

FY2012

YUMA PROVING GROUND
Army Defense Environmental Restoration Program
Installation Action Plan

Printed 24 January 2013

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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

| | |
|--------|---|
| A.A.C | Arizona Administrative Code |
| AAFES | Army and Air Force Exchange Service |
| ADEQ | Arizona Department of Environmental Quality |
| AEDB-R | Army Environmental Database - Restoration |
| AOC | Area of Concern |
| APP | Aquifer Protection Permit |
| CC | Compliance-related Cleanup |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CMS | Corrective Measures Study |
| CR | Compliance Restoration |
| CWA | Chemical Warfare Agent |
| CWM | Chemical Weapon Munitions |
| DD | Decision Document |
| DES | (Remedial) Design |
| DOD | Department of Defense |
| ER,A | Environmental Restoration, Army (formerly DERA) |
| FFS | Focused Feasibility Study |
| FRA | Final Remedial Action |
| FY | Fiscal Year |
| HE | High Explosive |
| IAP | Installation Action Plan |
| ICE | Internal Combustion Engine |
| IMCOM | Installation Management Command |
| IRA | Interim Remedial Action |
| IRP | Installation Restoration Program |
| K | thousand |
| kg | kilogram |
| km | kilometer |
| LAAF | Laguna Army Airfield |
| LTM | Long-Term Management |
| LUC | Land Use Controls |
| LUST | Leaking Underground Storage Tanks |
| MAA | Main Administrative Area |
| MC | Munitions Constituents |
| MCL | Maximum Contaminant Level |
| MEC | Munitions and Explosives of Concern |
| mg | milligram |
| mm | millimeter |
| MMRP | Military Munitions Response Program |
| MPA | Methyl Phosphoric Acid |
| MRSPP | Munitions Response Site Prioritization Protocol |
| MW | Monitoring Well |
| N/A | Not Applicable |
| NFA | No Further Action |
| NPL | National Priorities List |

Acronyms

| | |
|----------|---|
| OU | Operable Unit |
| PA | Preliminary Assessment |
| PAH | Polycyclic Aromatic Hydrocarbon |
| PBA | Performance-Based Acquisition |
| POL | Petroleum, Oil, and Lubricants |
| RA | Remedial Action |
| RA(C) | Remedial Action (Construction) |
| RA(O) | Remedial Action (Operation) |
| RAB | Restoration Advisory Board |
| RACER | Remedial Action Cost Engineering and Requirements |
| RC | Response Complete |
| RCRA | Resource Conservation and Recovery Act |
| RFA | Remedial Feasibility Assessment |
| RI | Remedial Investigation |
| RIP | Remedy-in-Place |
| ROD | Record of Decision |
| RRSE | Relative Risk Site Evaluation |
| SI | Site Inspection |
| SVE | Soil Vapor Extraction |
| SVOC | Semi-volatile Organic Compounds |
| SWMU | Solid Waste Management Unit |
| TAPP | Technical Assistance for Public Participation |
| TPH | Total Petroleum Hydrocarbons |
| TRC | Technical Review Committee |
| ug/L | micrograms per liter |
| USACHPPM | US Army Center for Health Promotion and Preventive Medicine was renamed U.S. Army Public Health Command (Provisional) |
| USAEC | US Army Environmental Command |
| USAEHA | US Army Environmental Hygiene Agency |
| 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 |

Site Alias List

AEDB-R Site ID to Alias List

| AEDB-R # | Alias |
|-----------------|--------------|
| CCYPG-027 | SWMU 37 |
| CCYPG-028 | SWMU 36 |
| CCYPG-029 | SWMU 41 |
| CCYPG-141 | SWMU 39 |
| CCYPG-143 | SWMU-40 |
| CCYPG-151 | MTA #2 |
| CCYPG-165 | YPG004F006 |
| CCYPG-178 | |
| CCYPG-204 | YPG004F005 |
| YPG-002-R-01 | YPG 2-R-1 |
| YPG-01 | YPG-01 |
| YPG-10 | YPG-10 |
| YPG-11 | YPG-11 |
| YPG-31 | YPG-31 |
| YPG-32 | YPG-32 |
| YPG-45 | YPG-45 |

Installation Information

Installation Locale

Installation Size (Acreage): 830000

City: Yuma

County: Yuma

State: Arizona

Other Locale Information

The US Army Garrison 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 77,000. At about 830,000 acres (roughly 1,300 square miles), YPG is one of the Department of Defense's (DoD) largest installations. That is slightly larger than the state of Rhode Island. The predominant use of adjacent lands is US Department of the Interior restricted use, withdrawn lands, and the Kofa Wildlife Refuge.

Installation Mission

The mission of the US Army Garrison 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 YPG is one of 22 major test ranges that comprise the DoD major range test facility base.

Lead Organization

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 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 |

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 or in the future prevent the respective remedies at these sites from being protective of human health and the environment.

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

YPG-10
Install additional fencing to secure monitoring wells at the site
YPG-11 is currently under 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: LUC for DD 1 YPG 01

Site(s): YPG-01

ROD/DD Title: DD 1 YPG 01

Location of LUC

To be determined at perimeter of building footprint.

Land Use Restriction: Restrict land use - No residential use

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: N/A

LUC Enforcement: Other

Contaminants: VOC

Additional Information

N/A

LUC Title: LUC for DD 3 YPG 31 and Y

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

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

Location of LUC

At fencelines of each SWMU

Land Use Restriction: Restrict land use - No residential use

Types of Engineering Controls: Fences

Types of Institutional Controls: Dig Permits

Date in Place: 200509

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: N/A

LUC Enforcement: Other

Contaminants: Unexploded Ordnance(UXO)

Additional Information

N/A

LUC Title: LUC for DD 5 YPG 11

Site(s): YPG-11

ROD/DD Title: DD 5 YPG 11

Land Use Control (LUC) Summary

Location of LUC

To be determined but likely to be perimeter of Building 430.

Land Use Restriction: Restrict land use - No residential use

Types of Engineering Controls: Fences, Signs

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: N/A

LUC Enforcement: Other

Contaminants: PESTICIDES

Additional Information

N/A

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 37

Land Use Restriction: Restrict land use - No residential use

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: N/A

LUC Enforcement: Other

Contaminants: Unexploded Ordnance(UXO)

Additional Information

N/A

LUC Title: LUC for DD 7 YPG 45

Site(s): YPG-45

ROD/DD Title: DD 7 YPG 45

Location of LUC

YPG 45 Building footprint and location of UST containing heating oil.

Land Use Restriction: Restrict land use - No residential use

Land Use Control (LUC) Summary

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: N/A

LUC Enforcement: Other

Contaminants: PAH

Additional Information

N/A

LUC Title: LUC for YPG 10

Site(s): YPG-10

ROD/DD Title: Fuel Bladder Test Site

Location of LUC

To be determined perimeters bordering sites

Land Use Restriction: Restrict land use - No residential use

Types of Engineering Controls: Fences, Markers

Types of Institutional Controls: Construction Permit, Dig Permits

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: N/A

LUC Enforcement: Annual Inspections, 5 Year Reviews, Markers

Contaminants: PETROLEUM HYDROCARBON

Additional Information

N/A

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, Restrictions on land use

Date in Place: 200402

Land Use Control (LUC) Summary

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

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 testing all types of military materiel and it has been in continual operation ever since. 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 there 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 for ADEQ review in April 2006 and comments were received in September. The US Army Garrison YPG currently submits quarterly operations and maintenance reports for the SVE system to the ADEQ. The SVE system is operational February to September.

For the remaining sites, the YPG drafted a site-wide DD describing the sites and committing to groundwater monitoring 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) no further action (NFA) and 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

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 state in mid-year 2007. An agreement was obtained from the ADEQ to prepare a final DD that integrated the SVE system into a final DD. On December 9, 2004 all parties signed a DD for 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 is subjected to approval of 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 August 8, 2010. State approval of the additional DDs is expected by 2013.

Installation Program Cleanup Progress

IRP

Prior Year Progress: In September 2007 a PBA was awarded and in mid-year two no further action (NFA) DDs, three with LUCs plus groundwater monitoring, and three with LUCs only were submitted to the state. YPG has responded to comments from the ADEQ. The final DDs are expected FY11. A DD was issued for YPG-10; the SVE system operated April - December 2008. A DD for YPG-11 was finalized August

Cleanup Program Summary

9, 2010. Groundwater monitoring continued at YPG-01, -31, -32, and -45.

Future Plan of Action: The LTM at YPG-01, -31, -32, and -45 will occur upon regulatory concurrence with the DD. Upon regulatory concurrence with the DD, YPG-45 Building 506 underground storage tank (UST) Fuel release will be capped. The SVE system at YPG-10 will continue to be operated until state soil remediation levels (SRLs) are met.

MMRP

Prior Year Progress: A RI/FS was conducted at YPG-002-R-01 under the YPG-PBA. A draft final RI report was completed in 2009 and submitted to ADEQ for comment.

Future Plan of Action: Additional munitions and explosives of concern (MEC) and munitions constituents (MC) discovered at the site will be removed and work outlined in the PBA will continue. Weston Solutions will conduct a Military Munitions Removal Action at the site beginning summer 2012 after the closure of the nearby school.

CR

Prior Year Progress: The LUST sites are in LTM with monitoring ongoing in FY09 under the PBA. The CMS work on the remaining CR sites continued through FY11. The report is in production and completion is expected in early FY12. The report will be submitted to the State for comment and the design phase will begin following coordination with the ADEQ.

Future Plan of Action: Closure reports for inactive sites will be submitted, with a goal of minimal remediation and closure requirements. Based on landfill geophysical investigations a path forward will be determined. Preliminary discussions with the ADEQ indicate minimum closure requirements will consist of capping and groundwater monitoring, with some soil sampling to occur concurrent with groundwater monitoring well installation. All sites are included in the PBA.

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: 43/37

Installation Site Types with Future and/or Underway Phases

| | |
|---|---------------------------------------|
| 2 | Chemical Disposal (YPG-31, YPG-32) |
| 1 | Disposal Pit/Dry Well (YPG-01) |
| 1 | Pesticide Shop (YPG-11) |
| 1 | Spill Site Area (YPG-10) |
| 1 | Underground Storage Tank (YPG-45) |

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 | BUILDING 506 UST FUEL RELEASE | IRA | CAPPING | 1993 |
| YPG-10 | FUEL BLADDER TEST SITE | IRA | SOIL VAPOR EXTRACTION | 2004 |
| YPG-11 | FORMER PESTICIDE MIX/STORAGE BLDG T-430 | FRA | INSTITUTIONAL CONTROLS | 2004 |
| YPG-13B | WashPad 1 Castle Dome Heliport | FRA | INSTITUTIONAL CONTROLS | 2004 |
| YPG-13C | Washpad 2 North Castle DomeHeliport | FRA | INSTITUTIONAL CONTROLS | 2004 |
| YPG-13D | WASTE BASIN AT CASTLE DOME HELIPORT | FRA | INSTITUTIONAL CONTROLS | 2004 |
| YPG-13E | SEPTIC TANK LEACHFIELD(E)KOF A BLDG 3490 | FRA | INSTITUTIONAL CONTROLS | 2004 |
| YPG-23 | WASHRACK/LAGOON (WEST) AT KOF A BLDG 3490 | FRA | INSTITUTIONAL CONTROLS | 2004 |
| YPG-25 | SEPTIC TANK LEACHFIELD (NORTH) AT CDH | FRA | INSTITUTIONAL CONTROLS | 2004 |
| YPG-26 | SEPTIC TANK/LEACHFIELD (SOUTH) AT CDH | FRA | INSTITUTIONAL CONTROLS | 2004 |
| YPG-31 | WEST ENVIRONMENTAL TEST AREA | FRA | INSTITUTIONAL CONTROLS | 2004 |
| YPG-32 | FORMER WASTE DISPOSAL AREA | IRA | FENCE OR OTHER SITE ACCESS CONTROL MEASURES | 2004 |
| YPG-10 | FUEL BLADDER TEST SITE | FRA | SOIL VAPOR EXTRACTION | 2005 |
| YPG-13F | SEPTIC TANK LEACHFIELD BLDG 3021 LAAF | FRA | INSTITUTIONAL CONTROLS | 2005 |
| YPG-37 | 77TH EXPLOSIVE ORDNANCE DEMOLITION AREA | FRA | INSTITUTIONAL CONTROLS | 2005 |
| YPG-45 | BUILDING 506 UST FUEL RELEASE | FRA | INSTITUTIONAL CONTROLS | 2005 |

IRP Summary

Duration of IRP

Date of IRP Inception: 197810

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201309/201709

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

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, identified 62 more potential release sites. [These are referred to in the 1988 USAEHA report as solid waste management units (SWMUs)]. 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 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 (CWAs) and/or ordnance and explosives.

The primary contaminants of concern (COC) at YPG are POL 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 begins with an initial source removal phase using SVE technology.

During this initial phase, groundwater monitoring would continue to gather information on contamination trends and natural attenuation parameters. During the planned four years of RA(O) associated with this action, contamination would be removed from the vadose zone and groundwater quality would improve.

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. 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. The CWA degradation compounds have not been detected from groundwater monitoring wells installed at the Former Waste Disposal Area YPG-32.

IRP Contamination Assessment

Contamination Assessment Overview

In 2005, methyl phosphoric 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 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.

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

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)
- YPG-31 West Environmental Test Area
- YPG-32 Former Waste Disposal Area
- YPG-37 77th Explosive Ordnance Disposal Area

OU 3

- YPG-11 Former Pesticide Mix/Storage Facility Building T-430
- YPG-13b Washpad 1 Castle Dome Heliport
- YPG-13c Washpad 2 North Castle Dome Heliport
- YPG-13d Waste Basin at Castle Dome Heliport
- YPG-23 Washrack/Lagoon (West) at Kofa Building 3490

OU 4

- YPG-03 Septic Tank Leachfield near Building 2060
- YPG-13a Septic Tank Lagoon Castle Dome Heliport
- YPG-13e Septic Tank Leachfield (East) Kofa Building 3490
- YPG-13f Septic Tank Leachfield Building 3021 Laguna Army Airfield (LAAF)
- YPG-25 Septic Tank Leachfield (North) at Castle Dome Heliport
- YPG-26 Septic Tank Leachfield (South) at Castle Dome Heliport

Cleanup Exit Strategy

The cleanup exit strategy for the YPG sites involves a combination of short-term remedies, LTM, and LUCs. The Fuel Bladder Test site (YPG-10) has an SVE system which has been in operation since 2007. This ICE-based SVE system will be operated until Arizona state soil cleanup levels for COC are achieved in vadose zone soil. The ongoing cleanup of the vadose zone soil will augment intrinsic remediation and will likely result in an improvement of groundwater quality, which currently exceeds the drinking water maximum contaminant level (MCL) for benzene. During the five-year RA(O), the remedy and the existing monitoring well network will be monitored. Upon completion of the RA(O), groundwater quality will continue to improve as a result of intrinsic remediation, resulting in RC within the planning horizon documented in this IAP.

Sites YPG-01, YPG-31, YPG-32, and YPG-45 will require periodic groundwater monitoring. The cleanup strategy for these sites involves periodic groundwater monitoring to substantiate the already documented fact pattern that these sites have had little or no impact on groundwater quality. In addition, the long-term strategy for these four sites 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 with a number of LUCs, including adherence to an existing YPG digging permit program.

IRP Previous Studies

| Year | 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, Volume1: 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

| Year | 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, USAYPG 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 |
| | 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 |

YUMA PROVING GROUND
Installation Restoration Program
Site Descriptions

Site ID: YPG-01

Site Name: OLD CHEMICAL LABORATORY (BLDG S-2500)

Alias: YPG-01

STATUS

Regulatory Driver: CERCLA

RRSE: LOW

Contaminants of Concern: Chemical weapon munitions (CWM)/Chemical agent, Polycyclic Aromatic Hydrocarbons (PAH), Volatiles (VOC)

Media of Concern: Groundwater, Soil

| Phases | Start | End |
|------------|-------------|--------|
| PA..... | 197810..... | 197812 |
| SI..... | 198808..... | 198808 |
| RI/FS..... | 199708..... | 201309 |
| LTM..... | 201309..... | 202709 |

RIP Date: N/A

RC Date: 201309

SITE DESCRIPTION

Building S-2500 is currently used as a soil processing laboratory. Based on a review of aerial photographs and installation blueprints, the building likely was constructed sometime after April 1954. A blueprint titled "Basic Information Maps, General Storm Drainage, Office of the Post Engineer, Yuma Test Station, 1958," labels building S-2500 as "Chem. Corps Desert Test Lab" within an area approximately 1,500 feet (ft) by 400 ft designated as "Chemical Test Team Area". Chemical agent detection kit challenge tests and agent purity analyses were conducted from the mid-1950s until 1969, within glove boxes and/or fume hoods within the laboratory. In 1969 chemical agent activity at the site stopped. Some wastes were disposed into what is referred to as a "leaching well for acid waste" in YPG Drawing No. 71-07-12 (revised Feb. 1, 1965). Reportedly, solid materials were transported to the former waste disposal area (YPG-32) (USAEHA, August 1988). No spills were reported in the archival documents reviewed.

A "leaching well" identified in archival blueprints could not be located using geophysical investigation techniques. The CWA degradation compounds were detected in passive soil gas monitors (Argonne National Laboratory, 1998). In January 2000, as part of the field sampling plan, additional passive soil gas monitors were deployed and CWA degradation compounds were detected at two of 26 locations.

Four monitoring wells have been installed as part of the RI activities. Benzene and toluene were detected in the sample collected from monitoring well (MW)1 at concentrations of 0.6 micrograms per liter (ug/L) and 0.9 ug/L, respectively. Bromoform and MPA, a CWA degradation compound, were also detected in MW 2, but not in a duplicate sample collected from the same well; however, in nine subsequent sampling episodes through 2003, CWA degradation compounds were not detected in any of the four MWs (Argonne, March 2004). LUCs were completed and included signage around the building. The site will continue to be used as a soil sample preparation laboratory and access to building S-2500 will be controlled.

In September 2007 a PBA contract was awarded. The PBA funded DD finalization and RA(O)/LTM performance through 2017.

A Supplemental Investigation Activities Work Plan was submitted to ADEQ February 2012 to conduct further investigation of YPG-01 to determine if there was a release of contaminants for the possible septic tank located in the southeast corner of building 2500. In order to determine if contaminants have impact the underlying soil, soil samples will be collected at 5 feet intervals to a depth of 20 feet bgs. Groundwater samples from the four monitoring wells will also be performed to determine if contaminants have leached to the groundwater. The results of the soil and groundwater sampling will be used to determine if additional remediation efforts are needed at the site. Due to the small size of YPG-01 and lack of ecological habitat, remediation goals will not include screening for ecological receptors.

CLEANUP/EXIT STRATEGY

A final DD is expected by the close of 2012. The LTM will be continued.

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

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..... | 200407 |
| RD..... | 200403..... | 200509 |
| IRA..... | 199909..... | 200403 |
| RA(C)..... | 200409..... | 200509 |
| RA(O)..... | 200509..... | 201709 |
| LTM..... | 201710..... | 202609 |
| RIP Date: | 200509 | |
| RC Date: | 201709 | |

SITE DESCRIPTION

From the mid-1960s until about 1972, portable fuel bladders were tested at a site one-half mile east of the YPG Yuma Test Center. The site contains 12 pits. Historical records indicate that seven were bermed test pits and four were used as borrow areas during construction, but there was no information regarding the use of one pit (Pit 12). In addition to the pits, there are two depressions (termed the North Depression and the South Depression) where aboveground, steel fuel tanks supplied the fuel used for bladder testing. Large fuel bladders designed for field deployment were challenge tested within the bermed areas. The berms and aboveground storage tanks (AST), which are no longer present at the site, were positioned within a fenced area of approximately 30 acres. Spillage of greater than 250,000 gallons of leaded gasoline was documented during the period of test activity. The field sampling plan, associated investigation activities, and past investigations have confirmed the presence of benzene/xylene/toluene related compounds in the vadose zone and in groundwater (Argonne, 2004). In October 2001, consistent with the technical approach in the ADEQ-approved RI work plan and sampling analysis plan, a presumptive remedy of SVE was proposed to the ADEQ. An IRA that included operation of a dual engine SVE unit has been performed to determine design parameters for a full-scale ICE SVE system for YPG-10.

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 the ADEQ and in March 2004 an RI report was completed. An agreement was obtained from the ADEQ to prepare a final DD that integrated the SVE system into a final DD. On Dec. 9, 2004 all parties signed a DD for subsurface and vadose zone. In March 2006 the RD/RA plan was submitted to and received concurrence from the ADEQ.

An SVE system operated from June 2007 until September 2007 when it was temporarily shut down. In April 2008 the system was restarted and operated until December 2008. The system will be operated until the site soils meet SRLs and groundwater protection levels (GPLs). Groundwater monitoring will be completed to show the effectiveness of natural attenuation as identified in the RD/RA.

In September 2007 a PBA contract was awarded. The PBA funded the required RA(O)/LTM through 2017. The PBA also includes achieving RC for soil and groundwater.

YPG-10 well sampling,
 Once per year: OW wells 3, 5, 6, 7a, 8, 9, 10, 12, 14, 17, 18, 19, 20, 21, 22a, 23a, 24b
 Twice per year: OW wells 2, 11, 13, 16
 PW wells 2, 4, 5, 7
 Total OW samples: 25
 Total PW samples: 8
 Total YPG-10 samples: 33

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

CLEANUP/EXIT STRATEGY

The SVE system will be operated to meet defined soil screening and groundwater concentration levels. Soil and groundwater levels are defined in the DD and in the RD.

Site ID: YPG-11

Site Name: FORMER PESTICIDE MIX/STORAGE BLDG T-430

Alias: YPG-11

STATUS

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Pesticides

Media of Concern: Soil

| Phases | Start | End |
|---------------|--------------|------------|
| PA..... | 197810..... | 197812 |
| SI..... | 197810..... | 197812 |
| RI/FS..... | 199811..... | 200409 |
| RA(C)..... | 200404..... | 200409 |
| LTM..... | 200709..... | 202108 |

RIP Date: N/A

RC Date: 200409

SITE DESCRIPTION

Building 430 functions as a storage building and is located within the YPG Public Works compound. Prior to 1980, the building was used to store a variety of bulk insecticides, herbicides, and associated chemical application equipment. As part of the FSP-related investigation activities, samples were collected on the edge of the building foundation and through the existing concrete floor. Eight pesticide compounds were detected in one or more soil samples collected at the site. Inorganics were detected at concentrations in excess of the Arizona regulatory limit of 10 milligrams/kilogram (mg/kg), but less than the groundwater protection limits. Pesticide detections are limited to samples collected from the east and south of building 430. There is no complete exposure route between contaminated areas of the site and the only receptors that have access to the site, the site workers. Dieldrin is elevated in soil beneath the building, thus limiting exposure to human or ecological receptors. Based upon the RI results (Argonne, July 2002) and the risk refinement step, YPG-11 does not represent a risk to ecological resources (Argonne, February 2003).

In September 2007 a PBA contract was awarded. The PBA funded finalization of the DD, completion of an RD, and performance of required RA(O)/LTM through 2017. On Aug. 8, 2010 all parties signed a DD for asphalt pavement and LUCs.

CLEANUP/EXIT STRATEGY

The LTM and enforcement of LUCs will be performed for a period to be determined.

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

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..... | 200409 |
| RA(C)..... | 200402..... | 200409 |
| LTM..... | 200410..... | 204209 |

RIP Date: N/A

RC Date: 200409

SITE DESCRIPTION

This site is located 2.3 miles north of the Phillips Drop Zone on the Cibola Testing Range. It is enclosed by an eight-foot tall chain-link fence and covers an area of 3,000 feet by 2,100 feet. 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.

An 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 2007 a PBA contract was awarded. The PBA is funded to finalize the DD and perform required LTM through 2017.

A Supplemental Investigation Activities Work Plan was submitted to ADEQ 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. Conduct a visual survey of the site (including hard stand locations, buildings, and the suspect burial trench to document the condition of AOCs); and
2. Collect surface samples around the hard stands to evaluate if any releases may have occurred during the testing of munitions.

CLEANUP/EXIT STRATEGY

The DD was revised to include soil cover and improve drainage at the site. The final DD is expected by 2013. The LTM will be performed and the soil cover will be maintained.

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

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..... | 200410 |
| IRA..... | 199904..... | 200409 |
| RA(C)..... | 200402..... | 200410 |
| LTM..... | 200410..... | 204209 |

RIP Date: N/A

RC Date: 200410

SITE DESCRIPTION

The Former Waste (chemical agent) Disposal Area site is located one-half mile north 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) and rocket-firing tubes used for chemical ammunition. The area and disposal pits, though judged by previous investigations to require NFA, required reevaluation. Three MWs 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 was funded to finalize the DD and perform required LTM through 2017.

A Supplemental Investigation Activities Work Plan was submitted to ADEQ February 2012 to conduct further investigation of YPG-32 to obtain site topographic and groundwater analytical data to substantiate remedial actions presented in the DD. There are currently no plans to intrusively investigate the site or remove the wastes due to safety concerns. To verify releases from the disposal trenches have not impacted groundwater, one round of groundwater sampling will be conducted at the site using the two groundwater monitoring wells located on the down gradient side of YPG-32.

CLEANUP/EXIT STRATEGY

The DD was revised to include soil cover and drainage improvement at the site. The final DD is expected by 2012. The LTM will be performed and soil cover will be maintained.

Site ID: YPG-45
Site Name: BUILDING 506 UST FUEL RELEASE
Alias: YPG-45

STATUS

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Polycyclic Aromatic Hydrocarbons (PAH), Volatiles (VOC)

Media of Concern: Soil

| Phases | Start | End |
|------------|-------------|--------|
| PA..... | 198903..... | 198903 |
| SI..... | 198911..... | 199105 |
| RI/FS..... | 198911..... | 200509 |
| IRA..... | 199201..... | 199211 |
| RA(C)..... | 200403..... | 200509 |
| LTM..... | 200509..... | 202609 |

RIP Date: N/A

RC Date: 200509

SITE DESCRIPTION

The Building 506 UST Fuel Release site is located at the Main Administrative Area (MMA). In 1989 leaking heating fuel USTs were replaced. In 1991 drilling and soil analysis were used to complete the RI. In 1992 an IRA was conducted including asphalt capping and monitoring instrumentation. In 1995, the YPG Department of Public Works removed the capping for the purpose of building and grounds beautification. Groundwater is approximately 50 feet bgs. In December 1998 lysimeters installed during 1992 were sampled and revealed VOCs and total petroleum hydrocarbons (TPH) just slightly above background concentrations.

In 2000 and 2003 soil vapor wells were installed and sampled. Soil samples have also been collected from the former location of the leaking UST (Argonne, 2004). Two PAHs and TPH have been identified as contaminants of potential concern. The groundwater at the site is not contaminated. There are no complete exposure routes to human or ecological receptors. The ADEQ requested the full evaluation of remedial alternatives for the site. These are described in the FFS for subsurface soil at Building 506, which was finalized in July 2005. A draft DD was prepared and state approval is anticipated in FY09.

In September 2007 a PBA contract was awarded. The PBA was funded to finalize the DD, perform an RD, and perform required LTM through 2017.

A Supplemental Investigation Activities Work Plan was submitted to ADEQ February 2012 to conduct further investigation of YPG-45. Because the most recent soil sampling YPG-45 was conducted in March 2000, more recent data is needed to determine the affects of natural attenuation processes on reducing the concentrations of TPHs and PAHs. The objective of further sampling is to determine a baseline of the natural attenuation rate for the current contaminant concentrations at the site and to support decisions presented in the DD. Due to the small size of YPG-45 and lack of ecological habitat, remediation goals will not include screening for ecological receptors.

CLEANUP/EXIT STRATEGY

A final DD is expected by 2013. The LTM and enforcement of LUCs will be performed for a period to be determined.

Site Closeout (No Further Action) Summary

| Site ID | Site Name | NFA Date | Documentation |
|---------|--|----------|--|
| YPG-02 | CHEM WASTE HOLDING TANK BLDG S-2060) | 200309 | DD awaiting signature |
| YPG-03 | SEPTIC TANK LEACHFIELD BLDG. 2060 | 200309 | 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) | 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-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 | 200409 | DD awaiting signature |
| YPG-13C | Washpad 2 North Castle DomeHeliport | 200409 | DD awaiting signature |
| YPG-13D | WASTE BASIN AT CASTLE DOME HELIPORT | 200409 | DD awaiting signature |
| YPG-13E | SEPTIC TANK LEACHFIELD(E)KOFA BLDG 3490 | 200409 | DD awaiting signature |
| YPG-13F | SEPTIC TANK LEACHFIELD BLDG 3021 LAAF | 200509 | 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 | 200409 | DD awaiting signature |
| 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 | 200409 | DD awaiting signature |
| YPG-26 | SEPTIC TANK/LEACHFIELD (SOUTH) AT CDH | 200409 | DD awaiting signature |
| YPG-27 | LANDFILL 5KM S-SE OF MAINPOST | 198808 | This site was transferred to the Compliance-Related Cleanup |

Site Closeout (No Further Action) Summary

| Site ID | Site Name | NFA Date | Documentation |
|---------|--|----------|--|
| | | | 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 ER,A Funding |
| YPG-PBA | YPG-PBA | 201005 | |

IRP Schedule

Date of IRP Inception: 197810

Past Phase Completion Milestones

1979

SI (YPG-11 - FORMER PESTICIDE MIX/STORAGE BLDG T-430)
RFA (YPG-06 - OB/OD NEW DEMO AREA-KOFA EAST, YPG-12 - PESTICIDE MIX/STORE FACILITY(BLDG 416), 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), 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-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-31 - WEST ENVIRONMENTAL TEST AREA, 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)

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-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), 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-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-31 - WEST ENVIRONMENTAL TEST AREA, 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-30 - LANDFILL 4KM NW OF KOFA RANGE, YPG-35 - OLD DEMO AREA(N BASE OF MUGGINS MTS))

1989

PA (YPG-45 - BUILDING 506 UST FUEL RELEASE)
SI (YPG-25 - SEPTIC TANK LEACHFIELD (NORTH) AT CDH)

1991

SI (YPG-45 - BUILDING 506 UST FUEL RELEASE)
RI/FS (YPG-38 - LEAD ARSENATE SITE)

| | |
|-------------|---|
| 1992 | |
| PA | (YPG-10 - FUEL BLADDER TEST SITE) |
| 1993 | |
| RA(C) | (YPG-38 - LEAD ARSENATE SITE) |
| IRA | (YPG-45 - BUILDING 506 UST FUEL RELEASE) |
| SI | (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 | |
| RI/FS | (YPG-43 - FORMER FIRE TRAINING PIT) |
| 2001 | |
| RI/FS | (YPG-13A - SEPTIC TANK LAGOON CASTLE DOME HELIPORT) |
| 2003 | |
| RI/FS | (YPG-02 - CHEM WASTE HOLDING TANK BLDG S-2060), YPG-03 - SEPTIC TANK LEACHFIELD BLDG. 2060) |
| 2004 | |
| RI/FS | (YPG-10 - FUEL BLADDER TEST SITE, YPG-11 - FORMER PESTICIDE MIX/STORAGE BLDG T-430, 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)KOF A BLDG 3490, YPG-13F - SEPTIC TANK LEACHFIELD BLDG 3021 LAAF, YPG-23 - WASHRACK/LAGOON (WEST) AT KOF A BLDG 3490, YPG-25 - SEPTIC TANK LEACHFIELD (NORTH) AT CDH, YPG-26 - SEPTIC TANK/LEACHFIELD (SOUTH) AT CDH, YPG-31 - WEST ENVIRONMENTAL TEST AREA) |
| RA(C) | (YPG-11 - FORMER PESTICIDE MIX/STORAGE BLDG T-430, 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)KOF A BLDG 3490, YPG-23 - WASHRACK/LAGOON (WEST) AT KOF A BLDG 3490, YPG-25 - SEPTIC TANK LEACHFIELD (NORTH) AT CDH, YPG-26 - SEPTIC TANK/LEACHFIELD (SOUTH) AT CDH, YPG-31 - WEST ENVIRONMENTAL TEST AREA) |
| IRA | (YPG-10 - FUEL BLADDER TEST SITE, YPG-32 - FORMER WASTE DISPOSAL AREA) |
| 2005 | |
| RI/FS | (YPG-32 - FORMER WASTE DISPOSAL AREA, YPG-37 - 77TH EXPLOSIVE ORDNANCE DEMOLITION AREA, YPG-45 - BUILDING 506 UST FUEL RELEASE) |
| RA(C) | (YPG-10 - FUEL BLADDER TEST SITE, YPG-13F - SEPTIC TANK LEACHFIELD BLDG 3021 LAAF, YPG-32 - FORMER WASTE DISPOSAL AREA, YPG-37 - 77TH EXPLOSIVE ORDNANCE DEMOLITION AREA, YPG-45 - BUILDING 506 UST FUEL RELEASE) |
| RD | (YPG-10 - FUEL BLADDER TEST SITE) |
| 2010 | |
| LTM | (YPG-PBA - YPG-PBA) |

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-03 | SEPTIC TANK LEACHFIELD BLDG. 2060 | DD 2 YPG 03 and YPG 13 f | 20121230 |
| YPG-02 | CHEM WASTE HOLDING TANK BLDG S-2060) | DD 4 YPG-02 | 20171017 |
| YPG-13B | WashPad 1 Castle Dome Heliport | DD 8 LUC Remedy for 7 SWMUs | 20121017 |
| YPG-13D | WASTE BASIN AT CASTLE DOME HELIPORT | DD 8 LUC Remedy for 7 SWMUs | 20121017 |

IRP Schedule

| | | | |
|---------|--|-----------------------------|----------|
| YPG-25 | SEPTIC TANK LEACHFIELD (NORTH) AT CDH | DD 8 LUC Remedy for 7 SWMUs | 20121017 |
| YPG-23 | WASHRACK/LAGOON (WEST) AT KOFA BLDG 3490 | DD 8 LUC Remedy for 7 SWMUs | 20121017 |
| YPG-26 | SEPTIC TANK/LEACHFIELD (SOUTH) AT CDH | DD 8 LUC Remedy for 7 SWMUs | 20121017 |
| YPG-13E | SEPTIC TANK LEACHFIELD(E)KOFA BLDG 3490 | DD 8 LUC Remedy for 7 SWMUs | 20121017 |
| YPG-13C | Washpad 2 North Castle DomeHeliport | DD 8 LUC Remedy for 7 SWMUs | 20121017 |
| YPG-37 | 77TH EXPLOSIVE ORDNANCE DEMOLITION AREA | DD 6 YPG 37 | 20171017 |
| YPG-01 | OLD CHEMICAL LABORATORY (BLDG S-2500) | DD 1 YPG 01 | 20130930 |
| YPG-31 | WEST ENVIRONMENTAL TEST AREA | DD 3 YPG 31 and YPG 32 | 20171217 |
| YPG-32 | FORMER WASTE DISPOSAL AREA | DD 3 YPG 31 and YPG 32 | 20171217 |
| YPG-45 | BUILDING 506 UST FUEL RELEASE | DD 7 YPG 45 | 20171010 |
| YPG-13F | SEPTIC TANK LEACHFIELD BLDG 3021 LAAF | DD 2 YPG 03 and YPG 13 f | 20121230 |

Final RA(C) Completion Date: 200509

Schedule for Next Five-Year Review: 2012

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

YUMA PROVING GROUND IRP Schedule

= phase underway

| SITE ID | SITE NAME | PHASE | FY13 | FY14 | FY15 | FY16 | FY17 | FY18+ |
|---------|--|-------|------|------|------|------|------|-------|
| YPG-01 | OLD CHEMICAL LABORATORY (BLDG S-2500) | RI/FS | | | | | | |
| | | LTM | | | | | | |
| SITE ID | SITE NAME | PHASE | FY13 | FY14 | FY15 | FY16 | FY17 | FY18+ |
| YPG-10 | FUEL BLADDER TEST SITE | RA(O) | | | | | | |
| | | LTM | | | | | | |
| SITE ID | SITE NAME | PHASE | FY13 | FY14 | FY15 | FY16 | FY17 | FY18+ |
| YPG-11 | FORMER PESTICIDE MIX/STORAGE BLDG T-430 | LTM | | | | | | |
| SITE ID | SITE NAME | PHASE | FY13 | FY14 | FY15 | FY16 | FY17 | FY18+ |
| YPG-31 | WEST ENVIRONMENTAL TEST AREA | LTM | | | | | | |
| SITE ID | SITE NAME | PHASE | FY13 | FY14 | FY15 | FY16 | FY17 | FY18+ |
| YPG-32 | FORMER WASTE DISPOSAL AREA | LTM | | | | | | |
| SITE ID | SITE NAME | PHASE | FY13 | FY14 | FY15 | FY16 | FY17 | FY18+ |
| YPG-45 | BUILDING 506 UST FUEL RELEASE | LTM | | | | | | |

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: 2/1

Installation Site Types with Future and/or Underway Phases

1 Firing Range
(YPG-002-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): 201909/201909

Date of MMRP completion including Long Term Management (LTM): 203909

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 site inspection (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.

With the exception of the 56-acre housing area, solar panel farm and open storage area, the majority of the area is undeveloped. Current activities include residential area activities (recreation, gardening, lawn maintenance, playgrounds, etc.), authorized YPG personnel working at the photovoltaic solar power collection panel farm and open storage areas, and recreational activities involving jogging and nature trails. Apart from these, the majority of the area is undeveloped and does not see regular activity.

Depth to groundwater within the area ranges from 30 to 40 feet 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 feet east of the former mortar impact area and the Gila Gravity Main Canal is approximately 1,700 feet 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 they are 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 SRLs. 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.

Cleanup Exit Strategy

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. A soil removal may be required along with institutional and LUCs. Long-term management is also likely to 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 |
| | USAGYPG 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 USAGYPG Easter Services Hill Area of Interest Munitions Response Site YPG-002-R-01 | Weston Solutions, Inc. | FEB-2012 |

YUMA PROVING GROUND
Military Munitions Response Program
Site Descriptions

Site ID: YPG-002-R-01
Site Name: MORTAR IMPACT AREA
Alias: YPG 2-R-1

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..... | 201309 |
| RD..... | 201009..... | 201609 |
| IRA..... | 201009..... | 201909 |
| RA(C)..... | 201009..... | 201909 |
| LTM..... | 201909..... | 203909 |

RIP Date: N/A

RC Date: 201909

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, and may have been used after these dates. 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.

In December 2004, an SI was conducted which included a limited geophysical and visual survey and collection of soil samples. The results were evaluated in the June 2005 final SI report.

Beginning at the end of December 2009 and ending in the second week of January 2010, Parsons Infrastructure and Technology group conducted an RI at the site to define the types and extent (spatial distribution) of munitions and soil contamination so that remedial alternatives could be evaluated and prioritized in the event that a remedial response is needed. Consistent with the results of the previous SI, their 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. This equates to an AOC of roughly 100 acres, with Easter Services Hill being the most likely to contain old munitions. As evidence of this, during the investigation a 75mm HE mortar was discovered near the flank of Easter Services Hill, approximately two-thirds of the way up the hill. The round was found approximately 80 feet from the summit and about 60 feet from the trail leading to the summit. During the RI, less than five percent of the Easter Services Hill was actually surveyed. The finding of a live artillery shell and multiple pieces of munitions debris (e.g. mortar tail fins) during such a limited survey gives reason for concern that additional hazardous munitions are likely present somewhere on Easter Services Hill and the area surrounding the hill. Based on the discovery of the 75 mm artillery shell a new Explosive Site Plan was submitted to the US Army Technical Center for Explosives Safety (USATCES) via the USAEC. Based on the preliminary RI results, funding will be requested from USAEC to cover corrective actions and cleanup of the approximately 180 acres surrounding Easter Services Hill not included in the current PBA.

CLEANUP/EXIT STRATEGY

Site ID: YPG-002-R-01
Site Name: MORTAR IMPACT AREA
Alias: YPG 2-R-1

Following state regulatory approval of the Remedial Investigation Report, MEC removal may be needed, followed by MEC institutional controls and MEC monitoring.

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)

Projected Phase Completion Milestones

See attached schedule

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

To Be Determined

Final RA(C) Completion Date: 201909

Schedule for Next Five-Year Review: 2012

Estimated Completion Date of MMRP at Installation (including LTM phase): 203909

YUMA PROVING GROUND MMRP Schedule

= phase underway

| SITE ID | SITE NAME | PHASE | FY13 | FY14 | FY15 | FY16 | FY17 | FY18+ |
|--------------|--------------------|-------|------|------|------|------|------|-------|
| YPG-002-R-01 | MORTAR IMPACT AREA | RI/FS | | | | | | |
| | | RD | | | | | | |
| | | IRA | | | | | | |
| | | RA(C) | | | | | | |
| | | LTM | | | | | | |

YUMA PROVING GROUND
Army Defense Environmental Restoration Program
Compliance Restoration

CR Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 9/0

Installation Site Types with Future and/or Underway Phases

- 6 Landfill
(CCYPG-027, CCYPG-028, CCYPG-029, CCYPG-141, CCYPG-143, CCYPG-178)
- 1 Soil Contamination After Tank Removal
(CCYPG-151)
- 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 & FRA 209) | FRA | NATURAL ATTENUATION | 2006 |
| CCYPG-204 | YPG- 138 UST SITE REMED. AAFES GAS STATI | FRA | NATURAL ATTENUATION | 2006 |

Duration of CR

Date of CR Inception: 199705

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201609/201609

Date of CR completion including Long Term Management (LTM): 204209

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) has identified potential sites from past practices at 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 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 LUST sites that are located within one-half mile of the drinking water production wells for the MAA of the installation. During FY10 several of these sites were transferred over to the compliance restoration 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 includes CCYPG-151, CCYPG-165 and -204. Furthermore, at inactive landfill sites CCYPG-27, -28, -29, -141, and -178 it is assumed that capping will be 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

| Year | 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 | Gutierrez-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 OB/OD Pad | Jason Associates Corp | JUN-2000 |
| | Remedial Action Summary Report North Pad Open Burn/Open Detonation 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 | 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

| Year | 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 OB/OD Fac. (CCYPG-06A) | Jason Associates Corp | JUL-2007 |
| | Work Plan Screening Level Ecological Risk Assessment Muggins Mountain (CCYPG-035A, B, and C) | Jason Associates Corp | JUL-2007 |
| | EPA Comments, Work Plan ERA, Inactive OB/OD Units (CCYPG-06A) | USEPA | 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

| Year | 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 Group, Inc. | JAN-2012 |
| | REF: HWP-EX2514 RE: Acknowledgement of Completion of Corrective Action at Inactive Landfill YPG-143; U.S.GYPG USEPA ID No. AZ5 213 820 991 | ADEQ | MAR-2012 |

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..... | 201309 |
| DES..... | 201302..... | 201309 |
| CMI(C)..... | 201310..... | 201410 |
| LTM..... | 201410..... | 202509 |
| RIP Date: | N/A | |
| RC Date: | 201410 | |

SITE DESCRIPTION

This site is identified in the Resource Conservation and Recovery Act (RCRA) facility assessment (RFA) as SMWU 37 and Defense Environmental Restoration Program (DERP) site YPG-027.

The Arizona Administrative Code (A.A.C.) R18-8-264.A and A.A.C.R18-8-270.A, 40CFR 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 is required to investigate this site.

The inactive landfill is five kilometers (km) south-southeast of the MAA and south of Imperial Dam Road. The landfill was in operation from 1950 to 1964. This is a 30-40 year old landfill, where open burning was practiced. The USEPA recommended soil and groundwater monitoring in the 1998 RFA. A release assessment was completed in 2001, and construction debris was observed covering approximately two to three acres. The release assessment recommended that confirmatory sampling (CS) and a geophysical study be conducted.

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 15 acres of landfill debris. The ADEQ site visit of May 2007 revealed that gas and MWs and an impermeable cap would need to be completed for future cleanup phases. The Remedial Action Cost Engineering and Requirements (RACER) estimate reflects this. The underway phase of CMS is being performed via a performance-based contract (PBC), awarded in September 2007 and estimated via the PBC contract statement of work.

CLEANUP/EXIT STRATEGY

The objective at this site is to reduce the footprints of the landfill using CS. The CS will be taken to test for VOC, SVOC and metals in soil.

Site ID: CCYPG-028

Site Name: INACTIVE LANDFILL NW MAA SE Imperial Dam

Alias: SWMU 36

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..... | 201309 |
| DES..... | 201302..... | 201309 |
| CMI(C)..... | 201310..... | 201410 |
| LTM..... | 201410..... | 202509 |

RIP Date: N/A

RC Date: 201410

SITE DESCRIPTION

This site is identified in the RFA as SWMU 36.

The A.A.C.R18-8-264.A and A.A.C.R18-8-270.A 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 are required to investigate this site.

This inactive landfill operated for the period 1948 and 1949. A facility release assessment was completed in 2001, and miscellaneous debris was observed. Debris in mound covers approximately one to two acres. The release assessment recommended that CSs 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 2006. The survey found two acres of landfill debris. The ADEQ site visit of May 2007 revealed that the site would need to have an impermeable cap, gas, and MWs installed. The RACER estimate reflects this change. Estimated groundwater depth is 80 feet.

CLEANUP/EXIT STRATEGY

The objective at this site is to reduce the footprint of the landfill using confirmatory sampling (CS). The CS will be taken to test for VOCs, SVOCs and metals in soil.

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..... | 201309 |
| DES..... | 201306..... | 201310 |
| CMI(C)..... | 201509..... | 201608 |
| LTM..... | 201609..... | 202509 |

RIP Date: N/A

RC Date: 201608

SITE DESCRIPTION

This site is identified in the RFA as SWMU 41.

The A.A.C.R18-8-264.A and A.A.C.R18-8-270.A 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 is required to investigate this site.

This is a 30-40 year old landfill, where open burning was practiced. This landfill covers approximately one to two acres. This site has a cross-reference with DERP site YPG-029. A release assessment was completed in 2001, and miscellaneous debris was observed, as well as depressions in the desert surface. The release assessment recommended that CSs 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 2006. The survey found six acres of possible landfill debris. A May 2007 site visit by the ADEQ revealed that the site would require gas and MWs and an impermeable cap. The RACER estimate reflects this work.

CLEANUP/EXIT STRATEGY

The objective at this site is to reduce the footprint of the landfill using CS.

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..... | 201210 |
| DES..... | 201310..... | 201409 |
| CMI(C)..... | 201410..... | 201609 |
| LTM..... | 201609..... | 202509 |
| RIP Date: | N/A | |
| RC Date: | 201609 | |

SITE DESCRIPTION

This is an inactive landfill one mile northeast of MAA, southwest of LAAF. The site is approximately two acres, but the latest geophysical and background survey of 2006 determined it to be 16 acres. The area was used from 1964 through 1967. A release assessment was completed in 2001, and miscellaneous debris was observed.

The site is identified in the RFA as SWMU 39.

The A.A.C.R18-8-264.A and A.A.C.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 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 in 2011. A corrective measures implementation (construction) [CMI(C)] phase is assumed to begin sometime in early FY12, after the CMS and design are completed.

CLEANUP/EXIT STRATEGY

The objective at this site is to reduce the footprint of the landfill using CS. The CSs will be taken to test for VOC, SVOC, and metals in soil. The LTM of groundwater and landfill gas is expected following completion of the CMI(C).

Site ID: CCYPG-143
Site Name: Inactive Landfill SSE of LAAF
Alias: SWMU-40

STATUS

Regulatory Driver: RCRA
 Contaminants of Concern: Other (No contaminants)
 Media of Concern: Soil

| Phases | Start | End |
|--------------|-------------|--------|
| RFA..... | 199705..... | 199904 |
| CS..... | 200603..... | 200706 |
| RFI/CMS..... | 200709..... | 201203 |
| LTM..... | 201203..... | 204209 |

RIP Date: N/A
RC Date: 201203

SITE DESCRIPTION

This inactive landfill is south-southeast of LAAF, UTM Location: NAD27/11/North/744466/363784. The A.A.C.R18-8-264.A and A.A.C.R18-8-270.A require that permits issued after November 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 we are required to investigate this site. A Release Assessment was completed in 2001, bricks and scattered debris were observed. The RFA recommended a geophysical survey to identify the landfill with CS. 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 Report found scant anomaly evidence of landfill footprint. A CS effort will be required to see if soil contaminants present. A site S&A plan was sent to ADEQ, but no response has been received, awaiting award of this site to be added to the PBA. CS funded in FY06 and the geophysical portion was performed. The geophysical report was submitted to the ADEQ in FY07. This site is included in the PBA. Approximately 1-2 square miles was walked looking for landfill.

Yuma Proving Ground received a letter dated March 23, 2012 (REF: HWP-EX2514) acknowledging Completion of Corrective Action at Inactive Landfill YPG-143; U.S. ARMY GARRISON YUMA PROVING GROUND (USAGYPG); EPA ID NO. AZ5 213 820 991.

ADEQ has determined that the site does not appear to have been a landfill and that no solid waste, hazardous waste, hazardous constituents, or hazardous waste degradation products were found on-site, and that no further corrective action is required due to the following three reasons:

1. A 2001 Release Assessment site visit found no evidence of a landfill.
2. A 2006 geophysical magnetic and electromagnetic survey, by Jason and Associates, did not identify anomalies indicating buried waste.
3. A 2010 Visual Site Inspection by Parsons found no evidence of a landfill.

In order to remove the SWMU from the Permit, USAGYPG must submit a Class 1 Permit modification request (requiring prior Director approval) modifying Part VI of the Permit to reflect that YPG-143 has been investigated and that ADEQ has acknowledged the completion of corrective action at this SWMU.

CLEANUP/EXIT STRATEGY

The site has achieved response complete status and is in LTM.

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

STATUS

Regulatory Driver: CERCLA

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

Media of Concern: Groundwater, Soil

| Phases | Start | End |
|---------------|--------------|------------|
| PA..... | 199705..... | 199904 |
| SI..... | 199905..... | 200001 |
| RI/FS..... | 201212..... | 201505 |

RIP Date: N/A

RC Date: 201505

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 USTs were installed in circa 1971 and pulled circa 1992/4. The LUST Case File No. 4715.3801.02. The site is approximately two acres. Proper site closure activities were not concluded. The site has been adequately characterized per an ADEQ memorandum dated December 2002. Elevated levels of TPH were found at 45,500 parts per million. 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.

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 (MFR) 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 GPI in November of 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.

The LUCs will be implemented. CCYPG-151 is on YPG's contaminated sites list. The list was provided to Master Planning who listed it as a site that should be removed from consideration for new construction projects.

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..... | 199705..... | 199904 |
| IMP(C)..... | 200101..... | 200605 |
| LTM..... | 200606..... | 204209 |

RIP Date: N/A

RC Date: 200605

SITE DESCRIPTION

This contaminated site is located on USAG YPG, in the MAA, approximately one mile from the Colorado River. UST contamination is located at Buildings 207 and 209 and includes contamination from two 10,000-gallon steel USTs, which stored and dispensed leaded, unleaded and diesel fuel. The tank installation occurred in the 1953 or 1954. There was an unknown quantity of spill over the years of operation. In 1991 the tanks were pulled and replaced, and closure reports were submitted to the ADEQ.

The R18-12-262. LUST Site Investigation requires that "an owner or operator shall investigate a release at and from a LUST site to determine the full extent of the release of regulated substances, and shall determine the full extent of contamination, identify physical, natural, and artificial features at or surrounding the LUST site, that are current or potential pathways for contamination migration, identify current or potential receptors; and obtain any additional data necessary to determine site-specific corrective action standards, and to justify the selection of remedial alternatives to be used in responses to contaminated soil, surface water, and groundwater."

This site is also known as AOC 6. The site is an ADEQ LUST site (Case File No. 0682.02).

At the time of removal and replacement, contamination was detected in soil samples. Ten MWs 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 state regulatory driver, which is the drinking water MCL. In 2001, draft site investigations were submitted to the ADEQ. Comments were received in 2002 requesting 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.

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 the ADEQ in December of each year. The LTM effort from 2007 to 2017 is being contracted to PBA, the PBA contract was awarded in FY07.

Site ID: CCYPG-178

Site Name: INACTIVE LANDFILL 3 KM EAST OF MAIN ADMI

Alias: None

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..... | 201209 |
| DES..... | 201310..... | 201409 |
| CMI(C)..... | 201410..... | 201608 |
| LTM..... | 201609..... | 202209 |

RIP Date: N/A

RC Date: 201608

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 A.A.C.R18-8-264.A and A.A.C.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 six acres of landfill debris. A site visit in May 2007 by the ADEQ revealed that the site will need a cap, groundwater MWs, and gas wells.

CLEANUP/EXIT STRATEGY

The objective at this site is to reduce the footprint of the landfill using CS. Ths CSs will be taken to test for VOC, SVOC and metals in soil.

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..... | 199705..... | 199904 |
| IMP(C)..... | 200101..... | 200606 |
| LTM..... | 200606..... | 204209 |

RIP Date: N/A

RC Date: 200606

SITE DESCRIPTION

The AAFES service station has been replaced by a larger, more modern facility. The old station has been demolished and the tanks were removed.

The R18-12-262. LUST Site Investigation, requires that "an owner or operator shall investigate a release at and from a LUST site to determine the full extent of the release of regulated substances, and shall determine the full extent of contamination, identify physical, natural, and artificial features at or surrounding the LUST site, that are current or potential pathways for contamination migration, identify current or potential receptors; and obtain any additional data necessary to determine site-specific corrective action standards, and to justify the selection of remedial alternatives to be used in responses to contaminated soil, surface water, and groundwater."

The site is an ADEQ LUST case, file number 0682.03, with UST numbers 004A, 004B, and 004C.

The contaminated site is located in the YPG MMA, approximately one-half mile from the Colorado River. This UST site includes contamination from three steel 10,000 gallon USTs which stored and dispensed diesel fuel and gasoline. The tank installation occurred circa 1953 or 1954. In 1991, the tanks were pulled and replaced by three fiberglass tanks, and closure reports were submitted to the ADEQ. Two of the three USTs were reported as leaking. It is estimated that the two tanks leaked over a period of 23 years. The total estimated volume leaked was approximately 17,000 to 42,000 gallons of leaded and unleaded gasoline. At the time of removal and replacement, contamination was detected in seven soil samples taken during the tank removal.

In 1998, a site characterization was conducted by Gutierrez-Palmenburg Inc. (GPI), and this investigation included soil borings and hydropunch samples. The results were used to delineate the plume.

Nine MWs 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 state regulatory limit.

CLEANUP/EXIT STRATEGY

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 monitorings 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 from 2007 to 2015 is being contracted to the PBC, the PBC was awarded in FY07 and is for the first round of LTM for 2007-2008.

Site Closeout (No Further Action) Summary

| Site ID | Site Name | NFA Date | Documentation |
|------------------------|-----------|----------|---------------|
| There are no NFA sites | | | |

CR Schedule

Date of CR Inception: 199705

Past Phase Completion Milestones

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-165 - FUEL STATION #1 (UST 207 & 209), CCYPG-204 - YPG- 138 UST SITE REMED. AAFES GAS STATI)

PA (CCYPG-151 - LUST)

2000

SI (CCYPG-151 - LUST)

2006

IMP(C) (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)

Projected Phase Completion Milestones

See attached schedule

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

To Be Determined

Final RA(C) Completion Date: 201609

Schedule for Next Five-Year Review: 2012

Estimated Completion Date of CR at Installation (including LTM phase): 204209

YUMA PROVING GROUND CR Schedule

 = phase underway

| SITE ID | SITE NAME | PHASE | FY13 | FY14 | FY15 | FY16 | FY17 | FY18+ |
|-----------|---|---------|------|------|------|------|------|-------|
| CCYPG-027 | INACTIVE LANDFILL 5KM SSE MAA | RFI/CMS | | | | | | |
| | | DES | | | | | | |
| | | CMI(C) | | | | | | |
| | | LTM | | | | | | |
| SITE ID | SITE NAME | PHASE | FY13 | FY14 | FY15 | FY16 | FY17 | FY18+ |
| CCYPG-028 | INACTIVE LANDFILL NW MAA SE Imperial Dam | RFI/CMS | | | | | | |
| | | DES | | | | | | |
| | | CMI(C) | | | | | | |
| | | LTM | | | | | | |
| SITE ID | SITE NAME | PHASE | FY13 | FY14 | FY15 | FY16 | FY17 | FY18+ |
| CCYPG-029 | INACTIVE LANDFILL E RT95 2KM W Kofa Ran. | RFI/CMS | | | | | | |
| | | DES | | | | | | |
| | | CMI(C) | | | | | | |
| | | LTM | | | | | | |
| SITE ID | SITE NAME | PHASE | FY13 | FY14 | FY15 | FY16 | FY17 | FY18+ |
| CCYPG-141 | INACTIVE LANDFILL | RFI/CMS | | | | | | |
| | | DES | | | | | | |
| | | CMI(C) | | | | | | |
| | | LTM | | | | | | |
| SITE ID | SITE NAME | PHASE | FY13 | FY14 | FY15 | FY16 | FY17 | FY18+ |
| CCYPG-143 | Inactive Landfill SSE of LAAF | LTM | | | | | | |
| SITE ID | SITE NAME | PHASE | FY13 | FY14 | FY15 | FY16 | FY17 | FY18+ |
| CCYPG-151 | LUST | RI/FS | | | | | | |
| SITE ID | SITE NAME | PHASE | FY13 | FY14 | FY15 | FY16 | FY17 | FY18+ |
| CCYPG-165 | FUEL STATION #1 (UST 207 & 209) | LTM | | | | | | |
| SITE ID | SITE NAME | PHASE | FY13 | FY14 | FY15 | FY16 | FY17 | FY18+ |
| CCYPG-178 | INACTIVE LANDFILL 3 KM EAST OF MAIN ADMI | DES | | | | | | |
| | | CMI(C) | | | | | | |
| | | LTM | | | | | | |
| SITE ID | SITE NAME | PHASE | FY13 | FY14 | FY15 | FY16 | FY17 | FY18+ |
| CCYPG-204 | YPG- 138 UST SITE REMED. AAFES GAS STATI | LTM | | | | | | |

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 September 2010. A copy was submitted to the ADEQ. The 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

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

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

TAPP Title: N/A

Potential TAPP: N/A

