants remain at the site. ADEQ has submitted comments for the final DD for Site YPG-45 (Building 506 Underground Storage Tanks) proposing a similar remedy combined with long-term monitoring of groundwater.

The soil remediation using three dual engine internal combustion engine (ICE) [soil vapor extraction](#) (SVE) and treatment units at the Fuel Bladder Test Site (FBTS or YPG-10) is continuing. The soil remediation work started in April 2008, and 155,773 gallons of fuel have been removed from the site as of June 30, 2010.

Community Involvement Activities:

In their commitment to involve the community in the restoration process, the U.S. Army Garrison, Yuma Proving Ground, (USAGYPG) formed a Restoration Advisory Board (RAB), with the first RAB meeting held on June 7, 2010. The meeting was attended by community members, city and county officials and other stakeholders. A second RAB meeting was held on September 1, 2010, with additional meetings scheduled based on community interest. The USAGYPG provides a Notice of Availability with a 30-day public comment period for proposed DDs for YPG sites. The notice, along with a brief analysis of the document, is published in the major local newspaper of general circulation and on the internet site www.PublicNoticeAds.com. This is done in accordance with CERCLA regulations that require public participation opportunities prior to the completion of the DD (40 CFR 300.430[f][3]), which, if appropriate, may cause the proposed remedy for the DD to be modified prior to the signing of the final DD.

Site History:

1942-1943: The [YPG](#) was first used by the military in 1942 for training desert troops. The mission changed in January 1943, when the Site began to be used as a testing ground for bridges and river crossing equipment, boats, vehicles, and well drilling equipment under the designation of Yuma Test Branch, Corps of Engineers.



**Aircraft Armament System
Testing**

1947-1950: In October 1947, the Site was designated the Engineering Research and Development Laboratories, Yuma Test Branch, Sixth Army, but was later deactivated in January 1950 because of the military austerity program.

1951-1962: The YPG was again reactivated in April 1951 as Yuma Test Station for desert environmental testing of equipment ranging from tanks to water purification units, and was assigned to the U.S. Army Material Command and renamed Yuma Proving Ground in 1962. YPG's current mission is to use advanced technology to carry out sophisticated tests of aircraft armament systems, air delivery systems, and tank-automotive equipment.

1965-1975: Several removal actions have been conducted at YPG, as well as interim remedial action involving SVE at Building 506 [underground storage tank](#) release, and at the FBTS. This site was designated for immediate investigation by YPG due to the determination that up to 500,000 gallons of fuel may have been released at the site between 1965 and 1975. Analyses of groundwater samples from [monitor wells](#) installed during ongoing investigation of the Site have shown evidence of petroleum and petroleum by-products.

1980-1988: In 1980, YPG submitted an application to the [Arizona Department of Health Services](#) (ADHS) for a [Resource Conservation and Recovery Act](#) (RCRA) permit as a treatment, storage and disposal facility, with subsequent amendments in 1986 and 1988. Several SWMUs were operated under the permit.

1993-1996: In July 1993, YPG initiated discussions with ADEQ with regards to the investigation of YPG's top ten SWMUs. In 1996, ADEQ and YPG agreed on the management strategy for the SWMU's which will involve investigation and cleanup under the [Comprehensive Environmental Response Compensation and Liability Act](#) (CERCLA).

1997: The [U.S. Environmental Protection Agency](#) (EPA) conducted a RCRA facility assessment site inspection of the SWMUs at YPG and recommended response action for 51 SWMUs and six Areas of Concern, including 14 of the 19 SWMUs.

1998-2002: The U.S. Army initiated a [remedial investigation](#) (RI) of YPG sites in 1998 as part of the [Department of Defense Installation Restoration Program](#) (IRP) and identified 19 units for investigation under the RI/[feasibility study](#) (FS) CERCLA process. The sites were organized into four operable units based on their proximity to the main post at YPG and/or opportunities for rapid and similarity for cleanup. The RI report was finalized in July 2002.

The YPG did not qualify for placement in the [National Priorities List](#), but regulatory oversight is provided by ADEQ under the [IRP](#).

2000-2006: Environmental investigations and cleanup continued at YPG under the auspices of the Army's IRP. At the Former Waste Disposal Area (FWDA), a fence to limit access to the Site was erected as an engineering control/interim remedial action for the Site. SVE technology has been ongoing at the FBTS since July 2000.

2004: Reports for the implementation of lab and feasibility testing of [in-situ](#) ozone treatment of [petroleum hydrocarbons](#) for building 560, remedial investigation for selected sites, as well as the quality assurance project plan addendum No. 4 have been reviewed and approved by ADEQ.

2005: ADEQ approved a DD proposing remedial action for [vadose zone](#) treatment at the FBTS in 2005.

2007: ADEQ and the Army began negotiations to address ADEQ's concerns about remedial action DDs for several of the SWMUs at YPG. For some sites at YPG, data was sufficient to indicate that a remedial response was warranted.

Groundwater monitoring continued at the FBTS, the Old Chemical Laboratory Building (Building 2500), Building 506, the West Environmental Test Area, and the FWDA.

At the FBTS remedial construction was completed, an Air Quality Permit was finalized, and in late August full-scale SVE using ICE technology was initiated. The system operated for approximately six weeks before it was turned off in early October due to a change of contractors.

2008: The ICE SVE system at the FBTS was restarted in April. With the estimated 52,000 gallons of fuel removed during the pilot study/interim remediation (prior to August 2007 when the full-scale system came on-line), the total volume of fuel removed from beneath the site as of September 18, 2008 was approximately 104,500 gallons.

2009: From April 2008, when the soil remediation work started, until June 2009, there were 132,000 gallons of fuel removed from the FBTS. Also, the final DD for Site YPG-11 (the Former Pesticide Mix/Storage Facility at Building T-430) was submitted to ADEQ for approval and signature.

2010: From April 2008, when the soil remediation work started, until June 30, 2010 there were 155,773 gallons of fuel removed from the FBTS. The final DD for Site YPG-11 was approved and signed by ADEQ.



**Aerial View of
Yuma Proving Grounds**

Contaminants:

The current contaminants of concern at the Site include [petroleum hydrocarbons](#), [volatile organic compounds](#) (VOCs), semi-VOCs, and metals, in addition to propellants, explosives, and [pyrotechnics](#) (PEP). Contaminants of concern at the Site may change as new data become available.

Public Health Impact:

Most of the contaminated sites are fenced and public access is prohibited. Contaminated groundwater is limited to the Site boundaries. There is no risk to the public drinking water supply wells of Yuma.

Site Hydrogeology:

The geology of YPG is characterized by wide, gently sloping plains formed by late Tertiary and Quaternary age basin-fill deposits broken by sharply rising mountain ranges composed mainly of Cretaceous and Quaternary age intrusives and volcanics.

Groundwater exists in two [aquifers](#) beneath YPG; a shallow unconfined aquifer in [alluvial](#) deposits, and a deep aquifer in consolidated volcanic rocks. The depth to groundwater ranged from 30 feet below ground surface (bgs) in Well X, which is adjacent to the Colorado River near the main administration area, to 750 feet bgs in Well M at the Castle Dome Heliport. [Potentiometric surface maps](#) indicate the direction of groundwater flow is southwest to the Colorado and Gila Rivers. The groundwater gradient (i.e., change in water level with respect to distance) is about four to five feet per mile (ft/mi) [upgradient](#) of the major pumping wells, and less than about four ft/mi near the rivers. Near the rivers the groundwater elevation becomes shallower, merging with subflow of the rivers, and may be within ten feet of the surface in flood plain deposits.

Hydraulic conductivity ranges from 83 to 902 gallons per day per square foot (gpd/ft²) for the alluvial wells, 56 gpd/ft² for the consolidated rock, and 1,245 gpd/ft² for the floodplain deposits. Reasonable values for the storage coefficient ranged from ten to 15% for the alluvium, 20 to 30% for the flood plain deposits, and one to 5% for the consolidated rock.

Contacts:

Name	Phone/Fax	E-mail
Delfina Olivarez, ADEQ Project Manager	(602) 771-4710*/ (602) 771-4272 fax	olivarez.delfina@azdeq.gov
Don Atkinson, ADEQ Project Hydrologist	(602) 771-4182*/ (602) 771-4272 fax	dea@azdeq.gov

*In Arizona, but outside the Phoenix area, call toll-free at (800) 234-5677.

Information Repository:

Interested parties can review site information at the ADEQ Main Office located at 1110 W. Washington Street in Phoenix. Please contact (602) 771-4380 or (800) 234-5677 to schedule an appointment with 24-hour notice to review these documents. Once all documents requested have been collected, you will be contacted for a review Monday through Friday from 8:30 a.m. to 4:30 p.m. at the ADEQ Records Management Center, 1110 W. Washington Street in Phoenix, AZ.