

FY2015

BLUE GRASS ARMY DEPOT
Army Defense Environmental Restoration Program
Installation Action Plan

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Statement of Purpose

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

In an effort to coordinate planning information between the Installation Restoration Manager, the US Army Environmental Command (USAEC), Blue Grass Army Depot (BGAD), the executing agencies, 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.

All validation calls were handled through BGAD/USAEC and Joint Munitions Command (JMC).

Acronyms

AEDB-R	Army Environmental Database-Restoration
AMC	Army Materiel Command
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirements
BGAD	Blue Grass Army Depot
bgs	below ground surface
BLGR	AEDB-R designation for Blue Grass Army Depot
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CMI(C)	Corrective Measures Implementation (Construction)
CMI(O)	Corrective Measures Implementation (Operation)
CMS	Corrective Measures Study
CS	Confirmation Sampling
DD	Decision Document
DES	Design
ER,A	Environmental Restoration, Army
FRA	Final Remedial Action
FS	Feasibility Study
FY	Fiscal Year
HTRW-CX	Hazardous, Toxic and Radioactive Waste Center of Expertise
IAP	Installation Action Plan
IM	Interim Measure
IRA	Interim Remedial Action
IRP	Installation Restoration Program
JMC	Joint Munitions Command
K	thousand
KDEP	Commonwealth of Kentucky Department of Environmental Protection
LF	Landfill
LTM	Long-Term Management
LTMOM	Long-Term Monitoring Operation and Maintenance
LUC	Land Use Controls
MCL	Maximum Contaminant Level
N/A	Not Applicable
NFA	No Further Action
NPL	National Priorities List
OE	Ordnance and Explosives
PA	Preliminary Assessment
PBA	Performance-Based Acquisition
PCB	Polychlorinated Biphenyl
PLM	Professional Labor Management
PRG	Preliminary Remediation Goal
RA	Remedial Action
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action Operation
RAB	Restoration Advisory Board
RC	Response Complete

Acronyms

RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDX	Hexahydro-1,3,5-Trinito-1,3,5 Triazine
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RIP	Remedy-in-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
RSL	Regional Screening Levels
SI	Site Inspection
SVE	Soil Vapor Extraction
SVOC	Semi-Volatile Organic Compound
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TNT	Trinitrotoluene
TRC	Technical Review Committee
ug/L	micrograms per liter
USACE	US Army Corps of Engineers
USAEC	US Army Environmental Command
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

Acronym Translation Table

CERCLA

Preliminary Assessment(PA)
Site Inspection(SI)
Remedial Investigation/Feasibility Study(RI/FS)
Remedial Design(RD)
Remedial Action (Construction)(RA(C))
Remedial Action (Operation)(RA(O))
Long Term Management(LTM)
Interim Remedial Action(IRA)

RCRA

= RCRA Facility Assessment(RFA)
= Confirmation Sampling(CS)
= RCRA Facility Investigation/Corrective Measures Study(RFI/CMS)
= Design(DES)
= Corrective Measures Implementation (Construction)(CMI(C))
= Corrective Measures Implementation (Operation)(CMI(O))
= Long Term Management(LTM)
= Interim Measure(IM)

Site Alias List

AEDB-R Site ID to Alias List

AEDB-R #	Alias
BLGR-006	SWMU 2
BLGR-012	SWMU 29
CCBLGR-061	CCBLGR-061

Installation Information

Installation Locale

Installation Size (Acreage): 14500

City: Richmond

County: Madison

State: Kentucky

Other Locale Information

The BGAD covers approximately 14,500 acres in Madison County, Kentucky. The nearest municipality is Richmond with a population of approximately 32,827. Other key municipalities in the region include Berea (population 8,200), approximately eight miles south of BGAD, and Lexington (population 350,000) about 35 miles north.

Installation Mission

The mission of BGAD is to:

- Support the Joint Warfighter by safely providing a full range of high quality defense products and services at the right price, place, and time.
- Maximize Warfighter capability through ammunition standard depot operations (store, issue, receipt, inspect, maintain, and demilitarize) of conventional munitions, missiles, non-standard ammunition, and chemical defense equipment.
- Produce weapon system, combat vehicle and ammunition components to fill critical Warfighter requirements today and in the future.

Lead Organization

Army Materiel Command (AMC)

Lead Executing Agencies for Installation

USAEC

Regulator Participation

State Commonwealth of Kentucky, Department for Environmental Protection (KDEP), Division of Waste Management

National Priorities List (NPL) Status

BLUE GRASS ARMY DEPOT is not on the NPL

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

RAB established 199812

Installation Program Summaries

IRP

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

Affected Media of Concern: Groundwater, Soil, Surface Water

CR

Primary Contaminants of Concern: Explosives

Affected Media of Concern: Groundwater

5-Year / Periodic Review Summary

5-Year / Periodic Review Summary

Status	Start Date	End Date	End FY
Complete	201202	201308	2013
Complete	200703	200710	2008
Complete	200206	200206	2002
Planned	201711	201808	2018

Last Completed 5-Year / Periodic Review Details

Associated ROD/DD Name	Sites
BLGR-006 MUSTARD BURN/TRENCHES	BLGR-001, BLGR-006
BLGR-006 MUSTARD BURN/TRENCHES	BLGR-001, BLGR-006
BLGR-012 FORMER TNT LAGOONS/HLD PONDS	BLGR-012
BLGR-012 FORMER TNT LAGOONS/HLD PONDS	BLGR-012
BLGR-020 NEW LANDFILL	BLGR-020
BLGR-020 NEW LANDFILL	BLGR-020
BLGR-024 BATTERY BURIAL #2/OLD LANDFILL	BLGR-024
BLGR-024 BATTERY BURIAL #2/OLD LANDFILL	BLGR-024
BLGR-029 PINK WATER POND	BLGR-029
BLGR-029 PINK WATER POND	BLGR-029
BLGR-059	BLGR-059
BLGR-059	BLGR-059

Results The 5-Year/periodic Review task consist of reviewing the Long Term Monitoring Report for sites: BLGR-006, 012, 020, 024, 029, and BLGR-059.

Actions Considering proposing NFA for groundwater at all the sites reviewed.

Plans TBD

Recommendations and Implementation Plans:

SWMUs 02, 003 and 029 were closed by KDEP letter dated Jan. 9, 2006.

SWMU 007 recommendations: This site has NFA for soils. No LUC is required due to its location in a secured and restricted area.

All six SWMUs recommendations:

1. BGAD is now using Regional Screening Levels (RSL).
2. SWMU 3 and SWMU 7 Wells: These wells are stated in the monitoring wells abandonment plan for FY2016.

SWMU-029, Old TNT Lagoons: The wells at this site are sampled each year.

3. NFA was approved by KDEP for SWMUs 003, 007, 032 and 035.

Future five-year/periodic review summary: The next five-year review will be starting in November 2017 and ending August 2018.

Land Use Control (LUC) Summary

LUC Title: Engineering Controls

Site(s): BLGR-020

ROD/DD Title: BLGR-020 NEW LANDFILL

Location of LUC

The engineer controls are located on and surrounding the the new landfill.

Land Use Restriction: Landfill restriction - Prohibit activities that would impact the LF cap (or cover system) and drainage system, Landfill restriction - Prohibit excavation on LF cap or cover system, Landfill restriction - Prohibit installation of utility system lines through the site, Landfill restriction - Restrict access to the site, Landfill restriction - Restrict construction of buildings that may interfere with LF cap or cover system, Landfill restriction - Restrict plantings that interfere LF cap or cover system (roots that penetrate the cap or cover system), Landfill restriction - Restrict vehicular traffic, Media specific - Prohibit activities that results in contact with contaminated sediments, Media specific restriction - Prohibit fishing except for recreational purposes (catch and release), Media specific restriction - Prohibit groundwater extraction that interferes with Remedial Action system, Media specific restriction - Prohibit swimming and/or wading, Media specific restriction - Prohibit, or otherwise manage excavation, Media specific restriction - Prohibit, or otherwise manage excavation below a specified depth, Media specific restriction - Restrict activities in surface water that result in contact with contaminated bottom sediments such as boating, diving, and swimming, Media specific restriction - restrict drinking water well installation, Media specific restriction - restrict withdrawal or use of groundwater for agricultural/irrigation purposes, Media specific restriction - restrict withdrawal or use of groundwater w/out treatment, Restrict land use - Mitigation area(s) protection, Restrict land use - No daycare/hospital/school use, Restrict land use - No residential use

Types of Engineering Controls: Fences, Markers, Signs

Types of Institutional Controls: Construction Permit, Dig Permits, Equitable servitudes, Restrictions on Groundwater Withdrawal, Restrictions on land use

Date in Place: 199712

Modification Date: 200510

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200909

LUC Enforcement: Annual Inspections, 5 Year Reviews

Contaminants: METALS

Additional Information

N/A

LUC Title: Engineering Controls

Site(s): BLGR-024

ROD/DD Title: BLGR-024 BATTERY BURIAL #2/OLD LANDFILL

Location of LUC

The engineer controls are located on and surrounding the site. The engineering controls at this site are:

1. A Resource Conservation and Recovery Act (RCRA) cap was approved, designed, and placed on the site, and the site was fenced in 1997.

2. In 2005, signs were posted around the landfill. The signs read:

Restricted Area
Unauthorized Personnel

Land Use Control (LUC) Summary

Keep Out

Land Use Restriction: Landfill restriction - Prohibit activities that would impact the LF cap (or cover system) and drainage system, Landfill restriction - Prohibit excavation on LF cap or cover system, Landfill restriction - Prohibit installation of utility system lines through the site, Landfill restriction - Restrict access to the site, Landfill restriction - Restrict construction of buildings that may interfere with LF cap or cover system, Landfill restriction - Restrict plantings that interfere LF cap or cover system (roots that penetrate the cap or cover system), Landfill restriction - Restrict vehicular traffic, Media specific - Prohibit activities that results in contact with contaminated sediments, Media specific restriction - Prohibit fishing except for recreational purposes (catch and release), Media specific restriction - Prohibit groundwater extraction that interferes with Remedial Action system, Media specific restriction - Prohibit swimming and/or wading, Media specific restriction - Prohibit, or otherwise manage excavation, Media specific restriction - Prohibit, or otherwise manage excavation below a specified depth, Media specific restriction - Restrict activities in surface water that result in contact with contaminated bottom sediments such as boating, diving, and swimming, Media specific restriction - prohibit use of groundwater for consumption or domestic purposes, Media specific restriction - restrict withdrawal or use of groundwater for agricultural/irrigation purposes, Media specific restriction - restrict withdrawal or use of groundwater w/out treatment, Restrict land use - Mitigation area(s) protection, Restrict land use - No daycare/hospital/school use, Restrict land use - No residential use

Types of Engineering Controls: Fences, Signs

Types of Institutional Controls: Dig Permits

Date in Place: 199712

Modification Date: 200509

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200909

LUC Enforcement: Annual Inspections, 5 Year Reviews

Contaminants: METALS, RADIOACTIVE

Additional Information

N/A

Cleanup Program Summary

Installation Historic Activity

The BGAD was originally established in April 1942 for the receipt, issuance, storage, maintenance, and disposal of ammunition. Construction of BGAD was a product of the War Department's expansion of ordnance supply depots during World War II. The installation was operated by the federal government until October 1943, at which time the operation was assumed by a corporation under the name of Blue Grass Ordnance Depot, Inc., a subsidiary of the Firestone Tire and Rubber Company. The corporation operated the installation until October 1945 when the federal government again assumed control.

The depot is an active federal government-owned, government-operated facility. The current mission of BGAD is to provide munitions, chemical defense equipment and special operations support to the US Department of Defense.

Land use within the facility is comprised of areas dedicated to the demolition of ordnance and munitions, storage of ordnance and munitions, grazing land for cattle, and depot facilities. Storage of ordnance and munitions is primarily accomplished through subsurface igloos and aboveground warehouses. Disposal of ordnance and munitions is accomplished through an open burning of propellant and detonation. Approximately 30 percent of the open land not used by depot operations is leased by the government to cattle ranchers for livestock grazing.

There are several tenant activities on the depot. The largest tenants are Lockheed Martin (overhauls helicopters), Blue Grass Chemical Activity (oversees the storage of chemical agents), and the Blue Grass Chemical Agent Destruction Pilot Plant which is currently under construction.

Installation Program Cleanup Progress

IRP

Prior Year Progress: BGAD received NFA letters from KDEP on sites BLGR-020, BLGR-024, BLGR-029, and BLGR-059. BGAD received an approval letter from KDEP for monitoring well abandonment for sites: BLGR-020, BLGR-024, BLGR-029 and BLGR-059.

Future Plan of Action: BGAD will conduct groundwater monitoring at sites BLGR-006 (Former Mustard Trenches Area) and BLGR-029 (Old TNT Lagoons Area) for energetics compounds. Monitoring well will be abandoned at sites BLGR-020, BLGR-024, BLGR-029 and BLGR-059 in FY2016.

CR

Prior Year Progress: The RFI/CMS is underway.

Future Plan of Action: The RFI/CMS will continue.

BLUE GRASS ARMY DEPOT
Army Defense Environmental Restoration Program
Installation Restoration Program

IRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 55/53

Installation Site Types with Future and/or Underway Phases

- 1 Burn Area
(BLGR-006)
- 1 Disposal Pit/Dry Well
(BLGR-012)

Most Widespread Contaminants of Concern

Explosives, Metals, Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern

Groundwater, Soil, Surface Water

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

Site ID	Site Name	Action	Remedy	FY
BLGR-029	PINKWATER POND	FRA	NATURAL ATTENUATION	1991
BLGR-042	DRMO STORAGE AREA	IRA	WASTE REMOVAL - SOILS	1994
BLGR-020	NEW LANDFILL	FRA	NATURAL ATTENUATION	1995
BLGR-023	BATTERY BURIAL #1 (DEMO GROUNDS)	IRA	WASTE REMOVAL - SOILS	1996
BLGR-047	DRY ACID POND AREA (2)	IRA	WASTE REMOVAL - SOILS	1997
BLGR-047	DRY ACID POND AREA (2)	FRA	WASTE REMOVAL - SOILS	2000
BLGR-016	OLD TRANSFORMER STORAGE AREA	FRA	REMOVAL	2001
BLGR-012	FORMER TNT LAGOONS/HOLDING PONDS (4)	FRA	NATURAL ATTENUATION	2002
BLGR-024	BATTERY BURIAL #2/OLD LANDFILL/(WEST)	FRA	CAPPING	2002
BLGR-024	BATTERY BURIAL #2/OLD LANDFILL/(WEST)	FRA	NATURAL ATTENUATION	2002
BLGR-059	FORMER WASTE AMMO DETONATION AREA	FRA	NATURAL ATTENUATION	2002
BLGR-005	PROJECT CHASE AREA	FRA	REMOVAL	2003
BLGR-006	MUSTARD BURN SITE/MUSTARD TRENCHES	FRA	NATURAL ATTENUATION	2003
BLGR-010	FORMER SHELL WASHOUT FAC, BLDG 1155	FRA	WASTE REMOVAL - SOILS	2003
BLGR-043	BLDG #T-252, GENERAL REFUSE INC/STO AREA	IRA	REMOVAL	2003
BLGR-044	BLDG #1178-TRANSFORMER STORAGE	FRA	WASTE REMOVAL - SOILS	2003
BLGR-002	BLDG #1161, MUSTARD SHELL DMIL AREA	FRA	REMOVAL	2004
BLGR-041	ELECTROLYTE STORAGE AREA(NEAR BLDG S-17)	FRA	WASTE REMOVAL - SOILS	2004
BLGR-042	DRMO STORAGE AREA	FRA	WASTE REMOVAL - SOILS	2004

Duration of IRP

Date of IRP Inception: 198603

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201311/204409

Date of IRP completion including Long Term Management (LTM): 204409

IRP Contamination Assessment

Contamination Assessment Overview

The majority of hazardous waste generated at BGAD, both past and present, is the result of the demilitarization, renovation, maintenance, storage and disposal of munitions. Contamination consists mainly of metals, explosives, and volatile organic compounds (VOC) and non-VOCs. Groundwater contamination has been identified, but there is no evidence that any contamination has left the boundary of the installation.

In 1982, BGAD began proactive voluntary investigations and cleanup with surface water and groundwater quality investigations and soil investigations. Initial sampling data indicated the presence of metals and explosives.

In April 1992, the RFA report was completed. As a result of the RFA, follow-up investigations were required, a number of monitoring wells were installed and surface water and groundwater samples were collected and analyzed. Between 1997 and 1999 surface water and groundwater data was collected on a quarterly basis. Since then, monitoring has been conducted annually. A conceptual groundwater model has been developed.

In 2002, the monitoring network was revised following the installation of additional monitoring wells and the identification of springs associated with several solid waste management units (SWMU).

From 2005 to 2007, BGAD followed the 2004 site-wide long-term monitoring operations and maintenance plan (LTMOM) which was approved by the KDEP in a letter dated Aug. 27, 2004.

In 2007, the Hazardous, Toxic and Radioactive Waste Center of Expertise (HTRW-CX) did a five-year review of BGADs groundwater monitoring program. During the review, HTRW-CX stopped reviewing the groundwater monitoring well data and recommended that BGAD modify the monitoring program. The depot began using the new HTRW-CX recommended passive sampling techniques in the 2008 sampling events at sites BLGR-006, BLGR-012, BLGR-029, and BLGR-059.

NFA has been issued for all sites, but six sites which were in LTM became final when the KDEP approved BGADs Hazardous Waste Storage Permit Modification 1 dated September 2005. In January 2006, the KDEP issued conditional NFAs on SWMUs 2, 3, 6A, 7, 12, and 29. These NFAs were identified in Permit Modification 3 issued by the KDEP and dated Aug. 10, 2007.

The installation conducted groundwater sampling in 2011 and submitted the 2011 Annual LTM Report dated June 2012 for the inactive waste management areas to KDEP in December 2012 for review. The 2011 LTM report Table 5.1 Conclusion and Recommendations proposed to terminate future LTM at BLGR-029, SWMU 003 (Pink Water Pond Area) and BLGR-020, SWMU 32, New Landfill. The ARARs were used as cleanup standards. KDEP's response letter dated Jan. 14, 2013 recommended that the installation use the Regional Screening Levels (RSLs) as the appropriate cleanup standards.

BGAD incorporated this change in the "Final 2013 Long Term Monitoring Report for Inactive Waste Management Areas" dated August 2013, which was submitted to KDEP on Sept. 16, 2013. The summary of monitoring and recommendations is provided in Table 1.1-2011-2013 LTM Summary of Activities. As noted, the KDEP approval letter dated Oct. 28, 2013 concurred to terminate LTM at BLGR-059 and BLGR-024. The monitoring program will be continued at this site with no changes.

In June 2014, groundwater sampling and sampling of springs were performed at BLGR-006 and BLGR-012 for hexahydro-1,3,5-trinitro-1,3,5 triazine (RDX) and 2-nitrotoluene. The results indicated that RDX exceeded the RSL in wells sampled at both sites. The recommendation with KDEP approval is to continue to sample the wells in the spring of 2015.

In April 2015, groundwater sampling and sampling of springs were conducted at BLGR-006 and BLGR-012 for energetic compounds.

Cleanup Exit Strategy

In December 2009, a performance-based acquisition (PBA) was awarded for groundwater monitoring at all six sites. The monitoring will continue and exit/ramp-down strategies will be developed throughout the life of the PBA. In fiscal year (FY)12, a five-year review was completed for all six sites. The next five-year review is scheduled for 2017.

The new firm fixed price contract to provide environmental restoration services for BGAD, Fort Knox and Fort Campbell was awarded in FY13 and work started in FY14. In June 2014, the contractor performed the first sampling event at this site (passive sampling) under this new contract.

IRP Contamination Assessment

KDEP approved NFA and well abandonment for sites BLGR-020, BLGR-024, BLGR-029 and BLGR-059 to be conducted in FY2016.

IRP Previous Studies

Year	Title	Author	Date
1980	Installation Assessment of Lexington-Blue Grass Depot Activity, USATHAMA Report No. 151	USATHAMA	APR-1980
1982	USATHAMA Rapid Response Environmental Surveys, Blue Grass Army Depot	ESE, Inc.	NOV-1982
1983	USAEHA Hazardous Waste Management Survey No. 37-26-049-84 of the Lexington-Blue Grass Depot Activity	USAEHA	MAY-1983
1986	Preliminary Assessment (PA)/SI for BLGR-008	Law Environmental, Inc.	JAN-1986
	RCRA Facility Assessment Report	A.T. Kearney	AUG-1986
1987	Law Site Investigation Report BLGR-058	Law Environmental, Inc.	JAN-1987
1989	Old TNT Lagoons (RFA)	Law Environmental, Inc.	JAN-1989
	New Landfill, Temporary H Storage Site (RFI)	Law Environmental, Inc.	JAN-1989
	BLGR-042 RFA	Law Environmental, Inc.	JAN-1989
	New TNT Washout & Lagoons (RFA)	Law Environmental, Inc.	JAN-1989
	RCRA Facility Investigation of the Dry Acid Pond Area, Fire Training Area, New Landfill Area, Old Landfill Area, Open Detonation Area, Pink Water Pond Area, Propellant Burn Area, and TNT Lagoon Area	Law Environmental, Inc.	JAN-1989
	Monitoring Wells Installation Report	Law Environmental, Inc.	JAN-1989
1990	Corrective Measures Study (CMS) for the Dry Acid Pond Area, New Landfill Area, Old Landfill Area, Open Detonation Area, Pink Water Pond, and the TNT Lagoon Area	Law Environmental, Inc.	JAN-1990
	Corrective Action Report for the Deactivation Furnace area, DRMO Storage Area, Electrolyte Storage Area, and the General Refuse Incinerator Area	Law Environmental, Inc.	JAN-1990
	BLGR-041 RFA	Law Environmental, Inc.	JAN-1990
	General Refuse Incinerator Report (RFI/CMS)	Law Environmental, Inc.	JAN-1990
	Pink Water Ponds (RFI/CMS)	Law Environmental, Inc.	JAN-1990
	Open Detonation Area (RFI/CMS)	Law Environmental, Inc.	JAN-1990
1991	Preliminary site inspection and file review for BLGR-001, 002, 003, 005, 006, 007, 008, 009, 010, 011, 012, 013, 014, 015, 016, 017, 018, 020, 021, 022, 023, 024, 027, 028, 030, 031, 032, 033, 034, 035, 037, 038, 039, 040, 042, 043, 044, 045, 047, 048, 049, 050, 051, 052, 053, 054, 055, 056, 057, 058, and 059	Advanced Sciences Inc.	JAN-1991
1992			

IRP Previous Studies

Year	Title	Author	Date
1992	Preliminary Site Inspection for Lexington-Blue Grass Army Depot	Advanced Sciences, Inc.	JAN-1992
	Revised RFA	USEPA and Kentucky Division of Waste Management, April 1992	APR-1992
1994	BLGR-021, 059 SI	Sverdrup Environmental, Inc.	JAN-1994
	Combined Sites BLGR-033, 056 (RFA Phase II sampling, SVE)	Sverdrup Environmental, Inc.	JAN-1994
	DRMO SVE Report	Sverdrup Environmental, Inc.	JAN-1994
	Mustard Burn/Mustard Trenches RFI	Sverdrup Environmental, Inc.	JAN-1994
1995	Dry Acid Pond RFI Phase II Report, SVE (Chase Environmental Remedial Action Work and Additional Sampling)	Chase Environmental	JAN-1995
1996	Site Investigation Reports for the Holding Ponds (New TNT Lagoons), Temporary H Storage Area, Former Waste Ammo Detonation Site, Former Shell Washout Facility, Shell	Sverdrup Environmental, Inc.	JAN-1996
	IRA Plan for the Mustard Burn/Mustard Trenches Area	Sverdrup Environmental, Inc.	JAN-1996
	RFI Reports for the Old Landfill, New Landfill, Dry Acid Ponds Area	Sverdrup Environmental, Inc.	JAN-1996
	Old TNT Lagoons Risk Assessment	Sverdrup Environmental, Inc.	JAN-1996
	New Landfill RFA Phase II, Remedial Design	Sverdrup Environmental, Inc.	JAN-1996
	RFA Phase II sampling - Combined Sites BLGR-041 Report, SVE	Sverdrup Environmental, Inc.	JAN-1996
	Remedial Design Investigation Report for the New Landfill and the North Battery Burial Area (Old Landfill)	Sverdrup Environmental, Inc.	JAN-1996
	Old Landfill RFA Phase II, Remedial Design	Sverdrup Environmental, Inc.	JAN-1996
	Old TNT Washout Lagoons Report (RFI Phase II)	Sverdrup Environmental, Inc.	JAN-1996
	New TNT Washout & Lagoons Report (SI)	Sverdrup Environmental, Inc.	JAN-1996
1997	Relative Risk Site Evaluation (RRSE) for the Blue Grass Army Depot, Richmond Facility	United States Army Center for Health Promotion and Preventative Medicine (USACHPPM)	JAN-1997
	RFA Phase II/ Remedial Action BLGR-051	Sverdrup Environmental, Inc./ Chase	JAN-1997
	LTM Groundwater Sampling at BLGR-050	Sverdrup Environmental, Inc.	JAN-1997
1998	Site Characterization Report Demo Grounds Area	Radian, Inc.	JAN-1998

IRP Previous Studies

2000	Title	Author	Date
	(Phase 1) Final Conceptual Sitewide Groundwater (GW) Flow Model Developed	URS, Dames & Moore.	JAN-2000
	Depot-Wide Background Soil Investigation	Jacobs Env., Inc.	JAN-2000
	Annual Report - Long-Term Sampling and Analysis Progress Reports	IT Corporation	JAN-2000
2001			
	Submitted the Final Report for the Phase II Site-Wide GW Assessment Monitoring System	Jacobs Engineering, Inc.	JAN-2001
	Human Health Evaluation, Risk Characterization and Development of Preliminary Remediation Goals (PRGs) for Old TNT Lagoon Area (SWMU 29) submitted to KDEP	Jacobs Engineering, Inc.	JAN-2001
	Final Report for the Depot-Wide Background Soil Investigation	Jacobs/Stratum Engineering	JUN-2001
	Annual Report - Long-Term Sampling and Analysis Progress Reports	IT Corporation	SEP-2001
2002			
	Final Report of the Corrective Measure Study at the Old TNT Lagoon Area (SWMU No. #29) submitted to KDEP	Jacobs/Stratum Engineering	JAN-2002
	Pristine Background Report, Addendum to the Final Depot-wide Background Soil Investigation Report submitted KDEP	Jacobs/Stratum Engineering	JAN-2002
	Final Report (Addendum to the Draft Report) for the Facility-Wide Screening Level Ecological Risk Assessment submitted to KDEP	Jacobs/Stratum Engineering	JAN-2002
	Final Report (Addendum to the Draft Report) for the Facility-Wide Screening Level Ecological Risk Assessment submitted to KDEP	Jacobs/Stratum Engineering	JAN-2002
	Quarry Pond Backfill Report submitted to KDEP	IT Corporation	JAN-2002
	Final Investigation Report Sampling and Chemical Analysis Fire Training Area/Electrolyte Area submitted to KDEP	Jacobs/Stratum Engineering	JAN-2002
	2000, 2001 and 2002 Annual Report Long-Term Sampling and Analysis Program submitted to KDEP	IT Corporation	JAN-2002
	Work Plan for Remedial Actions at Project Chase & Building 1178 submitted to KDEP	AM TECH Engineering	JAN-2002
	Completed removal and disposal of small arms ammunition and residue, ordnance and explosive (OE), and OE/ non-OE scrap from the Muddy Creek located in the Former Open Burn/Open Detonation Area.	Environmental Chemical Corporation	JAN-2002
	Corrective Measure Study (CMS) for the Burning Grounds (SWMUs No. #2, No. #3, No. #6A, No. #6B, and No. #7) of the Demolition Area Report	Jacobs Engineering, Inc.	APR-2002
	Report of Closure Activities Old Transformer Storage Area (SWMU 21)	USACE-Louisville District.	APR-2002
	RCRA Facility Investigation at the Burning Grounds (SWMUs No. #2, No. #6A, No. #6B, and No. #7) of the Demolition Area, Report	Jacobs/Stratum Engineering	JUL-2002
	Annual Report - Long-Term Sampling and Analysis Progress Reports	IT Corporation	AUG-2002
	Removal action completed at Project Chase & Building 1178	AM Tech Corporation	NOV-2002
2003			

IRP Previous Studies

Year	Title	Author	Date
2003	Phase 3 Groundwater Assessments	URS	JAN-2003
	2003 Annual LTM Event	Shaw Environmental, Inc.	JAN-2003
	Corrective Measure Study (SWMU 17) Fire Training Area	URS	JAN-2003
	Remedial Investigations at SWMUs 12, 15 and 16	Shaw Environmental, Inc.	JAN-2003
	Removal Action Closure Report (Old TNT Lagoons Area)	Environmental Chemical Corporation	NOV-2003
2004	2004 Annual Report Long-term Sampling and Analysis Program	URS	JAN-2004
	Sitewide, Long-Term Monitoring, Operations, and Maintenance Plan	URS	JAN-2004
	Quality Control Plan	URS	AUG-2004
2005	Multi-Incremental Soil Sampling at SWMU 2 & 7	USACE Louisville District	JAN-2005
	Final Work Plan for Soil Investigation at SWMU 2 & 7	USACE Louisville District	MAR-2005
2006	2005 Annual Report Long-Term Management Inactive Waste Management Areas RCRA Facilities	URS	AUG-2006
	2006 Annual Report Long-Term Management Inactive Waste Management Areas RCRA Facilities	URS	OCT-2006
2007	2007 Annual Report Long-Term Management Inactive Waste Management Areas RCRA Facilities URS	URS	OCT-2007
2008	2008 Annual Report Long-Term Management Inactive Waste Management Areas RCRA Facilities	URS	NOV-2008
2009	2009 Annual Report Long-Term Monitoring Inactive Waste Management Areas	URS	NOV-2009
2010	2010 Annual Report, Long-Term Monitoring Inactive Waste Management Areas	Hydrogeologic, Inc.	OCT-2010
2012	Final Phase 1 RCRA Facility Investigation For Washout Lagoons	US Army Corps of Engineers	MAR-2012
	Final 2011 Long-Term Monitoring Report Inactive Waste Management Areas	Hydrogeologic, Inc.	JUN-2012
2013	Final RCRA Periodic Review for Six Solid Waste Management Units	Hydrogeologic, Inc.	JUL-2013
	Final 2013 Long-Term Monitoring Report Inactive Waste Management Areas	Hydrogeologic, Inc.	AUG-2013
	Final 2012 Long-Term Monitoring Report Inactive Waste Management Areas	Hydrogeologic, Inc.	SEP-2013
	Final Closure Phase 2 Resource Conservation And Recovery Act Facility Investigation For Site Closeout For Washout Lagoons Area	ERT, Inc.	OCT-2013

IRP Previous Studies

	Title	Author	Date
2014			
	Final Project Management Plan Environmental Restoration Services	FPM Remediations, Inc.	MAY-2014
2015			
	Monitoring Well Abandonment Plan Environmental Restoration Services	FPM Remediations, Inc.	JAN-2015
	Final 2014 Annual Long Term Monitoring Report: SWMU 002 (BLGR-006)- Former Mustard Trenches Area and SWMU 029 (BLGR-012)-Old Trinitroluene Lagoons	FPM Remediations, Inc.	JAN-2015

BLUE GRASS ARMY DEPOT
Installation Restoration Program
Site Descriptions

Site ID: BLGR-006

Site Name: MUSTARD BURN SITE/MUSTARD TRENCHES

Alias: SWMU 2

STATUS

Regulatory Driver: RCRA

RRSE: LOW

Contaminants of Concern: Explosives, Metals

Media of Concern: Groundwater, Surface Water

Phases	Start	End
RFA.....	198701.....	199008
CS.....	198803.....	199203
RFI/CMS.....	200010.....	200209
CMI(C).....	200209.....	200210
CMI(O).....	200210.....	204409

RIP Date: 200210

RC Date: 204409

SITE DESCRIPTION

The Mustard Burn Site/Mustard Trenches (SWMU 2) comprise approximately 4 acres located within a fenced area inside the boundaries of the demolition grounds. From 1949 to 1955 this site received approximately 900 rounds, reportedly filled with H-mustard. The rounds were broken apart with shaped charge explosives and burned with scrap wood in two unlined trenches. Upon completion of the burning, the trenches were backfilled with surrounding soil.

In 1989, during an RFI, three groundwater monitoring wells were installed and sampled. Arsenic, barium, and chromium were detected at concentrations below their respective maximum contaminant levels (MCL). In 1994 seven geophysical anomalies were identified in the area. Concentrations of explosives and metals were detected in groundwater. From 1998 through 2000 nine rounds of quarterly groundwater samples were collected and analyzed and concentrations of metals and explosives above MCLs were detected. In 2001, 12 soil borings were advanced to 1 foot below ground surface and samples were collected and analyzed for VOCs, semi-volatile organic compounds (SVOC), pesticides/polychlorinated biphenyls (PCB), explosives, dioxins/furans, and metals. PCB 1260 was detected in one sample and low levels of dioxins/furans and metals were also detected.

In 2002, another RFI was completed. In October 2002, a CMS was completed and groundwater monitoring and LUCs based on infrequent and limited use were recommended. In 2002, two monitoring wells were abandoned. Three monitoring wells and two springs are currently being sampled as part of the installation-wide groundwater assessment program. In March 2005, multi-incremental soil sampling was performed. The objective of the sampling was to evaluate the soil data against the US Environmental Protection Agency (USEPA) Region 9 PRGs as a screening criteria to determine if LUCs were required at the site. The KDEP adopted Region 9 PRGs in June 2004. In November 2005 the multi-incremental soil sampling data were provided to the KDEP. Based on the 2005 data and the Region 9 PRGs, LUCs are not required at this site.

The current monitoring program follows the 2004 site-wide LTMOM plan approved by the KDEP in their letter dated Aug. 27, 2004. Three wells and two springs are monitored at this site.

On Jan. 9, 2006, BGAD received a tentative NFA for soils from the KDEP. The NFA became final after its inclusion in the BGAD permit through a permit modification. The BGAD Hazardous Waste Operating Permit Modification 3, dated Aug. 10, 2007, granted NFA for SWMU 2 soils.

In 2007, the HTRW-CX completed a five-year review of the installation groundwater monitoring program and recommended that the installation implement passive sampling methods. As a result, BGAD began using passive sampling methods from the 2008 sampling events and a subsequent KDEP approval in February 2009 allowed for the removal of the metals, beryllium and chromium from the groundwater monitoring program.

KDEP provided a conditional approval in a letter dated Jan. 14, 2013 requiring BGAD to use RSLs as the appropriate cleanup standards for the groundwater monitoring program. The federal standards based on ARARs referenced in the LTMOM plan were no longer used by KDEP.

The new firm fixed PBA providing environmental restoration services for BGAD, Fort Knox and Fort Campbell was awarded in

Site ID: BLGR-006

Site Name: MUSTARD BURN SITE/MUSTARD TRENCHES

Alias: SWMU 2

September 2013.

On June 5 and 6 and June 17, 2014 groundwater samples were collected from one monitoring well. The final groundwater monitoring report dated January 2015 stated that RDX exceeded USEPA RSL at this site. The final report sent to KDEP in January 2015 recommended sampling all wells in 2015. KDEP's letter dated March 18, 2015 approved the recommendation from the report to continue sampling in the spring of 2015.

In April 2015, groundwater and spring water samples were collected. Groundwater samples were collected using the passive sampling method and the springs samples were collected as grab samples. They will be analyzed for energetics.

CLEANUP/EXIT STRATEGY

Groundwater will continue to be assessed through annual monitoring and BGAD will use the RSLs as the appropriate cleanup standards. Based on RSLs, the recommendations are for termination for metals and continue to sample for energetic compounds.

Site ID: BLGR-012

Site Name: FORMER TNT LAGOONS/HOLDING PONDS (4)

Alias: SWMU 29

STATUS

Regulatory Driver: RCRA

RRSE: LOW

Contaminants of Concern: Explosives, Metals

Media of Concern: Groundwater, Surface Water

Phases	Start	End
RFA.....	198712.....	198803
CS.....	198804.....	199001
RFI/CMS.....	200109.....	200203
DES.....	200204.....	200205
CMI(C).....	200205.....	200206
CMI(O).....	200206.....	204409

RIP Date: 200206

RC Date: 204409

SITE DESCRIPTION

The former trinitrotoluene (TNT) lagoons are located northeast of Lake Vega. They were in operation from the early-1940s to 1975 and received wastewater discharged from the former shell washout facility. When the shell washout facility was demolished in 1975, the holding ponds were backfilled with berm material (20 inches of soil on 10 inches of clay) and revegetated. Between 1980 and 1981 a wastewater treatment plant was constructed on a portion of the former TNT lagoon site.

In 1982, an environmental study was completed. Between 1989 and 1990, a Phase I RFI, and a CMS were completed. From 1994 to 1999 a Phase II RFI was completed. From 1998 to 2000 long-term sampling and analysis were completed. Supplemental sampling events were completed from 1999 to 2001. Several groundwater wells were installed as part of these investigations. Human health and ecological risk evaluations were performed and identified constituents of potential concern in soil, groundwater, sediment, and surface water at levels above the KDEP acceptable risk levels. In 2002 a second CMS was completed.

The monitoring program (the 2004 site-wide LTMOM plan) was approved by the KDEP in their letter dated Aug. 27, 2004.

Constituents detected in soil samples included two VOCs, nine explosives, three pesticides, one dioxin, and 16 metals. Of the nine explosives only two, RDX and TNT, were above one-tenth of the USEPA Region 9 PRGs. The most elevated concentrations were detected in the 1981 and 1989 investigations. Detected metals were within the range of depot-wide pristine background levels. Lead was detected above the KDEP past screening value in many soil samples, but the concentrations were within the range of ambient background levels for the area.

Explosives and metals were detected in the groundwater. 2,4,6-TNT was the only explosive detected above the screening level. Concentrations of detected explosives have decreased over time. Metals detected in sediment and surface water were those that are naturally prevalent in the environment and are the same order of magnitude as detected in background locations at BGAD. The 2002 CMS recommended hot spot excavation with off-site disposal. In January 2004, an NFA letter was received from KDEP.

In November 2005, BGAD provided a resubmittal/reevaluation of analytical data for soils at this site. The goal was to achieve an NFA for soil based on the KDEPs adoption of Region 9 PRG screening criteria in June 2004.

On Jan. 9, 2006, BGAD received a tentative NFA from the KDEP. The NFA became final when it was included in the BGAD Hazardous Waste Operating Permit Modification 3, dated Aug. 10, 2007. LUCs will not be required at this site.

In 2007, the HTRW-CX completed a five-year review of the installation groundwater monitoring program and recommended that the installation implement passive sampling methods. As a result, BGAD began using passive sampling methods from the 2008 sampling events and a subsequent KDEP approval in February 2009 allowed for the removal of the metals, beryllium and chromium from the groundwater monitoring program.

KDEP provided a conditional approval in a letter dated Jan. 14, 2013 requiring BGAD to use RSLs as the appropriate cleanup

Site ID: BLGR-012

Site Name: FORMER TNT LAGOONS/HOLDING PONDS (4)

Alias: SWMU 29

standards for the groundwater monitoring program.

The new firm fixed PBA started in FY14 providing environmental restoration services for BGAD, Fort Knox and Fort Campbell was awarded in September 2013.

On June 5 and 6 and June 17, three monitoring wells were sampled. The final groundwater monitoring report dated January 2015 stated that RDX concentrations in groundwater continue to exceed RSLs. The final report sent to KDEP in January 2015 recommend continued sampling in 2015. KDEP's letter dated March 18, 2015 approved the recommendation from the report to continue sampling in the spring of 2015.

In April 2015, groundwater and spring water samples were collected. Groundwater samples were collected using the passive sampling method and the springs samples were collected as grab samples. They will be analyzed for energetics.

CLEANUP/EXIT STRATEGY

Groundwater will continue to be assessed through annual monitoring and BGAD will use the RSLs as the appropriate cleanup standards. Based on RSLs, the recommendations are for termination for metals and continue to sample for energetic compounds.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
BLGR-001	BUILDING 902, BURSTER REM AREA-BLGR 001	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-002	BLDG #1161, MUSTARD SHELL DMIL AREA	200401	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-003	PROJECTILE DEMIL AREA	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-005	PROJECT CHASE AREA	200309	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-007	BLDG #1170 - PROJ ASSEMBLY AREA	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-008	BLDG #550 - BURSTER & FUZE REMOVAL AREA	200109	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-009	BLDG #1180 - PROJ RENOVATION AREA	199203	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-010	FORMER SHELL WASHOUT FAC, BLDG 1155	200309	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-011	BLDG #570 - NEW TNT/SHELL WASHOUT FAC	199203	NON-DERA SITE (Active Site)
BLGR-013	TNT LAGOONS/HOLDING PONDS	201311	KDEP Letter dated 11/30/2013 with NFA.
BLGR-014	SURVEILLANCE (TEST) RANGE	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-015	TRACER TEST RANGE	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-016	OLD TRANSFORMER STORAGE AREA	200105	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-017	TRAINING AREA/GUN RANGE	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-018	SEWAGE TREATMENT PLANT	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-020	NEW LANDFILL	201310	See KDEP Letter NFA dated January 13, 2013.
BLGR-021	DEACTIVATION FURNANCE BLDG T-273	200306	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-022	WATER TREATMENT PLANT,BLDG 228	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-023	BATTERY BURIAL #1 (DEMO GROUNDS)	200109	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-024	BATTERY BURIAL #2/OLD LANDFILL/(WEST)	201310	FINAL 2013 LTM REPORT LETTER FROM KDEP DATED 10/28/2013 STATES TERMINATION LTM AT THIS SITE.
BLGR-027	CONVENTIONAL AMMO STOR AREAS(8),848IGLOO	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-028	MAGAZINE AREA-M	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-029	PINKWATER POND	201310	FINAL 2013 LTM REPORT LETTER FROM KDEP DATED 10/28/2013 STATES TERMINATION LTM AT THIS SITE.
BLGR-030	OPEN DETONATION AREA	199002	This site is still active and is not eligible for ER,A funding.
BLGR-031	FORMER PROJECTILE PROPELLANT BURN AREA	200601	KDEP NFA for soils, future permit modification. BGAD Hazardous Waste Permit Modification 3 dated August 2007 states NFA for this site.
BLGR-032	NEW PROPELLANT BURN AREA	199909	No further action planned under IRP, the site will be incorporated into open

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
			detonation permit. This site is still active where emergency burns operation occur.
BLGR-033	BOILER BLOW DOWN DISCHARGE AREAS	200304	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-034	UNDERGROUND STORAGE TANKS (50)	199909	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-035	ABOVE GROUND STOR TANKS (46)	199008	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-037	LAB AREAS- BLDGS # -1660 & 1661	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-038	NERVE AGENT STOR IGLOOS (F-BLOCK)	199201	ACTIVE STORAGE IGLOOS (CHEMICAL IGLOOS)
BLGR-039	PESTICIDE STORAGE AREA (S-13)	199205	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-040	SEPTIC TANKS/LEACHFIELDS (6)	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-041	ELECTROLYTE STORAGE AREA(NEAR BLDG S-17)	200312	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-042	DRMO STORAGE AREA	200312	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-043	BLDG #T-252, GENERAL REFUSE INC/STO AREA	200307	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-044	BLDG #1178-TRANSFORMER STORAGE	200307	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-045	BLDG #275,CONTAMINATED WASTE PROCESSOR	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-047	DRY ACID POND AREA (2)	200309	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-048	IGLOOS B-402,B-404,B-608,B-612	199203	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-049	MAINTENANCE SHOP (S-9,S-11)	199201	KDEP ltr NFA dated 5/16/06 9 (ACTIVE SHOPS)
BLGR-050	WOOD DUMP/KINDLING YARD (FIRE TRNG AREA)	200312	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-051	DERUST/REPAINT AREAS (BLDGS 550,555,562)	199203	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-052	RUBBLE PILE	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-053	WASTE WATER TREATMENT FACIL. (BLDG 1173)	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-054	BUILDING #218 - RECEIVING AREA	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-055	BLDG #B-51, PAINT STORAGE AREA	199201	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-056	TEMPORARY H STORAGE SITE	200312	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-057	DRUM STORAGE TRENCH (NEAR RT 110)	199203	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-058	WATER TREATMENT PLANT DITCH	199203	KDEP NFA and BGAD's Permit dated 9/30/04.
BLGR-059	FORMER WASTE AMMO DETONATION AREA	201310	FINAL 2013 LTM REPORT LETTER FROM KDEP DATED 10/28/2013 STATES TERMINATION LTM AT THIS SITE.
BLGR-060	PAINT FILTER DISPOSAL SITE	200312	KDEP NFA and BGAD's Permit dated 9/30/04.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
PBA@IR BLGR	PBA	201303	CONTRACT MODIFICATION FOR W91ZLK-05-D-0010-T.O.003 DATED 08 JANUARY 2013.

IRP Schedule

Date of IRP Inception: 198603

Past Phase Completion Milestones

1986

RFA (BLGR-013 - TNT LAGOONS/HOLDING PONDS , BLGR-047 - DRY ACID POND AREA (2))

1988

RFA (BLGR-012 - FORMER TNT LAGOONS/HOLDING PONDS (4), BLGR-030 - OPEN DETONATION AREA)

1990

RFA (BLGR-001 - BUILDING 902, BURSTER REM AREA-BLGR 001 , BLGR-005 - PROJECT CHASE AREA, BLGR-006 - MUSTARD BURN SITE/MUSTARD TRENCHES, BLGR-007 - BLDG #1170 - PROJ ASSEMBLY AREA, BLGR-008 - BLDG #550 - BURSTER & FUZE REMOVAL AREA, BLGR-009 - BLDG #1180 - PROJ RENOVATION AREA, BLGR-010 - FORMER SHELL WASHOUT FAC, BLDG 1155, BLGR-011 - BLDG #570 - NEW TNT/SHELL WASHOUT FAC, BLGR-014 - SURVEILLANCE (TEST) RANGE, BLGR-015 - TRACER TEST RANGE, BLGR-016 - OLD TRANSFORMER STORAGE AREA, BLGR-017 - TRAINING AREA/GUN RANGE, BLGR-018 - SEWAGE TREATMENT PLANT, BLGR-020 - NEW LANDFILL, BLGR-021 - DEACTIVATION FURNANCE BLDG T-273, BLGR-022 - WATER TREATMENT PLANT, BLDG 228, BLGR-023 - BATTERY BURIAL #1 (DEMO GROUNDS), BLGR-024 - BATTERY BURIAL #2/OLD LANDFILL/(WEST), BLGR-027 - CONVENTIONAL AMMO STOR AREAS(8),848IGLOO, BLGR-028 - MAGAZINE AREA-M, BLGR-029 - PINKWATER POND, BLGR-031 - FORMER PROJECTILE PROPELLANT BURN AREA, BLGR-032 - NEW PROPELLANT BURN AREA, BLGR-034 - UNDERGROUND STORAGE TANKS (50), BLGR-035 - ABOVE GROUND STOR TANKS (46), BLGR-037 - LAB AREAS- BLDGS # -1660 & 1661, BLGR-038 - NERVE AGENT STOR IGLOOS (F-BLOCK), BLGR-039 - PESTICIDE STORAGE AREA (S-13), BLGR-040 - SEPTIC TANKS/LEACHFIELDS (6), BLGR-041 - ELECTROLYTE STORAGE AREA(NEAR BLDG S-17), BLGR-042 - DRMO STORAGE AREA, BLGR-043 - BLDG #T-252, GENERAL REFUSE INC/STO AREA, BLGR-044 - BLDG #1178-TRANSFORMER STORAGE, BLGR-045 - BLDG #275,CONTAMINATED WASTE PROCESSOR, BLGR-048 - IGLOOS B-402,B-404,B-608,B-612, BLGR-049 - MAINTENANCE SHOP (S-9,S-11), BLGR-050 - WOOD DUMP/KINDLING YARD (FIRE TRNG AREA), BLGR-051 - DERUST/REPAINT AREAS (BLDGS 550,555,562), BLGR-052 - RUBBLE PILE, BLGR-053 - WASTE WATER TREATMENT FACIL. (BLDG 1173), BLGR-054 - BUILDING #218 - RECEIVING AREA, BLGR-055 - BLDG #B-51, PAINT STORAGE AREA, BLGR-056 - TEMPORARY H STORAGE SITE, BLGR-057 - DRUM STORAGE TRENCH (NEAR RT 110), BLGR-058 - WATER TREATMENT PLANT DITCH, BLGR-059 - FORMER WASTE AMMO DETONATION AREA, BLGR-060 - PAINT FILTER DISPOSAL SITE)

RFI/CMS (BLGR-030 - OPEN DETONATION AREA, BLGR-047 - DRY ACID POND AREA (2))

CS (BLGR-012 - FORMER TNT LAGOONS/HOLDING PONDS (4), BLGR-013 - TNT LAGOONS/HOLDING PONDS , BLGR-021 - DEACTIVATION FURNANCE BLDG T-273, BLGR-030 - OPEN DETONATION AREA, BLGR-032 - NEW PROPELLANT BURN AREA, BLGR-047 - DRY ACID POND AREA (2))

PA (BLGR-003 - PROJECTILE DEMIL AREA, BLGR-033 - BOILER BLOW DOWN DISCHARGE AREAS)

1991

CMI(C) (BLGR-029 - PINKWATER POND)

RFI/CMS (BLGR-029 - PINKWATER POND)

CS (BLGR-029 - PINKWATER POND)

1992

SI (BLGR-003 - PROJECTILE DEMIL AREA, BLGR-033 - BOILER BLOW DOWN DISCHARGE AREAS)

CS (BLGR-001 - BUILDING 902, BURSTER REM AREA-BLGR 001 , BLGR-002 - BLDG #1161, MUSTARD SHELL DMIL AREA , BLGR-005 - PROJECT CHASE AREA, BLGR-006 - MUSTARD BURN SITE/MUSTARD TRENCHES, BLGR-007 - BLDG #1170 - PROJ ASSEMBLY AREA, BLGR-008 - BLDG #550 - BURSTER & FUZE REMOVAL AREA, BLGR-009 - BLDG #1180 - PROJ RENOVATION AREA, BLGR-010 - FORMER SHELL WASHOUT FAC, BLDG 1155, BLGR-011 - BLDG #570 - NEW TNT/SHELL WASHOUT FAC, BLGR-014 - SURVEILLANCE (TEST) RANGE, BLGR-015 - TRACER TEST RANGE, BLGR-016 - OLD TRANSFORMER STORAGE AREA, BLGR-017 - TRAINING AREA/GUN RANGE, BLGR-018 - SEWAGE TREATMENT PLANT, BLGR-020 - NEW LANDFILL, BLGR-022 - WATER TREATMENT PLANT, BLDG 228, BLGR-023 - BATTERY BURIAL #1 (DEMO GROUNDS), BLGR-024 - BATTERY BURIAL #2/OLD LANDFILL/(WEST), BLGR-027 - CONVENTIONAL AMMO STOR AREAS(8),848IGLOO, BLGR-028 - MAGAZINE AREA-M, BLGR-031 - FORMER PROJECTILE PROPELLANT BURN AREA, BLGR-037 - LAB

IRP Schedule

	AREAS- BLDGS # -1660 & 1661, BLGR-038 - NERVE AGENT STOR IGLOOS (F-BLOCK), BLGR-039 - PESTICIDE STORAGE AREA (S-13), BLGR-040 - SEPTIC TANKS/LEACHFIELDS (6), BLGR-041 - ELECTROLYTE STORAGE AREA(NEAR BLDG S-17), BLGR-042 - DRMO STORAGE AREA, BLGR-043 - BLDG #T-252, GENERAL REFUSE INC/STO AREA, BLGR-044 - BLDG #1178-TRANSFORMER STORAGE, BLGR-045 - BLDG #275,CONTAMINATED WASTE PROCESSOR, BLGR-048 - IGLOOS B-402,B-404,B-608,B-612, BLGR-049 - MAINTENANCE SHOP (S-9,S-11), BLGR-050 - WOOD DUMP/KINDLING YARD (FIRE TRNG AREA), BLGR-051 - DERUST/REPAINT AREAS (BLDGS 550,555,562), BLGR-052 - RUBBLE PILE, BLGR-053 - WASTE WATER TREATMENT FACIL. (BLDG 1173), BLGR-054 - BUILDING #218 - RECEIVING AREA, BLGR-055 - BLDG #B-51, PAINT STORAGE AREA, BLGR-056 - TEMPORARY H STORAGE SITE, BLGR-057 - DRUM STORAGE TRENCH (NEAR RT 110), BLGR-058 - WATER TREATMENT PLANT DITCH, BLGR-059 - FORMER WASTE AMMO DETONATION AREA, BLGR-060 - PAINT FILTER DISPOSAL SITE)
RFA	(BLGR-002 - BLDG #1161, MUSTARD SHELL DMIL AREA)
RFI/CMS	(BLGR-032 - NEW PROPELLANT BURN AREA)
1994	
IRA	(BLGR-042 - DRMO STORAGE AREA)
1995	
CMI(C)	(BLGR-020 - NEW LANDFILL)
CS	(BLGR-034 - UNDERGROUND STORAGE TANKS (50))
RFI/CMS	(BLGR-020 - NEW LANDFILL)
1996	
DES	(BLGR-047 - DRY ACID POND AREA (2))
RFI/CMS	(BLGR-024 - BATTERY BURIAL #2/OLD LANDFILL/(WEST))
IRA	(BLGR-023 - BATTERY BURIAL #1 (DEMO GROUNDS))
1997	
DES	(BLGR-024 - BATTERY BURIAL #2/OLD LANDFILL/(WEST))
IRA	(BLGR-047 - DRY ACID POND AREA (2))
1998	
RFI/CMS	(BLGR-016 - OLD TRANSFORMER STORAGE AREA)
2000	
CMI(C)	(BLGR-047 - DRY ACID POND AREA (2))
RFA	(PBA@IR BLGR - PBA)
2001	
CMI(C)	(BLGR-016 - OLD TRANSFORMER STORAGE AREA)
RFI/CMS	(BLGR-008 - BLDG #550 - BURSTER & FUZE REMOVAL AREA, BLGR-023 - BATTERY BURIAL #1 (DEMO GROUNDS))
2002	
CMI(O)	(BLGR-059 - FORMER WASTE AMMO DETONATION AREA)
RFI/CMS	(BLGR-002 - BLDG #1161, MUSTARD SHELL DMIL AREA , BLGR-006 - MUSTARD BURN SITE/MUSTARD TRENCHES, BLGR-010 - FORMER SHELL WASHOUT FAC, BLDG 1155, BLGR-012 - FORMER TNT LAGOONS/HOLDING PONDS (4), BLGR-031 - FORMER PROJECTILE PROPELLANT BURN AREA, BLGR-041 - ELECTROLYTE STORAGE AREA(NEAR BLDG S-17), BLGR-042 - DRMO STORAGE AREA, BLGR-044 - BLDG #1178-TRANSFORMER STORAGE, BLGR-059 - FORMER WASTE AMMO DETONATION AREA)
CMI(C)	(BLGR-012 - FORMER TNT LAGOONS/HOLDING PONDS (4), BLGR-024 - BATTERY BURIAL #2/OLD LANDFILL/(WEST), BLGR-059 - FORMER WASTE AMMO DETONATION AREA)
DES	(BLGR-012 - FORMER TNT LAGOONS/HOLDING PONDS (4))

IRP Schedule

2003

CMI(O) (BLGR-024 - BATTERY BURIAL #2/OLD LANDFILL/(WEST))
 IRA (BLGR-043 - BLDG #T-252, GENERAL REFUSE INC/STO AREA)
 RFI/CMS (BLGR-021 - DEACTIVATION FURNANCE BLDG T-273, BLGR-043 - BLDG #T-252, GENERAL REFUSE INC/STO AREA, BLGR-050 - WOOD DUMP/KINDLING YARD (FIRE TRNG AREA), BLGR-056 - TEMPORARY H STORAGE SITE, BLGR-060 - PAINT FILTER DISPOSAL SITE)
 RI/FS (BLGR-033 - BOILER BLOW DOWN DISCHARGE AREAS)
 CMI(C) (BLGR-005 - PROJECT CHASE AREA, BLGR-006 - MUSTARD BURN SITE/MUSTARD TRENCHES, BLGR-010 - FORMER SHELL WASHOUT FAC, BLDG 1155, BLGR-044 - BLDG #1178-TRANSFORMER STORAGE)
 LTM (BLGR-021 - DEACTIVATION FURNANCE BLDG T-273, BLGR-047 - DRY ACID POND AREA (2))

2004

CMI(C) (BLGR-002 - BLDG #1161, MUSTARD SHELL DMIL AREA , BLGR-041 - ELECTROLYTE STORAGE AREA(NEAR BLDG S-17), BLGR-042 - DRMO STORAGE AREA, BLGR-050 - WOOD DUMP/KINDLING YARD (FIRE TRNG AREA), BLGR-056 - TEMPORARY H STORAGE SITE, BLGR-060 - PAINT FILTER DISPOSAL SITE)

2006

LTM (BLGR-031 - FORMER PROJECTILE PROPELLANT BURN AREA)

2013

LTM (PBA@IR BLGR - PBA)

2014

RFI/CMS (BLGR-013 - TNT LAGOONS/HOLDING PONDS)
 CMI(O) (BLGR-020 - NEW LANDFILL, BLGR-029 - PINKWATER POND)
 LTM (BLGR-024 - BATTERY BURIAL #2/OLD LANDFILL/(WEST), BLGR-059 - FORMER WASTE AMMO DETONATION AREA)

Projected Phase Completion Milestones

See attached schedule

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

Site ID	Site Name	ROD/DD Title	ROD/DD Date
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Final RA(C) Completion Date: 200401

Schedule for Next Five-Year Review: 2018

Estimated Completion Date of IRP at Installation (including LTM phase): 204409

BLUE GRASS ARMY DEPOT IRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
BLGR-006	MUSTARD BURN SITE/MUSTARD TRENCHES	CMI(O)						
SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
BLGR-012	FORMER TNT LAGOONS/HOLDING PONDS (4)	CMI(O)						

BLUE GRASS ARMY DEPOT
Army Defense Environmental Restoration Program
Compliance Restoration

CR Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 1/0

Installation Site Types with Future and/or Underway Phases

1 Contaminated Ground Water
(CCBLGR-061)

Most Widespread Contaminants of Concern

Explosives

Media of Concern

Groundwater

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

Site ID	Site Name	Action	Remedy	FY
N/A				

Duration of CR

Date of CR Inception: 201009

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201909/201909

Date of CR completion including Long Term Management (LTM): 201909

CR Contamination Assessment

Contamination Assessment Overview

A new site (CCBLGR-061) is located south of Route 120 and northeast and south of Building 570 and Building 571. In November 2001, six groundwater monitoring wells were installed up and down gradient of the washout facility and washout lagoon Area. The wells were installed to assess groundwater flow and water quality in the shallow aquifer beneath SWMU 024 and SWMU 025. These wells were screened across the soil-bedrock interface in the area between the washout facility and the washout lagoons. Groundwater flow generally mimics the top-of-rock and topographic surfaces in the area between washout facility and the lagoons. Downgradient from the SWMUs, groundwater apparently flows eastward toward two springs. From 2002 to 2003, groundwater monitoring was done on a quarterly basis and 2, 4; 6-TNT and RDX compounds exceeded ARARs in most downgradient wells. From 2004 to 2010, the wells were sampled on an annual basis and 2, 4; 6-TNT and RDX compounds exceeded RSLs in most downgradient wells. The RFI/CMS is required to determine the source of contamination in the downgradient wells.

As part of the Phase I RCRA Facility Investigation for the washout lagoon (SWMU 25), groundwater samples were collected from the six groundwater monitoring wells associated with the washout lagoon area during two separate sampling events. The first sampling event was performed on June 9, 2011 and the second sampling event was performed on Aug. 24, 2011. Groundwater samples were also collected from two springs on June 21, 2011.

Cleanup Exit Strategy

Conduct further investigation in order to comply with KDEP requirements. Additional investigation may include continued monitoring of the wells in accordance with the LTMOMP, more frequent collection of groundwater samples from the wells and springs, installation of additional monitoring wells to confirm groundwater flow direction, and further investigation of the groundwater seep.

CR Previous Studies

Title

Author

Date

There are no Previous Studies

BLUE GRASS ARMY DEPOT
Compliance Restoration
Site Descriptions

Site ID: CCBLGR-061

Site Name: NEW GROUNDWATER MONITORING WELLS

Alias: CCBLGR-061

STATUS

Regulatory Driver: RCRA
 Contaminants of Concern: Explosives
 Media of Concern: Groundwater

Phases	Start	End
RFA.....	201009.....	201311
RFI/CMS.....	201312.....	201909
RIP Date:	N/A	
RC Date:	201909	

SITE DESCRIPTION

CCBLGR-061, a new site, is located south of Route 120 and northeast and south of Building 570 and Building 571. In November 2001, six groundwater monitoring wells were installed up and downgradient of the washout facility and washout lagoon area. The wells were installed to assess groundwater flow and water quality in the shallow aquifer beneath SWMU 024 and SWMU 025. These wells were screened across the soil-bedrock interface in the area between the washout facility and the washout lagoons. Groundwater flow generally mimics the top-of-rock and topographic surfaces in the area between washout facility and the lagoons. Downgradient from the SWMUs, groundwater apparently flows eastward toward two springs. From 2002 to 2003, groundwater monitoring was done on a quarterly basis and 2, 4; 6-TNT and RDX compounds exceeded ARARs in most downgradient wells. From 2004 to 2010, the wells were sampled on an annual basis and 2, 4; 6-TNT and RDX compounds exceeded RSLs in most downgradient wells. The RFI/CMS is required to determine the source of contamination in the downgradient wells.

As part of the Phase I RCRA FI for the washout lagoon (SWMU 25), groundwater samples were collected from the six groundwater monitoring wells associated with the washout lagoon area during two separate sampling events. The first sampling event was performed on June 9, 2011 and the second sampling event was performed on Aug. 24, 2011. Groundwater samples were also collected from two springs on June 21, 2011.

In June 2011, 10 groundwater samples were collected, seven samples from the six monitoring wells and three samples from the springs. The results were above the site groundwater screening criteria (20 micrograms per liter (ug/L) for 2,4,6-TNT and 100 ug/L for RDX. The results exceeded the groundwater screening criteria at monitoring wells MW-401206, MW-401203, and MW 401204.

On Aug. 24, 2011, a total of seven groundwater samples from the six monitoring wells were collected. The samples which exceeded the groundwater screening criteria included MW 401204 and MW 401206.

All results can be found in the Final Phase I RCRA Facility Investigation for Washout Lagoon (SWMU25) Report dated March 2012.

CLEANUP/EXIT STRATEGY

Further investigation will be conducted in order to comply with KDEP requirements. Additional investigation may include continued monitoring of the wells in accordance with the LTMOMP, more frequent collection of groundwater samples from the wells and springs, installation of additional monitoring wells to confirm groundwater flow direction, and further investigation of the groundwater seep.

Site Closeout (No Further Action) Summary

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

CR Schedule

Date of CR Inception: 201009

Past Phase Completion Milestones

2014

RFA (CCBLGR-061 - NEW GROUNDWATER MONITORING WELLS)

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:

Schedule for Next Five-Year Review: 2018

Estimated Completion Date of CR at Installation (including LTM phase): 201909

BLUE GRASS ARMY DEPOT CR Schedule

 = phase underway

SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
CCBLGR-061	NEW GROUNDWATER MONITORING WELLS	RFI/CMS						

Community Involvement

Technical Review Committee (TRC): None

Community Involvement Plan (Date Published): 199812

Restoration Advisory Board (RAB): RAB established 199812

RAB Adjournment Date: 200309

RAB Adjournment Reason: There is no longer sufficient, sustained community interest.

Additional Community Involvement Information

The RAB was composed of a diverse group in the local community: the KDEP, the US Army Corps of Engineers (USACE), the staff, and subject matter experts from the USAEC, Installation Operations Command, AMC and Army installation. The first notice about the RAB appeared on a fact sheet in the Richmond Register in fall 1997 and an article appeared in the Lexington Herald Leader in fall 1998. The BGAD RAB met every other month unless there was a need to meet more frequently. The BGAD RAB reviewed and provided comments on technical reports and documents, took facility tours, adopted bylaws, and established administrative record documents. In September 2003 the RAB was adjourned.

Administrative Record is located at

Blue Grass Army Depot
431 Battlefield Memorial Highway
Building S14
Richmond KY 40475
859-779-6532

Information Repository is located at

Madison County Public Library
507 W Main Street
Richmond, KY 40475
859-623-6704

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

TAPP Title: N/A

Potential TAPP: N/A

