# FY2013

## USARC KINGS MILLS (AMSA 59)

## Army Defense Environmental Restoration Program

## Installation Action Plan

Printed 24 September 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 (RAs).

In an effort to coordinate planning information between the restoration manager, the 88th Regional Support Command (RSC), the US Army Environmental Command (USAEC), the Installation Management Command-Army Reserve Office (IMCOM ARO), US Army Reserve Center (USARC) Kings Mills, the executing agencies, the regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules, and 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

| | |
|---|---|
| AEDB-R | Army Environmental Database-Restoration |
| AMSA | Area Maintenance Support Activity |
| AOC | Area of Concern |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act of 1980 |
| DD | Decision Document |
| DPHVE | Dual Phase High Vacuum Extraction |
| ER,A | Environmental Restoration, Army |
| FRA | Final Remedial Action |
| FS | Feasibility Study |
| FY | Fiscal Year |
| IAP | Installation Action Plan |
| IMCOM-ARO | Installation Management Command-Army Reserve Office |
| IRA | Interim Remedial Action |
| IRP | Installation Restoration Program |
| K | thousand |
| KMOP | Kings Mills Ordnance Plant |
| LTM | Long-Term Management |
| N/A | Not Applicable |
| NPL | National Priorities List |
| O&M | Operations and Maintenance |
| OEPA | Ohio Environmental Protection Agency |
| PA | Preliminary Assessment |
| PBA | Performance-Based Acquisition |
| PP | Proposed Plan |
| RA | Remedial Action |
| RA(C) | Remedial Action (Construction) |
| RA(O) | Remedial Action (Operation) |
| RAB | Restoration Advisory Board |
| RC | Response Complete |
| RI | Remedial Investigation |
| RIP | Remedy-in-Place |
| ROD | Record of Decision |
| RRSE | Relative Risk Site Evaluation |
| RSC | Regional Support Command |
| SI | Site Inspection |
| TAPP | Technical Assistance for Public Participation |
| TBD | To Be Determined |
| TCE | Trichloroethylene |
| TRC | Technical Review Committee |
| USAEC | US Army Environmental Command |
| USARC | US Army Reserve Center |
| USEPA | US Environmental Protection Agency |
| UST | Underground Storage Tank |
| VOC | Volatile Organic Compound |

# Installation Information

### Installation Locale

**Installation Size (Acreage):** 16
**City:** Kings Mills
**County:** Warren
**State:** Ohio
**Other Locale Information**

The USARC Kings Mills occupies 16 acres and is located at 6195 Striker Road, south of the village of Kings Mills, in Warren County, Ohio.

### Installation Mission

The USARC Kings Mills is currently occupied by the 558th Signal Company, the 810th Quartermaster, the 322nd Well Drilling Company and Army Maintenance Support Activity (AMSA) No. 59.

### Lead Organization

US Army Reserve

### Lead Executing Agencies for Installation

USAEC

88th RSC

### Regulator Participation

| | |
|---|---|
| **State** | Ohio Environmental Protection Agency (OEPA) |

### National Priorities List (NPL) Status

USARC KINGS MILLS (AMSA 59) is not on the NPL

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

Installation at RIP/RC.

### Installation Program Summaries

#### IRP

**Primary Contaminants of Concern:** Volatiles (VOC)

**Affected Media of Concern:** Groundwater

# 5-Year / Periodic Review Summary

### 5-Year / Periodic Review Summary

| Status | Start Date | End Date | End FY |
|---|---|---|---|
| Complete | 201106 | 201205 | 2012 |

### Last Completed 5-Year / Periodic Review Details

| Associated ROD/DD Name | Sites |
|---|---|
| DD for Site 12 DPHVE System | SITE 12 |

**Results** System in place and operating

**Actions** No additional actions

**Plans** pursue a new contract to operate the system in FY13

| Recommendations and Implementation Plans: |
|---|
| |

# Cleanup Program Summary

## Installation Historic Activity

The USARC Kings Mills site was undeveloped until 1942 when the US government purchased it and adjacent land and constructed the Kings Mills Ordnance Plant (KMOP). The KMOP produced .30-caliber ball ammunition until 1944. From 1944 to 1945, the property was used to manufacture starter motors for naval landing craft. From 1946 to 1949, an automobile parts and accessories manufacturer leased the site. In 1951, the US Army began using the property for machine tools storage, and in 1957 it became a storage area under the Cincinnati Ordnance District Industrial Storage Activity. In 1958, all but 55.49 acres was sold to private and commercial parties. The US Army used the remainder of the property to establish a USARC, the Kings Mills Military Reservation.

In the early-1960s, the current 16-acre site was assigned to the US Army Cincinnati Maintenance Shop. Tools and vehicles were maintained and stored on this property in support of Cincinnati-area Nike missile firing batteries. Solvents, paints, and thinners were used at the site for vehicle maintenance and electronics work. Reportedly, many drums of solvents and paints were stored on the property in two areas - a long, narrow building on the east portion of the site and three small sheds to the west of the current warehouse building. Also, many pallets of drums were stored throughout the facility. The site is currently used for US Army Reserve administration, training, maintenance, and storage. The 558th Signal Company, the 810th Quartermaster, the 322nd Well Drilling Company, and AMSA No. 59 use the facility.

## Installation Program Cleanup Progress

### IRP

**Prior Year Progress:** Dual phase high vacuum extraction (DPHVE) operations and maintenance (O&M) will continue to concentrate on those areas containing elevated trichloroethylene (TCE) concentrations until cleanup objectives are met. A five-year review was completed in fiscal year (FY)12.

**Future Plan of Action:** O&M is scheduled until 2017 as necessary. If cleanup goals are met prior to 2017 the DPHVE system will be decommissioned, but if cleanup goals are not met by then, cleanup activities will continue. A five-year review will be completed in 2017.

# USARC KINGS MILLS (AMSA 59)

## Army Defense Environmental Restoration Program
## Installation Restoration Program

# IRP Summary

**Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count:** 12/11

**Installation Site Types with Future and/or Underway Phases**

1 Contaminated Ground Water
(SITE 12)

**Most Widespread Contaminants of Concern**

Volatiles (VOC)

**Media of Concern**

Groundwater

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

| Site ID | Site Name | Action | Remedy | FY |
|---|---|---|---|---|
| SITE 3 | FUEL OIL UST | FRA | WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS | 1994 |
| SITE 12 | Kings Mills USARC | IRA | CHEMICAL REDUCTION/OXIDATION | 1999 |
| SITE 12 | Kings Mills USARC | FRA | DUAL-PHASE EXTRACTION | 2007 |
| SITE 12 | Kings Mills USARC | FRA | OTHER | 2007 |

**Duration of IRP**

**Date of IRP Inception:** 198901

**Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC):** 200708/201709

**Date of IRP completion including Long Term Management (LTM):** 202207

# IRP Contamination Assessment

### Contamination Assessment Overview

On Dec. 29, 2000 USARC Kings Mills, Ohio, was listed on the Federal Facilities Hazardous Waste Compliance Docket. In 2004 a performance-based acquisition (PBA) which included USARC Kings Mills was issued by the USAEC. A DPHVE pilot study and supplemental site inspection (SI) were completed in 2005 and finalized with the OEPA comments in 2006. A feasibility study (FS) was then completed in 2006. A proposed plan (PP) and decision document (DD) were completed in 2007. The RA work plan was also completed. The DPHVE system was installed and response complete (RC) was achieved for soil, except at AOC No.1, in April 2007, and RIP for groundwater in August 2008. Results from DPHVE system performance reports through December 2011 indicate an overall reduction in TCE concentrations in AOC No. 1; however, concentrations have increased at some locations and remain above remediation goals. TCE concentrations are expected to continue an overall decline; however, it is not known when, and if, remediation goals will be met.

### Cleanup Exit Strategy

O&M is scheduled until 2017 as necessary. If cleanup goals are met prior to 2017, the DPHVE system will be decommissioned, but if cleanup goals are not met by then, cleanup activities will continue.

# IRP Previous Studies

| | Title | Author | Date |
|---|---|---|---|
| **1991** | | | |
| | Environmental Audit of Kings Mills US Army Reserve Center and AMSA #59, 6195 Striker Road, Kings Mills, Ohio 45034-0914 | Howard K. Bell Consulting Engineers, Inc. | JAN-1991 |
| **1995** | | | |
| | Underground Storage Tank Closure Assessment Report for US Army Corps of Engineers, kings Mills Army reserve Center | Petro Environmental Technologies, Inc. | FEB-1995 |
| | Miscellaneous Military/Civil Hazardous Waste Cleanup Projects for U.S. Army Corps of Engineers Omaha District-Focused Site Investigation, Kings Mills Ordnance Plant Site, Kings Mills, Ohio | CDM Federal Programs Corporation | APR-1995 |
| | TCE Delineation, Kings Mills Army Reserve Center, Kings Mills, Ohio | IT Corporation | DEC-1995 |
| **1996** | | | |
| | TCE Groundwater Treatability and Modeling Study for the Kings Mills, Ohio Army Reserve Center | University of Akron | NOV-1996 |
| **1997** | | | |
| | Soil and Groundwater Investigation at the US Army Reserve Center, Kings Mills, Ohio | ERA Tech Environmental, Inc. | APR-1997 |
| **2000** | | | |
| | Effectiveness Evaluation Report Geo-Cleanse Treatment Program, United States Army Reserve Center, Kings Mills, Ohio | Geo-Cleanse International, Inc. | MAR-2000 |
| **2002** | | | |
| | Non-Sampling Screening Site Inspection, Kings Mills Arms Reserve Center | Ohio EPA | MAY-2002 |
| **2004** | | | |
| | Focused Feasibility Study for Groundwater Remediation, US Army Reserve Center, Kings Mills, Ohio | MWH Americas | JUN-2004 |
| **2005** | | | |
| | Sampling and Analysis Plan, US Army Reserve Center, Kings Mills, Ohio | KEMRON Environmental Services | MAY-2005 |
| **2006** | | | |
| | USARC GFPR Supplemental Site Investigation Report, Kings Mills, OH | KEMRON Environmental Services | MAY-2006 |
| | USARC GFPR Final Focused Feasibility Study, Kings Mills, OH | KEMRON Environmental Services | AUG-2006 |
| | Final Groundwater Monitoring Well Closure Plan for AOCs 2, 3 and 4, U.S. Army Reserve Center, Kings Mills, Ohio | KEMRON Environmental Services | AUG-2006 |
| | USARC GFPR Final Proposed Plan U.S. Army Reserve Center, Kings Mills, Ohio | KEMRON Environmental Services | DEC-2006 |
| **2007** | | | |
| | USARC GFPR Decision Document, Kings Mills, Ohio | Kemron Environmental Services | MAR-2007 |
| | USARC GFPR Final Remedial Design Report/Remedial Action Work Plan, Kings Mills, Ohio | Kemron Environmental Services | APR-2007 |
| | USARC GFPR Final Dual-Phase High Vacuum Extraction Operations and Maintenance Plan, Kings Mills, Ohio | Kemron Environmental Services | MAY-2007 |

# IRP Previous Studies

| | Title | Author | Date |
|---|---|---|---|
| **2008** | | | |
| | USARC GFPR Dual-Phase High Vacuum Extraction System Performance Report #1 (AUG 2007 - DEC 2007) | Kemron Environmnetal Services | JAN-2008 |
| | USARC GFPR Final Dual-Phase High Vacuum Extraction System Performance Report #2 (JAN 2008-JUN 2008) | Kemron Environmental Services | AUG-2008 |
| **2009** | | | |
| | USARC GFPR Dual-Phase High Vacuum Extraction System Performance Report #3 (JUL 2008-DEC 2008) | Kemron Environmental Services | FEB-2009 |
| | USARC GFPR Dual-Phase High Vacuum Extraction System Performance Report #4 (JAN 2009-JUN2009) | Kemron Environmental Services | AUG-2009 |
| **2010** | | | |
| | USARC GFPR Dual-Phase High Vacuum Extraction System Performance Report #5 (JUL 2009-DEC 2009) | Kemron Environmental Services | FEB-2010 |
| | USARC GFPR Dual-Phase High Vacuum Extraction System Performance Report #6 (JAN 2010-JUN 2010) | Kemron Environmental Services | AUG-2010 |
| **2011** | | | |
| | USARC GFPR Dual-Phase High Vacuum Extraction System Performance Report #7 (JUL 2010-DEC 2010) | Kemron Environmental Services | APR-2011 |
| | USARC GFPR Dual-Phase High Vacuum Extraction System Performance Report #8 (JAN 2011-AUG 2011) | Kemron Environmental Services | SEP-2011 |
| **2012** | | | |
| | USARC GFPR Dual-Phase High Vacuum Extraction System Performance Report #9 (AUG 2011-DEC 2011) | Kemron Environmental Services | MAR-2012 |

# USARC KINGS MILLS (AMSA 59)

## Installation Restoration Program

## Site Descriptions

# Site ID: SITE 12
# Site Name: Kings Mills USARC

## STATUS

**Regulatory Driver:** CERCLA

**RRSE:** HIGH

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

| Phases | Start | End |
|---|---|---|
| PA | 199411 | 200204 |
| SI | 199508 | 200309 |
| RI/FS | 200309 | 200605 |
| IRA | 199809 | 199909 |
| RA(C) | 200404 | 200708 |
| RA(O) | 200501 | 201709 |
| LTM | 201709 | 202207 |

**RIP Date:** 200708

**RC Date:** 201709

## SITE DESCRIPTION

This site is located at 6195 Striker Road, east of the village of Kings Mills in Deerfield Township, Warren County, Ohio. Historically, some solvents used by the maintenance facility were disposed of directly to the soil surface outside of the facility. This is no longer the method of disposal for these solvents. In November 1995 a limited remedial investigation (RI) was conducted. TCE was found in the soil and groundwater (about 300 parts per billion) above regulatory guidelines. The majority of the TCE contamination was observed in the groundwater samples collected at the soil/bedrock interface at a depth between 15 and 20 feet below ground surface. The groundwater TCE plume extends over an area of approximately 200 by 100 feet. None of the original bore holes penetrated the fractured bedrock aquifer underlying the site.

In April 1997, a limited RI was performed to assess groundwater contamination in the bedrock aquifer. Two groundwater monitoring wells were installed downgradient of the TCE groundwater plume in the bedrock and sampled. No evidence of contamination was detected in the groundwater samples.

In August 1999, an in situ chemical oxidation process was employed to remediate the site. Monitoring was performed for two years to evaluate the effectiveness of the treatment and to substantiate the natural attenuation (risk-based closure) of residual contamination. Subsequent groundwater monitoring results have detected rebound concentrations indicating limited success of the in situ treatment. A Non-Sampling Screening SI Report (May 2002) was prepared for the site by the OEPA. In July 2002 the US Environmental Protection Agency (USEPA) Region V prepared a letter requesting the USARC to address data gaps identified in the report. The primary data gaps include the lack of surface soil data, contamination source identification, and the lack of analytical results for inorganic constituents in groundwater.

In 2005, a supplemental SI was conducted to address data gaps. Also in that year, a DPHVE pilot study was conducted to evaluate the effectiveness of this method as a corrective action. During the DPHVE pilot study, approximately 200 gallons of groundwater were recovered and treated. High-vacuum extraction of groundwater with associated on-site treatment was determined to be a viable corrective method. In 2006 a supplemental SI report, a focused FS, a PP, and a groundwater well monitoring closure plan for AOCs 2, 3, and 4, and an RA work plan were completed. The DD was finalized and signed in March 2007. In April of that year, RC for soil was reached and in July 2007 DPHVE development began. In August 2007 (RIP) for groundwater was reached. O&M is scheduled until July 2017, if necessary. A five-year review was completed in 2012, and another will be performed in 2017 and 2022 if necessary.

## CLEANUP/EXIT STRATEGY

The O&M plan will continue to be implemented to include soil vapor and groundwater extraction via a DPHVE system. O&M is scheduled until 2017, as necessary. If cleanup goals are met prior to 2017, the DPHVE system will be decommissioned, but if cleanup goals are not met by 2017, cleanup activities will continue.

# Site Closeout (No Further Action) Summary

| Site ID | Site Name | NFA Date | Documentation |
|---|---|---|---|
| SITE 1 | POL BUILDING | 199808 | Weston Study/Data Review |
| SITE 10 | VEHICLE WASH AREA | 199808 | Weston Study/Data Review-Active Facility |
| SITE 11 | DIESEL FUEL UST | 199808 | Weston Study/Data Review |
| SITE 2 | SEPTIC TANK/LEACHFIELD | 199808 | Included in the Site 12 investigation |
| SITE 3 | FUEL OIL UST | 199808 | Weston Study/Data Review |
| SITE 4 | TRANSFORMER | 199808 | Weston Study/Data Review |
| SITE 5 | TRANSFORMER | 199808 | Weston Study/Data Review |
| SITE 6 | DRUM STORAGE AREA | 199808 | Any contamination is addressed under Site 12. |
| SITE 7 | PARTS CLEANER | 199808 | Weston Study/Data Review |
| SITE 8 | BRAKE CHANGING AREA | 199808 | Weston Study/Data Review |
| SITE 9 | FLAMMABLE MATERIALS LOCKER | 199808 | Weston Study/Data Review |

# IRP Schedule

**Date of IRP Inception:** 198901

**Past Phase Completion Milestones**

| | |
|---|---|
| **1989** | |
| ISC | (SITE 3 - FUEL OIL UST) |
| **1994** | |
| IMP(C) | (SITE 3 - FUEL OIL UST) |
| **1997** | |
| SI | (SITE 2 - SEPTIC TANK/LEACHFIELD) |
| PA | (SITE 2 - SEPTIC TANK/LEACHFIELD) |
| **1998** | |
| PA | (SITE 1 - POL BUILDING, SITE 10 - VEHICLE WASH AREA, SITE 4 - TRANSFORMER, SITE 5 - TRANSFORMER, SITE 6 - DRUM STORAGE AREA, SITE 7 - PARTS CLEANER, SITE 8 - BRAKE CHANGING AREA, SITE 9 - FLAMMABLE MATERIALS LOCKER) |
| ISC | (SITE 11 - DIESEL FUEL UST) |
| **1999** | |
| IRA | (SITE 12 - Kings Mills USARC) |
| **2002** | |
| PA | (SITE 12 - Kings Mills USARC) |
| **2003** | |
| SI | (SITE 12 - Kings Mills USARC) |
| **2006** | |
| RI/FS | (SITE 12 - Kings Mills USARC) |
| **2007** | |
| RA(C) | (SITE 12 - Kings Mills USARC) |

**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 |
|---|---|---|---|

**Final RA(C) Completion Date:** 200708

**Schedule for Next Five-Year Review:** N/A

**Estimated Completion Date of IRP at Installation (including LTM phase):** 202207

# USARC KINGS MILLS (AMSA 59) IRP Schedule

= phase underway

| SITE ID | SITE NAME | PHASE | FY14 | FY15 | FY16 | FY17 | FY18 | FY19+ |
|---|---|---|---|---|---|---|---|---|
| SITE 12 | Kings Mills USARC | RA(O) | | | | | | |
| | | LTM | | | | | | |

# Community Involvement

**Technical Review Committee (TRC):** None

**Community Involvement Plan (Date Published):** 200602

**Restoration Advisory Board (RAB):** No

**Reason Not Established:** Installation at RIP/RC.

**Additional Community Involvement Information**

On Nov. 20, 2006 a public meeting was held for the PP. The only attendees were representatives of the US Army and the OEPA. No members of the general public attended.

**Administrative Record is located at**

60 South O Street
Fort McCoy
Wisconsin 54656
608.388.7518

**Information Repository is located at**

Mason Public Library
200 Reading Rd
Mason, OH 45040
513.398.2711

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

**TAPP Title:** N/A

**Potential TAPP:** N/A