FY2015

YUMA PROVING GROUND

Army Defense Environmental Restoration Program

Installation Action Plan

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Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multiyear cleanup program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern (AOC) and proposes a comprehensive, installation-wide approach, along with the costs and schedules associated with conducting investigations and taking the necessary remedial actions (RA).

In an effort to coordinate planning information between the restoration manager, the Installation Management Command (IMCOM), the US Army Environmental Command (USAEC), US Army Garrison Yuma Proving Ground (YPG), the executing agencies, the regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules, and tentative budgets for all major Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is; therefore, subject to change.

Acronyms

AAC	Arizona Administrative Code
AAFES	Army and Air Force Exchange Service
ABP	Agent Breakdown Product
ADEQ	Arizona Department of Environmental Quality
AEDB-R	Army Environmental Database - Restoration
AOC	Area of Concern
AOI	Area of Interest
APP	Aquifer Protection Permit
bgs	below ground surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
CC	Compliance-related Cleanup
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMI(C)	Corrective Measures Implementation (Construction)
CMS	Corrective Measures Study
COC	Contaminant of Concern
CR	Compliance Restoration
CS	Confirmatory Sampling
CS	Confirmation Sampling
CWA	Chemical Warfare Agent
CWM	Chemical Weapon Materiel
cy	cubic yard
DD	Decision Document
DERP	Defense Environmental Restoration Program
DES	Design
DoD	Department of Defense
DTC	Diesel Test Center
EE/CA	Engineering Evaluation/Cost Analysis
ER,A	Environmental Restoration, Army (formerly DERA)
FBTS	Fuel Bladder Test Site
FFS	Focused Feasibility Study
FRA	Final Remedial Action
FS	Feasibility Study
ft	feet
FWDA	Former Waste Disposal Area
FY	Fiscal Year
GPI	Gutierrez-Palmenberg, Inc.
GPL	Groundwater Protection Level
HE	High Explosive
IAP	Installation Action Plan
ICE	Internal Combustion Engine
IMCOM	Installation Management Command
IRA	Interim Remedial Action
IRP	Installation Restoration Program
JP-4	Jet Propellant Number 4
K	thousand

Acronyms

kg	kilogram
LAAF	Laguna Army Airfield
LTM	Long-Term Management
LUC	Land Use Control
LUST	Leaking Underground Storage Tank
MAA	Main Administrative Area
MC	Munitions Constituent
MCL	Maximum Contaminant Level
MD	Munitions Debris
MEC	Munitions and Explosives of Concern
mg	milligram
mg/kg	milligram per kilogram
mg/L	milligram per liter
mm	millimeter
MMRP	Military Munitions Response Program
MPA	Methyl Phosphoric Acid
MRS	Munitions Response Site
MRSPP	Munitions Response Site Prioritization Protocol
MW	Monitoring Well
N/A	Not Applicable
NFA	No Further Action
NPL	National Priorities List
nrSRL	Non-Residential Soil Remediation Level
OU	Operable Unit
PA	Preliminary Assessment
PAH	Polycyclic Aromatic Hydrocarbon
PBA	Performance-Based Acquisition
POL	Petroleum, Oil, and Lubricants
ppm	parts per million
RA	Remedial Action
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operation)
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RD/RA	Remedial Design/Remedial Action
RFA	RCRA Feasibility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RIP	Remedy-in-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
rSRL	Residential Soil Remediation Level

Acronyms

SCR	Site Characterization Report
SI	Site Inspection
SRL	Soil Remediation Level
SVE	Soil Vapor Extraction
SVOC	Semi-volatile Organic Compound
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TPH	Total Petroleum Hydrocarbon
TRC	Technical Review Committee
TVH	Total Volatile Hydrocarbon
ug/L	micrograms per liter
USACE	US Army Corps of Engineers
USACHPPM	US Army Center for Health Promotion and Preventive Medicine renamed US Army Public Health Command
USAEC	US Army Environmental Command
USAEHA	US Army Environmental Hygiene Agency
USAG	US Army Garrison
USATHAMA	US Army Toxic and Hazardous Materials Agency
USEPA	US Environmental Protection Agency
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VOC	Volatile Organic Compound
YPG	Yuma Proving Ground
YTC	Yuma Test Center

Site Alias List

AEDB-R Site ID to Alias List

AEDB-R #	Alias
CCYPG-027	SWMU 37
CCYPG-029	SWMU 41
CCYPG-141	SWMU 39
CCYPG-151	MTA #2
CCYPG-152	MTA#3
CCYPG-165	YPG004F006
CCYPG-178	N/A
CCYPG-204	YPG004F005
YPG-002-R-01	EasterHill
YPG-003-R-01	Meg's Find
YPG-10	FBTS
YPG-31	WETA
YPG-32	FWDA

Installation Information

Installation Locale

Installation Size (Acreage): 830000
City: Yuma
County: Yuma
State: Arizona
Other Locale Information

The US Army Garrison (USAG) Yuma Proving Ground (YPG) is located in the southwestern portion of Arizona and is bordered on the west by the Colorado River. The installation is located in Yuma County and in a very remote portion of La Paz County; the nearest major population center, the city of Yuma, is approximately 25 miles to the south-southwest. The population of Yuma is approximately 93,064 (2010 Census). The USAG YPG is one of the Department of Defense's (DoD) largest installations consisting of approximately 830,000 acres (roughly 1,300 square miles) which is slightly larger than the state of Rhode Island. The predominant use of adjacent lands is the US Department of the Interior restricted use, withdrawn lands, and the Kofa Wildlife Refuge.

Installation Mission

The mission of the USAG YPG is to conduct tests on medium and long-range artillery, aircraft target acquisition equipment and armament, armored and wheeled vehicles, a variety of munitions, and personnel and supply parachute systems. These testing programs are conducted for all US military services, friendly foreign nations, and private industry. The YPG is a general purpose facility with over 50 years of experience testing weapon systems of all types and sizes in a joint environment.

The YPG is also the Army's center for desert natural environment testing, the management of cold weather testing at the Cold Regions Test Center, Alaska, and tropic testing at the Tropic Test Center in various locations. The USAG YPG is one of 22 major test ranges that comprise the DoD major range test facility installation.

Lead Organization

IMCOM

Lead Executing Agencies for Installation

US Army Garrison YPG

Regulator Participation

Federal	US Environmental Protection Agency (USEPA), Region IX
State	Arizona Department of Environmental Quality (ADEQ), Federal Facilities Unit

National Priorities List (NPL) Status

YUMA PROVING GROUND is not on the NPL

Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status

RAB established 201006

Installation Information

Installation Program Summaries

IRP

Primary Contaminants of Concern: Chemical weapon munitions (CWM)/Chemical agent, Explosives, Metals, Pesticides, Petroleum, Oil and Lubricants (POL), Polycyclic Aromatic Hydrocarbons (PAH), Volatiles (VOC)

Affected Media of Concern: Groundwater, Soil

MMRP

Primary Contaminants of Concern: Metals, Munitions and explosives of concern (MEC), Munitions constituents (MC)

Affected Media of Concern: Soil

CR

Primary Contaminants of Concern: Metals, Other (No contaminants), Petroleum, Oil and Lubricants (POL), Semi-volatiles (SVOC), Volatiles (VOC)

Affected Media of Concern: Groundwater, Soil

5-Year / Periodic Review Summary

5-Year / Periodic Review Summary

Status	Start Date	End Date	End FY
Complete	201010	201209	2012
Planned	201510	201709	2017

Last Completed 5-Year / Periodic Review Details

Associated ROD/DD Name	Sites
DD 5 YPG 11	YPG-11
Fuel Bladder Test Site	YPG-10

Results No issues have been identified for the IRP sites YOG-10 and YPG-11 that would currently on in the futuer prevent the respective remedies at these sites from being protective of human health and the environment.

Actions Consistent with the USEPA guidance, recommendation have been made that pertain to groundwater monitoring activites and security.

YPG-10
Install additional fencing to secure monitoring wells at the site
YPG-11 is currently inder RD/RA phase.

Plans Contract action is ongoing for fence install at YPG-10.

Contract plan on capping YPG-11 spring 2013

Recommendations and Implementation Plans:

Land Use Control (LUC) Summary

LUC Title: Inactive site CCYPG 178

Site(s): CCYPG-178

ROD/DD Title: ROD for inactive landfill CCYPG-178

Location of LUC

Perimeter of inactive landfill located off Barranca Road on MAA.

Land Use Restriction: Restrict land use - No daycare/hospital/school use, Restrict land use - No residential use

Types of Engineering Controls: Signs

Types of Institutional Controls: Dig Permits, Notations in Master Plan

Date in Place: 201412

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: State

Record of LUC: Master Plan or Equivalent

Documentation Date: 201406

LUC Enforcement: Annual Inspections, Other

Contaminants: PAH

Additional Information

N/A

LUC Title: LUC DD 3 YPG 31 & YPG 32

Site(s): YPG-31, YPG-32

ROD/DD Title: DD 3 YPG 31 and YPG 32

Location of LUC

Perimeter of each SWMU. Sites are located on Cibola Range at the end of Rocket Alley Road (YPG-31) and 500 meters east of Rocket Alley Gun Position (YPG-32).

Land Use Restriction: Restrict land use - No residential use

Types of Engineering Controls: Fences, Signs

Types of Institutional Controls: Dig Permits, Restrictions on land use

Date in Place: 200509

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200807

LUC Enforcement: Markers, Other

Contaminants: Unexploded Ordnance(UXO)

Additional Information

YPG-31 will need additional investigations of the pad and unopen buildings located on site. Both actions are not covered under the current PBA.

YPG-32 installation is working with the ADEQ in an interim action for the site (capping with positive drainage) until future technoloy allows for subsurface soil samples. Site will continue with groundwater monitoring.

Land Use Control (LUC) Summary

Work on both sites will be conducted by COE Hunstville Chem Division.

LUC Title: LUC for DD 1 YPG 01

Site(s): YPG-01

ROD/DD Title: DD 1 YPG 01

Location of LUC

No LUC signed DD allowed for removal of wells and unrestricted use of site.

Land Use Restriction: None specified

Types of Engineering Controls: None

Types of Institutional Controls: Dig Permits, Notations in Master Plan

Date in Place: 200609

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 201008

LUC Enforcement: Other

Contaminants: VOC

Additional Information

Installation will seek concurrence on a DD with no land restrictions. Supplemental investigation revealed no contamanination at the site. MWs water samples were below RLS. DD concurrence from ADEQ August 22, 2013 FPU14-027. Wells decommissioned April 2014.

LUC Title: LUC for DD 2 YPG-03 & 13F

Site(s): YPG-03, YPG-13F

ROD/DD Title: DD 2 YPG 03 and YPG 13 f

Location of LUC

Building 2060 for YPG-03(YTC) and septic tank location of Building 3021 on LAAF. Description on contamination layer of GIS and in master plan

Land Use Restriction: None specified

Types of Engineering Controls: None

Types of Institutional Controls: Dig Permits, Notations in Master Plan

Date in Place: 200609

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 201008

LUC Enforcement: Other

Contaminants: VOC

Additional Information

Land Use Control (LUC) Summary

DD concurrence from ADEQ December 21, 2011 FPU 12-115.

LUC Title: LUC for DD 5YPG 11

Site(s): YPG-11

ROD/DD Title: DD 5 YPG 11

Location of LUC

South south east corner of the former pesticide mix/storage building T-430. Site asphalt over April 2014.

Land Use Restriction: Restrict land use - No residential use

Types of Engineering Controls: Fences

Types of Institutional Controls: Dig Permits, Notations in Master Plan

Date in Place: 200609

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 201008

LUC Enforcement: Other

Contaminants: PESTICIDES

Additional Information

DD was signed by all parties August 2010. The site will be covered with asphalt and annotated in the Master Plan as part of the installation's LUCs.

LUC Title: LUC for DD 6 YPG 37

Site(s): YPG-37

ROD/DD Title: DD 6 YPG 37

Location of LUC

At perimeter of YPG -037 77th EOD Disposal Area, within Rocket Alley Impact Area on Cibola Range.

Land Use Restriction: Landfill restriction - Restrict access to the site, Restrict land use - No residential use

Types of Engineering Controls: None

Types of Institutional Controls: Dig Permits, Notations in Master Plan, Restrictions on land use

Date in Place: 200609

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 201008

LUC Enforcement: Other

Contaminants: Unexploded Ordnance(UXO)

Additional Information

Site is not on current PBA will be addressed with future contract.

Land Use Control (LUC) Summary

LUC Title: LUC for DD 7 YPG 45

Site(s): YPG-45

ROD/DD Title: DD 7 YPG 45

Location of LUC

Located outside of Bldg 506 IHG hotel on MAA. DD allows for unrestricted use of site. Site still contains an unrelated heating oil UST.

Land Use Restriction: None specified

Types of Engineering Controls: None

Types of Institutional Controls: Dig Permits

Date in Place: 200609

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200807

LUC Enforcement: Other

Contaminants: PAH

Additional Information

Installation will seek ADEQ concurrence on a DD with no land use restictions. MWs and soil samples were below residential levels. Request decommisioning of the MWs currently on site. DD concurrence from ADEQ January 29 2014 FPU 14-131 wells decommissioned April 2014.

LUC Title: LUC for YPG 10

Site(s): YPG-10

ROD/DD Title: Fuel Bladder Test Site

Location of LUC

Approximately 30 acres at the end of Sanchez Road, one mile east of the Range Operations Control Bldg 2105, located on YTC. Site is enclosed with a fence and outlying wells are remarked and painted.

Land Use Restriction: Restrict land use - No residential use

Types of Engineering Controls: Fences, Markers, Signs

Types of Institutional Controls: Construction Permit, Dig Permits, Notations in Master Plan, Restrictions on land use

Date in Place: 200510

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Other Army Entity

Record of LUC: Master Plan or Equivalent

Documentation Date: 200807

LUC Enforcement: Annual Inspections, 5 Year Reviews, Markers

Contaminants: PETROLEUM HYDROCARBON

Additional Information

Current PBA contractor will conduct duplicate soil borings in the remaining hot spot the SVE was shutdown in 2011. Confirmatory soil sample report with ADEQ.

Land Use Control (LUC) Summary

LUC Title: LUCs for 7 SWMUs

Site(s): YPG-13B, YPG-13C, YPG-13D, YPG-13E, YPG-23, YPG-25, YPG-26

ROD/DD Title: DD 8 LUC Remedy for 7 SWMUs

Location of LUC

Existing fencelines of the seven SWMUs

Land Use Restriction: Restrict land use - No residential use

Types of Engineering Controls: Fences, Markers

Types of Institutional Controls: Dig Permits

Date in Place: 200402

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Other Army Entity

Record of LUC: Master Plan or Equivalent

Documentation Date: N/A

LUC Enforcement: Annual Inspections, 5 Year Reviews, Markers

Contaminants: INORGANICS, METALS, PAH, PESTICIDES, PETROLEUM HYDROCARBON, VOC

Additional Information

All sites were closed NFA March 24, 2014 FPU 14-173.

LUC Title: MMRP Easter Services Hill

Site(s): YPG-002-R-01

ROD/DD Title: DD YPG-002-R-01

Location of LUC

Fence and signage surrounding the cleared area within the MRA located on Barranca Road on MAA.

Land Use Restriction: Landfill restriction - Restrict access to the site, Restrict land use - No daycare/hospital/school use, Restrict land use - No residential use

Types of Engineering Controls: Fences, Signs

Types of Institutional Controls: Dig Permits, Education programs, Notations in Master Plan

Date in Place: 201406

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 201406

LUC Enforcement: 5 Year Reviews, Other

Contaminants: Unexploded Ordnance(UXO)

Additional Information

N/A

Cleanup Program Summary

Installation Historic Activity

The Army Ordnance Corps first established the Yuma Test Station in 1952 to test munitions. In 1961, it was transferred to the US Army Test and Evaluation Command and its name was changed to US Army Garrison YPG. Its mission was expanded to test all types of military materiel that has continued to be in operation since 1961. The primary focus of the testing is covered by five major commodity areas:

- aircraft armament,
- air delivery,
- track and wheeled vehicles,
- munitions and weapons, and
- environmental testing.

The major tenant activity includes the First Special Warfare Training Group (Airborne) Free Fall School, which relocated to USAG YPG in 1995.

In fiscal year (FY)06 groundwater monitoring was continued at five sites: YPG-01, YPG-10, YPG-31, YPG-32, and YPG-45. Using prior year funds, soil vapor extraction (SVE) wells were installed at YPG-10 and two internal combustion engines (ICE) were purchased (one ICE was refurbished for the SVE system). A remedial design (RD)/RA document, required by the ADEQ as a companion document to the YPG-10 decision document (DD), was drafted and submitted to ADEQ in April 2006 for review and comments were received in September 2006. The USAG YPG currently submits quarterly operations and maintenance reports for the SVE system to the ADEQ. The SVE system is operational during February through September.

For the remaining sites, the USAG YPG drafted a site-wide DD describing the sites and committing to groundwater and LUC monitoring as appropriate. The ADEQ requested that the YPG break sites out of the site-wide document and draft multiple DDs as follows:

DD 1	YPG-01 Chemical Laboratory at Building 2500
DD 2	YPG-03 (Building 2060) NFAand YPG-13f (Building 3021) NFA
DD 3	YPG-31 West Environmental Test Area and; YPG-32 Former Waste Disposal Area
DD 4	YPG-02 Removed Holding Tank (Building 2060)
DD 5	YPG-11 Former Pesticide Mix/Storage Building
DD 6	YPG-37 77th Explosive Ordnance Disposal Site
DD 7	YPG-45 Building 506
DD 8	YPG-13b Wash Pad 1 (south)-Castle Dome YPG-13c Wash Pad 2 (north)-Castle Dome YPG-13d Waste Basin-Castle Dome YPG-13e Septic Tank Leach Field-Kofa YPG-23 Washrack Lagoon-Kofa YPG-25 Septic Tank Leach Field (north)-Castle Dome and YPG-26 Septic Tank Leach Field (south)-Castle Dome
DD	YPG-002-R-01 Former Mortar Impact Area Easter Services Hill
	ROD for inactive landfill CCYPG-178

Finally, using prior year funds, a fence was installed at YPG-32.

In September 2007, a performance-based acquisition (PBA) contract was awarded. Two NFA DDs, three DDs with LUCs and groundwater monitoring, and three with LUCs only were submitted to the ADEQ in mid-year 2007. An agreement was obtained from ADEQ to prepare a final DD that integrated the SVE system into a final DD. On Dec. 9, 2004 all parties signed a final DD for the subsurface and vadose zone. The SVE wells and equipment at YPG-10 were purchased and installed with operations beginning in FY07. Groundwater monitoring at YPG-01, YPG-31, YPG-32, and YPG-45 was subjected to approval of a supplemental work plan by the ADEQ. The ADEQ commented on the DDs and the YPG provided responses to the comments. A DD for YPG-11 was approved on Aug. 8, 2010. The ADEQ approval of the additional DDs was expected by 2013.

Cleanup Program Summary

Installation Program Cleanup Progress

IRP

Prior Year Progress: No investigative activities were conducted on YPG-10, CCYPG-165, and CCYPG-204 during FY15 due to the expiration of the PBA contract. Completion of semiannual groundwater sampling and reporting will be completed by a gap year contract via the US Army Corps of Engineers (USACE) LA District. Planned award date is June 2015.

Future Plan of Action: Continue semiannual groundwater sampling and reporting under the new PBA contract with the expected commence date in September 2015.

MMRP

Prior Year Progress: No investigative activities were conducted on YPG-002-R-01 or YPG-003-R-01 during FY15.

Future Plan of Action: Complete of the remedial investigation (RI) on the remaining 123 acres of the Easter Services Hill Site (YPG-002-R-01). Complete the site inspection (SI) phase for YPG-003-R-01 under the new PBA contract with the expected commence date in September 2015.

CR

Prior Year Progress: Completed and obtained ADEQ concurrence on the corrective measure study (CMS) phase and reports in the Parson government services contract.

Future Plan of Action: Implementation of the CMS under the new PBA contract with the expected commence date in September 2015.

YUMA PROVING GROUND

Army Defense Environmental Restoration Program
Installation Restoration Program

IRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 43/40

Installation Site Types with Future and/or Underway Phases

2 Chemical Disposal
(YPG-31, YPG-32)

1 Spill Site Area
(YPG-10)

Most Widespread Contaminants of Concern

Chemical weapon munitions (CWM)/Chemical agent, Explosives, Metals, Pesticides, Petroleum, Oil and Lubricants (POL), Polycyclic Aromatic Hydrocarbons (PAH), Volatiles (VOC)

Media of Concern

Groundwater, Soil

Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
YPG-38	LEAD ARSENATE SITE	FRA	WASTE REMOVAL - SOILS	1993
YPG-45	YPG-45 BLDG 506 UST FUEL RELEASE	IRA	CAPPING	1993
YPG-10	YPG-10 FUEL BLADDER TEST SITE	IRA	SOIL VAPOR EXTRACTION	2004
YPG-13B	WashPad 1 Castle Dome Heliport	IRA	INSTITUTIONAL CONTROLS	2004
YPG-13C	Washpad 2 North Castle DomeHeliport	IRA	INSTITUTIONAL CONTROLS	2004
YPG-13D	WASTE BASIN AT CASTLE DOME HELIPORT	IRA	INSTITUTIONAL CONTROLS	2004
YPG-13E	SEPTIC TANK LEACHFIELD(E)KOFA BLDG 3490	IRA	INSTITUTIONAL CONTROLS	2004
YPG-23	WASHRACK/LAGOON (WEST) AT KOFA BLDG 3490	IRA	INSTITUTIONAL CONTROLS	2004
YPG-25	SEPTIC TANK LEACHFIELD (NORTH) AT CDH	IRA	INSTITUTIONAL CONTROLS	2004
YPG-26	SEPTIC TANK/LEACHFIELD (SOUTH) AT CDH	IRA	INSTITUTIONAL CONTROLS	2004
YPG-13F	SEPTIC TANK LEACHFIELD BLDG 3021 LAAF	IRA	OTHER	2005
YPG-37	77TH EXPLOSIVE ORDNANCE DEMOLITION AREA	FRA	INSTITUTIONAL CONTROLS	2005
YPG-45	YPG-45 BLDG 506 UST FUEL RELEASE	FRA	INSTITUTIONAL CONTROLS	2005
YPG-10	YPG-10 FUEL BLADDER TEST SITE	FRA	SOIL VAPOR EXTRACTION	2008
YPG-11	FORMER PESTICIDE MIX/STORAGE BLDG T-430	FRA	CAPPING	2014

Duration of IRP

Date of IRP Inception: 197810

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201809/202609

Date of IRP completion including Long Term Management (LTM): 202609

IRP Contamination Assessment

Contamination Assessment Overview

A number of regulatory agencies (ADEQ, USEPA Region IX) and US Army agencies [US Army Environmental Hygiene Agency (USAEHA), US Army Toxic and Hazardous Materials Agency (USATHAMA)] have identified potential release sites from past practices at YPG. In 1978, the USATHAMA identified 16 potential release sites and in 1988, 62 more potential release sites were identified. [These potential release sites are referred to in the 1988 USAEHA report as solid waste management units (SWMU)]. As a result of the USATHAMA and USAEHA evaluations, investigation and cleanup of selected SWMUs was conducted. In 1993, the Installation Restoration Program (IRP) was established at USAG YPG.

The YPG has 42 sites listed in the AEDB-R. These sites include industrial wastewater surface impoundments, sanitary and construction debris landfills, leach fields, storage areas, fire training sites, and ordnance treatment sites. Five sites require funding for remedial action (operation) [RA(O)] or LTM involving groundwater monitoring and remediation system operations and LUC measures. Eight additional sites will be addressed under an existing site-wide LUC system.

In late January 1997, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) conducted relative risk site evaluations at 19 previously unevaluated AEDB-R sites. Fifteen sites were scored as low relative risk, three sites were scored as medium relative risk, and one was identified as NFA under the IRP. A number of sites were not sampled because of presumed risks associated with chemical warfare agents (CWA) and/or ordnance and explosives.

The primary contaminants of concern (COC) at YPG are POLs and heavy metals. At the YPG, the transportation method with greatest potential to cause the conveyance of contaminants off-site is the groundwater resource. The RI plans and actions have been initiated for this risk. The sites of environmental concern involving groundwater are YPG-01, YPG-10, YPG-31, YPG-32, and YPG-45.

The Former Pesticide Mix/Storage Building T-430 (YPG-11) was found to have slightly elevated pesticide concentrations and seven sites (YPG-13b, YPG-13c, YPG-13d, YPG-23, YPG-13e, YPG-25, and YPG-26) were found to have slightly elevated arsenic concentrations in comparison to site background levels, between 1.2 and 1.8 times higher than the human health screening level; however, because of the conservatively safe default assumption of 100 percent bioavailability and the industrial use scenarios at YPG, the magnitude of the arsenic exceedances is insufficient to warrant further analysis in a baseline assessment of arsenic risks to human health at these sites. Left implicit in the RI report is YPG's position that the slight exceedances of the arsenic state regulatory limit do not warrant any further action other than LUCs. Arsenic exceedances at these sites should be considered in light of the uncertainties inherent in current risk assessment approaches and the frequently higher cleanup levels for arsenic in soil used at other Superfund sites. Use of more realistic exposure frequencies (rather than the default 350 days per year exposure frequency) would likely result in seven sites not requiring further action. Furthermore, use of a more realistic bioavailability (rather than the 100 percent bioavailability default) would result in seven sites not requiring further action.

At YPG-10 a DD was approved which documents a presumptive response strategy for source control (in this case, contamination present in the vadose zone) and thus the indirect improvement of groundwater quality. The focused feasibility study (FFS) advocates implementing groundwater remediation in a phased approach, with information gained from earlier phases used to refine subsequent investigations, objectives or actions. The strategy outlined for the Fuel Bladder Test Site (FBTS) begins with an initial source removal phase using SVE technology.

In fall 1997, based upon the potential risk to human health, RI activities were initiated for three sites used to test and dispose of CWAs: YPG-01 - Old Chemical Laboratory (Building S-2500), YPG-31 - West Environmental Test Area, and YPG-32 - Former Waste Disposal Area (FWDA). Because of the presumed risk to site workers, intrusive sampling has not occurred and is not planned at these sites. In the past, CWA degradation compounds have been detected at YPG-31 in passive soil gas points. Monitoring wells were installed at two of the sites and were sampled as part of the IRP. A water supply located downgradient of YPG-31 was sampled. The CWA degradation compounds were detected in one well from one round of samples at YPG-01, but not in a duplicate sample from the same well. The CWA degradation compounds were not detected in any well at YPG-01 in the subsequent two sampling episodes in 2001. Furthermore, no CWA degradation compounds were detected in any of the four monitoring wells in 13 subsequent sampling episodes through 2005. Analytical results from the 2012 supplemental investigation of YPG-01 determine that NFA was required at the site. The ADEQ concurred and the wells were removed during spring 2013. The CWA degradation compounds have not been detected from groundwater monitoring wells installed at the FWDA YPG-32. Based on the results of the supplemental investigation, the RI/FS phase for this site was reopened in AEDB-R.

In 2005, methyl phosphonic acid (MPA) was detected in the groundwater samples collected from YPG-31 and YPG-32, but the detections were at levels below the reporting limit, i.e., they were estimated concentrations. Further investigation by Argonne's

Contamination Assessment Overview

quality assurance officer during an annual laboratory audit found that there is another compound with a similar retention time that can act as a surrogate for MPA at low concentrations. As MPA has not been detected in two subsequent sampling events, the detections in 2005 are believed to have been false positives. In 2006, all CWA samples were split between two different laboratories as an additional quality assurance check.

During a 2012 supplemental investigation conducted by Parsons, 26 surface soil samples were collected and one round of groundwater sampling was conducted at YPG-31. Trace estimated concentrations of MPA were detected in one of 26 samples. Trace estimated concentrations of perchlorate were detected in six of 26 samples. There was an estimated concentration of MPA acid in MW1. Further RI is needed to determine if the soil has been impacted, remove surface debris and investigate munitions bunker. Due to safety concerns, soil samples were not collected at YPG-32.

The following list identifies the designations for the operable units (OU):

OU to AEDB-R Conversion

OU 1
- YPG-10 Fuel Bladder Test Site
- YPG-43 Former Fire Training Pit
- YPG-45 Building 506 UST Fuel Release

OU 2
- YPG-01 Old Chemical Laboratory (Building S-2500)
- YPG-02 Chemical Waste holding Tank (Building S-2060)

Cleanup Exit Strategy

The cleanup exit strategy for the YPG sites involves a combination of short-term remedies, LTM, and LUCs. The FBTS (YPG-10) has an SVE system which has been in operation since 2007. Initially this ICE-based SVE system was to be operated until Arizona state soil cleanup levels for COC are achieved in vadose zone soil. However, the June 6, 2012 rebound test show extractable vapor concentrations of total volatile hydrocarbon (TVH) have decreased to levels that render the ICE operations economically unfavorable and not sustainable. A work plan was developed to present the location of confirmation soil borings and outline and approach for determining if soil remediation levels have been met and to identify alternatives for the remedial approach. Groundwater monitoring will be completed to show the effectiveness of natural attenuation as identified in the RD/RA. A total of 22 monitoring wells are available at the FBTS to monitor the water quality of the surficial aquifer.

Sites YPG-01 and YPG-45 were closed out as NFA and all wells will be removed from the sites. The long-term strategy for YPG-31 and YPG-32 involves monitoring using LUCs. Per a request by the ADEQ in the November 2005 IAP meeting, one additional well was installed at YPG-31 and is monitored as part of the periodic monitoring effort. The strategy for the remaining sites involves LUC monitoring (signage,fencing,and master plan annotation) including adherence to an existing YPG digging permit program.

IRP Previous Studies

	Title	Author	Date
1978			
	Installation Assessment	USATHAMA	MAY-1978
1988			
	Initial Installation Assessment Update	US Army Environmental Hygiene Agency	JUL-1988
	Interim Final Report Groundwater Contamination Survey No. 38-26-0882-89, Evaluation of Solid Waste Management Units, Yuma Proving Ground	US Army Environmental Hygiene Agency	AUG-1988
1993			
	Lead Arsenic Site Closure Report, 192 (YPG-38) Mobility Test Area and Laguna Air Field Lagoons, Environmental Baseline Study	US Army Environmental Hygiene Agency	SEP-1993
1994			
	POL Investigation Plan	Gutierrez-Palmenberg, Inc	APR-1994
	DPG Tech Escort Report, On Removal of Liquid Filled Vial from YPG-31	YPG	NOV-1994
1995			
	POL Site Quality Assurance/Quality Control QMIS Report	YPG	APR-1995
1997			
	Hazardous and Medical Waste Study No. 37-EF-5481-97 Relative Risk Site Evaluation, Yuma Proving Ground	US Army Center for Health Promotion and Preventive Medicine (USACHPPM)	JAN-1997
1998			
	Site Characterization Report for the POL Bladder Test Spill Site, US Army Yuma Proving Ground	The POL Bladder Test Spill Site, US Army Yuma Proving Ground, Gutierrez	FEB-1998
1999			
	Resource Conservation and Recovery Act (RCRA) Facility Assessment, US Army YPG Final Report	USEPA Region 9	APR-1999
	Draft Final Remedial Investigation Work Plan for Yuma Proving Ground	Argonne National Laboratory	MAY-1999
	Final Building 506 Investigation, Yuma Proving Ground	CDM Federal Services	JUL-1999
2000			
	Draft Final Community Involvement Plan (internal Draft)	Argonne National Laboratory	APR-2000
	Remedial Investigation Sampling and Analysis Plan for Selected Sites at Yuma Proving Ground, Volume 1: Field Sampling Plan and Volume 2: Quality Assurance Project Plan	Argonne National Laboratory	MAY-2000
	Fuel Bladder Test Site Soil Vapor Extraction Work Plan	Argonne National Laboratory	JUL-2000
	Draft Preliminary Risk Evaluation for Operable Units 3 and 4, Yuma Proving Ground	Argonne National Laboratory	AUG-2000
	Fuel Bladder Test Site Soil Vapor Extraction Report	Argonne National Laboratory	DEC-2000
	Remedial Investigation/Feasibility Study Work Plan for Yuma Proving Ground	Argonne National Laboratory	DEC-2000
2001			
	Action Memorandum Interim Remedial Action at the Fuel Bladder Test Site (YPG-10) at Yuma Proving	Argonne National Laboratory	MAR-2001

IRP Previous Studies

	Title	Author	Date
2001			
	Ground and LaPaz Counties; Approved by ADEQ		
	Work Plan for Sample Collection and Evaluation to Determine Natural Background Concentrations of Inorganic Constituents in Soils at Yuma Proving Ground	Argonne National Laboratory	OCT-2001
	Soil Vapor Extraction Pilot Test Building 506 Underground Storage Tank Site	Argonne National Laboratory	OCT-2001
	Release Assessment for Solid Waste Management Units at Yuma Proving Ground	Argonne National Laboratory	NOV-2001
2002			
	Draft Final Preliminary Environmental Investigation for the Chemical Toxic Laboratory, Western Environmental Test Area, and Chemical Toxic Waste Disposal Area, Yuma Proving Ground	Argonne National Laboratory	MAR-2002
	Background Concentrations of Inorganic Constituents in Soils at Yuma Proving Ground	Argonne National Laboratory	MAR-2002
	Remedial Investigation Report for Selected Sites at Yuma Proving Ground	Argonne National Laboratory	JUL-2002
2003			
	Focused Feasibility Study for Subsurface Soil and Groundwater at the Fuel Bladder Test Site, Yuma Proving Ground	Argonne National Laboratory	JAN-2003
	Draft (December 2002) and Final Work Plan for Laboratory and Field Feasibility Testing, In situ Ozone Treatment of Petroleum Hydrocarbons at Building 506 Underground Storage Tank Site	Argonne National Laboratory	FEB-2003
	Refinement of the Screening Risk Assessment for Selected Sites at Yuma Proving Ground	Argonne National Laboratory	FEB-2003
2004			
	Final Remedial Investigation Report for Selected Sites at Yuma Proving Ground	Argonne National Laboratory	MAR-2004
	FPU-05-140 Re: Approved Decision Document for Fuel Bladder Test Site	ADEQ	DEC-2004
2005			
	Final Focused Feasibility Study for Subsurface Soil and Groundwater at the Building 506 Site, Yuma Proving Ground, Arizona	Argonne National Laboratory	SEP-2005
2008			
	Recommendation to Abandon Two Wells and Modify the Groundwater Monitoring Plan for YPG-10 - Fuel Bladder Site, Yuma Proving Ground, Arizona	Parsons	MAR-2008
2010			
	Community Relations Plan (IRP, USAGYPG)	Parsons	SEP-2010
	FPU 11-119 Re: YPG, Final Decision Document Building 506 Underground Storage Tanks (YPG-45) US Army Garrison Yuma Proving Ground Dated June 2010	ADEQ	DEC-2010
2011			
	Draft Final First Five-Year Review Report Selected IRP Sites	Parsons Infrastructure and Technology Group, Inc.	OCT-2011
	FPU 12-099 RE: YPG Draft Final First Five-Year Review Report Selected IRP Sites, USAG YPG Dated	ADEQ	DEC-2011

IRP Previous Studies

	Title	Author	Date
2011			
	October 2011		
2012			
	Supplemental Investigation Activities Work Plan for USAGYPG: Further Investigation of YPG-01,31,32,and 45	Parsons	FEB-2012
	Final First Five-Year Review Report Selected Installation Restoration Program Sites	Parsons	MAR-2012
	Final First Five-Year Review Report Selected Installation Restoration Program Sites	Parsons	MAR-2012
	FPU12-135 Re: YPG, Supplemental Investigation Activities Work Plan for USAGYPG Further Investigation of YPG-01,-31,-32, and -45 Dated February 2012	ADEQ	MAR-2012
	Draft Final RCRA Facility Investigation Report Muggins Mountain OB/OD Facility YPG-035A, B and C	Parsons	MAR-2012
	Supplemental Investigation Activities Work Plan for Further Investigation of YPG-01, 31, 32, and -45	Parsons	APR-2012
	Final Supplemental Investigation Report for Building 506 Underground Storage Tanks (YPG-45)	Parsons	APR-2012
	Supplemental Investigation Activities Workplan for Further Investigation of YPG-01, -31, -32, and -45	Parsons	APR-2012
	Draft Final Supplemental Investigation Report for Building 506 Underground storage Tanks (YPG-45)	Parsons	SEP-2012
	Draft Final Supplemental Investigation Report for the Old Chemical Laboratory at Building 2500 (YPG-01)	Parsons	SEP-2012
	Draft Final Interim Remedial Action Completion Report Fuel Bladder Test Site (YPG-10)	Parsons	NOV-2012
	Draft Final Interim Remedial Action Completion Report Fuel Bladder Test Site (YPG-10) US Army Garrison Yuma Proving Ground	Parsons	NOV-2012
2013			
	Final Supplemental Investigation Report for the Old Chemical Laboratory at Building 2500 (YPG-01)	Parsons	FEB-2013
	Final RCRA Facility Investigation Report for Inactive Landfill YPG-141	Parsons	MAR-2013
	Final RCRA Facility Investigation Report for Inactive Landfill YPG-141	Parsons	MAR-2013
	Final RCRA Facility Investigation Report for Inactive Landfill YPG-029	Parsons	MAR-2013
	Draft Final Work Plan for Confirmation Soil Sampling at the Fuel Bladder Test Site (YPG-10)	Parsons	APR-2013
	Draft Final Corrective Measures Study Work Plan for Inactive Landfills YPG-029 and YPG-141	Parsons	APR-2013
	Final Decision Document Old Chemical Laboratory at Building 2500 (YPG-01)	Parsons	MAY-2013
	Final Work Plan for Confirmation Soil Sampling at the Fuel Bladder Test Site (YPG-10)	Parsons	JUN-2013
	Draft Final Supplemental Investigation Report For The West Environmental Test Area (YPG-31)	Parsons	JUN-2013
	Annual Groundwater Monitoring Report Service Station 207/209 LUST File 30682.02 Facility ID#0-005341	Parsons	JUL-2013
	Annual Groundwater Monitoring Report AAFES Service Station LUST File #0682.03 Facility ID #0-005341	Parsons	JUL-2013

IRP Previous Studies

	Title	Author	Date
2013			
	Final RCRA Corrective Measures Study Work Plan for Inactive Landfills YPG-029 and YPG-141 Rev 0	Parsons	AUG-2013
	Final Supplemental Investigation Report for the West Environmental Test Area (YPG-31) Rev 0	Parsons	SEP-2013
	Final Supplemental Investigation Report for the West Environmental Test Area	Parsons	SEP-2013
	Draft Final decision Document Building 506 Underground Storage Tanks (YPG-45) Rev. 0	Parsons	SEP-2013
	Final RCRA Facility Investigation Report for Inactive Landfill YPG-027	Parsons	OCT-2013
	Final Decision Document Building 506 Underground Storage Tanks (YPG-45) Rev. 0	Parsons	OCT-2013
	Final Supplemental Investigation Report for the West environmental Test Area(YPG-31)	Parsons	DEC-2013
	Final RCRA CMS Report for Inactive Landfills YPG-029 and YPG-141 Rev 0	Parsons	DEC-2013
	Final Supplemental Investigation Report For The West Environmental Test Area (YPG-31) Rev. 1	Parsons	DEC-2013
2014			
	Draft Final Supplemental Investigation Report For The Former Waste Disposal Area (YPG-32) Rev. 0	Parsons	JAN-2014
	Final RCRA Facility Investigation Report for Inactive Landfill YPG-178	Parsons	JAN-2014
	Draft Final Supplemental Investigation Report for the Former Waste Disposal Area (YPG-32) Rev 0	Parsons	JAN-2014
	Final Interim Remedial Action Completion Report Fuel ballder Test Site (YPG-10) rev 2	Parsons	FEB-2014
	Draft Final RCRA CMS Work Plan for Inactive Landfill YPG-027	Parson	FEB-2014
	Draft Final Groundwater Monitoring Report Kofa OB/OD Munitions Treatment Facility 2011-2013	Parsons	FEB-2014
	Final Interim Remedial Action Completion Report Fuel Bladder Test Site (YPG-10) Rev. 2	Parsons	FEB-2014
	Draft Final Confirmation Soil Sampling Report for the Fuel Bladder Test Site YPG -10	Parsons	FEB-2014
	Draft Final Confirmation Soil Sampling Report For The Fuel Bladder Test Site (YPG-10)	Parsons	FEB-2014
	Final Decision Document for YPG-13b-e,-23,-25, and -26 Rev. 2	Parsons	MAR-2014
	Final Remedial Action Report for YPG-028	Parsons	MAR-2014
	Draft Final CMS Work Plan for Inactive Landfill YPG-178	Parsons	APR-2014
	Draft Final CMS Workplan for Muggins Mountain OB/OD facility YPG-035A,B, and C	Parsons	APR-2014
	Technical Memorandum YPG-02-Chemical Waste Holding Tank Near Building 2060	Parsons	MAY-2014
	Final Supplemental Investigation Report For The Former Waste Disposal Area (YPG-32) Rev.0	Parsons	MAY-2014
	Final Confirmation Soil Sampling Report for the Fuel Bladder Test Site (YPG-10)	Parsons	MAY-2014
	Final Decision Document For The Chemical Waste Holding Tank Near Building 2060 (YPG-02) (Revision 1)	Parsons	SEP-2014

YUMA PROVING GROUND

Installation Restoration Program

Site Descriptions

Site ID: YPG-10
Site Name: YPG-10 FUEL BLADDER TEST SITE
Alias: FBTS

STATUS

Regulatory Driver: CERCLA

RRSE: LOW

Contaminants of Concern: Metals, Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
PA	199108	199201
SI	199208	199309
RI/FS	199404	200606
RD	200607	200612
IRA	200108	200403
RA(C)	200701	200806
RA(O)	200807	202609

RIP Date: 200807

RC Date: 202609

SITE DESCRIPTION

The FBTS lies within an area of approximately 30 acres at the end of Sanchez Road, one mile east of Building 2105, located on the Yuma Test Center (YTC). The FBTS was used during the 1960s and 1970s to test the integrity of collapsible fuel bladder tanks for combat field applications. The bladders were initially tested on flat ground but were later tested in earthen pits surrounded by berms. Aerial photographs and visual inspection indicate that there were twelve pits at the site. It has been estimated that as much as 500,000 gallons of fuel may have been released during the test activities. Releases with a total volume of 210, 000 gallons of leaded gasoline (Pit 2) and two releases from Pit 7 totaling approximately 28,500 gallons were documented during the period of the test activity. The types of fuel released include leaded gasoline, JP-5, and diesel fuel. Therefore, the total amount of fuel released is unknown but extensive soil sampling conducted in the early-1990s concluded that 54,000 to 72,000 gallons of fuel remained in the soil at that time. In October 2001, a presumptive remedy of SVE was proposed to the ADEQ. An IRA that included operation of a dual engine SVE unit to determine design parameters for a full-scale ICE SVE system has been performed for YPG-10. Based on the SVE pilot test data and approximately 186,825 gallons of fuel has already been removed by the SVE system (not considering the amount biodegraded), the total amount of fuel at the site was probably between 100,000 and 500,000 gallons. Past investigations have confirmed the presence of benzene/xylene/toluene related compounds in the vadose zone and in groundwater (Argonne, 2004).

Risk refinement steps have identified a potential unacceptable risk to human health and ecological resources (Argonne, 2004). In 2003, an FFS was completed and submitted to ADEQ and in March 2004 a RI report was completed. An agreement was obtained from ADEQ to prepare a final DD that integrated the SVE system. On Dec. 9, 2004 all parties signed an interim DD for the subsurface and vadose zone. In March 2006 the RD/RA plan was submitted to and received concurrence from ADEQ. In September 2007, a PBA contract was awarded. The PBA contract funded the required RA(O)/LTM and included achieving RC for soil and groundwater. In April 2008, the SVE system was restarted and operated until December 2008.The SVE system at the FBTS has been shut down on four occasions for rebound testing (December 2008, October 2009, October 2010 and November 2011). Based on data from the SVE/ICE system and analytical results from groundwater sampling the selected IRA at the FBTS is progressing as intended. Soil gas concentrations have decreased since the implementation of the system, whereby reducing the cost effectiveness of the SVE system using the ICE technology. Monitoring wells OW2, OW11, OW13, OW14, and OW16 are the only shallow wells that have concentrations above remediation goals since April 2009. There are no indications that the plume is increasing in size or migrating. An IRA completion report for the FBTS was submitted to ADEQ December 2013 and finalized in February 2014 (REF: FPU14-098 and FPU14-132) after revisions. Parsons conducted confirmation soil sampling at the site during Nov. 12-25, 2013 and submitted a report to ADEQ in February 2014. The ADEQ responded in April 2014 (via conference call) and in June 2014 (REF: FPU14-260).

Groundwater monitoring of 26 wells (including damaged well OW-15) at the FBTS began in April 1994 and is ongoing. A total of 40 groundwater sampling events have been conducted at the site. Sampling at the site is conducted semiannually at all wells with detections, and annually at wells without detections. Based on the results of the soil and groundwater sampling, it was concluded that the SVE system has removed a sufficient amount of contamination at the site to support the shutdown of the system until

evaluation of possible remedies are conducted in during the FFS.

The SVE system resumed operations (start of 2009) until it was shut down at the end of 2011.

The YPG-10 well sampling consists of wells that are sampled once per year (OW wells 3, 5, 6, 7a, 8, 9, 10, 12, 14, 17, 18, 19, 20, 21, 22a, 23a, 24b) and wells that are sampled twice per year (OW wells 2, 11, 13, 16). The production wells are 2, 4, 5, 7. The total OW samples for a year is 25 samples and the total production well samples are 8 samples for a total of 33 samples a year at the site.

The contractor conducted confirmation soil sampling at the site in spring 2013. Duplicate soil borings will be taken in the remaining hot spot to determine remaining contamination levels. A total of 28 soil samples will be collected from the 18 locations where soil samples previously exceeded remediation goals. Three locations were chosen because volatile hydrocarbon concentrations exceeded 5,000 parts per million (ppm) during rebound testing.

CLEANUP/EXIT STRATEGY

As of December 2011, approximately 187,000 gallons of fuel have been volatized and treated at the FBTS. This total does not include the mass of fuel biodegraded as evidence by elevated CO2 and depressed oxygen concentrations. Results of the June 6, 2012 rebound test show extractable vapor concentrations of TVH have decreased to levels that render ICE operation economically unfavorable and not sustainable (consistently below 5,000 ppm require 90 to 95 percent supplemental propane fuel). A work plan was developed to present the location of confirmation soil borings and outline an approach for determining if soil remediation levels have been met and identify alternatives to the remedial approach. Groundwater monitoring will be completed to show the effectiveness of natural attenuation as identified in the RD/RA. A total of 22 monitoring wells are available at the FBTS to monitor the water quality of the surficial aquifer.

Site ID: YPG-31
Site Name: YPG-31 WEST ENVIRONMENTAL TEST AREA
Alias: WETA

STATUS

Regulatory Driver: CERCLA

RRSE: NOT EVALUATED

Contaminants of Concern: Chemical weapon munitions (CWM)/Chemical agent, Explosives, Metals, Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
PA	197810	197812
SI	198808	198808
RI/FS	199708	201809

RIP Date: N/A

RC Date: 201809

SITE DESCRIPTION

This site is located 2.3 miles north of the Phillips Drop Zone on the Cibola Testing Range below the dog training facility. It is enclosed by an eight-foot tall chain-link fence and covers an area of 3,000 ft by 2,100 ft. From the 1950s until 1969, environmental testing of CWA and munitions and assorted military material was conducted at this location. In addition, a single disposal operation occurred at the termination of CWA testing. In 1994, four bottles of distilled mustard was discovered at the site and was disposed of by Dugway Proving Ground Technical Escort Unit.

A historical record review, an aerial photographic review, and an investigation using geophysics and soil gas sampling techniques were conducted in two areas where CWA testing and the disposal operation occurred in the past. The CWA degradation compounds were detected in soil gas samples collected from what are inferred to be areas used for the one-time disposal of equipment used for CWA related tests (Argonne, March 2004). This inference is based upon geophysics and aerial photographic interpretation. Detections of VOCs were found in soil gas samples collected from the northern section of the site. The LUCs were completed which included signage around the building and the existing engineering controls (fence) will continue to be maintained.

In September 2007m a PBA, contract was awarded. The PBA contract was funded to finalize the DD and perform required LTM through 2014. A supplemental investigation activities work plan to conduct further investigation at the site was submitted to the ADEQ in February 2012. Surface soil sampling activities conducted during spring 2012 at YPG-31 consisted of the collection of one surface soil sample from each of the 22 hard stands (WETA-SS001 through WETA-SS022) and four sediment samples from the dry drainages that exit the west side of the site (WETA-DW-SS001 through WETA-DW-SS004).

One round of groundwater sampling was conducted at YPG-31 in July 2012. Groundwater samples were collected from monitoring well WETA-MW1 and production well V. Groundwater samples were analyzed for VOCs, agent breakdown product (ABP), explosives, and perchlorate. Analytical results of surface soil sampling show an estimated trace concentration of MPA (0.032 mg/kg) in the dry wash sample WETA-DW-SS001. Estimated trace concentrations of perchlorate were detected at WETA-SS003 (0.00056 mg/kg), WETA-SS004 (0.00041 mg/kg), WETA-SS006 (0.0022 mg/kg), and WETA-SS0017 (0.0015 mg/kg). The field duplicate for WETA-SS006 also contained an estimated trace concentration of perchlorate (0.0034 mg/kg). No VOCs were detected in the subsurface soils at the site. Groundwater analytical results show an estimated trace concentration of MPA (50 µg/L) in monitoring well WETA-MW1. Perchlorate was also detected in WETA-MW1 (1.1 µg/L) and WETA-PWV (0.87 µg/L) and the field duplicate for WETA-MW1 (1.2 µg/L). No VOCs were detected in the groundwater at YPG-31. The contractor recommendations for the site resulted in the RI/FS phase has been reopened in AEDB-R. This was due in part to the data cap found during the investigation regarding COCs. Further remedial work at the site will be conducted under the PBA contract which was awarded to Parsons Government Services, Inc. in September 2014.

A supplemental investigation activities work plan was submitted to ADEQ in February 2012 to conduct further investigation of YPG-31 to collect data that can be used to complete the DD. Specific activities to be performed at the site and their objectives consist of the following:

1. Conducting a visual survey of the site (including hard stand locations, buildings, and the suspect burial trench to document the condition of AOCs); and 2. Collecting surface samples around the hard stands to evaluate if any releases may have occurred during the testing of munitions.

Site ID: YPG-31

Site Name: YPG-31 WEST ENVIRONMENTAL TEST AREA

Alias: WETA

Surface soil sampling activities conducted during spring 2012 at YPG-31 consisted of the collection of one surface soil sample from each of the 22 hard stands (WETA-SS001 through WETA-SS022) and four sediment samples from the dry drainages that exit the west side of the site (WETA-DW-SS001 through WETA-DW-SS004). Tests were conducted at the WETA on a variety of materials that included distilled mustard, tear gas, assorted grenades, rockets, mines and burters. Surface soil sample locations were biased towards pad drainage or soil stained areas. Soil samples were analyzed for ABPs, explosives, and perchlorate. No soil samples were collected in the area of the suspected burial trench because of concern for human safety due to possible CWA. A total of 26 surface soil samples were collected.

CLEANUP/EXIT STRATEGY

Further intrusive RI will be conducted under a PBA contract awarded to Parsons Government Services, Inc. Current LUCs will remain in place.

Site ID: YPG-32
Site Name: YPG-32 FORMER WASTE DISPOSAL AREA
Alias: FWDA

STATUS

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Chemical weapon munitions (CWM)/Chemical agent, Explosives, Metals, Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
PA	197810	197812
SI	198808	198808
RI/FS	199708	201809

RIP Date: N/A

RC Date: 201809

SITE DESCRIPTION

The FWDA Site is located one-half mile northeast of the West Environmental Test Area Site on the Cibola Testing Range. The site occupies about 4.7 acres and is surrounded by a six-foot chain-link fence, with three-strand barbed wire on top. It is currently administered under strict LUC procedures including physical controls, a fence and gate, and existing YPG dig permit requirements. It consists of a number of buried disposal pits used for material disposal. From the early-1950s until late-1969, the site was used for disposal of decontaminated chemical agent wastes from environmental and purity analysis testing, at the Old Chemical Laboratory (Building S-2500, YPG-01), WETA and rocket-firing tubes used for chemical ammunition. The area and disposal pits, though judged by previous investigations to require NFA, required reevaluation. Three monitoring wells have been installed. No CWA degradation compounds were detected in the wells for all sampling episodes from 2001 through 2005. The LUCs were completed.

In September 2007, a PBA contract was awarded. The PBA contract was funded to finalize the DD and perform required LTM through 2014. A supplemental investigation recommends drilling up to 30 soil borings to a depth of 10 ft below ground surface (bgs), collecting samples at five foot intervals, and analyzing soil samples for ABPs and explosives. A non-compacted native soil cover should be placed over each of the 10 filled burial pits located at the site. A drainage swale for storm water control should be created to reduce ponding of water at the site. The drainage swale will follow the natural runoff pattern, and can be constructed between the pits to direct runoff toward the southwest of YPG-32, away from the site. Groundwater monitoring should be conducted because contamination is left in place.

The PBA contractor recommendations for the site resulted in the RI/FS phase being reopened in AEDB-R. This was due in part to the data gap found during the investigation. Further remedial work at the site was conducted in October 2014 under a PBA contract.

A supplemental investigation activities work plan was submitted to ADEQ in February 2012 to conduct further investigation of YPG-32 to obtain site topographic and groundwater analytical data to substantiate RAs presented in the DD. To verify releases from the disposal trenches have not impacted groundwater, one round of groundwater sampling was conducted at the site using the two groundwater monitoring wells located on the downgradient side of YPG-32. One round of groundwater sampling was conducted at YPG-32 in June 2012. Groundwater samples were collected from monitoring wells FWDA-MW1 and FQDA-MW2. Monitoring well FWDA-MW3 could not be sampled at that time because the water level in the monitoring well was too low. Groundwater samples were sent to GCAL for VOC analysis and Test America for ABPs, explosives, and perchlorate analyses. The cooler containing groundwater samples for VOC analysis was misplaced by the courier during shipment, and the sample holding time expired before the cooler was located. Therefore, monitoring wells FWDA-MW1 and FQDA-MW2 were resampled for VOCs in July 2012. During July 2012 sampling, monitoring well FWDA-MW1 could not be sampled because the GFCI breaker for the pump continued tripping. It was determined that the pump was installed incorrectly, and the breaker was repaired. A round of groundwater sampling was conducted in February 2013.

CLEANUP/EXIT STRATEGY

Further intrusive RI will be conducted under a PBA contract awarded to Parsons Government Services. Current LUCs will remain in place.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
YPG-01	OLD CHEMICAL LABORATORY (BLDG S-2500)	200403	
YPG-02	CHEM WASTE HOLDING TANK BLDG S-2060)	201410	
YPG-03	SEPTIC TANK LEACHFIELD BLDG. 2060	201112	DD awaiting Signature
YPG-04	PETROLEUM LABORATORY(BLDG S-2060)	198808	RCRA Facility Assessment, US YPG Final Report, USEPA Region 9, 1999-Apr
YPG-05	55 GAL POL STORAGE @ PETROLEUM LAB	198808	RCRA Facility Assessment, US YPG Final Report, USEPA Region 9, 1999-Apr
YPG-06	OB/OD NEW DEMO AREA-KOFA EAST	199703	This site is active and is addressed in the current RCRA Part B Permit Application/Not Eligible For Environmental Restoration, Army (ER,A) Funding
YPG-07	MOBILITY RANGE (GENERAL) aka YTC	199703	Site is Active. Management Guidance for the Defense Environmental Restoration Program as amended/Not Eligible For ER,A Funding
YPG-08	RAD STORAGE @ X-RAY FACILITY(BLDG 3493)	198808	RCRA Facility Assessment, US YPG Final Report, USEPA Region 9, 1999-Apr
YPG-09	RAD STORAGE SITE(BUILDING 3557)	199006	This site is active and not eligible for IRP funding/Not Eligible For ER,A Funding
YPG-11	FORMER PESTICIDE MIX/STORAGE BLDG T-430	201404	
YPG-12	PESTICIDE MIX/STORE FACILITY(BLDG 416)	199703	RCRA Facility Assessment, US YPG Final Report, USEPA Region 9, 1999-Apr
YPG-13A	SEPTIC TANK LAGOON CASTLE DOME HELIPORT	200101	Site is Active- Management Guidance for the Defense Environmental Restoration Program as amended/Not Eligible For ER,A Funding
YPG-13B	WashPad 1 Castle Dome Heliport	201403	
YPG-13C	Washpad 2 North Castle DomeHeliport	201403	
YPG-13D	WASTE BASIN AT CASTLE DOME HELIPORT	201403	
YPG-13E	SEPTIC TANK LEACHFIELD(E)KOFA BLDG 3490	201403	
YPG-13F	SEPTIC TANK LEACHFIELD BLDG 3021 LAAF	201112	DD awaiting signature
YPG-15	RAW SEWAGE LAGOON SYSTEM - MAIN POST	199703	Site is active- Management Guidance for the Defense Environmental Restoration Program as amended/Not Eligible For ER,A Funding
YPG-20	LAGOON @ MOBILITY TEST AREA	199703	Site is active- Management Guidance for the Defense Environmental Restoration Program as amended/Not Eligible For ER,A Funding
YPG-21	IMHOFF TANK @ MOBILITY TEST AREA LAGOON	199703	Site is active- Management Guidance for the Defense Environmental Restoration Program as amended /Not Eligible For ER,A Funding
YPG-23	WASHRACK/LAGOON (WEST) AT KOFA BLDG 3490	201403	
YPG-24	RAW SEWAGE LAGOONS @ KOFA RANGE	199703	Site is active- Management Guidance for the Defense Environmental Restoration Program as amended/Not Eligible For ER,A Funding
YPG-25	SEPTIC TANK LEACHFIELD (NORTH) AT CDH	201403	

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
YPG-26	SEPTIC TANK/LEACHFIELD (SOUTH) AT CDH	201403	
YPG-27	LANDFILL 5KM S-SE OF MAINPOST	198808	This site was transferred to the Compliance-Related Cleanup Program/Not Eligible For ER,A Funding
YPG-28	LANDFILL 3KM EAST OF MAIN POST	198808	This site was transferred to the Compliance-Related Cleanup Program and site investigation was funded in FY2006./ Not Eligible For ER,A Funding
YPG-29	LANDFILL E OF RT95, 2KM W KOFA RANGE	198808	This site was transferred to the Compliance-Related Cleanup Program and site investigation was funded in FY2006 / Not Eligible For ER,A Funding
YPG-30	LANDFILL 4KM NW OF KOFA RANGE	199703	This site was transferred to the Compliance-Related Cleanup Program and site investigation was funded in FY2006 / Not Eligible For ER,A Funding
YPG-33	TEST SITE 8KM W RT95, 4.4KM SW CIBOLA RD	199703	There was no study performed on this site. The site is an inactive landfill./Not Eligible For ER,A Funding
YPG-34	TEST SITE NE OF CHEM AGENT DISPOSAL AREA	199703	This site is an active range./Not Eligible For ER,A Funding
YPG-35	OLD DEMO AREA(N BASE OF MUGGINS MTS)	199703	This site was transferred to the Compliance-Related Cleanup Program /Not Eligible For ER,A Funding
YPG-37	77TH EXPLOSIVE ORDNANCE DEMOLITION AREA	200509	DD awaiting signature
YPG-38	LEAD ARSENATE SITE	199403	Correspondence 12/4/1996 From P. Perry ADEQ to C. Botdorf, Re Meeting and Site Visit at YPG November 6, 1996.
YPG-39	KOFA RANGE(IMPACT AREA)	199703	This is an active range. Correspondence 12/4/1996 From P. Perry ADEQ to C. Botdorf, Re Meeting and Site Visit at YPG November 6, 1996.
YPG-40	PYROTECHNIC RANGE(IMPACT AREA)	199703	This site is an active range. Correspondence 12/4/1996 From P. Perry ADEQ to C. Botdorf, Re Meeting and Site Visit at YPG November 6, 1996. /Not Eligible For ER,A Funding
YPG-41	CIBOLA RANGE(IMPACT AREA)	199703	This is an active range. Management Guidance for the Defense Environmental Restoration Program as amended and Correspondence 12/4/1996 From P. Perry ADEQ to C. Botdorf, Re Meeting and Site Visit at YPG November 6, 1996 /Not Eligible For ER,A Funding
YPG-43	FORMER FIRE TRAINING PIT	199909	This site was closed under the Arizona Aquifer Protection Program. Correspondence, 8/19/1999 From Richard Herring to C. Botdorf, Re YPG Fire Training Facility Aquifer Protection Permit (APP) Application Completeness Review/Not Eligible For ER,A Funding
YPG-44	AMMUNITION DEFLAGRATION SITE	199703	Site is active- Management Guidance for the Defense Environmental Restoration Program as amended/Not Eligible For

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
			ER,A Funding
YPG-45	YPG-45 BLDG 506 UST FUEL RELEASE	201403	
YPG-PBA	YPG-PBA	201005	

IRP Schedule

Date of IRP Inception: 197810

Past Phase Completion Milestones

1979	
RFA	(YPG-06 - OB/OD NEW DEMO AREA-KOFA EAST, YPG-12 - PESTICIDE MIX/STORE FACILITY(BLDG 416), YPG-27 - LANDFILL 5KM S-SE OF MAINPOST, YPG-28 - LANDFILL 3KM EAST OF MAIN POST, YPG-29 - LANDFILL E OF RT95, 2KM W KOFA RANGE, YPG-30 - LANDFILL 4KM NW OF KOFA RANGE, YPG-35 - OLD DEMO AREA(N BASE OF MUGGINS MTS))
PA	(YPG-01 - OLD CHEMICAL LABORATORY (BLDG S-2500), YPG-02 - CHEM WASTE HOLDING TANK BLDG S-2060), YPG-03 - SEPTIC TANK LEACHFIELD BLDG. 2060, YPG-04 - PETROLEUM LABORATORY(BLDG S-2060), YPG-05 - 55 GAL POL STORAGE @ PETROLEUM LAB, YPG-07 - MOBILITY RANGE (GENERAL) aka YTC, YPG-08 - RAD STORAGE @ X-RAY FACILITY(BLDG 3493), YPG-11 - FORMER PESTICIDE MIX/STORAGE BLDG T-430, YPG-13A - SEPTIC TANK LAGOON CASTLE DOME HELIPORT, YPG-13B - WashPad 1 Castle Dome Heliport, YPG-13C - Washpad 2 North Castle DomeHeliport, YPG-13D - WASTE BASIN AT CASTLE DOME HELIPORT, YPG-13E - SEPTIC TANK LEACHFIELD(E)KOFA BLDG 3490, YPG-13F - SEPTIC TANK LEACHFIELD BLDG 3021 LAAF, YPG-15 - RAW SEWAGE LAGOON SYSTEM - MAIN POST, YPG-20 - LAGOON @ MOBILITY TEST AREA, YPG-21 - IMHOFF TANK @ MOBILITY TEST AREA LAGOON, YPG-23 - WASHRACK/LAGOON (WEST) AT KOFA BLDG 3490, YPG-25 - SEPTIC TANK LEACHFIELD (NORTH) AT CDH, YPG-26 - SEPTIC TANK/LEACHFIELD (SOUTH) AT CDH, YPG-31 - YPG-31 WEST ENVIRONMENTAL TEST AREA, YPG-32 - YPG-32 FORMER WASTE DISPOSAL AREA, YPG-33 - TEST SITE 8KM W RT95, 4.4KM SW CIBOLA RD, YPG-34 - TEST SITE NE OF CHEM AGENT DISPOSAL AREA, YPG-37 - 77TH EXPLOSIVE ORDNANCE DEMOLITION AREA, YPG-38 - LEAD ARSENATE SITE, YPG-39 - KOFA RANGE(IMPACT AREA), YPG-40 - PYROTECHNIC RANGE(IMPACT AREA), YPG-41 - CIBOLA RANGE(IMPACT AREA), YPG-44 - AMMUNITION DEFLAGRATION SITE)
SI	(YPG-11 - FORMER PESTICIDE MIX/STORAGE BLDG T-430)
1988	
PA	(YPG-09 - RAD STORAGE SITE(BUILDING 3557), YPG-24 - RAW SEWAGE LAGOONS @ KOFA RANGE, YPG-43 - FORMER FIRE TRAINING PIT, YPG-PBA - YPG-PBA)
SI	(YPG-02 - CHEM WASTE HOLDING TANK BLDG S-2060), YPG-03 - SEPTIC TANK LEACHFIELD BLDG. 2060, YPG-04 - PETROLEUM LABORATORY(BLDG S-2060), YPG-05 - 55 GAL POL STORAGE @ PETROLEUM LAB, YPG-07 - MOBILITY RANGE (GENERAL) aka YTC, YPG-08 - RAD STORAGE @ X-RAY FACILITY(BLDG 3493), YPG-09 - RAD STORAGE SITE(BUILDING 3557), YPG-13A - SEPTIC TANK LAGOON CASTLE DOME HELIPORT, YPG-13B - WashPad 1 Castle Dome Heliport, YPG-13C - Washpad 2 North Castle DomeHeliport, YPG-13D - WASTE BASIN AT CASTLE DOME HELIPORT, YPG-13E - SEPTIC TANK LEACHFIELD(E)KOFA BLDG 3490, YPG-13F - SEPTIC TANK LEACHFIELD BLDG 3021 LAAF, YPG-15 - RAW SEWAGE LAGOON SYSTEM - MAIN POST, YPG-20 - LAGOON @ MOBILITY TEST AREA, YPG-21 - IMHOFF TANK @ MOBILITY TEST AREA LAGOON, YPG-23 - WASHRACK/LAGOON (WEST) AT KOFA BLDG 3490, YPG-24 - RAW SEWAGE LAGOONS @ KOFA RANGE, YPG-26 - SEPTIC TANK/LEACHFIELD (SOUTH) AT CDH, YPG-31 - YPG-31 WEST ENVIRONMENTAL TEST AREA, YPG-32 - YPG-32 FORMER WASTE DISPOSAL AREA, YPG-33 - TEST SITE 8KM W RT95, 4.4KM SW CIBOLA RD, YPG-34 - TEST SITE NE OF CHEM AGENT DISPOSAL AREA, YPG-37 - 77TH EXPLOSIVE ORDNANCE DEMOLITION AREA, YPG-38 - LEAD ARSENATE SITE, YPG-39 - KOFA RANGE(IMPACT AREA), YPG-40 - PYROTECHNIC RANGE(IMPACT AREA), YPG-41 - CIBOLA RANGE(IMPACT AREA), YPG-44 - AMMUNITION DEFLAGRATION SITE)
CS	(YPG-06 - OB/OD NEW DEMO AREA-KOFA EAST, YPG-12 - PESTICIDE MIX/STORE FACILITY(BLDG 416), YPG-27 - LANDFILL 5KM S-SE OF MAINPOST, YPG-28 - LANDFILL 3KM EAST OF MAIN POST, YPG-29 - LANDFILL E OF RT95, 2KM W KOFA RANGE, YPG-30 - LANDFILL 4KM NW OF KOFA RANGE, YPG-35 - OLD DEMO AREA(N BASE OF MUGGINS MTS))
1989	
SI	(YPG-25 - SEPTIC TANK LEACHFIELD (NORTH) AT CDH)
PA	(YPG-45 - YPG-45 BLDG 506 UST FUEL RELEASE)
1991	
SI	(YPG-45 - YPG-45 BLDG 506 UST FUEL RELEASE)
RI/FS	(YPG-38 - LEAD ARSENATE SITE)

IRP Schedule

1992	
PA	(YPG-10 - YPG-10 FUEL BLADDER TEST SITE)
1993	
RA(C)	(YPG-38 - LEAD ARSENATE SITE)
IRA	(YPG-45 - YPG-45 BLDG 506 UST FUEL RELEASE)
SI	(YPG-10 - YPG-10 FUEL BLADDER TEST SITE, YPG-43 - FORMER FIRE TRAINING PIT)
1997	
RFI/CMS	(YPG-35 - OLD DEMO AREA(N BASE OF MUGGINS MTS))
1999	
SI	(YPG-01 - OLD CHEMICAL LABORATORY (BLDG S-2500))
RI/FS	(YPG-43 - FORMER FIRE TRAINING PIT)
2001	
RI/FS	(YPG-13A - SEPTIC TANK LAGOON CASTLE DOME HELIPORT)
2004	
IRA	(YPG-10 - YPG-10 FUEL BLADDER TEST SITE, YPG-13B - WashPad 1 Castle Dome Heliport, YPG-13C - Washpad 2 North Castle DomeHeliport, YPG-13D - WASTE BASIN AT CASTLE DOME HELIPORT, YPG-13E - SEPTIC TANK LEACHFIELD(E)KOFA BLDG 3490, YPG-23 - WASHRACK/LAGOON (WEST) AT KOFA BLDG 3490, YPG-25 - SEPTIC TANK LEACHFIELD (NORTH) AT CDH, YPG-26 - SEPTIC TANK/LEACHFIELD (SOUTH) AT CDH)
RI/FS	(YPG-01 - OLD CHEMICAL LABORATORY (BLDG S-2500))
2005	
RA(C)	(YPG-37 - 77TH EXPLOSIVE ORDNANCE DEMOLITION AREA, YPG-45 - YPG-45 BLDG 506 UST FUEL RELEASE)
RI/FS	(YPG-37 - 77TH EXPLOSIVE ORDNANCE DEMOLITION AREA, YPG-45 - YPG-45 BLDG 506 UST FUEL RELEASE)
IRA	(YPG-13F - SEPTIC TANK LEACHFIELD BLDG 3021 LAAF)
2006	
RI/FS	(YPG-10 - YPG-10 FUEL BLADDER TEST SITE)
2007	
RD	(YPG-10 - YPG-10 FUEL BLADDER TEST SITE)
2008	
RA(C)	(YPG-10 - YPG-10 FUEL BLADDER TEST SITE)
2009	
RI/FS	(YPG-11 - FORMER PESTICIDE MIX/STORAGE BLDG T-430)
2010	
LTM	(YPG-PBA - YPG-PBA)
2012	
RI/FS	(YPG-03 - SEPTIC TANK LEACHFIELD BLDG. 2060, YPG-13F - SEPTIC TANK LEACHFIELD BLDG 3021 LAAF)
2014	
RD	(YPG-11 - FORMER PESTICIDE MIX/STORAGE BLDG T-430)
RA(C)	(YPG-11 - FORMER PESTICIDE MIX/STORAGE BLDG T-430)
RI/FS	(YPG-13B - WashPad 1 Castle Dome Heliport, YPG-13C - Washpad 2 North Castle DomeHeliport, YPG-13D - WASTE BASIN AT CASTLE DOME HELIPORT, YPG-13E - SEPTIC TANK LEACHFIELD(E)KOFA BLDG 3490, YPG-23 - WASHRACK/LAGOON (WEST) AT KOFA BLDG 3490, YPG-25 - SEPTIC TANK LEACHFIELD (NORTH) AT CDH, YPG-26 - SEPTIC TANK/LEACHFIELD (SOUTH) AT CDH)
LTM	(YPG-45 - YPG-45 BLDG 506 UST FUEL RELEASE)

IRP Schedule

Additional Past Phase Completion Milestones

2012 Supplemental Investigation Activities Work plan for U.S. Army Garrison Yuma Proving Ground Further Investigation of YPG-01, 31, 32, and -45.

2012 Draft Final Supplemental Investigation Report for the Old Chemical Laboratory at Building 2500 (YPG-01)

2012 Draft Final Supplemental Investigation Report for the Building 506 Underground Storage Tanks (YPG-45)

Projected Phase Completion Milestones

See attached schedule

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

Site ID	Site Name	ROD/DD Title	ROD/DD Date
YPG-37	77TH EXPLOSIVE ORDNANCE DEMOLITION AREA	DD 6 YPG 37	20171017
YPG-02	CHEM WASTE HOLDING TANK BLDG S-2060)	DD 4 YPG-02	20150930
YPG-31	YPG-31 WEST ENVIRONMENTAL TEST AREA	DD 3 YPG 31 and YPG 32	20171217
YPG-32	YPG-32 FORMER WASTE DISPOSAL AREA	DD 3 YPG 31 and YPG 32	20171217

Final RA(C) Completion Date: 201404

Schedule for Next Five-Year Review: 2017

Estimated Completion Date of IRP at Installation (including LTM phase): 202609

YUMA PROVING GROUND IRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
YPG-10	YPG-10 FUEL BLADDER TEST SITE	RA(O)						
SITE ID	**SITE NAME**	**PHASE**	**FY16**	**FY17**	**FY18**	**FY19**	**FY20**	**FY21+**
YPG-31	YPG-31 WEST ENVIRONMENTAL TEST AREA	RI/FS						
SITE ID	**SITE NAME**	**PHASE**	**FY16**	**FY17**	**FY18**	**FY19**	**FY20**	**FY21+**
YPG-32	YPG-32 FORMER WASTE DISPOSAL AREA	RI/FS						

YUMA PROVING GROUND

Army Defense Environmental Restoration Program
Military Munitions Response Program

MMRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 3/1

Installation Site Types with Future and/or Underway Phases

1 Firing Range
(YPG-002-R-01)

1 Landfill
(YPG-003-R-01)

Most Widespread Contaminants of Concern

Metals, Munitions and explosives of concern (MEC), Munitions constituents (MC)

Media of Concern

Soil

Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
N/A				

Duration of MMRP

Date of MMRP Inception 200201

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 202009/202009

Date of MMRP completion including Long Term Management (LTM): 205009

MMRP Contamination Assessment

Contamination Assessment Overview

The Former Mortar Impact Area consists of approximately 625 acres located in the southwestern portion of YPG. The northwestern portion of the area encompasses two additional range areas, including a pistol range and a former recreational skeet range. An additional suspected pistol range was identified during the visual survey performed during the SI.

The area encompassed a portion of the current housing area (Ironwood housing) and undeveloped land. A photovoltaic solar power collection panel farm, an observatory, and an open storage area are also located within the boundaries. A nature trail and jogging trail traverse the eastern portion of this area.

Depth to groundwater within the area ranges from 30 ft to 40 ft bgs. The Colorado and Gila Rivers replenish the groundwater in the Yuma region, whereas precipitation and runoff are minor sources of groundwater recharge. The intermittent wash within the area is part of the drainage of the Colorado River, which is located approximately 2,500 ft east of the former mortar impact area and the Gila Gravity Main Canal is approximately 1,700 ft east of the former mortar impact area.

Based on visual observations and the geophysical and visual surveys, the density of MEC appears to have been greater in the central and eastern portions of the area. The MEC was not observed in the western portion of the site. The geophysical data indicate the likelihood of subsurface metallic debris, particularly near visible impact craters. The overall densities of the geophysically identified targets are low, but present in most of the area surveys, and it is likely that most of the targets are MEC related.

Trace amounts of explosives were detected in 22 of the 54 soil samples collected during the SI; however, all concentrations were below the ADEQ soil remediation levels (SRL). The only constituents with concentrations above the screening criteria were arsenic and iron; however, these elevated concentrations are expected to be naturally occurring and not the result of military munitions used at the site.

The primary transport mechanisms identified during the SI include erosion and surface water runoff. Erosion could be a factor in exposing buried MEC. Surface water runoff could contribute to transporting and migrating potential MC contaminated soil to surface water bodies. Due to the arid climate and the fact that the potential contaminants have a relative low mobility for downward migration, subsurface and groundwater impacts are anticipated to be negligible.

During the SI phase conducted in FY05, the decision was made to combine the two Military Munitions Response Program (MMRP) sites, so in March 2005 YPG-001-R-01 was listed as closed and all MMRP issues will be addressed under YPG-002-R-01. The recommendation of the SI was to further evaluate the site with an RI to identify the nature and extent of the MEC in the area. The RI was completed by Parsons in August 2011 that included recommendations to reduce the size of the MRA to approximately 240 acres area with potential MEC hazards. (No potential MEC or MD was found on the north and the northwest portion of the munitions response site (MRS)). Additional recommendation was made to conduct a feasibility study (FS) to access possible response action alternatives for addressing the potential MEC that remained. A military munitions removal action PBA contract was awarded to Weston Solutions, Inc. in the fourth quarter FY11 (Sept. 21, 2011) to remove munitions from approximately 65 acres of the site and install LUCs. The area of interest (AOI) was later reduced to 48 acres.

An interim removal clean up action was conducted by Weston Solutions,Inc. at the site during May 2012 to December 2012.

Clearance of munitions and munitions debris (MD) was performed in three main areas: Easter Services Hill AOI was cleared of surface and subsurface munitions/MD. The Buffer Zone was cleared of surface and subsurface munitions/MD. A second Buffer Zone area was cleared of surface munitions/MD.

The majority of clearance activities occurred from July 19 to August 30, 2012. Remaining anomalies were investigated and cleared along Barranca Road on Dec. 6-7, 2012. Upon completion of the removal action, the cleared area was reopened for residential use.

Cleanup Exit Strategy

Based on the results of the draft final RI report, the military munitions removal action, and subject to the availability of funding, an FS may be conducted on the remaining 192 acres not covered under the current military munitions removal action in the future. LUCs are currently in place for the remaining uncleared areas. LTM will be required.

MMRP Previous Studies

	Title	Author	Date
2002			
	Closed Transferred/Transferring Range Inventory	TetraTech	FEB-2002
2005			
	Site Inspection Report	Techlaw, Inc.	JUN-2005
2010			
	Draft Final Remedial Investigation Report for the Former Mortar Impact Area	Parsons	JUL-2010
2011			
	Final Remedial Investigation Report for the Former Mortar Impact Area	Parsons Infrastructure and Technology Group, Inc.	AUG-2011
	USAG YPG Response to ADEQ Comments on Final Remedial Investigation Report for the Former Mortar Impact Area, YPG-002 Dated August 2011	Parsons Infrastructure and Technology Group, Inc.	NOV-2011
2012			
	Explosives Safety Submission Military Munitions Removal Action at USAG YPG Easter Services Hill Area of Interest Munitions Response Site YPG-002-R-01	Weston Solutions, Inc.	FEB-2012
	Draft Final Work Plan Military Munitions Removal Action at US Army Garrison Yuma Proving Ground Munitions Response Site YPG-002-R-01	Weston Solutions, Inc.	MAY-2012
	Draft Final Engineering Evaluation/Cost Analysis (EE/CA) Land Use Controls	URS Group Inc.	OCT-2012
	Draft Final Non-Time Critical Removal Action Land Use Control Plan	URS Group Inc	NOV-2012
2013			
	Final Engineering Evaluation/Cost Analysis (EE/CA) Land Use Controls	URS Group Inc	JAN-2013

YUMA PROVING GROUND

Military Munitions Response Program

Site Descriptions

Site ID: YPG-002-R-01
Site Name: MORTAR IMPACT AREA
Alias: EasterHill

STATUS

Regulatory Driver: CERCLA

MRSPP Score: 03

Contaminants of Concern: Metals, Munitions and explosives of concern (MEC), Munitions constituents (MC)

Media of Concern: Soil

Phases	Start	End
PA	200201	200305
SI	200309	200506
RI/FS	200801	201709
RD	201710	201809
IRA	201009	201812
RA(C)	201809	202009
LTM	202009	205009

RIP Date: N/A

RC Date: 202009

SITE DESCRIPTION

The Mortar Impact Area consisting of approximately 625 acres is believed to have been used between 1942 and 1945 as part of the California-Arizona maneuver area. Two historic ranges were identified within the boundaries of the former mortar impact area: a recreational skeet range and a pistol range. According to certificates of clearance from 1950 and 1953, 60 millimeter (mm) high explosive (HE) mortars, 81mm HE light mortars, 75mm HE duds, 57mm shot, 3.5-inch rockets, rifle grenades, and hand grenades have been removed from the site. The pistol range, located within the northwest portion of the former mortar impact area, consists of approximately 0.333 acre. Beginning in 1952, it was used for small arms target practice and qualification. The range operations were intermittently active from 1964 through 1977. The recreational skeet range, covering 0.121 acre, was located in the north-central portion of the Mortar Impact Area, where a photovoltaic solar power collection panel farm currently lies. The skeet range was constructed in 1962 and operated until the 1970s.

A preliminary assessment (PA) was conducted in 2003. Based on visual observations and the geophysical and visual surveys, the density of MEC appears to have been greater in the central and eastern portions of the former mortar impact area. The geophysical data indicate the likelihood of subsurface metallic debris, particularly near visible impact craters.

An SI which included a limited geophysical and visual survey and collection of soil samples was conducted from Dec. 6-10, 2004. Due to the extent of development in the housing area, it was not included in the SI activities. The results of the survey were evaluated in the June 2005 final SI report. An additional suspected pistol range was identified during the visual survey performed during the SI. During the SI phase,the decision was made to combine the two MMRP sites, so in March 2005 YPG-001-R-01 was listed as closed and all MMRP issues will be addressed under YPG-002-R-01. The SI recommended further evaluation of the site with an RI.

The PBA contract awarded in September 2007 included an option for completion of an RI report within two years of notice to proceed. Parsons conducted an RI in December 2009 to mid-January 2010 at the site to define the types and extent (spatial distribution) of munitions and soil contamination. The final RI report was submitted to ADEQ in August 2011. Consistent with the results of the previous SI, the RI showed that the greatest concentrations of munitions-related debris were found on Easter Services Hill and lesser amounts in the area immediately surrounding it. During the investigation a live 75mm HE mortar was discovered near the flank of Easter Services Hill, approximately 2/3 of the way up the hill. The round was found approximately 80 ft from the summit, and about 60 ft from the trail leading to the summit. Funding was requested from USAEC to cover corrective actions and cleanup of approximately 180 acres surrounding Easter Services Hill. A military munitions removal action PBA contract was awarded to Weston Solutions, Inc. in fourth quarter FY11. The Easter Services Hill AOI is defined as 48 acres in area is enclosed by Barranca Road to the south, and the LUC fence on the north and east. The area was cleared of surface and subsurface munitions/munitions debris. The buffer zone immediately outside the LUC fence consisting of approximately 5.1 acres was cleared of surface and subsurface munitions/MD. A second buffer zone area extending a further distance from the LUC fence buffer zone and consisting of approximately 18.6 acres was also cleared of surface munitions/MD. The site was reopened for residential use upon completion of the removal action.

Site ID: YPG-002-R-01
Site Name: MORTAR IMPACT AREA
Alias: EasterHill

Due to the presence of potential MEC hazards, an FS is recommended to assess possible response action alternatives for addressing potential MEC that might remain at the site. No potential MEC or MD was found on the north and the northwest portion of the MRS and it is recommended that MRS boundary be redefined and these areas be removed from the MRS.

An IRA was conducted at the site during May 2012 to December 2012. This area was cleared of surface and subsurface munitions/MD. Subsurface geophysical surveying was conducted and was completed in two stages. Digital geophysical mapping were completed from June 11 to July 24, 2012, prior to the main phase of munitions clearance activities. A second mobilization occurred on Dec. 5, 2012, to reacquire geophysical anomalies along the temporary fence at Barranca Road prior to final munitions clearance. All digital geophysical data was reviewed by the USACE prior to use for inspection of anomalies and munitions clearance.

A total of 208 items of MD were removed from the AOI and Buffer Zones. Two additional expended small arms blank rounds were recovered. A total of 494 items were investigated that consisted of archaeological or cultural debris or features. A total of approximately 86 pounds of material documented as safe (MDAS) was removed from YPG after inspection and certification to California Metal X, Inc. in Los Angeles, California.

A permanent fence surrounding the Easter Services Hill AOI was installed to restrict entry of unauthorized personnel into areas that had not been cleared of munitions. The LUC fence was installed on multiple dates including July 24, Aug. 8-22, and Dec. 7-10, 2012. Final inspection of the LUC permanent fence and signage was performed by USACE and YPG on Dec. 11, 2012. An FS was recommended to assess possible response action alternatives for addressing potential MEC that might remain at the site.

CLEANUP/EXIT STRATEGY

Additional MEC removal may be conducted under a new PBA contract. Currently the installation has LUCs (signage and master plan restricted access notation) in place.

Site ID: YPG-003-R-01
Site Name: Camp Laguna, Old Patton Encampment
Alias: Meg's Find

STATUS

Regulatory Driver: CERCLA

MRSPP Score: Evaluation pending

Contaminants of Concern: Munitions and explosives of concern (MEC)

Media of Concern: Soil

Phases	Start	End
PA	201305	201310
SI	201503	201709

RIP Date: N/A

RC Date: 201709

SITE DESCRIPTION

Camp Laguna is a cultural resources site on YPG. Information known about the site has been compiled from a cultural resources survey, historic context, and 300 oral histories. There are cultural items such as bottles and other historic artifacts scattered across the grid. Camp Laguna is one of 14 divisional camps in the Desert Test Center (DTC), one of only four in Arizona, and the only one that is not on public lands. Because of its location on an established military reservation, Camp Laguna is the best preserved of all the DTC/C-AMA camps. It is an important part of our military history and is eligible for the National Register of Historic Places.

The MRS was initially identified as a potential hazardous waste/UXO disposal site during an archeological survey conducted June 2011. Surface ordnance was found and removed immediately from the site as part of installation safety protocols. The site consists of approximately 12 acres and is located one mile northeast of the Yuma Test Center cantonment area and 3/4 of mile northeast of installation drinking water wells and treatment facility. The site of investigation was relatively flat, with a general increase in elevation from west to east. At the south end of the grid, the site flattens from east to west. A 40 foot diameter mounded area to the east of East Motor Pool Road was suspect of containing disturbed soil, and may be a location for detonation activity. Surface soils consisted of silty-sand and sand, and much of the site was littered with various rock types, ranging in size from 0.5 inch to 6 inches in diameter. Many of the rocks found at the site do not appear to be deposited naturally in place, but appear to be brought to the surface by past subsurface disturbances.

The USACE Albuquerque District conducted the initial RCRA facility assessment (RFA)/release assessment. The EM31 field data collection activities were conducted May 6-10, 2013 and the G858 field data were collected from June 24 through July 1, 2013 in accordance with the geophysical investigation plan. Field activities performed as part of the geophysical investigation included site preparation (safety and UXO briefing, site walk, reference grid setup, and instrument calibration), ordnance avoidance, geophysical surveys using the EM31 and G858 methods and equipment, and collection of field observations and photographs of the survey grid and surface MEC that was encountered. The final geophysical survey report was completed and submitted to the installation on Oct. 9, 2013. The geophysical survey findings identified five locations with significant levels of ferromagnetic material that may indicate the presence of subsurface MEC. The recommended course for action for the site is an investigation via intrusive methods in order to substantiate the nature of the anomalies. Part VI corrective action, of our munitions treatment facility permit # AZ5213820991 issued by ADEQ, In accordance with the Arizona Administrative Code (AAC) Title 18, Chapter 8, Article 2, R18-8-260 requires USAGYPG to investigate all SWMUs and must comply with provisions for newly identified SWMUs, part VI section C.

CLEANUP/EXIT STRATEGY

Additional work will be conducted under a new PBA contract in FY15.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
YPG-001-R-01	MORTAR IMPACT AREA A	200506	During the SI phase conducted in FY05, it was decided to combine the two MMRP sites, so YPG-001-R-01 was listed as closed in March of 2005 and combined with YPG-002-R-01.

MMRP Schedule

Date of MMRP Inception 200201

Past Phase Completion Milestones

2003

PA (YPG-001-R-01 - MORTAR IMPACT AREA A, YPG-002-R-01 - MORTAR IMPACT AREA)

2005

SI (YPG-001-R-01 - MORTAR IMPACT AREA A, YPG-002-R-01 - MORTAR IMPACT AREA)

2014

PA (YPG-003-R-01 - Camp Laguna, Old Patton Encampment)

Additional Past Phase Completion Milestones

2012 IRA YPG-002-R-01 Mortar Impact Area

Projected Phase Completion Milestones

See attached schedule

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

Site ID	Site Name	ROD/DD Title	ROD/DD Date
YPG-002-R-01	MORTAR IMPACT AREA	DD YPG-002-R-01	20171231

Final RA(C) Completion Date: 202009

Schedule for Next Five-Year Review: 2017

Estimated Completion Date of MMRP at Installation (including LTM phase): 205009

YUMA PROVING GROUND MMRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
YPG-002-R-01	MORTAR IMPACT AREA	RI/FS						
		RD						
		IRA						
		RA(C)						
		LTM						
SITE ID	**SITE NAME**	**PHASE**	**FY16**	**FY17**	**FY18**	**FY19**	**FY20**	**FY21+**
YPG-003-R-01	Camp Laguna, Old Patton Encampment	SI						

YUMA PROVING GROUND

Army Defense Environmental Restoration Program
Compliance Restoration

CR Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 10/2

Installation Site Types with Future and/or Underway Phases

4 Landfill
(CCYPG-027, CCYPG-029, CCYPG-141, CCYPG-178)

2 Soil Contamination After Tank Removal
(CCYPG-151 , CCYPG-152)

2 Underground Tank Farm
(CCYPG-165, CCYPG-204)

Most Widespread Contaminants of Concern

Metals, Other (No contaminants), Petroleum, Oil and Lubricants (POL), Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern

Groundwater, Soil

Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
CCYPG-165	FUEL STATION #1 (UST 207 & 209)	FRA	NATURAL ATTENUATION	2006
CCYPG-204	YPG- 138 UST SITE REMED. AAFES GAS STATI	FRA	NATURAL ATTENUATION	2006
CCYPG-028	INACTIVE LANDFILL NW MAA SE Imperial Dam	IRA	OTHER	2010

Duration of CR

Date of CR Inception: 199012

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201709/204509

Date of CR completion including Long Term Management (LTM): 204709

CR Contamination Assessment

Contamination Assessment Overview

A number of regulatory agencies (ADEQ, USEPA, Region 9), US Army agencies (USAEHA and USATHAMA), and contractors (Argonne National Laboratory) have identified potential sites from past practices at USAG YPG. In 1978, USATHAMA identified 16 potential release sites. In 1988, USAEHA identified 62 potential release sites, referred to in the USAEHA report as SWMUs (USAEHA),1988). As a result of the USATHAMA and USAEHA evaluations, investigation and cleanup of selected SWMUs was conducted. The installation's Compliance-related Cleanup (CC) program was established at USAG YPG in 2005.

The media with the greatest potential to cause the conveyance of contaminants off-site at YPG are surface water and groundwater. There are two leaking underground storage tank (LUST) sites that are located within one-half mile of the drinking water production wells for the Main Administrative Area (MAA) of the installation. During FY10 several of these sites were transferred over to the Compliance Restoration (CR) program. CCYPY-143 was transferred during the spring datacall of FY12.

Cleanup Exit Strategy

Where possible, the cleanup strategy is to remove potential sources of contaminants that could be transported via groundwater or surface water interaction. These sites include CCYPG-151, CCYPG-165 and CCYPG-204. Furthermore, at inactive landfill Sites CCYPG-27, -28, -29, -141, and -178 based on meetings with ADEQ RCRA section capping maybe required. CCYPG-143 was closed without restrictions. Groundwater monitoring may be required at selected sites. Reduction of the landfill footprints is anticipated through the investigation phase.

CR Previous Studies

	Title	Author	Date
1978			
	Installation Assessment	USATHAMA	JAN-1978
1988			
	Geohydrologic Study of the US Army Yuma Proving Ground with Particular Reference to the OB/OD Facility	ENTECH Engineers, Inc.	MAY-1988
	Initial Installation Assessment Update	US Army Environmental Hygiene Agency	JUL-1988
1994			
	Cultural Resources Inventory Survey of the Proposed Test Vehicle Access Roads to the Kofa Dust Course and GP 20 (CCYPG-29)	Northland Research, Inc	SEP-1994
1997			
	Hazardous and Medical Waste Study No. 37-EF-5481-97 Relative Risk Site Evaluation, US Army Yuma Proving Ground	US Army Center for Health Promotion and Preventive Medicine (USACHPPM	JAN-1997
1998			
	Site Characterization Report for the Army & Air Force Exchange Service (AAFES) Service Station Underground Storage Tanks, Main Administrative Area	Guiterrez-Palmenberg, Inc	NOV-1998
1999			
	RCRA Facility Assessment, US Army YPG Final Report	United States Environmental Protection Agency Region 9	APR-1999
	Draft Final Remedial Investigation Work Plan for US Army Yuma Proving Ground	Argonne National Laboratory	MAY-1999
2000			
	Remedial Action Summary Report North Pad OB/OD Pad	Jason Associates Corp	JUN-2000
	Remedial Action Summary Report North OB/OD Pad	Jason Associates Corp	JUN-2000
2001			
	Site Characterization Report for AAFES Service Station, Main Administrative Area	Jason Associates Corp	JUN-2001
	Range Wide Environmental Impact Statement	Jason Associates Corp	AUG-2001
	Site Characterization Report 207/209 Underground Storage Tanks (USTs), Main Administrative Area	Jason Associates Corp	AUG-2001
	Work Plan for Sample Collection and Evaluation to Determine Natural Background Concentrations of Inorganic Constituents in Soils at US Army Yuma Proving Ground	Argonne National Laboratory	OCT-2001
	Release Assessment for Solid Waste Management Units at US Army Garrison Yuma Proving Ground	Argonne National Laboratory	NOV-2001
2002			
	Background Concentrations of Inorganic Constituents in Soils at US Army Yuma Proving Ground	Argonne National Laboratory	MAR-2002
	Hazardous Waste Storage Facility Closure Report	Jason Associates Corp	JUL-2002
	Columbia Analytical Services Report YPG-44	Columbia Analytical Services	DEC-2002
	Sampling Event at Muggins Mountain OB/OD Site, US Army Yuma Proving Ground	Jason Associates Corp	DEC-2002
2003			

CR Previous Studies

	Title	Author	Date
2003			
	Sampling Event: Propellant Area at Muggins Mountain OB/OD Site, US Army Yuma Proving Ground	Jason Associates Corp	APR-2003
	Surface Clearance Procedure Muggins Mountain OB/OD Sites	Jason Associates Corp	APR-2003
	Site-specific Health and Safety Plan for the Muggins Mountain Characterization Project	Jason Associates Corp	JUN-2003
	Propellant Removal Procedure Muggins Mountain OB/OD Site	Jason Associates Corp	SEP-2003
	US Army Yuma Proving Ground Emergency Detonation Procedures	Jason Associates Corp	SEP-2003
	Closure Process Document Muggins Mountain OB/OD Sites	Jason Associates Corp	OCT-2003
	Site Characterization Plan OB/OD Area Inactive Units	Jason Associates Corp	OCT-2003
	Surface Clearance Procedure Muggins Mountain OB/OD Sites, Revision 2	Jason Associates Corp	OCT-2003
	YPG Muggins Mountain Site Drainage Report	James Davey and Associates	OCT-2003
2004			
	Historical Records Review Muggins Mountain Site	Jason Associates Corp	JAN-2004
	Site Delineation and Prioritization Report Muggins Mountain Site	Jason Associates Corp	JAN-2004
	Open Burn Open Detonation Facility RCRA Operating Permit Application (update)	Jason Associates Corp	SEP-2004
	Infiltration Study OB/OD Treatment Facility Kofa Firing Range	Southwest Ground-water Consultants, Inc.	OCT-2004
	Baseline Soils Investigation at the OB/OD Facility Report	Jason Associates Corp	NOV-2004
2005			
	Long Term Surface Soil Monitoring Plan OB/OD Treatment Facility	Jason Associates Corp	JAN-2005
	KOFA Ammunition Deflagration Test Facility Partial Closure Plan	Jason Associate Corp	MAR-2005
	Live Fire Crash Training Pit-LAAF APP 1011346 Closure Plan	Jason Associates Inc.	OCT-2005
2006			
	Site Characterization Report, Service Station 207/209	Jason Associates Inc. Corp	FEB-2006
	Site Characterization Report, AAFES Service Station	Jason Associates Corp	FEB-2006
	ADEQ Closure Approval (CCYPG-44)	ADEQ	JUN-2006
2007			
	Site Characterization Report (CCYPG-06A)	Jason Associate Corp	FEB-2007
	Work Plan Screening Level Ecological Risk Assessment Muggins Mountian (CCYPG-035A, B, and C)	Jason Associates Corp	JUL-2007
	EPA Comments, Work Plan ERA, Inactive OB/OD Units (CCYPG-06A)	USEPA	JUL-2007
	Work Plan Screening Level Ecological Risk Assessment OB/OD Fac. (CCYPG-06A)	Jason Associates Corp	JUL-2007
	EPA Comments, Work Plan ERA, Muggins Mountain (CCYPG-035A,B, and C	USEPA	AUG-2007
	Closure Plan (CCYPG-06A)	Jason Associates Corp	DEC-2007

CR Previous Studies

	Title	Author	Date
2010			
	Groundwater Monitoring Plan for the Munitions Treatment Facility	Parsons Infrastructure and Technology Group, Inc.	SEP-2010
2011			
	Draft Final RCRA Facility Investigation Report For Inactive Landfill YPG-143	Parsons Infrastructure and Technology Group, Inc.	JUN-2011
	Final Decision Document YPG-13b-e,-23,-25, and -26	Parsons Infrastructure and Technology Group, Inc.	OCT-2011
	Draft Final RCRA Facility Investigation Report For Inactive Landfill YPG-29	Parsons Infrastructure and Technology Group, Inc.	NOV-2011
	Draft Final RCRA Facility Investigation Report For Inactive Landfill YPG-27	Parsons Infrastructure and Technology Group, Inc.	NOV-2011
	Final Decision Document Septic Tank/Leach Field Near Building 2060 (YPG-03) and Septic Tank/Leach Field Near Laguna Army Airfield and Building 3021 (YPG-13f) USAYPG	Parsons Infrastructure and Technology Group, Inc.	NOV-2011
	FPU 12-115 YPG, Final Decision Document for the Septic Tank/Leach Field Near Building 2060 (YPG-03) and Septic Tank/Leach Field Near Laguna Army Airfield and Building 3021 (YPG-13f)	ADEQ	DEC-2011
	FPU 12-115. YPG, Final Decision Document for the Septic Tank/Leach Field Near Building 2060(YPG-03) and Septic Tank/Leach Field Near Laguna Army Airfield and Building 3021 (YPG-13f)	ADEQ	DEC-2011
2012			
	RCRA Facility Investigation Report For Inactive Landfill YPG-141	Parsons Infrastructure and Technology Groupd, Inc.	JAN-2012
	Draft Final RCRA Facility Investigation Report For Inactive Landfill YPG-141	Parsons	FEB-2012
	Draft Final RCRA Facility Investigation Report For Inactive Landfill YPG-141	Parsons	FEB-2012
	REF: HWP-EX2514 RE: Acknowledgement of Completion of Corrective Action at Inactive Landfill YPG-143; USAG YPG USEPA ID No. AZ5 213 820 991	ADEQ	MAR-2012
	Draft Final RCRA Facility Investigation Report Muggins Mountain Ob/OD Facility YPG-35a, b, and c	Parsons	MAY-2012
	Draft Final RCRA Facility Investigation Report For Inactive Landfill YPG-178	Parsons	JUN-2012
	Annual Groundwater Monitoring Report AAFES Service Station LUST File #0682.03 Facility ID#0-0005341	Parsons	JUN-2012
	Annual Groundwater Monitoring Report Service Station 207/209 Lust File #0682.02 Facility ID#0-005341	Parsons	JUN-2012
	Draft Final RCRA Facility Investigation Report For Inactive Landfill YPG-178	Parsons	JUN-2012
	Draft Final RCRA Facility Investigation Report For Inactive Landfill YPG-28	Parsons	AUG-2012
	Draft Final Supplemental Investigation Report For Building 506 Underground Storage Tanks (YPG-45)	Parsons	SEP-2012
	Draft Final Interim Remedial Action Completion Report Fuel Bladder Test Site (YPG-10)	Parsons	NOV-2012
2013			
	Final Closure Plan Inactive Hazardous Waste Treatment Units Kofa Open Burn/Open Detonation Facility Rev. 2	Parsons	FEB-2013

CR Previous Studies

2013

Title	Author	Date
Final Supplemental Investigation Report For The Old Chemical Laboratory at Building 2500 (YPG-01)	Parsons	FEB-2013
Final Remedial Action Plan For YPG-028	Parsons	FEB-2013
Final RCRA Facility Investigation Report For Inactive Landfill YPG-029	Parsons	MAR-2013
Final RCRA Facility Investigation Report For Inactive Landfill YPG-141	Parsons	MAR-2013
Draft Final Work Plan For Confirmation Soil Sampling at the Fuel Bladder Test Site (YPG-10)	Parsons	APR-2013
Draft Final Corrective Measures Study Work Plan For Inactive Landfills YPG-29 and YPG-141	Parsons	APR-2013
Final Supplemental Investigation Report For Building 506 Underground Storage Tanks (YPG-45)	Parsons	APR-2013
Final RCRA Facility Investigation Report for Inactive Landfill YPG-028	Parsons	JUN-2013
Draft Final Closure Report Kofa Open Burn/Open Detonation Facility Inactive Hazardous Waste Treatment Units Rev. 0	Parsons	JUL-2013
Annual Groundwater Monitoring Report Service Station 207/209 LUST File #0682.02 Facility Id #0-005341	Parsons	JUL-2013
Annual Groundwater monitoring Report AAFES Service Station LUST File #0682.03 Facility ID #0-005341	Parsons	JUL-2013
Final RCRA Corrective Measures Study Work Plan for Inactive Landfills YPG-029 and YPG-141 Rev. 0	Parsons	AUG-2013
Draft Final RCRA Corrective Measures Study Report for Inactive Landfills YPG-029 and YPG-141 Rev. 0	Parsons	AUG-2013
Final Closure Report Kofa Open Burn/Open Detonation Facility Inactive Hazardous Waste Treatment Units Rev.0	Parsons	SEP-2013
Final RCRA Facility Investigation Report for Inactive Landfill YPG-027	Parsons	OCT-2013
Draft Final Remedial Action Report For YPG-028	Parsons	NOV-2013
Final RCRA Corrective Measures Study Report For Inactive Landfills YPG-029 and YPG-141 Rev. 0	Parsons	DEC-2013

2014

Final RCRA Facility Investigation Report for Inactive Landfill YPG-178	Parsons	JAN-2014
Draft Final RCRA Corrective measures Study Work Plan for Inactive Landfill YPG-027 Rev.0	Parsons	FEB-2014
Draft Final Groundwater Monitoring Report Kofa Ob/Od Munitions Treatment Facility 2011-2013	Parsons	FEB-2014
Final Remedial Action Report For YPG-028	Parsons	MAR-2014
Draft Final Corrective Measures Study Work Plan for Muggins Mountain OB/OD Facility YPG-035A,B, and C	Parsons	APR-2014
Final RCRA Corrective Measures Study Report for Inactive Landfills YPG-029 and YPG-141 Rev. 1	Parsons	APR-2014
Draft Final Corrective Measures Study Work Plan for Inactive Lanfill YPG-178	Parsons	APR-2014
Final RCRA Corrective Measures Study Work Plan For Inactive Landfill YPG-027 Rev 0	Parsons	APR-2014
Final RCRA Facility Investigation Report for Muggins Mountain OB/OD Facility, YPG-035a,b, and C	Parsons	MAY-2014

CR Previous Studies

2014

Title	Author	Date
Final RCRA Corrective Measures Study Work Plan for Inactive Landfill YPG-178	Parsons	MAY-2014
Draft Final RCRA Corrective Measures Study Report For Inactive Landfill YPG-027 Rev. 0	Parsons	JUN-2014
Final RCRA CMS Report for Inactive Landfill YPG-027 Rev. 0	Parsons	JUL-2014
Annual Groundwater Monitoring Report Service Station 207/209 LUST #0682.02 Facility ID #0-005341	Parsons	JUL-2014
Annual Groundwater Monitoring Report AAFES Service Station LUST File #0682.03 Facility ID #0-005341	Parsons	JUL-2014
Draft Final RCRA Corrective Measures Study Report for Inactive Landfill YPG-178 Rev.0	Parsons	JUL-2014
Final RCRA Corrective Measures Study Report For Inactive Landfill YPG-178	Parsons	AUG-2014

YUMA PROVING GROUND

Compliance Restoration

Site Descriptions

Site ID: CCYPG-027
Site Name: INACTIVE LANDFILL 5KM SSE MAA
Alias: SWMU 37

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Metals, Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA	199705	199904
CS	200603	200706
RFI/CMS	200709	201412
DES	201510	201605
CMI(C)	201610	201709
LTM	201710	204709

RIP Date: N/A

RC Date: 201709

SITE DESCRIPTION

This site is identified in the RFA as SMWU 37 and Defense Environmental Restoration Program (DERP) Site CCYPG-027.

The AAC R18-8-264.A and AAC R18-8-270.A, 40 Code of Federal Regulations 264.101 require that "permits issued after Nov. 8, 1984 address corrective action, as necessary to protect public health and the environment, for releases of hazardous waste including hazardous constituents from any SWMU at the facility, regardless of when the waste was placed in the unit." The RCRA B permit application was submitted in September 2004. Under the provisions of the permit YPG was required to investigate this site.

This is a 30-40 year old landfill where open burning was practiced. The inactive landfill is 5 kilometers (km)(3 miles) south southeast of MAA and south of Imperial Dam Road. The landfill was in operation from 1950 to 1964. The USEPA recommended soil and groundwater monitoring in the 1998 RFA. A release assessment was completed in 2001. Construction debris, consisting mainly of concrete blocks was observed covering approximately 2 to 3 acres. The RA recommended that YPG conduct confirmatory sampling and a geophysical study. A geophysical survey of the landfill, to determine the approximate subsurface footprint and the location of metallic objects, was completed in November of 2006. The survey found 15 acres of landfill debris. The site was transferred to the CR program during FY10. Removal of the concrete and other debris was conducted in December 2009. Additional geophysical surveying was conducted in order to firmly establish any subsurface anomalies. The RCRA facility investigation (RFI) activities at CCYPG-027 consisted of removal of surface debris followed by a geophysical survey, excavation of test pits, and drilling of soil borings to characterize the landfill and define its boundaries. Soil samples were also were also collected from the test pits and soil borings. Analytical results showed that, although multiple organic compounds were detected in site soils, no organic compound had a concentration above its corresponding remediation goal. Two metals (arsenic and lead) were found to exceed their corresponding remediation goal in three samples collected from three test pits. Although these lead concentrations are believed to be confined to the buried waste layer, and there is no evidence of vertical migration, a CMS was recommended for the site to prevent exposure to buried waste and leaching of buried waste material. An RFI report on the fieldwork and findings was sent to ADEQ on Nov. 18, 2011. Comments dated Apr. 5, 2012 (REF: HWP-EX2596) were received from ADEQ. A final RCRA CMS report (rev.0) was submitted to ADEQ in July 2014. ADEQ approval was received in August 2014 (HWP-EX 2796). Based on comparative analysis of the corrective measure alternatives presented in the CMS, native soil cover with drainage control and LUCs was recommended as the selected remedy.

A surface removal action was conducted in November 2009, on a large area (approximately 600 ft by 60 ft) which was covered with scattered concrete pieces. In addition, minor amounts of asphalt and soil piles were present along the eastern portion of the site. The surface was also littered with broken glass, burnt wood, cans, and pieces of metal. An RFI conducted in 2011 reduced the footprint of the landfill to 5.03 acres in size.

CLEANUP/EXIT STRATEGY

Site ID: CCYPG-027
Site Name: INACTIVE LANDFILL 5KM SSE MAA
Alias: SWMU 37

The YPG-27 landfill ceased receiving waste before Jan. 1, 1986; therefore, the landfill is a non-regulated solid waste landfill [ARS section 49-701(3)(b) and (29)]. The recommended cleanup/exit strategy is to: 1) implement native soil cover and address the surface runoff control to prevent uncovering of the debris; 2) LUCs and 3) survey the area and incorporate into the USAG YPG master plan, given that waste is left in place.

Site ID: CCYPG-029
Site Name: INACTIVE LANDFILL E RT95 2KM W Kofa Ran.
Alias: SWMU 41

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Metals, Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Soil

Phases	Start	End
RFA	199705	199904
CS	200603	200706
RFI/CMS	200909	201412
DES	201510	201605
CMI(C)	201610	201709
LTM	201709	204709

RIP Date: N/A

RC Date: 201709

SITE DESCRIPTION

This site is identified in the RFA as SWMU 41. The site is located on the Kofa Firing Range east of US Highway 95, approximately one and quarter miles south-southeast of the Kofa Fire Station and within 200 yards of the new Kofa sewage lagoon. The site is flat with a slight rise in elevation to the east. There are also several small drainage areas immediately north and south of the site. This site is a 30-40 year old landfill, where open burning may have been practiced. The 1998 RFA describes a landfill that covers approximately 1 to 2 acres. The release assessment was completed in 2001, and miscellaneous debris was observed, as well as depressions in the desert surface. The release assessment recommended that confirmatory samples be taken and a geophysical survey be conducted. A geophysical survey of the landfill, to determine the approximate subsurface footprint and the location of metallic objects, was completed in November of 2006. The survey found 6 acres of poerformance Base Acquisition contract (PBA)ssible landfill debris. The site was transferred to the CR program during FY10.

A PBA contract was awarded to Parsons in September 2007. Parsons dug several test pits and took samples at the site December 2010 in order to fully delineate the vertical and horizontal extent of the landfill. The RFI indicated a smaller landfill area of 5 acres. An RFI report was submitted to ADEQ with the results and recommendation for the site. ADEQ responded with approval and without further comments in March 2013 (REF: HWP-EX2691). A RCRA CMS was prepared by Parsons to identify, screen, develop, and evaluate potential corrective measures alternatives and identify a final corrective measure(s) action to be taken at the site and submitted in December 2013. Based on the comparative analysis of corrective measure alternatives, native soil cover with drainage control and LUCs was recommended as the selected remedy. ADEQ approval was obtained in June 2014 (REF: HWP-EX2776).

CLEANUP/EXIT STRATEGY

The YPG-29 landfill ceased receiving waste before Jan. 1, 1986; therefore, the landfill is a non-regulated solid waste landfill [ARS section 49-701(3)(b) and (29)]. Therefore the recommended cleanup/exit strategy is to: 1) implement native soil cover and address the surface runoff control to prevent uncovering of the debris; 2) LUCs and 3) survey the area and incorporate into the USAG YPG master plan, given that waste is left in place.

Site ID: CCYPG-141
Site Name: INACTIVE LANDFILL
Alias: SWMU 39

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Metals, Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Soil

Phases	Start	End
RFA	199705	199904
CS	200603	200706
RFI/CMS	200709	201412
DES	201510	201605
CMI(C)	201610	201709
LTM	201709	204709

RIP Date: N/A

RC Date: 201709

SITE DESCRIPTION

The site is identified in the RFA as SWMU 39. This is an inactive landfill one mile northeast of the MAA, southwest of Laguna Army Airfield (LAAF). The area was used from 1964 through 1967. A release assessment was completed in 2001, and miscellaneous debris was observed.

An RFI conducted February 2012 reduced the footprint of the landfill to approximately 4.1 acres in size. Prior to the surface debris removal action November 2009, abundant glass debris, burnt wood, and various metal scrap including cast-iron pipes, cans, cable, wire, metal banding/strapping, and other miscellaneous debris were present at the surface and within the drainage channel in the northwestern portion of the site. In addition, metallic anomalies identified during a geophysical survey indicated the presence of buried waste in the south central region of the landfill. A large pile of gravel-sized crushed concrete is present near the center of the site and is believed to come from a housing and administration area demolition project. Following the November 2009 removal of approximately five cubic yards (cy) of metal surface debris, an additional geophysical survey was conducted using a G-858 magnetometer. The results of the survey, along with the results of the RFI, indicate that metallic wastes were likely buried in cut and fill trenches trending north-south across the site.

The AAC R18-8-264.A and AAC R18-8-270.A require that "permits issued after Nov. 8, 1984 address corrective action, as necessary to protect public health and the environment, from releases of hazardous waste including hazardous constituents from any SWMU at the facility, regardless of when the waste was placed in the unit." The RCRA B permit application was submitted in September 2004. Under the provisions of the permit YPG is required to investigate this site. The RFA phase recommended that a geophysical survey be completed with the potential for confirmatory sampling (CS).

A geophysical survey of the landfill, to determine the approximate subsurface footprint and the location of metallic objects, was completed in November 2006. The PBA contract awarded in September 2007 includes completion of the CMS report. The RFI investigative activities indicated that YPG-141 consists of charred wood and low levels of hydrocarbons and polycyclic aromatic hydrocarbons (PAH) suggested a portion of the waste may have been burned. No visual evidence of hazardous waste or MD was identified in the excavated pits. Soil sampling results show lead, copper, and arsenic concentrations exceeding the groundwater protection levels (GPL) and residential soil remediation levels (rSRL) in five samples. The samples containing elevated levels of lead and copper were collected from within the debris zone, and are most likely related to metal debris. Deeper interval soil samples collected from within these two pit locations show no evidence of vertical migration. The sample containing the elevated arsenic is possibly related to a layer of mineral-rich soil in a limited area of the site. Based on the comparative analysis of corrective measure alternatives, native soil cover with drainage control and LUCs was recommended as the selected remedy. A final RCRA CMS report (Rev. 0) was submitted to ADEQ December in 2013 with comments received in April 2014 (REF: HWP-EX2760). Response to comments were submitted on the final RCRA CMS report (Rev. 1) in April 2014, which were accepted by ADEQ without comments in June 2014 (REF: HWP-EX2776). A corrective measures implementation (construction) [CMI(C)] phase is assumed to begin sometime in FY17.

Site ID: CCYPG-141
Site Name: INACTIVE LANDFILL
Alias: SWMU 39

CLEANUP/EXIT STRATEGY

The YPG-141 landfill ceased receiving waste before Jan. 1, 1986; therefore, the landfill is a non-regulated solid waste landfill (ARS section 49-701(3)(b) and (29)). The recommended cleanup/exit strategy is to: 1) implement native soil cover and address the surface runoff control to prevent uncovering of the debris; 2) LUCs and 3) survey the area and incorporate into the USAG YPG master plan, given that waste is left in place.

Site ID: CCYPG-151
Site Name: LUST
Alias: MTA #2

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
ISC	199705	199904
INV	199905	200001
CAP	201310	201705

RIP Date: N/A

RC Date: 201705

SITE DESCRIPTION

This site was under the compliance related program and deemed eligible under the CR program and was transferred over during FY11. Three 10,000-gallon underground storage tanks (UST) were installed in circa 1971 and pulled circa 1992/4. The LUST Case File No. 4715.3801.02. The site is approximately 2 acres. The site has been adequately characterized per an ADEQ memorandum dated December 2002. Elevated levels of total petroleum hydrocarbons (TPH) were found at 45,500 ppm. Due to the site not being an imminent or serious threat to public health, safety, or the environment, ADEQ had postponed submission of a corrective action plan; therefore, proper site closure activities have not taken place.

The site has been reexamined with additional actions in accordance with an ADEQ meeting on June 16, 2009 between installation personnel and the ADEQ to review the status of the site after the removal of the three USTs in addition to soil contamination at the site. The ADEQ has requested additional characterization of the soils. The best professional judgment will be used in accordance with the memorandum for record on the meeting.

The site is located in the east side of Ocotillo in the YTC of YPG. Tank removal and preliminary investigation at the site were performed by Gutierrez-Palmenberg, Inc. (GPI) in November 1994. The results of the investigation are contained in Underground Storage Tank Closure Site Assessment, Gutierrez-Palmenberg, Inc., December 1994. Locations of obvious petroleum contamination were uncovered during the excavation analyses of samples taken suggesting that an unknown amount of petroleum was released to the soil.

CLEANUP/EXIT STRATEGY

The objective at this site is to fully delineate the extent of the contamination by resampling locations that had contamination above Arizona non-residential soil remediation levels (nrSRLs) and close the site. LUCs are currently in place at the site. CCYPG-151 is on YPG's contaminated sites list. The PBA contract was awarded to conduct a risk-based tier evaluation and propose applicable corrective action standards in accordance with ADEQ LUST program and provide a periodic status report.

Site ID: CCYPG-152
Site Name: LUST
Alias: MTA#3

STATUS

Regulatory Driver: RCRA

Phases	Start	End
ISC	199705	199904
INV	199905	200001
CAP	201310	201705

RIP Date: N/A

RC Date: 201705

SITE DESCRIPTION

Five 11,800-gallon USTs were installed in 1971 and pulled circa 1992/4. The site is located on the east side of Ocotillo Road in the YTC region of YPG. During the excavation and removal of the tanks, it was discovered that the tanks had leaked an indeterminate amount of fuel into the surrounding soil. Two of the five tanks were used to store gasoline or alcohol derived aviation fuel, jet propellant No. 4 (JP-4) or JP-8. The three remaining tanks were used to store diesel fuel. Excavation during the UST removal occurred from at least 5 ft below the bottom of each tank to approximately 11 ft bgs. During the 1994 excavation of the five USTs, GPI conducted a preliminary site assessment. A total of 16 soil samples were collected from the excavation pit and analyzed for TPH, and benzene, toluene, ethylbenzene and xylenes (BTEX). The laboratory analytical results indicated that petroleum contamination is present at the site. Elevated levels of TPH were found at 45,500 ppm. In 1995, an initial site characterization was conducted (GPI, 1995). Based on a review of this report and the 1994 tank closure report, the exact locations of the USTs and associated piping could not be determined. During the 1995 site characterization activities four soil borings were completed that adequately determined the vertical extent of soil contamination, but not the horizontal extent of soil contamination. MTA#3 is located in a broad flat basin. The site consists primarily of thick alluvial sediments. The sediments are comprised of gravelly sands, sand, and silt intercalated with clay deposits. Mixed silt and clay layers are typically 15-30 ft thick. Six new soil borings were drilled with the goal of fully defining the horizontal extent of soil contamination and to expand the lithologic data at the site. The vertical extent soil boring was performed in 1995 by GPI. The center borehole (3A) was drilled over the reported product leak. Borehole 3A was advanced to 10 ft below field non-detect levels, approximately 70 ft bgs. However, borehole 3B was advanced to 75 ft bgs. Analytical results detected petroleum hydrocarbons 3ppm greater than ADEQ cleanup standards. This borehole could not be advanced beyond 75 ft due to subsurface geologic conditions resulting in auger refusal (GPI, 1995).

During a telephone conference with the ADEQ LUST case manager for YPG, it was determined that the impenetrable layer at 75 ft is considered bedrock (Pers. Comm., 2000). Therefore, all boreholes drilled during the current site characterization were not advanced below 75 ft bgs. This approach is in accordance with the ADEQ LUST guidance which states "the vertical extent of contamination must be defined to laboratory non-detectable levels or to competent bedrock, whichever comes first (ADEQ, 1999)".

Two domestic water wells are located to the northwest of MTA#3, which provide the MTA with non-potable water. Based on the groundwater flow direction inferred for MTA#3, both wells are upgradient of the MTA#3; therefore, the threat of potential receptors is regarded as being very minimal. The closest surface water is the Colorado River, which is greater than 2 miles from MTA#3 in the perceived downgradient direction. There is no complete pathway between the contamination at MTA#3 and any surface water at the installation.

The site was transferred to the CR program during FY14. Proper site closure activities were not concluded. The ADEQ has requested additional characterization of the soils.

CLEANUP/EXIT STRATEGY

The PBA contract was awarded to conduct soil sampling to confirm that the current concentration levels are below corrective

action standards as required by the RRACAG and AAC-R-18-12-263.01.

Site ID: CCYPG-165
Site Name: FUEL STATION #1 (UST 207 & 209)
Alias: YPG004F006

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Media of Concern: Groundwater, Soil

Phases	Start	End
ISC	199012	199112
CAP	200001	200605
IMP(C)	200006	200607
IMP(O)	200608	204509

RIP Date: 200608

RC Date: 204509

SITE DESCRIPTION

The LUST site (Case File #0682.02, Facility ID #0-005341) is also known as AOC 6. The site is located in the MAA, just north of First Street, near the corner of First Street and A Street, approximately 1 mile from the Colorado River. It consists of Building 208, which houses the tank monitoring equipment, two USTs designated as UST 207 (unleaded gasoline) and UST 209 (diesel fuel), and one dispenser island for each UST, and includes contamination from two 10,000-gallon steel USTs, which stored and dispensed leaded, unleaded gasoline and diesel fuels. The site occupies approximately 0.5 to 1 acre. Subsurface sediments at the site consist of sandy river deposits interbedded with finer-grained sediments and gravel lenses of variable thickness. Based on the network of monitoring wells at the site, depth to groundwater at the ranges from approximately 30 ft bgs to 45 feet bgs and groundwater flows to the southwest. The tank installation occurred during 1953 or 1954. There was an unknown quantity of spill over the years of operation. In 1991, the tanks were pulled and replaced, with two 10,000-gallon double-walled fiberglass USTs, and the tank pit was excavated to a depth of approximately 12 ft bgs. At that time, Petro Enviro Tech and YPG personnel conducted a preliminary site assessment. Two soil samples were collected from the bottom of the tank pit and analyzed for BTEX. These samples confirmed that there has been a release of hydrocarbon fuel to the environment and warranted the need for additional site characterization.

The second phase of the site characterization was performed in 2000 to delineate the extent of soil and groundwater contamination downgradient of the tank pit. During this phase of the site characterization, 14 soil borings and eight monitoring wells (MW1-MW8) were completed at the site. In 2003, during the third phase of the site characterization, two additional monitoring wells (MW9-MW10) were installed in close proximity to the tank pit to determine if free-product exists in the immediate vicinity of the tank pit and to better define the groundwater contamination plume and hydraulic gradient of groundwater in the source area. Based on the concentrations of naphthalene detected in the samples collected during the site characterization it appears that UST 209(diesel), and/or the associated piping leaked fuel prior to their replacement. Based on the levels of benzene detected in the groundwater samples, UST 207 (gasoline), and/or the associated piping leaked fuel prior to their replacement. Ten monitoring wells were installed between 2000 and 2004. The following compounds were discovered in the groundwater at the indicated levels: benzene [530 milligrams per liter (mg/L)], toluene (1,700 mg/L), ethylbenzene (1,100 mg/L), and xylenes (1,500 mg/L). All these compounds exceed the ADEQ regulatory driver, which is the drinking water maximum contamination level (MCL). In 2001, draft site investigations were submitted to the ADEQ. In 2002 ADEQ requested further characterization of the site. Fieldwork was conducted from November 2003 through June 2004. The results from this fieldwork were submitted in the Final Site Characterization Report (SCR), December 2005. The final SCR was reviewed and approved by the ADEQ in April 2006. The most recent annual groundwater monitoring report, from December 2014, recommends no longer sampling wells MW-2, MW-3 and MW-4 and sampling only MW-9 and MW-10 on an annual basis. The ADEQ responded with comments January 2015 (FPU 15-124, FPU 15-139). The monitoring will continue until ADEQ determines it is no longer necessary. If, in the future, it is determined that the plume is migrating or growing,a corrective action plan will be developed and implemented to quickly remediate the impact area and prevent contaminants from migrating off-site. There is no DD or ROD for this site.

Site ID: CCYPG-165
Site Name: FUEL STATION #1 (UST 207 & 209)
Alias: YPG004F006

CLEANUP/EXIT STRATEGY

Monitoring is conducted on a semiannual basis, with a summary report submitted to ADEQ annually. If the size of the groundwater plume changes, or the plume begins to migrate towards to the YPG boundary, this strategy may change. Semiannual monitoring is currently scheduled to occur in June and November. An annual summary report is to be sent to ADEQ in December of each year. The LTM effort will extend beyond the end date of the current PBA contract. The wells were resurveyed in January 2013.

Site ID: CCYPG-178
Site Name: INACTIVE LANDFILL 3 KM EAST OF MAIN ADMI
Alias: N/A

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Metals, Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Soil

Phases	Start	End
RFA	199705	199904
CS	200603	200706
RFI/CMS	200709	201412
DES	201510	201605
CMI(C)	201610	201709

RIP Date: N/A

RC Date: 201709

SITE DESCRIPTION

This site is a historic landfill that was operated for an unknown period. This site is approximately one to two acres of debris mounds. The YPG-178 Site is located approximately 2 miles south-southeast of the MAA, and consists of multiple surface and shallow subsurface disposal sites located approximately 200 ft apart. The areas are located on a low-lying series of small rocky hills and have been designated YPG-178a and YPG-178b. The YPG-178a site is approximately 1.68 acres in size, and YPG-178b is approximately 0.76 acres. Disposal activities at the landfill reportedly occurred during the 1960s and 1970s.

The AAC R18-8-264.A and AAC R18-8-270.A require that "permits issued after Nov. 8, 1984 address corrective action, as necessary to protect public health and the environment, from releases of hazardous waste including hazardous constituents from any SWMU at the facility, regardless of when the waste was placed in the unit." The RCRA B permit application was submitted in September 2004. Under the provisions of the permit YPG is required to investigate this site. The release assessment, conducted in 2001, recommended assessing disposal practices and sampling data.

A geophysical survey of the landfill, to determine the approximate subsurface footprint and the location of metallic objects, was completed in November 2006. The survey found 6 acres of landfill debris. The RFI investigative activities indicated that YPG-178 consists of ash and other debris. The presence of charred wood and low levels of hydrocarbons and PAHs suggested a portion of the waste may have been burned. No visual evidence of liquid waste or MD was identified in the excavated pits. Soil sampling results show lead, copper, cadmium, chromium, iron, mercury, molybdenum, silver, zinc and arsenic concentrations exceeded their corresponding BTVs at eight samples locations. The metal contamination is believed to be associated with buried metallic debris from within the landfill, and to be stable and not significantly migrating. This conclusion is based on soil sampling results that show elevated concentrations of metals found in samples collected from within the debris zone, but not in samples collected from the overlying and underlying zones. Although several inorganic constituents exceed their corresponding BTVs, no concentrations exceed the associated rSRL, nrSRL, or GPLs at the site. A final RFI report was submitted to ADEQ in January 2014. ADEQ approved the report without comments that was received by YPG in April 2014 (REF:HWP-EX2761). A draft final RCRA CMS report (Rev. 0) was submitted to ADEQ in July 2014. Response to comments were submitted in August 2014 with the recommendation of excavation and disposal of the landfill. ADEQ approval was received in September 2014(HWP-EX2802).

Prior to the surface debris removal action in November 2009, the landfill was scattered with glass, burnt wood, cans, and scrap metal. Disturbed soil was also observed at the site. In addition, localized burn areas were observed at YPG-178a, and a partially buried drum was observed at YPG-178b. In 2009, the drum was removed and found to be empty.

Approximately 190 cy of soil and ash were removed from the site and disposed at the YPG landfill. Ash from YPG-178b could not be completely removed and further investigation of the extent of the ash was required and performed as part of the RFI, including test pit excavations. Surface and subsurface investigation activities conducted during the RFI indicate ash/debris identified within YPG-178 consists of burnt municipal and industrial waste. No evidence of liquid waste or MD disposal was identified in the excavated and removed ash/debris or the excavation/test pits at the site. A total of 33 soil samples were collected from surface locations, test pits, and background samples at YPG-178a and b. The nature and the extent of the ash material has

been delineated at YPG-178, and detected constituents did not exceed ADEQ's nrSRL, rSRL or GPL remediation goals and no further sampling is required.

CLEANUP/EXIT STRATEGY

For the foreseeable future, YPG-178 will remain vacant unused land. The site has been listed in the YPG master plan as "to be removed from consideration for new construction projects," meaning that there are no plans for development of the site in the future.

Site ID: CCYPG-204
Site Name: YPG- 138 UST SITE REMED. AAFES GAS STATI
Alias: YPG004F005

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Soil

Phases	Start	End
ISC	199101	199201
CAP	200001	200605
IMP(C)	200606	200607
IMP(O)	200608	204509

RIP Date: 200608

RC Date: 204509

SITE DESCRIPTION

The site is an ADEQ LUST Site (Case File # 0682.03, Facility ID #0-005341) with UST numbers 004A, 004B, and 004C. The site is located in the MAA, just east of the main gate and north of Third Street, between Imperial Dam Road and B Street. The AAFES Service Station was previously used as a fueling station for privately owned vehicles from 1953 until 2005, when it was replaced by a new fueling facility. The AAFES Service Station originally contained three steel 10,000-gallon steel USTs which stored and dispensed diesel fuel and gasoline. In 1991, the tanks were pulled and replaced by three 10,000 gallon double-walled fiberglass tanks. During the removal of the USTs, the tank pit was excavated to a depth of approximately 13 ft bgs and preliminary site assessment was conducted. During the assessment three soil samples were taken from below each end of the USTs. The AAFES Service Station records were also reviewed at this time, and it was determined that an estimated 17,000 to 42,000 gallons of leaded and unleaded gasoline had been released from the USTs and associated piping. It is estimated that the two tanks leaked over a period of 23 years. During the excavation only a portion of the contaminated soil was removed due to the proximity of buildings and utilities in the area. Approximately 1,250 cy of contaminated soil remain in place. The site occupies about 2 to 3 acres. In 1998, the first phase of the site characterization was completed delineating the horizontal and vertical extents of the contamination using 15 soil boring and 14 hydropunch locations. Sample results indicated that diesel fuel was also released at the site (Jason Associates Corporation, 2006). During the first phase of site characterization no monitoring wells were installed downgradient of the tank pit. AAFES-MW1 was installed downgradient of the tank pit; however, YPG has no record of the well installation and no permit is at the Arizona Department of Water Resources. The second phase of the site characterization was completed in 2000. The purpose of phase II was to delineate the extent of groundwater contamination downgradient of the tank pit, and at that time monitoring wells AAFES-MW2 through AAFES-MW6 were installed. Due to non-detect levels of hydrocarbon contaminants in the initial sampling of these wells, monitoring wells AAFES-MW3 through AAFES-MW6 were found to be located too far downgradient or too far crossgradient to assist in the site characterization. These wells have not been sampled in subsequent site characterization or groundwater monitoring activities. MW3 and MW6 were buried during landscaping activities in 2001, and can no longer be located (Jason Associates Corporation, 2006). They were replaced in early May 2012 with monitoring wells AAFES-MW3A and AAFES-MW11, respectively.

The depth to groundwater at the site ranges from approximately 14 to 20 ft bgs and groundwater flows to the west. Water levels within the individual wells typically vary by several tenths of a foot annually, but larger fluctuations of one to two annually have been recorded in the past. The most recent example of a larger fluctuation was from 2008 to 2009 when the water table rose as much as 2 ft. The site was located diagonally to Cox Field which could be acting as a source of recharge due to irrigation. Nine monitoring wells were installed between 2000 and 2004 and were sampled twice. The following compounds were discovered in the groundwater at the indicated levels: benzene (3,100 mg/L) and naphthalene (12,000 mg/L). All these compounds exceed the ADEQ regulatory limit. The final SCR report was submitted May 6, 2006 to ADEQ. The report was reviewed and approved by ADEQ on May 23, 2006 and did not require a corrective action plan. The SCR conclusion was that once the contaminated soils are removed, natural attenuation processes should complete the remediation of the site.

CLEANUP/EXIT STRATEGY

Site ID: CCYPG-204
Site Name: YPG- 138 UST SITE REMED. AAFES GAS STATI
Alias: YPG004F005

Groundwater monitoring is conducted on a semiannual basis, with a summary report submitted to ADEQ annually. If the size of the groundwater plume changes, or the plume begins to migrate towards the YPG boundary, this strategy may change. Semiannual monitoring is currently scheduled to occur in June and November. An annual summary report is to be sent to the ADEQ in December of each year. The LTM effort will extend beyond the end date of the current PBA contract. The wells were resurveyed in January 2013 under the Parsons contract.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
CCYPG-028	INACTIVE LANDFILL NW MAA SE Imperial Dam	201403	
CCYPG-143	Inactive Landfill SSE of LAAF	201210	ADEQ letter dated March 23, 2012 (REF:HWP-EX2514) Acknowledgement of completion of corrective action at inactive landfill YPG-134; USAGYPG USEPA ID No. AZ5 213 820 991

CR Schedule

Date of CR Inception: 199012

Past Phase Completion Milestones

1992	
ISC	(CCYPG-165 - FUEL STATION #1 (UST 207 & 209), CCYPG-204 - YPG- 138 UST SITE REMED. AAFES GAS STATI)
1999	
RFA	(CCYPG-027 - INACTIVE LANDFILL 5KM SSE MAA, CCYPG-028 - INACTIVE LANDFILL NW MAA SE Imperial Dam, CCYPG-029 - INACTIVE LANDFILL E RT95 2KM W Kofa Ran., CCYPG-141 - INACTIVE LANDFILL, CCYPG-143 - Inactive Landfill SSE of LAAF , CCYPG-178 - INACTIVE LANDFILL 3 KM EAST OF MAIN ADMI)
ISC	(CCYPG-151 - LUST, CCYPG-152 - LUST)
2000	
INV	(CCYPG-151 - LUST, CCYPG-152 - LUST)
2006	
IMP(C)	(CCYPG-165 - FUEL STATION #1 (UST 207 & 209), CCYPG-204 - YPG- 138 UST SITE REMED. AAFES GAS STATI)
CAP	(CCYPG-165 - FUEL STATION #1 (UST 207 & 209), CCYPG-204 - YPG- 138 UST SITE REMED. AAFES GAS STATI)
2007	
CS	(CCYPG-027 - INACTIVE LANDFILL 5KM SSE MAA, CCYPG-028 - INACTIVE LANDFILL NW MAA SE Imperial Dam, CCYPG-029 - INACTIVE LANDFILL E RT95 2KM W Kofa Ran., CCYPG-141 - INACTIVE LANDFILL, CCYPG-143 - Inactive Landfill SSE of LAAF , CCYPG-178 - INACTIVE LANDFILL 3 KM EAST OF MAIN ADMI)
2010	
IRA	(CCYPG-028 - INACTIVE LANDFILL NW MAA SE Imperial Dam)
2013	
RFI/CMS	(CCYPG-143 - Inactive Landfill SSE of LAAF)
LTM	(CCYPG-143 - Inactive Landfill SSE of LAAF)
2014	
RFI/CMS	(CCYPG-028 - INACTIVE LANDFILL NW MAA SE Imperial Dam)

Projected Phase Completion Milestones

See attached schedule

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

Site ID	Site Name	ROD/DD Title	ROD/DD Date
CCYPG-178	INACTIVE LANDFILL 3 KM EAST OF MAIN ADMI	ROD for inactive landfill CCYPG-178	20171231

Final RA(C) Completion Date: 201709

Schedule for Next Five-Year Review: 2017

Estimated Completion Date of CR at Installation (including LTM phase): 204709

YUMA PROVING GROUND CR Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
CCYPG-027	INACTIVE LANDFILL 5KM SSE MAA	DES						
		CMI(C)						
		LTM						
SITE ID	**SITE NAME**	**PHASE**	**FY16**	**FY17**	**FY18**	**FY19**	**FY20**	**FY21+**
CCYPG-029	INACTIVE LANDFILL E RT95 2KM W Kofa Ran.	DES						
		CMI(C)						
		LTM						
SITE ID	**SITE NAME**	**PHASE**	**FY16**	**FY17**	**FY18**	**FY19**	**FY20**	**FY21+**
CCYPG-141	INACTIVE LANDFILL	DES						
		CMI(C)						
		LTM						
SITE ID	**SITE NAME**	**PHASE**	**FY16**	**FY17**	**FY18**	**FY19**	**FY20**	**FY21+**
CCYPG-151	LUST	CAP						
SITE ID	**SITE NAME**	**PHASE**	**FY16**	**FY17**	**FY18**	**FY19**	**FY20**	**FY21+**
CCYPG-152	LUST	CAP						
SITE ID	**SITE NAME**	**PHASE**	**FY16**	**FY17**	**FY18**	**FY19**	**FY20**	**FY21+**
CCYPG-165	FUEL STATION #1 (UST 207 & 209)	IMP(O)						
SITE ID	**SITE NAME**	**PHASE**	**FY16**	**FY17**	**FY18**	**FY19**	**FY20**	**FY21+**
CCYPG-178	INACTIVE LANDFILL 3 KM EAST OF MAIN ADMI	DES						
		CMI(C)						
SITE ID	**SITE NAME**	**PHASE**	**FY16**	**FY17**	**FY18**	**FY19**	**FY20**	**FY21+**
CCYPG-204	YPG- 138 UST SITE REMED. AAFES GAS STATI	IMP(O)						

Community Involvement

Technical Review Committee (TRC): None

Community Involvement Plan (Date Published): 201009

Restoration Advisory Board (RAB): RAB established 201006

RAB Adjournment Date: N/A
RAB Adjournment Reason: None

Additional Community Involvement Information

A final community relations plan was finalized in September 2010. A copy was submitted to the ADEQ. The USAG YPG established a RAB and held its first meeting in June 2010.

Administrative Record is located at

US Army Garrison YPG
Environmental Sciences Division
Building 307, First Floor
YPG, AZ

Information Repository is located at

TBD

Current Technical Assistance for Public Participation (TAPP): N/A

TAPP Title: N/A

Potential TAPP: N/A