Radford Army Ammunition Plant

FACT SHEET
Site Screening Process Report for SWMUs 13, 37, 38, 46, 57, 68, 69, and AOCs A, F, Q

Introduction

The United States Environmental Protection Agency (USEPA) issued a RCRA Corrective Action Permit to the U.S. Department of the Army (Army) and Alliant Ammunition and Powder Company (Alliant). Within the RCRA Corrective Action permit (Part II, Section D.4), there is a provision allowing for Solid Waste Management Units (SWMUs) or Areas of Concern (AOCs) which are determined to represent negligible or minimal impact to be investigated in accordance with the EPA approved Site Screening Process (SSP). This SSP was completed to assess whether there had been releases of hazardous substances, pollutants, contaminants, hazardous wastes, or hazardous constituents to the environment from 11 sites at RFAAP, and evaluate whether the sites should proceed further through the RCRA facility investigation (RFI) process, be the subject of an interim removal action or be considered for no further action. For the SSP, the following five distinct tasks were undertaken:

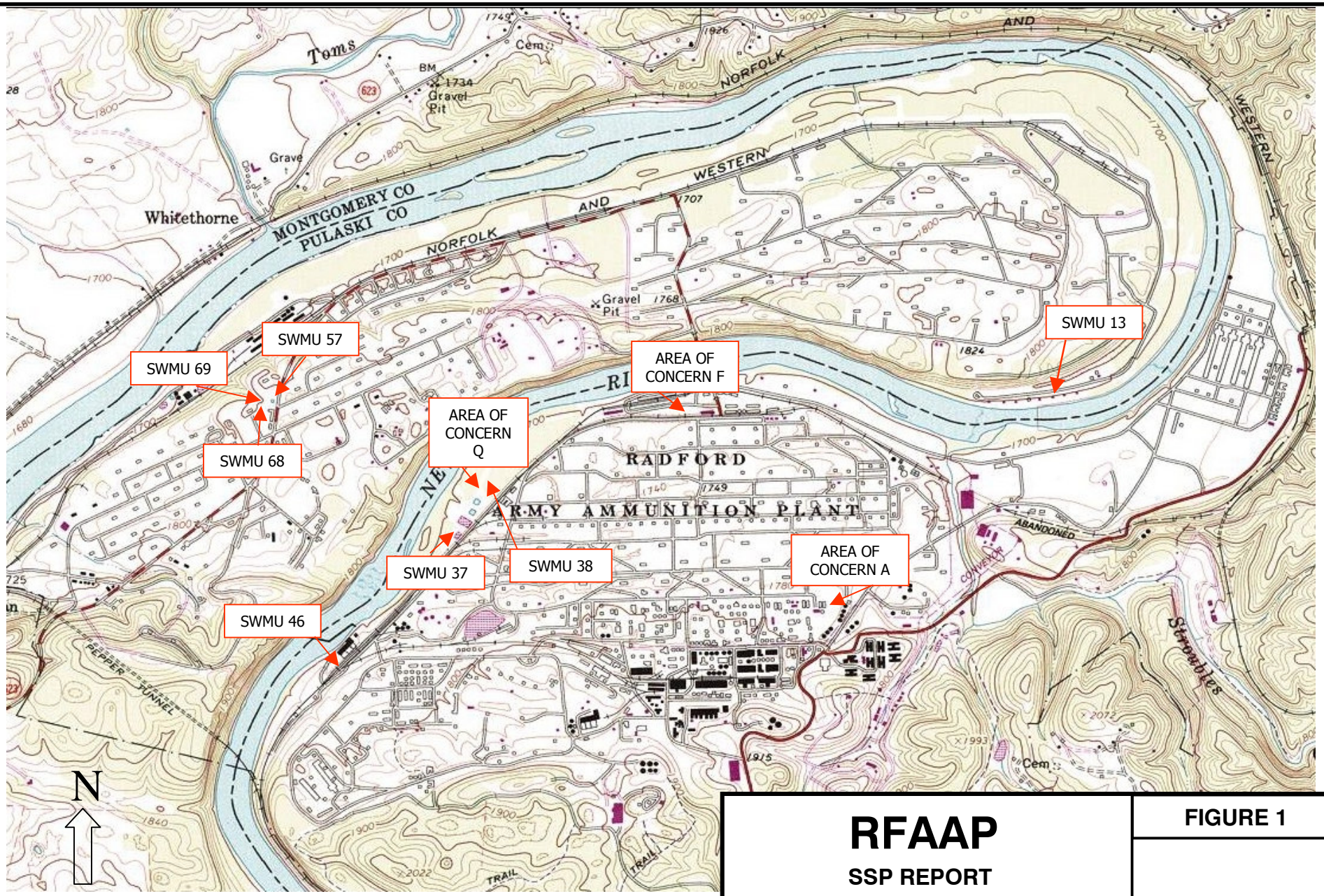
- Performance of a Desktop Audit and site visit to evaluate the scope of the SSP site-specific Work Plan(s);
- Development of an SSP site-specific Work Plan outlining a Sampling and Analysis Plan as well as a risk screening plan (human health and ecological, as appropriate) for EPA approval;
- Performance of SSP field work in accordance with the approved SSP Work Plan;
- Evaluation of SSP data and completion of pre-remedial risk screening; and
- Determination of the need for further investigation of the SSA, an interim removal action at the SSA or preparation of a No Further Action Decision Document, per the RCRA Corrective Action permit, based on results of the SSP and risk screening.

Conclusions and Recommendations

Based on the results of the SSP evaluations the following recommendations were made:

- SWMU 13 –focused RFI – Completed – No Further Action;
- SWMU 37 – focused RFI – Completed – Under Regulatory Review;
- SWMU 38 – focused RFI – Completed – Under Regulatory Review;
- SWMU 46 – No Further Action;
- SWMU 57 – focused RFI – Completed – Corrective Measures Recommended;
- SWMU 68 – No Further Action;
- SWMU 69 – No Further Action;
- AOC A – focused RFI – Completed – No Further Action;
- AOC F – No Further Action; and
- AOC Q – focused RFI – Completed – Under Regulatory Review.

These data, findings, assessments, and recommendations were reported in the Site Screening Process Report for Solid Waste Management Units 13, 37, 38, 46, 57, 68, 69, and Areas of Concern A, F, Q (Final), May 2007, and approved by the USEPA Region III and the Virginia Department of Environmental Quality (VDEQ) in May 2007. Decisions Documents regarding no further action for SWMUs 46, 68, 69, and AOC Q were approved by the USEPA and VDEQ in October 2007. The recommended RFI investigations for SWMUs 13, 37, 38, 57, and AOCs A and Q have been completed.



RFAAP

SSP REPORT

FIGURE 1

SITE LOCATION MAP

Date: *June 2004*	**Prepared by:** *KDC/TDH*
Scale: *1" = 2000'*	**File Name:** *Figure 1-1.ppt*

Radford Army Ammunition Plant

FACT SHEET
SWMU 13 Study Area

Introduction

This fact sheet describes the proposed RCRA Facility Investigation (RFI) investigation in the Solid Waste Management Unit (SWMU) 13 RFI study area located outside the current operational area of the open burning ground (OBG) at Radford Army Ammunition Plant (RFAAP).

Background

The SWMU 13 RFI study area is located in the western section of the Horseshoe Area (HSA) between the perimeter berm of the OBG and the north bank of the New River. The SWMU 13 RFI study area is the area adjacent to the OBG not addressed under the RCRA Subpart X Permit. Groundwater in the area of OBG is currently being evaluated under the facility's Subpart X permit issued by the Virginia Department of Environmental Quality (VDEQ) in October 2005. Groundwater monitoring and any required corrective action for groundwater will be addressed under the facility's Subpart X permit; therefore, groundwater will not be further investigated or addressed under this RFI. Soil sampling and any required corrective action within the OBG also will be addressed under the facility's Subpart X permit; therefore, the soil located within the OBG will not be investigated as part of this RFI.

The RFAAP RCRA Corrective Action Permit identified SWMU 13 as an area of concern that had the potential to pose a threat or potential threat to human health and the environment. SWMU 13 was a part of the Site Screening Process (SSP) investigation completed in 2007 which resulted in a recommendation of a focused RFI for the site.

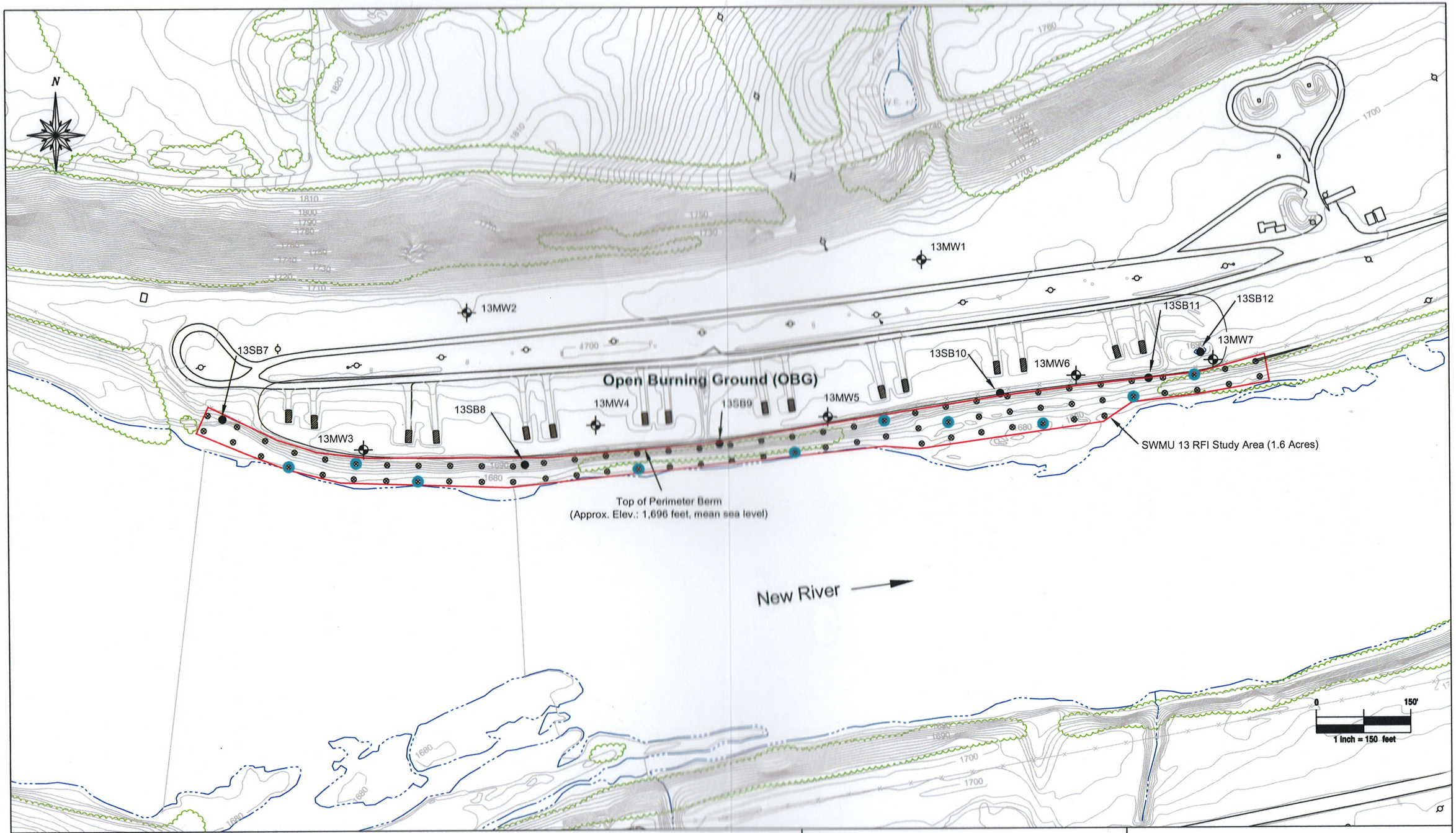
RCRA Facility Investigation (RFI)

RFI field efforts were completed at the site in November 2008. The investigation focuses on soil conditions in this area and evaluates soil within the SWMU 13 RFI study area as a potential source for future impacts to the New River. A soil sampling grid was established within the SWMU 13 RFI study area to further assess the spatial distribution of lead in soil. Data was collected on a central aligned rectangular grid to provide coverage across the entire study area providing for approximately 79 sample point locations across the site, with two to three rows of samples between the OBG berm and the New River. Additional chemical data for semi-volatile organic compounds (SVOCs), explosives including nitroglycerin, and Target Analyte List metals were collected from 10 specific grid sample locations. These data was used to confirm SSP sample results and provide additional data for use in the risk assessments and background evaluations (for metals).

Conclusions and Recommendations

Lead was the primary chemical of concern identified in soil at the site. Based on the results of the risk assessments and fate and transport assessment, the RFI resulted in a recommendation of no further action for the study area beyond institutional controls.

The data, findings, assessments, and recommendations are contained in the SWMU 13 RFI Report (Final), July 2010, which was approved by the USEPA and VDEQ on August 26, 2010.



Legend

- Topographic Contour Line (feet, mean sea level)
- Surface Water
- OBG Boundary
- Study Area Boundary
- Monitoring Well Location
- Sample Location (Lead)
- Sample Location (TCL Metals, SVOCs, Explosives, and Nitroglycerin)
- SSP Sample Locations
- Light/Electric Pole
- Vegetation
- Burning Pan

FIGURE 1

RFI Sampling Locations

Date: January 2008	URS Project #: 11656367
Prepared by: DBC	Approved by: JOS
Scale: 1 inch = 150 feet	File Name: Fig.1 RFI Locs

SWMU 13

RCRA Facility Investigation
Radford Army Ammunition Plant
Radford, Virginia

URS Group, Inc.
5540 Falmouth Street
Suite 201
Richmond, Virginia 23230

Radford Army Ammunition Plant

FACT SHEET
SWMU 45

Introduction

The United States Environmental Protection Agency (USEPA) issued a RCRA Corrective Action Permit to the U.S. Department of the Army (Army) and Alliant Ammunition and Powder Company (Alliant). Within the RCRA Corrective Action permit (Part II, Section D.4), there is a provision allowing for Solid Waste Management Units (SWMUs) or Areas of Concern (AOCs) which are determined to represent negligible or minimal impact to be investigated in accordance with the EPA approved Site Screening Process (SSP). This SSP was completed to assess whether there had been releases of hazardous substances, pollutants, contaminants, hazardous wastes, or hazardous constituents to the environment from SWMU 45, and determine whether the site should proceed further through the RCRA facility investigation (RFI) process, be the subject of an interim removal action or be considered for no further action. For the SSP, the following five distinct tasks were undertaken:

- Performance of a Desktop Audit and site visit to determine the scope of the SSP site-specific Work Plan(s);
- Development of an SSP site-specific Work Plan outlining a Sampling and Analysis Plan as well as a risk screening plan (human health and ecological, as appropriate) for EPA approval;
- Performance of SSP field work in accordance with the approved SSP Work Plan;
- Evaluation of SSP data and completion of pre-remedial risk screening; and
- Determination of the need for further investigation of the SSA, an interim removal action at the SSA or preparation of a No Further Action Decision Document, per the RCRA Corrective Action permit, based on results of the SSP and risk screening.

This fact sheet describes the recommended action for contaminated soil at Solid Waste Management Unit (SWMU) 45 – an inactive, sanitary landfill located in the north-central section of the Main Manufacturing Area (MMA) at Radford Army Ammunition Plant (RFAAP).

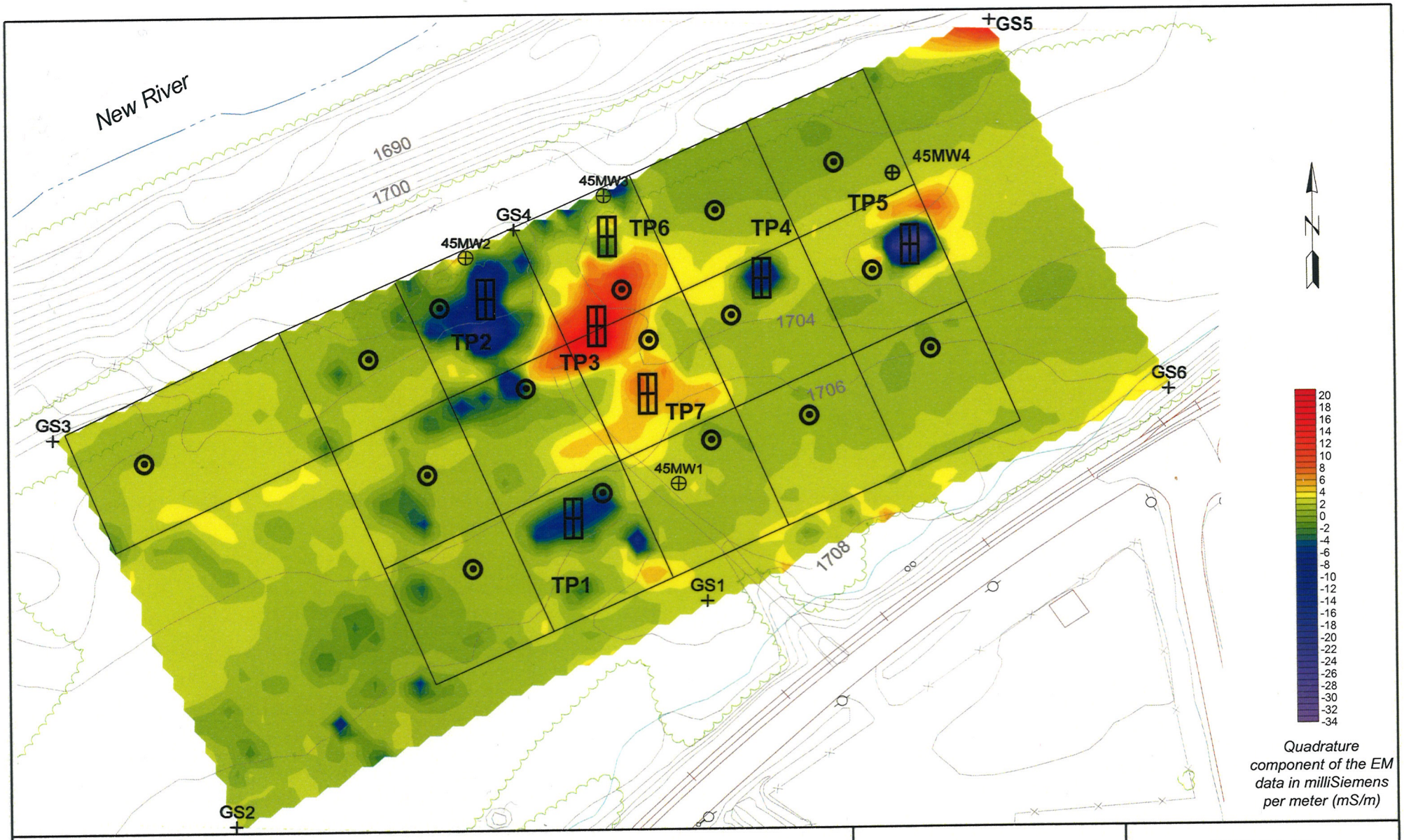
Background

SWMU 45 comprises an approximate 3.4-acre study area located in the northwest section of the MMA at RFAAP on the alluvial terrace south of the New River and east of calcium sulfate drying bed/disposal areas (SWMU 38 and AOC Q).

SSP Investigation

The site screening process field efforts were conducted at the site in 2008. Sixteen direct push borings and seven test pits were used to characterize soil conditions at SWMU 45. Groundwater samples were collected from existing wells 45MW1, 45MW2, 45MW3, and newly installed monitoring well 45MW4 in May 2008. An additional groundwater sample was collected from 45MW2 in August 2008. The investigation identified a 0.2 acre area containing sanitary landfill material (milk cartons, bottles, etc.). In addition, the investigation also identified three areas where metallic and other debris were located within the surficial soil (0-2 feet below ground surface) totaling approximately 0.1 acres. The SSP evaluation resulted in a recommendation of no further action for the site.

These data, findings, assessments, and recommendations are contained in the SWMU 45 SSP Report (Final), January 2010, and was approved by the USEPA and Virginia Department of Environmental Quality (VDEQ) on March 29, 2010.



⊕ = Monitoring Well

▮ = Test Pit Location

◎ = Direct Push Soil Sample Location

Scale: 1 inch = 105 feet

0 105 210
feet

Geophysical Survey Data provided by: ATS International Advanced Technical Services

FIGURE 1
SSP Sample Locations

Date: August 2008	URS Project #: 11656351
Prepared by: DBC	Approved by: JOS
Scale: As Shown	File Name: Fig1 Sam.Locs

SWMU 45
SSP Investigation Report
Radford Army Ammunition Plant
Radford, Virginia

URS
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Richmond, Virginia 23230

Radford Army Ammunition Plant

FACT SHEET
SWMUs 35, 37, 38, and AOC Q

Introduction

This fact sheet outlines the RCRA Facility Investigation (RFI) activities conducted at Solid Waste Management Units (SWMUs) 35, 37, and 38 – Calcium Sulfate Drying Beds and Area of Concern (AOC) Q – Calcium Sulfate Treatment and Disposal Area at Radford Army Ammunition Plant (RFAAP). RFI activities were completed in accordance with the United States Environmental Protection Agency (USEPA) RCRA Corrective Action Permit to the U.S. Department of the Army (Army) and Alliant Ammunition and Powder Company (Alliant).

Background

SWMU 35 is an approximately 160 ft by 80 ft calcium sulfate drying bed located in the northeast section of the MMA at RFAAP between SWMU 8 (east) and SWMU 10 (west). The drying bed is an enclosed depressed area (approximately 5 ft from surrounding areas). A USEPA RCRA Facility Assessment (RFA) conducted at RFAAP identified the SWMU 35 calcium sulfate drying bed as having the potential to release contaminants into the environment.

SWMU 37, SWMU 38, and AOC are calcium sulfate drying beds located along the New River in the northwestern section of the MMA. SWMU 37 is densely vegetated area comprising approximately 0.62 acres. It is located immediately southwest of, and adjacent to, the SWMU 9 Calcium Sulfate Settling Lagoons. SWMU 38 is a smaller densely vegetated area comprising approximately 0.23 acres. AOC Q is a densely wooded depression comprising approximately 0.076 acres. Each unit is surrounded by an earthen berm and has an approximate depth of 4 to 8 feet.

Within the RCRA Corrective Action permit (Part II, Section D.4), there is a provision allowing for SWMUs or AOCs which are determined to represent negligible or minimal impact to be investigated in accordance with the EPA approved Site Screening Process (SSP). In 2007, a site screening process was performed at SWMU 37, SWMU 38, and AOC Q to assess whether releases of hazardous substances, pollutants, contaminants, hazardous wastes, or hazardous constituents have occurred to the environment at the sites. Based on the results of the site screening process, a focused RFI was recommended for the sites

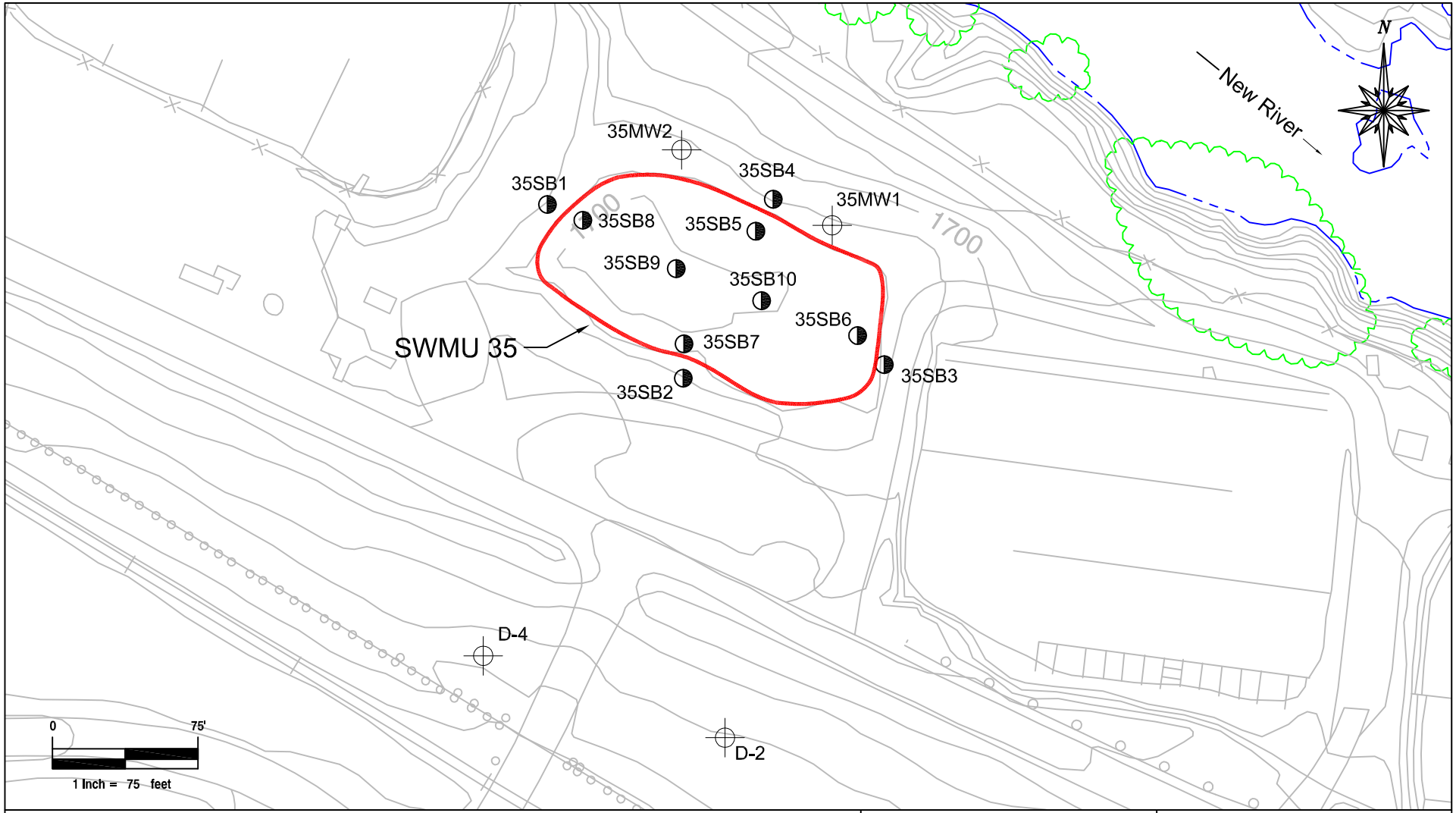
RCRA Facility Investigation (RFI)

RFI field efforts were conducted in 2007 and 2010. At SWMU 35, 6 borings were completed inside and 4 borings were completed outside the drying bed to assess the nature and extent of contamination within the source area and the extent and volume of sludge inside the drying bed and two monitoring wells were installed at the site. Four monitoring wells (2 existing and 3 newly installed) were sampled as part of the RFI. At SWMU 37, 4 additional borings were completed inside and 3 additional borings were completed outside the drying bed to assess the nature and extent of contamination within the source area and the extent and volume of sludge inside the drying bed and four monitoring wells were installed at the site. During the SSP investigation, 3 soil borings had been completed inside the drying bed and 1 boring had been completed outside the drying bed. Four newly installed monitoring wells were sampled as part of the RFI. At SWMU 38/AOC Q, 5 additional borings were completed inside and 3 additional borings were completed outside the drying beds to assess the nature and extent of contamination within the source area and the extent and volume of sludge inside the drying bed and two monitoring wells were installed at the site. During the SSP investigation, 4 soil borings had been completed inside the drying beds and 2 borings had been completed outside the drying beds. Three newly installed monitoring wells were sampled as part of the RFI.

Conclusions and Recommendations

Metals and Aroclor 1254 were the primary chemicals of concern identified in soil at the sites. Based on the results of the risk assessments and fate and transport assessment, the RFI resulted in a recommendation of no further action for the study areas.

The data, findings, assessments, and recommendations are contained in the SWMUs 35, 37, 38, and AOC Q RFI Report (Draft), July 2009, and is currently being reviewed by the USEPA and VDEQ.



Legend

- Topographic Contour
- SWMU Boundary
- Perimeter Fence
- Vegetation
- Aboveground Piping
- Monitoring Well
- RFI Soil Boring Location

FIGURE 1

Sample Locations - SWMU 35

Date: June 2008	URS Project #: 21354887
Prepared by: DBC	Approved by: JOS
Scale: 1" = 75'	File Name: Fig. 3-1 RFI Locs

SWMUs 35, 37, 38, and AOC Q
RFI/CMS Report
Radford Army Ammunition Plant
Radford, Virginia

URS Group, Inc.
5540 Falmouth Street
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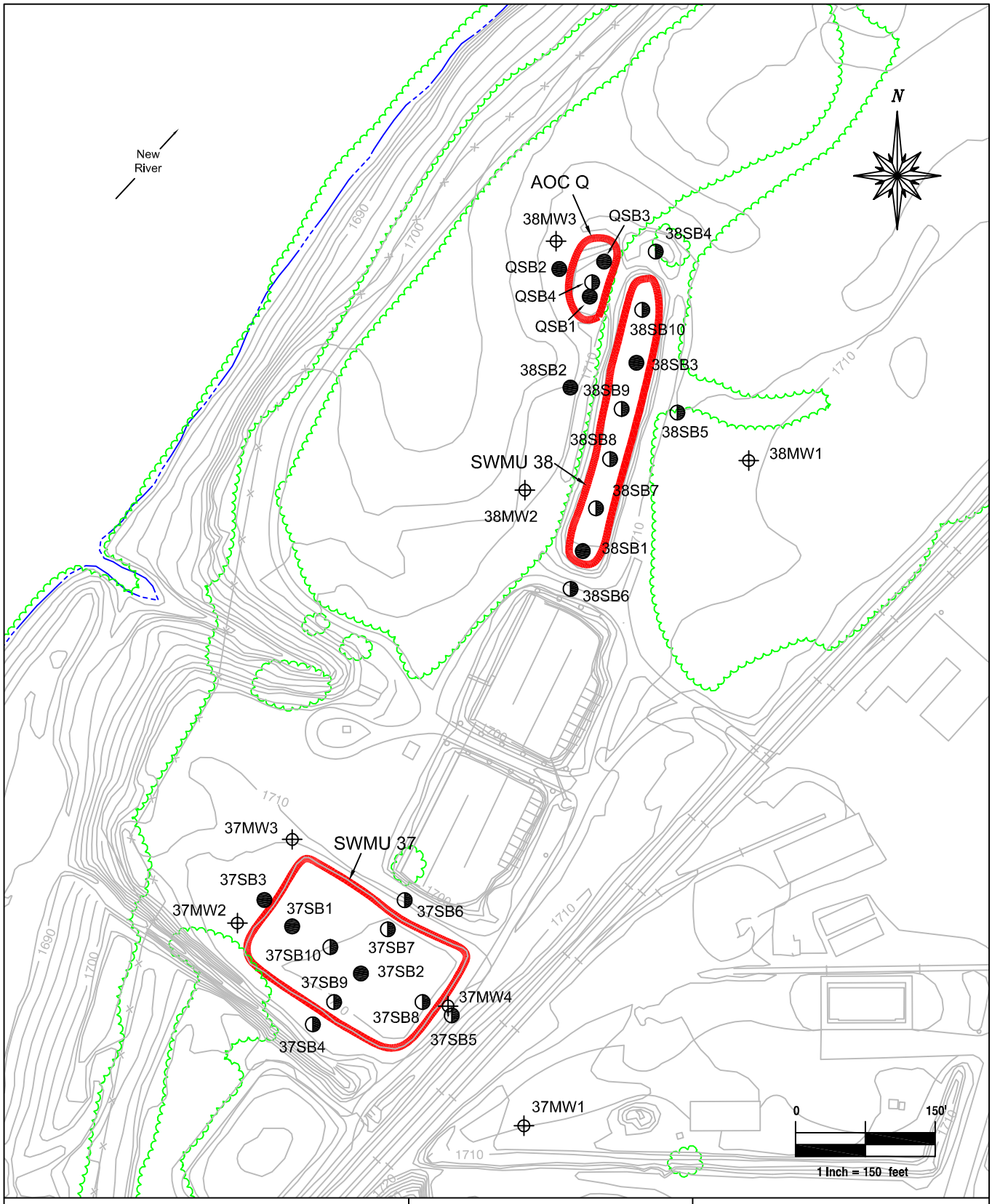
Richmond, Virginia 23230



Legend

- Topographic Contour
- SWMU Boundary
- Perimeter Fence
- Vegetation
- Aboveground Piping
- Monitoring Well
- RFI Soil Boring Location
- SSP Soil Boring Location

FIGURE 1

Sample Locations - SWMUs 37, 38, and AOC Q

Date: July 2010	URS Project #: 21354887
Prepared by: DBC	Approved by: JOS
Scale: 1 inch = 150 feet	File Name: Fig.2-12 RFI Locs

SWMUs 35, 37, 38, and AOC Q
RFI Report
Radford Army Ammunition Plant
Radford, Virginia

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Radford Army Ammunition Plant

FACT SHEET
SSP for SSAs 18, 72, 30, 79, 60, and 77

The United States Environmental Protection Agency (USEPA) issued a RCRA Corrective Action Permit to the U.S. Department of the Army (Army) and Alliant Ammunition and Powder Company (Alliant). Within the RCRA Corrective Action permit is a listing of 31 identified Site Screening Areas (SSAs) which may be investigated in accordance with the EPA approved Site Screening Process (SSP). This SSP will determine whether there have been releases of hazardous substances, pollutants, contaminants, hazardous wastes, or hazardous constituents to the environment from an SSA, and determine whether an SSA should proceed further through the RFI process, be the subject of an interim removal action or be considered for no further action. For the SSP, the following five distinct tasks will be undertaken:

- Performance of a Desktop Audit and site visit to determine the scope of the SSP site-specific Work Plan(s);
- Development of an SSP site-specific Work Plan outlining a Sampling and Analysis Plan as well as a risk screening plan (human health and ecological, as appropriate) for EPA approval;
- Performance of SSP field work in accordance with the approved SSP Work Plan;
- Evaluation of SSP data and completion of pre-remedial risk screening; and
- Determination of the need for further investigation of the SSA, an interim removal action at the SSA or preparation of a No Further Action Decision Document, per the RCRA Corrective Action permit, based on results of the SSP and risk screening.

The sites for this SSP include:

- SSA 18 – Sulfuric Acid Recovery Plant
- SSA 72 – Oleum Plant Acidic Wastewater Sump
- SSA 30 – Asbestos Disposal Trench No. 1
- SSA 79 – Asbestos Disposal Trench No. 2
- SSA 60 – Rubble Pile East of Administration Building
- SSA 77 – Garbage Incinerator

The SSP report is currently under review by the USEPA and VDEQ.

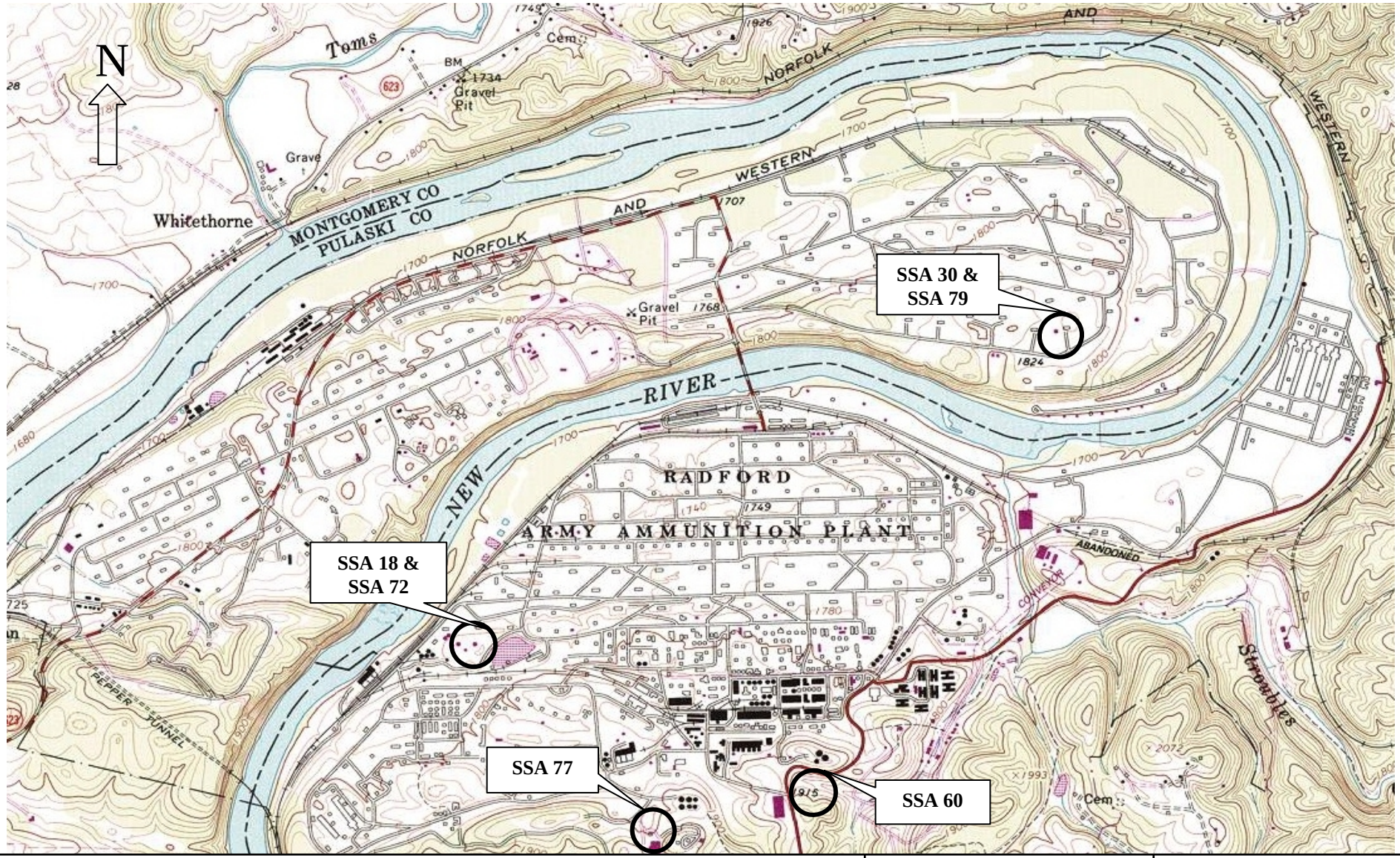

FIGURE 1

Site Location Map

Date: October 2008	URS Project #: 11656351
Prepared by: DBC	Approved by: JOS
Scale: *1" = 2000'*	File Name: Fig1-1 SiteLoc

MWP Addendum 028 –
SSP Investigation for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant
Radford, Virginia

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