MILITARY MUNITIONS RESPONSE PROGRAM

ACTION MEMORANDUM

HANCOCK FIELD AIR NATIONAL GUARD BASE, SYRACUSE, NEW YORK

DATE: April 4, 2013

SUBJECT: Approval for a Non-Time Critical Removal Action at the Small Arms Range and Shooting-In Buttress (SR001) and the Firing-In Shooting Buttress (SR002) Munitions Response Sites, Hancock Field Air National Guard Base, Syracuse, New York

FROM: Jody Murata, Program Manager, Restoration Branch, Operations Division, Installations and Mission Support Directorate, Air National Guard

TO: Benjamin W. Lawless, P.E., Chief, Operations Division, Installations and Mission Support Directorate, Air National Guard

1.0 PURPOSE

The purpose of this Action Memorandum (AM) is to request and document approval of the selected non-time critical removal action (NTCRA) described herein for the Small Arms Range and Shooting-In Buttress (SR001) and the Firing-In Buttress (SR002) Munitions Response Sites (MRSs), located at Hancock Field Air National Guard (ANG) Base (Hancock Field) in Syracuse, New York (Figures 1 and 2). This NTCRA is being conducted under the Military Munitions Response Program (MMRP).

2.0 SITE CONDITIONS AND BACKGROUND

The Hancock Field MRSs associated with this AM do not have a Comprehensive Environmental Response and Liabilities Information System (CERCLIS), Resource Conservation and Recovery Act (RCRA), or State identification number. However, the Air Force Enterprise Environmental, Safety, and Occupational Health Management Information System (EESOH-MIS) designated identification numbers for the MRSs proposed for the NTCRA are SR001 (Shooting-In Buttress) and SR002 (Firing-In Buttress). The following sections summarize site history, current characteristics, nature of contamination, and rationale for the proposed NTCRA.

2.1 SITE DESCRIPTION

Hancock Field is located adjacent to the Syracuse Hancock International Airport in Syracuse, New York (Figure 1). In 1942, Hancock Field, formerly Mattydale Bomber Base, was constructed along with three 5,500-foot (ft) runways. The facility was built to serve as a staging and storage area for repairing and re-outfitting B-17 and B-24 aircraft used in World War II (WWII).

The base was also used by the First Concentration Command, later known as the Air Service Command, to assemble and test B-24 aircraft. In 1946, the City of Syracuse took control of the Mattydale Bomber Base, and in 1948, the base was dedicated as a commercial airfield. The Clarence E. Hancock Airport opened in September 1949, attaining international airport status in 1970. Over the last few decades, both

New York Air National Guard Syracuse, New York		N	FIGURE 1 Installation Location Map Action Memorandum 174th Attack Wing, Hancock Field Air National Guard Base - Syracuse, NY	
0 0.5 1 2 Kilometers 0 0.25 0.5 1 1.5 Miles			06/22/2012	File: ANG_Hancock_Installation_Loc_AM.mxd
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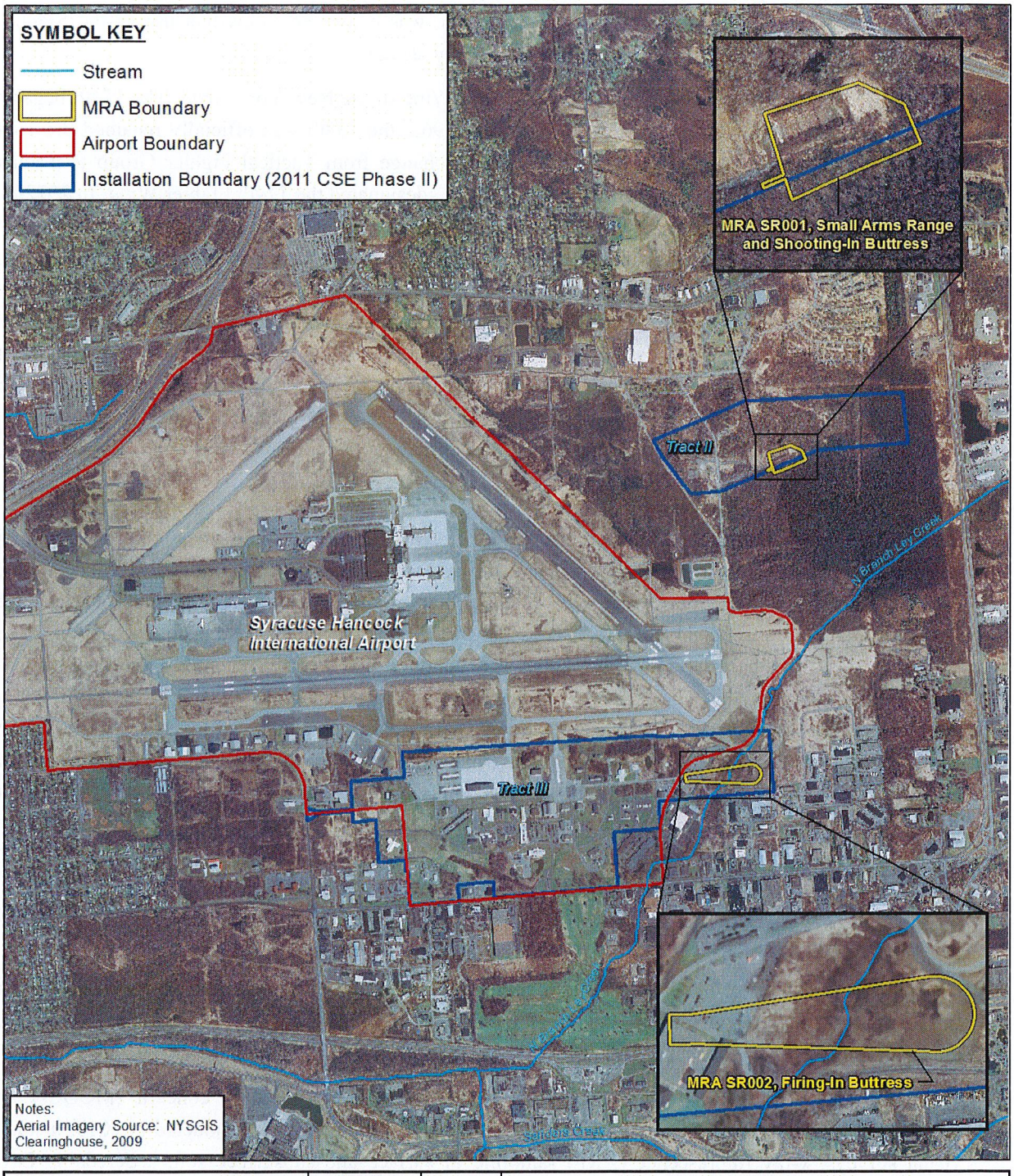

New York Air National Guard Syracuse, New York		N	FIGURE 2 Site Location Map Actioin Memorandum 174th Attack Wing, Hancock Field Air National Guard Base - Syracuse, NY	
0 0.5 1 2 Kilometers 0 0.25 0.5 1 1.5 Miles			06/22/2012	File: ANG_Hancock_Site_Loc_Map_MRS_AM.mxd
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the mission and physical size of Hancock Field (military) have been reduced from the initial WWII capacity. Much of the airbase, including the runways, was converted to civilian use as the Syracuse Hancock International Airport (ITSI/Shaw, 2009 and Sky, 2012).

Currently, Hancock Field is home to the 174th Attack Wing of the New York ANG. The 174th began as the 138th Fighter Squadron on October 28, 1947. In 1962, the 138th was officially renamed the 147th Tactical Fighter Group. In 1979, there was a status change from Tactical Fighter Group to Tactical Fighter Wing. In 1992, the Tactical Fighter Wing was re-designated the 174th Fighter Wing. In 2012, the 174th Fighter Wing was renamed as the 174th Attack Wing. Aircraft historically used by the unit include the P-47D Thunderbolt, F-84B Thunderjet, F-86H Sabre, A-10A Thunderbolt II, and F-16A Fighting Falcon (Sky, 2012). The installation's mission is to maintain well-trained, well-equipped units available for prompt mobilization during war and provide assistance during national emergencies (such as natural disasters or civil disturbances). During peacetime, the combat-ready and support units are assigned to most US Air Force major commands to carry out missions compatible with training, mobilization readiness, and humanitarian and contingency operations. Mission-related activities include vehicle, aircraft, and runway maintenance, fueling, and military training operations.

2.1.1 Removal Site Evaluation

Where military munitions are used, munitions or fragments of munitions may contribute through weathering, constituents into site soils, sediments, surface waters, or groundwater at concentrations exceeding health based criteria. Because historical military range training activities occurred at Hancock Field, evaluations were conducted following the Air Force Comprehensive Site Evaluation (CSE) Process. The CSE Phase I (ITSI/Shaw, 2009) was conducted to identify potential munitions response areas (MRAs), evaluate actual or potential releases of munitions constituents (MC) to the environment, and evaluate associated targets of concern. The CSE Phase II was conducted to further assess MRAs identified during the Phase I for potential environmental releases of MC, determine if emergency munitions response actions may be necessary, and/or whether other munitions response actions are appropriate (Sky, 2012). Two MRAs were identified during the CSE process, SR001 and SR002.

SR001: Small Arms Range and Shooting-In Buttress

SR001 was used for training by Hancock Field personnel, the New York ANG, local reserve units, and local police. Munitions used at the range reportedly included 7.62-millimeter (mm),

.38-caliber, .45-caliber, .50-caliber, 5.56-mm, and 9-mm ball munitions. Additionally, the access path to the small arms range may have been used for M-203 training with 40-mm practice grenades. The use of the small arms range was discontinued in 2002.

The CSE Phase I identified lead, copper, and iron as potential MCs of concern (MCOCs) and recommended a CSE Phase II (ITSI/Shaw, 2009). CSE Phase II activities, conducted in 2010, included visual surveys, x-ray fluorescence (XRF) sampling of surface and subsurface soil, a Screening Level Human Health Risk Assessment (SLHHRA), a Screening Level Ecological Risk Assessment (SLERA), and assignment of a relative risk priority using the Munitions Response Site Prioritization Protocol (MRSPP) (Sky, 2012).

During the visual survey of SR001, evidence of small arms use was observed by identifying small arms casings and lead projectiles of various calibers. In addition, the following MD items were observed:

- 40-mm practice grenade debris;
- smoke canister debris;
- non-lethal offensive grenade debris; and,
- small amounts of clay target debris.

The CSE Phase II indicated no evidence of munitions or explosives of concern (MEC) during the visual survey and as a result, the collection and analysis of soil samples for explosives was not conducted. MEC are defined as military munitions that are unexploded ordnance, abandoned or discarded, or MC present in high enough concentrations so as to pose an explosive hazard.

As lead accounts for ~85% by weight of typical projectiles (ITRC, 2003) and is the most pervasive constituent driving small arms range cleanup efforts, lead concentrations in soil were used to define the extent of contamination during the CSE Phase II (Sky, 2012). XRF soil samples collected from range floor and berm areas were field analyzed with results ranging from 22 milligrams per kilogram (mg/kg) to 5,217 mg/kg (Figure 3). Fifteen soil samples exceeded the XRF screening level for lead of 261 mg/kg (calculated by conducting a correlation analysis comparing XRF results with analytical laboratory results). Samples exceeding the modified screening level were located primarily at depths of 0 to 6 inches bgs; however, three samples exceeded the XRF screening level at the 6 to 12 inch interval and 1 sample at the 12 to 18 inch interval. Samples exceeding the XRF screening level were located primarily between the concrete firing line and the impact berm (Figure 3).

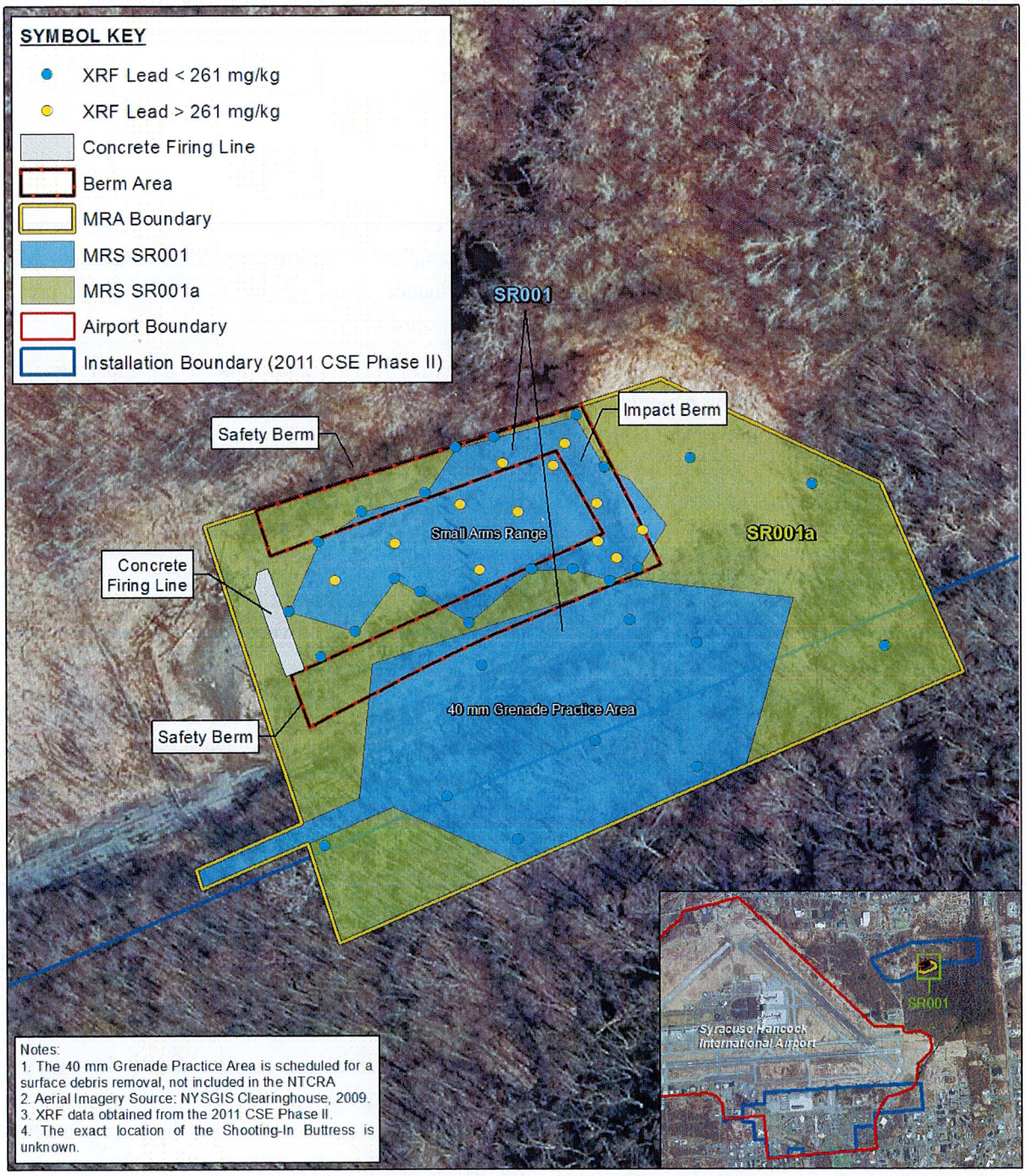
To evaluate potential risks to human health, a SLHHRA was performed for SR001. The results indicated that lead was present at concentrations that may present a human health risk under a residential land use scenario.

A focused SLERA was completed to assess potential adverse impacts on current or future ecological receptors exposed to MC in surface soil at MRSs SR001 and SR002. Based upon the results of the focused SLERA, maximum and mean lead concentrations at SR001 were orders of magnitude above the ecological risk screening criterion intended to be protective of soil invertebrates, plants, and wildlife. Receptor-specific soil screening levels were also exceeded for plants, herbivorous and insectivorous birds and insectivorous and carnivorous mammals. As such, the CSE Phase II (Sky, 2012) recommended additional ecological investigation for SR001.

A MRSPP ranking was calculated to assign a relative risk for SR001 in the MMRP Inventory to determine the future funding sequence of MRSs for future response activities. This ranking system uses scores of 1 through 8, 1 indicating the highest potential hazard and 8 indicating the lowest potential hazard. Based upon current conditions, the priority for SR001 is 5.

Based on the evaluations conducted, the CSE Phase II recommended the following:

SR001 MRA should be divided into two MRSs, SR001 and SR001a (Figure 3). Further munitions response was recommended for approximately 1.9 acres, designated as MRS SR001, Small Arms Range and Shooting-In Buttress and no further action (NFA) was recommended for approximately 1.8 acres, designated as MRS SR001a (Sky, 2012).



New York Air National Guard Syracuse, New York	N	FIGURE 3 CSE Phase II XRF Results, MRA SR001 Action Memorandum 174th Attack Wing, Hancock Field Air National Guard Base - Syracuse, NY		
0 50 100 200 300 400 Feet 0 25 50 100 Meters		12/18/2012	File: ANG_Hancock_XRF_SR0001_AM.mxd	
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MRS SR002: Firing-In Buttress

MRS SR002 was historically used as a backstop and safety berm for jammed ammunition rounds. It was also used by F-86 aircraft for test firing and boresight alignment (Sky, 2012). Munitions used at the MRS reportedly included small arms ammunition of various caliber (up to .50-caliber). According to an interview conducted during the CSE Phase I, this area has been inactive since at least 1976.

The CSE Phase I identified lead, copper, and iron as potential MCOCs and recommended a CSE Phase II (ITSI/Shaw, 2009). CSE Phase II activities, conducted in 2010, included visual surveys, XRF sampling of surface and subsurface soil, a human health risk assessment, and an ecological risk assessment (Sky, 2012).

During the CSE Phase II, evidence of small arms use was observed (Figure 4) and included the following:

- blank 5.56-mm casings;
- plastic small arms 5.56-mm magazine; and,
- .50 caliber steel cores.

In addition to the small arms identified during the visual inspection, 20-mm target practice MD and a rocket spacer were observed (Sky, 2011).

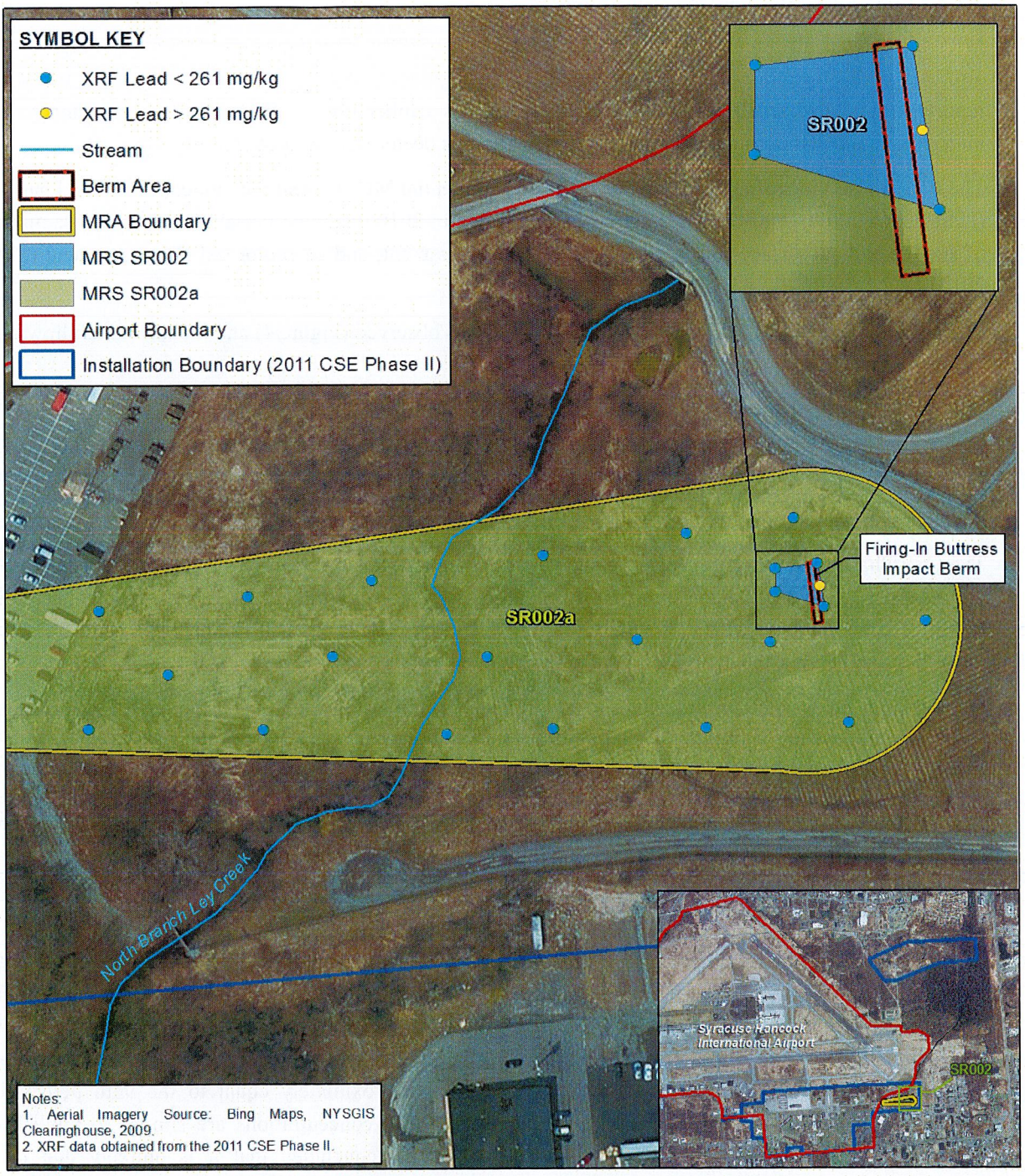
The CSE Phase I identified copper, lead and iron as potential MCOCs. However, since lead is considered the most pervasive of these constituents, it was used as the primary indicator parameter to delineate the extent of contamination within SR002 during the CSE Phase II. XRF soil samples collected from the range floor and berms and analyzed in the field exhibited results

ranging from below the detection limit to 585 mg/kg. Three samples exceeded the modified screening level for lead (261 mg/kg) at depths ranging from 0 to 18 inches bgs. These samples were located within and at the center of the Firing-In Buttress (Sky, 2012).

To evaluate potential risks to human health, a SLHHRA was performed for MRS SR002. The results indicated that lead concentrations may present a human health risk under a residential land use scenario. Based on the results of the CSE Phase II, further munitions response was recommended for MRS SR002 (Sky, 2012).

A focused SLERA was completed to assess potential adverse impacts on current or future ecological receptors exposed to MC in surface soil at MRSs SR001 and SR002. Results indicated that maximum lead concentrations exceeded the ecological risk screening criterion intended to be protective of soil invertebrates, plants and wildlife. However, mean surface soil concentrations exceeded screening criteria for only the most sensitive receptor category, and were approximately equal to the 95th percentile background concentration for the eastern U.S. Because mean concentrations are similar to published regional background values, the CSE Phase II (Sky, 2012) concluded that it is unlikely that lead concentrations at SR002 represent unacceptable risk to ecological populations.

A MRSPP ranking was calculated to assign a relative risk for SR002 in the MMRP Inventory to determine the future funding sequence of MRSs for future response activities. Based upon current conditions, the priority for SR002 is 5.



New York Air National Guard Syracuse, New York	N	FIGURE 4 CSE Phase II Results, MRA SR002 Action Memorandum 174th Attack Wing, Hancock Field Air National Guard Base - Syracuse, NY	
0 125 250 375 500 Feet 0 25 50 100 150 Meters		06/22/2012	File: ANG_Hancock_XRF_SR0002_AM.mxd
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Based on the evaluations conducted, the CSE Phase II recommended the following:

- SR002 MRA should be divided into two MRSs, SR002 and SR002a (Figure 4). Further munitions response was recommended for approximately 0.1 acres, designated as MRS SR002, Firing-In Buttress and NFA was recommended for approximately 5.7 acres, designated as MRS SR002a (Sky, 2012).

2.1.2 Physical Location and Site Characteristics

Hancock Field is located at the Syracuse Hancock International Airport, approximately 5 miles north of the City of Syracuse in Onondaga County, New York (Figure 1). With a physical address of 6001 East Molloy Rd. Syracuse, NY 13211, the Base encompasses approximately 357 acres located on land leased by both the airport authority and the City of Syracuse. As shown on Figure 2, the Base is located on two tracts of land (Tract II and III). Tract II encompasses approximately 87 acres and includes MRS SR001 and Tract III encompasses approximately 270 acres and includes MRS SR0002. Both tracts are owned by the United States Air Force (fee-owned) with a license to New York State for ANG use. The City of Syracuse owns the land bordering Tract II and land north of Tract III. Within a two-mile radius of the ANGB, there are over 26 inhabited buildings, including educational facilities, churches, hospitals, commercial buildings and parks. There are approximately 579 persons per square mile in Onondaga County (Sky, 2012).

The climate at Hancock Field is mild during summer and very cold during winter with abundant precipitation. Monthly mean high temperature ranges from 31 degrees Fahrenheit (°F) in January to 82°F in July. Monthly mean low temperature ranges from 15°F in January to 60°F in July. Average annual precipitation is approximately 38.3 inches. Annual mean snowfall is approximately 107.1 inches (ITSI/Shaw, 2009).

Hancock Field is located within the Ontario-Mohawk Lowland Region of the Central Lowland Physiographic Province, which extends to Buffalo, New York. This province has a relatively flat topography created by glacial erosion and deposition during the Wisconsin Glaciation. The installation is part of an area of flat lowlands situated between Lake Ontario and the Onondaga Escarpment in Syracuse, New York. Topography across the installation rises gradually from approximately 385 ft above mean sea level (msl) at the southeast end of the installation to approximately 425 ft above msl at the west-northwest part of the installation (ITSI/Shaw, 2009).

There are three animal species listed as endangered by the state of New York; including, two reptiles, the Bog Turtle and Eastern Massasauga Rattlesnake, and one animal species, the Black Tern, and are protected by the State. Six plant species identified within 4 miles of Syracuse are listed by the State as rare, vulnerable, or threatened, according to the NYSDEC Wildlife Resources Center. The six plant species are the Weak Stellate Sedge, Large Twayblade, Southern Twayblade, Pod Grass, Calypso, and

Marsh Valerian. It is unknown if any of the species are present at Hancock Field. No threatened or endangered species have been observed at any of the MRSs. There are no archaeological or cultural sites present at either MRS (ITSI/Shaw, 2009).

MRS SR001, Small Arms Range and Shooting-In Buttress

MRS SR001 encompasses approximately 1.9 acres of land delineated during the 2011 CSE Phase II and consists of approximately 0.63 acres located within the former small arms range and approximately 1.27 acres of land historically used as a practice grenade range.

Currently, MRS SR001 consists of vacant land with remnants of berms and small arms facilities. On-site berms consist of safety berms located on the north and south and an impact berm to the east of the site. The berms range in height from 12 to 15 ft and are densely vegetated. A concrete firing pad remains on the western extent of the range. Remnants of large target frames made of wooden utility poles are located throughout the range. Many target structures remain upright and have small arms projectiles imbedded in the front sides (ITSI/Shaw, 2009).

MRS SR002, Firing-In Buttress

MRS SR002 encompasses approximately 0.03 acres of land delineated during the CSE Phase II and consists of the Firing-In Buttress, a wood and concrete structure and the soil within the structure. The MRS consists of the Firing-In Buttress, constructed of wooden railroad ties, concrete, and sod. According to the CSE Phase I, the top of the structure is comprised of eight rows of wooden railroad ties with a concrete slab over the wooden ties and sod covering the concrete. The side supports consists of 13 rows of wooden railroad ties. The opening of the structure is approximately 15 ft high and 80 ft wide. The inside of the wooden structure contains the soil impact berm. It is not known when activities began at the site; however, it is thought that the Firing-In Buttress was used on rare occasions. Currently, MRS SR002 is vacant and contains dense vegetation consisting of shrubs and trees. The wooden portion of the Firing-In Buttress structure is still present and largely intact.

2.1.3 Release or Threatened Release into the Environment of a Hazardous Substance, Pollutant, or Contaminant

Investigations of potential MEC and MC contamination at MRSs SR001 and SR002 were completed during the CSE Phase I and II investigations (ITSI/Shaw, 2009 and Sky, 2012). MC contaminated soil was identified at both MRSs.

Small arms of various calibers were used at the two Hancock Field MRSs. During the CSE Phase II, small arms MD was observed on the surface at both MRSs. Additionally, due to soil at the small arms range (SR001) being reworked by large machinery for maintenance, expended munitions may be present in subsurface soils. During the CSE Phase II, surface and subsurface soil samples were analyzed for lead using an XRF analyzer. The results indicated that lead was present at concentrations that exceeded the XRF screening level of 261 mg/kg at both MRSs. At MRS SR001, lead-impacted soil was limited to an area primarily between the concrete firing line and the impact berm (Figure 3). At MRS SR002, lead-impacted soil was limited to an area within and directly in front of the Firing-In Buttress (Figure 4). In

general, lead concentrations above the screening level were limited to the top 6 inches of soil. However, at two locations within MRS SR001 and one location at MRS SR002, lead concentrations were above screening levels at depths ranging from 6 to 18 inches.

The CSE Phase I identified copper, lead, and iron as primary MCs of concern (Innovative Technical Solutions, Inc. 2009). As lead accounts for ~85% by weight of typical projectiles (ITRC 2003) and is the most pervasive constituent driving small arms range cleanup efforts, lead concentrations in soil were used to define the extent of contamination during the CSE Phase II (Sky, 2012). The Environmental Restoration Program, Air National Guard Investigation Guidance (ANG 2009) and the Characterization and Remediation of Soils at Closed Small Arms Firing Ranges (ITRC 2003) indicate that antimony, arsenic, copper, iron, tin, and zinc are also common metals found in small arms range soils. However, iron, tin and zinc are essential trace elements and are generally not associated with negative health effects. Antimony and arsenic are not essential trace elements but can be present under natural soil conditions and generally constitute less than 2% of the projectile by weight. For these reasons, iron, zinc, tin, arsenic and antimony will not be analyzed in soil during the NTCRA. However, copper is used in bullet jackets and can constitute upwards of 30% of typical small arms munitions by weight. Therefore, copper will be analyzed along with lead in determining the excavation extents during the NTCRA.

2.1.4 National Priority List Status

Hancock Field is not listed on the National Priority List (NPL) and is not proposed for the NPL. The MRSs associated with the removal action proposed in this AM are being addressed under the MMRP, which follows the CERCLA process.

2.1.5 Maps, Pictures, and Other Graphic Representations

Figure 1 presents a location map for Hancock Field. Figure 2 illustrates the locations of the MRSs selected for the proposed NTCRA. Figures 3 and 4 illustrate the results of the CSE Phase II (Sky, 2012) and illustrates the excavation extents for the proposed NTCRA at MRSs SR001 and SR002.

2.2 OTHER ACTIONS TO DATE

2.2.1 Previous Actions

Previous investigations have been conducted at Hancock Field to determine the potential for munitions related sites and associated contamination. A Modified CSE Phase I was completed to identify potential MRAs, evaluate actual or potential releases of MC to the environment, and to evaluate associated targets of concern. A CSE Phase II was conducted to determine whether releases of MC to the environment had occurred, determine if there was a need for an emergency response, and/or whether other munitions response actions were necessary. The CSE Phase II identified two MRSs, SR001 and SR002 requiring further evaluation and/or response. It was recommended that a NTCRA be performed at these two MRSs to remove soils impacted by MC. To date, there have been no removal or remedial actions conducted at SR001 or SR002.

2.2.2 Current Actions

There are no additional activities currently being conducted regarding MRSs SR001 and SR002.

2.3 FEDERAL, STATE, AND LOCAL AUTHORITIES' ROLE

2.3.1 Federal Actions to Date

The proposed NTCRA will be conducted in accordance with: 1) the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations [CFR] Part 300); 2)the Comprehensive Environmental Response Compensation, and Liability Act (CERCLA) of 1980 as amended by the Superfund Amendments and Reauthorization Act; 3) RCRA (40 CFR 260-266); and, 4) provisions set forth by the USEPA.

2.3.2 State and Local Actions to Date

The New York State Department of Environmental Conservation (NYSDEC) has regulatory authority over the NTCRA and has provided technical guidance regarding previous investigations.

2.3.3 Potential for Continued Federal/State/Local Response

The ANG will lead the proposed NTCRA effort and fully anticipates that NYSDEC will continue to be involved in future response actions.

3.0 THREATS TO PUBLIC HEALTH, WELFARE, OR THE ENVIRONMENT

Section 300.415(b)(2) of the NCP provides factors for determining the appropriateness of a removal action. Factors that the USEPA considers when determining whether a removal action is appropriate are:

i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

ii. Actual or potential contamination of drinking water supplies or sensitive ecosystems;

iii. Hazardous substances or pollutants or contaminants in drums, barrels, tanks or other bulk storage contaminated that may pose a threat of release;

iv. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate;

v. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;

vi. Threat of fire or explosion;

vii. The availability of other appropriate federal or state response mechanisms to respond to the release; and

viii. Other situations that may pose threats to public health or welfare or the environment.

The factors most applicable to the current conditions at Hancock Field are factors (i) and (iv) as detailed below.

i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.

The results of the SLHHRA completed as part of the CSE Phase II indicate that lead is present at concentrations that may present a human health risk under a residential land use scenario (Sky, 2012). Exposure pathways are complete for humans and biota through contaminated surface and subsurface soil, and to biota through the food chain in MRSs SR001 and SR002. Based on the results of soil sampling, the sediment/surface water pathway was considered incomplete and it is unlikely that groundwater has been impacted by lead. However, since groundwater has not been characterized, groundwater represents a potential pathway for future residents, on-site workers, and biota via dermal contact and ingestion. Potential receptors for subsurface soil would include future residents, on-site workers, and biota via dermal contact, ingestion, and inhalation. Potential receptors of surface soil include future residents, on-site workers, visitors/trespassers, and biota via dermal contact, ingestion, and inhalation of dust particles containing lead.

iv. High levels of hazardous substances or pollutants, or contaminants in soils largely at or near the surface that may migrate.

Analytical data from the CSE Phase I/II investigations at MRSs SR001 and SR002 identified lead impacted soil from 0 to 2 feet below ground surface at concentrations as high as 5,200 mg/kg at MRS SR001, and 585 mg/kg at MRS SR002, exceeding the XRF screening levels of 261 mg/kg kg. Because these impacted areas are exposed to the weather, there is a potential for the soil at MRSs SR001 and SR002 to leach or migrate into groundwater.

4.0 ENDANGERMENT DETERMINATION

Based upon the findings of the CSE Phase II (Sky, 2012), the ANG hereby makes the following determination for MRSs SR001 and SR002. Actual or threatened releases of pollutants and contaminants from these sites may present an imminent and substantial endangerment to public health, welfare, or the environment.

Through this proposed removal action, the ANG, in coordination with NYSDEC, will minimize and further reduce the long-term threat to public health, welfare, and the environment.

5.0 PROPOSED ACTIONS AND ESTIMATED COSTS

Based on the conclusions and recommendations of the CSE Phase II Report, the removal action objectives (RAOs) for impacted soils at each MRS include:

- Reducing human health risks associated with residual concentrations of lead above 400 mg/kg and copper above 270 mg/kg in soil from the use of small arms ammunition at MRSs SR001 and SR002.
- Reducing future hazards and risks by mitigating soils impacted by copper (concentrations greater than 270 mg/kg), lead (concentrations greater than 400 mg/kg), MD, munitions, small arms, and range related debris, thus reducing or eliminating the potential for migration of MCs at concentrations above human health risk standards to surrounding environmental media.

The ANG anticipates that the recommended action that will achieve the RAOs will be excavation and offsite disposal. Other actions were also considered, including no action and institutional controls, but ultimately did not protect human health or the environment or result in significant progress toward an

effective permanent solution across all media for these MRSs. The excavation and offsite disposal will minimize and further reduce the long-term threat to public health, welfare, and the environment, and the ANG estimates that the collective net present value of this removal response is $807,608.

5.1 PROPOSED ACTIONS

5.1.1 Proposed Action Description

The proposed NTCRA includes the excavation and disposal of impacted soil within MRSs SR001 and SR002. Prior to excavation, any vegetation existing at the two MRSs will be cleared and disposed of offsite with the other non-hazardous waste materials (such as construction debris). Additionally, the demolition of some range structures may be necessary to maneuver within the site. The wooden targets located throughout the small arms range floor will be demolished along with impacted portions of wooden/concrete Firing-In Buttress. Bullets found in these structures will be removed and segregated from the demolished structures. The demolished structures will be transported offsite and disposed of as non-hazardous waste.

As shown in Figure 5, areas to be excavated at MRS SR001 include portions of the range floor, preberm areas, portions of the safety berms, and the impact berm. The western portion of the small arms range will be excavated to a depth of 18 inches for a total of approximately 882 cubic yards (CY) of soil. The eastern portion of the small arms range will be excavated to a depth of 24 in. to yield approximately 793 CY of soil. To account for the berm areas, an additional base excavation volume of 88 CY (100 ft of berm x 12 ft high x 2 feet deep) was included. The total soil volume to be excavated from MRS SR001 is estimated to be 1,763 CY.

At MRS SR002, excavation will occur within the Firing-In Buttress impact berm (Figure 5). Soil within the Firing-In Buttress will be excavated to an approximate depth of 24 inches for a total of 111 CY of soil.

Combined, 1,874 CY of soil is estimated to be excavated from MRSs SR001 and SR002. Assuming an average weight of 2700 pounds per CY, approximately 2,530 tons of soil will be generated. However, actual excavation extent will be dependent upon results from confirmatory sampling and analysis.

A XRF analyzer will be used to guide the excavation to support decision making with regard to collecting confirmatory soil samples. Once XRF field screening indicates total lead concentrations are below the RAOs, a series of confirmatory soil samples will be collected from the floor and sidewall of each excavation. Confirmation sampling will be conducted using incremental sampling techniques and analyzed for lead and copper, in accordance with the guidance provided in *Protocols for Collection of Surface Soil Samples at Military Training and Testing Ranges for the Characterization of Energetic Munitions Constituents* (USACE, 2007). If XRF data indicate remaining soils are above the RAOs, additional soil will be removed in approximate 6-inch lifts, rescreened with the XRF, and additional confirmatory samples will be collected following the procedure outlined above.

The excavated soils will be characterized for disposal using the Toxicity Characteristic Leaching Procedure. Hazardous waste will be transported to a RCRA Subtitle C landfill, while the non-hazardous waste will be transported to a Subtitle D landfill for disposal. Subsequent to the soil removal, the site would be re-graded and re-vegetated.

New York Air National Guard Syracuse, New York	N	FIGURE 5 Extent of Proposed Excavation Action Memorandum 174th Attack Wing, Hancock Field Air National Guard Base - Syracuse, NY	
-SCALE AS SHOWN-		12/05/2012	File: ANG_Hancock_Excav_Areas_Alt3&4_AM.mxd
		PROJ: 912810001	Drawn: JBO

5.1.2 Contribution to Remedial Performance

The proposed removal action will, to the extent practicable, eliminate the potential risk to human health and the environment from impacted soil at MRS SR001 and MRS SR002. Upon completion of the NTCRA and based upon an UU/UE land use scenario, no further action will be recommended for MRSs SR001 and SR002.

5.1.3 Engineering Evaluation/Cost Analysis

An EE/CA (ANG, 2012) was conducted for MRS SR001 and MRS SR002 to evaluate remedial alternatives, evaluate associated costs mitigate potential hazards to human health and the environment, and establish removal action objectives. The three alternatives developed through the EE/CA are:

1. Alternative One: No Action;
2. Alternative Two: Institutional Controls; and,
3. Alternative Three: Excavation and Offsite Disposal.

The No Action Alternative (Alternative 1) involves no action to be performed under current or future land-use scenarios. No removal actions would be performed at the site, and no institutional controls such as fencing, warning signs, or land use restrictions are included in the No Action Alternative. This alternative is evaluated as a baseline comparison for other alternatives.

Alternative Two requires the implementation of institutional controls include land use controls (LUCs) and security measures. A restrictive covenant serves as a LUC that would limit future site development and could restrict excavations on the property. A restrictive covenant also serves to alert future landowners of the limits on land use or resources. Implementation of this LUC restricts the use of the property and prevents potential exposure pathways (e.g., dermal contact and ingestion of lead-impacted soil). Working with the local government to notify users through a "one call" system provides additional protection. This measure provides a warning system to potential on-site workers that may not have access to or knowledge of what is recorded in the land records (e.g., contractors and/or utility companies). Potential security measures include the construction of fencing to restrict access of unauthorized personnel to the site. Additionally, signage may be added to the fenced areas to warn visitors of the risks associated with the sites. However, the implementation of any control measures would need the approval of the responsible parties and the property owner.

Alternative Three includes the excavation and disposal of approximately 1,874 CY of lead-impacted soil within MRSs SR001 and SR002. Additionally, some range structures, such as wooden targets located throughout the small arms range floor, may be demolished along with impacted portions of the wooden/concrete Firing-In Buttress. To the extent possible, bullets found in these structures will be removed, segregated from the demolished structures and disposed as non-hazardous waste. Demolished structures containing bullets that cannot be feasibly removed or segregated from the structure will be transported offsite and disposed as hazardous waste. Recovered bullets will be segregated and recycled where possible. Soils to be excavated will be pre-characterized for lead. Should pre-characterization samples not be feasible or acceptable, excavated soil stockpiles will be sampled to determine proper management and disposal. Hazardous waste will be transported to a RCRA Subtitle C landfill, while the non-hazardous waste will be transported to a Subtitle D landfill for disposal.

The three alternatives were evaluated using the nine alternative technology selection criteria established by the NCP for evaluating alternatives. A summary of the comparison of each alternative with the evaluation criteria is presented in Table 1. The three alternatives were each given a ranking (high, medium, or low) for each of the evaluation criteria. In this analysis, the removal action alternatives were compared to each other to determine which alternative best satisfied the criteria and why. A rating of high denotes good performance in the category, moderate denotes satisfactory performance, and low denotes unsatisfactory performance.

Alternative One, No Action, rates low on all of the evaluation criteria with the exception of compliance with ARARs, implementability and cost. Due to the lack of implementation, ARARs, and costs associated with this alternative, it received a high rating for compliance with ARARs, implementability and cost.

Alternative Two, Institutional Controls, received moderate ratings for long-term effectiveness and permanence, short-term effectiveness, implementability, and cost. Because this alternative does not remove the residual risks associated with untreated soil, this alternative received low ratings on all other criteria, with the exception of compliance with ARARs. While this alternative will not achieve RAOs, ARARs would be complied with during the implementation of this alternative.

Alternative Three, Excavation and Offsite Disposal, received high ratings for protection of human health and the environment, compliance with ARARs, long-term effectiveness and permanence, short-term effectiveness, implementability, and state agency acceptance. These high ratings were due to this alternative removing the contamination, and thus reducing the risk associated with the site. Due to this alternative not treating the contamination and potentially requiring disposal of soil as hazardous waste, this alternative received low ratings for reducing the toxicity, mobility, and volume through treatment and cost.

Table 1. Summary of Ranking from Detailed Analysis of Removal Action Alternatives

Evaluation Criteria	Comparative Ranking and Rationale		
	Alternative 1: No Action	**Alternative 2: Institutional Controls**	**Alternative 3: Excavation and Offsite Disposal**
Overall Protection of Human Health and the Environment	**Low** Would not be protective	**Low** Would not be protective	**High** Would be protective if confirmation sampling proved that contaminants are removed.
Compliance with ARARs	**High** Would comply with ARARs.	**High** Would comply with ARARs.	**High** Would comply with ARARs and contaminants would be removed from the site.
Long-Term Effectiveness and Permanence	**Low** Would not be effective or permanent over the long-term.	**Low** Would provide effectiveness and permanence for human health if contaminants do not migrate. Is not effective in regards to the environment.	**High** Would provide long-term effectiveness and permanence at the site. Source contamination would be removed from the site. Protectiveness is achieved by the permanence of source removal.

Evaluation Criteria	Comparative Ranking and Rationale		
	Alternative 1: No Action	**Alternative 2: Institutional Controls**	**Alternative 3: Excavation and Offsite Disposal**
Reduction of Toxicity, Mobility, or Volume Through Treatment	**Low** Would not reduce toxicity, mobility, or volume of contaminant.	**Low** Would not reduce toxicity, mobility, or volume of contaminant.	**Low** Disposal reduces toxicity; removes contaminant volume from the site, thereby reducing the opportunity for contaminant mobilization. Transfers volume to offsite landfill.
Short-Term Effectiveness	**Low** No reduction in risk to the community or the environment. RAO would not be met.	**Moderate** Would reduce the risk to human health by limiting use and access. However, RAOs would not be met.	**High** Minimal risk to the community, workers, or the environment resulting from implementation if standard precautions to protect workers and local residents are implemented.
Implementability	**High** No technical or administrative activities required.	**Moderate** Would require stakeholder approval.	**High** Easy to implement. No process requirements and not labor intensive. No operations & maintenance. Approval and permits can be obtained within one year, in accordance with project specifications. Quality assurance/quality control testing required to verify compliance with TCLP thresholds.
Cost Effectiveness	**High** No cost associated with this alternative	**Moderate** Cost to implement is relatively inexpensive. Capital Costs: $67,425 O&M: $183,000 NPV: $153,000	**Low** Cost to implement (with offsite disposal of potentially hazardous waste) is relatively expensive. Capital Costs: $864,140* O&M: $0 NPV: $807,608
State/Support Agency Acceptance	**Low** Unacceptable to NYSDEC.	**Low** Unacceptable to NYSDEC due to concentrations of COCs remaining on-site.	**High** Likely to be acceptable to NYSDEC.
Community Acceptance	**Low** Likely to be unacceptable to the community.	**Moderate** Likely to be acceptable to the community.	**Moderate** Likely to be acceptable to the community; However, community concerns may arise due to the transportation of potentially hazardous waste on public roadways. Steps will be made to reduce this risk.

Ranking:

High = Good performance in the category.
Moderate = Satisfactory performance in the category.
Low = Unsatisfactory performance in the category.

Notes:

* Includes 10% contingency

Based on this assessment, it was determined that Alternative Three: Excavation and Offsite Disposal could meet the complete removal action goal for Hancock Field. The EE/CA is available for the public at the following location:

Onondaga County Public Library
447 South Salina Street
Syracuse, NY 13202
(315) 435-1900

The EE/CA will be advertised in the Syracuse Post-Standard and will be available for public comment from 13 May through 13 June 2013. Public comments and responses to public comments on the selection of the preferred alternative will be incorporated into the Final Action Memorandum.

5.1.4 ARARs

Pursuant to 40 CFR 300.415(j), removal actions shall, to the extent practicable considering the exigencies of the situation, attain ARARs. ARARs are environmental and/or public health statutes regulations, ordinances, and guidance pertaining to all aspects of potential clean-up actions. This information influences the development of removal action alternatives by establishing numerical clean-up levels, permitting, siting, disposal, operating parameters, health and safety, and monitoring standards.

There are five criteria that must be met for a standard, requirement, criteria, or limitation to be considered an ARAR, including:

1. The requirement must be promulgated;
2. The requirement must be related to a Federal/State environmental law or state siting law;
3. The requirement must be substantive;
4. The requirement must be a cleanup standard, standard of control, or requirement that specifically addresses a CERCLA hazardous substance, pollutant, or contaminant; remedial action; or remedial location; and,
5. The requirement must be applicable or relevant and appropriate.

Non-promulgated advisories or guidance issued by federal or state governments are not legally binding and do not have the status of ARARs. Such requirements may; however, be useful and are "to be considered" (TBC). TBC requirements [40 Code of Federal Regulations (CFR) §300.400(g)(3)] complement ARARs but do not override them. They are useful for guiding decisions regarding cleanup levels or methodologies when regulatory standards are not available. Table 2 provides a list of the practicable federal and state ARARs and TBC information for the removal action at MRSs SR001 and SR002.

Table 2. Appropriate, Relevant and Applicable Requirements

Standard, Requirement, Criteria, or Limitation	Description	Status
Federal Requirements		
USEPA Regional Screening Level (RSL), November 2011	Chemical-specific criterion that provides calculated generic soil remediation objectives that are deemed protective of human health.	TBC
CFR Title 40 Part 266, Subpart M: *Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities – Military Munitions*	Action-specific standards that provide guidance for when military munitions become solid waste.	ARAR
State Requirements		
6 New York Codes, Rules, and Regulations (NYCRR), Part 375 (Environmental Remediation programs), Subpart 375-6 (Remedial Program Soil Cleanup Objectives)	Action- and location-specific requirements that provide soil cleanup objectives for restricted and unrestricted site closure.	ARAR
NYSDEC, CP51/Soil Cleanup Guidance	Chemical-specific criterion providing the framework and procedures for the selection of soil cleanup levels appropriate at each remedial programs in the NYSDEC Division of Environmental Remediation (lead – 400 mg/kg and copper at 270 mg/kg).	TBC

5.1.5 Project Schedule

Table 3 presents a schedule of upcoming deliverables. This schedule is intended as an overview of upcoming project deliverables within the overall timeline associated with the NTCRA proposed for MRSs SR001 and SR002 at Hancock Field.

Table 5. Upcoming Deliverable Schedule

Key Schedule Items	Approximate Dates for Finalization
Action Memorandum	May 2013
NTCRA Work Plan	July 2013
NTCRA (Field Activities)	August through September 2013
After Action Report	January 2014

5.2 ESTIMATED COST

The ANG anticipates that net present value of the recommended removal response option will be approximately $807,608. The capital costs include site preparation, site controls, soil excavation, confirmatory sampling and analysis, site grading, materials, backfilling of excavation areas, site restoration, and off-site disposal. The breakdown of the excavation and offsite disposal costs for MRS SR001 and MRS SR002 as determined in the EE/CA (ANG, 2012) are:

Capital Costs:

- Project Preparation
  - Mobilization/Demobilization = $31,882
  - Site Preparation = $170,491
  - Field Oversight = $19,896
  - Project Management = $2,257
- Soil Excavation
  - Excavate, Load, Transport, and Disposal (Non-Hazardous) = $40,081
  - Excavate, Load, Transport, and Disposal (Hazardous) = $465,010
  - Analytical Costs = $15,000
  - Field Oversight = $23,212
  - Project Management = $2,632
- Site Restoration
  - Safe Grading = $6,925
  - Hydroseeding, Fertilizer, and Mulch = $6,777
- Reporting
  - Action Memorandum = $11,500
  - Non-Time Critical Removal Action Work Plan = $17,500
  - Non-Time Critical Removal Action Completion Report = $12,500

Total Capital Costs = $785,582

Operations & Maintenance Costs = None ($0)

Contingency (10%) = $78,558

Total Cost = $864,140

Net Present Value (NPV): $807,608. NPV assumed a discount rate of 7% and calculated from when vendor quotes were obtained (January 2012). NPV also assumed project work will be conducted in September 2012.

6.0 EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Delayed action may increase human health associated with prolonged exposure to lead in soil at the MRSs. No other changes to the situation are expected that will alter the nature of contamination or increase threats to human health and the environment at the MRSs.

7.0 OUTSTANDING POLICY ISSUE

None.

8.0 ENFORCEMENT

The ANG is the lead agency and is implementing this NTCRA under the Defense Environmental Restoration Program and in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act, as amended by Superfund Amendments and Reauthorization Act, and the National Oil and Hazardous Substance Pollution Contingency Plan. The ANG will coordinate with and solicit input from the NYSDEC on this NTCR, which is the agency having regulatory oversight.

Hancock Field is not on the NPL and there are no Federal Facility Agreements in place. Currently, there are no enforcement actions in place at Hancock Field.

9.0 RECOMMENDATION

This decision document represents the selected removal action for MRSs SR001 and SR002 located at Hancock Field, New York, developed in accordance with CERCLA, as amended, and is consistent with the NCP. As detailed in previous sections, the conditions at Hancock Field meet the NCP section 300.415(b) criteria for a removal action and I recommend your approval of the proposed removal action. The ANG estimates that the approximate net present value of these various removal responses is approximately $807,608.

Approve: _____ Date: _____

Benjamin W. Lawless, P.E., GS-15
Chief, Operations division
Installations and Mission Support Directorate
Air National Guard

10.0 REFERENCES

40 CFR, Part 300. National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

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