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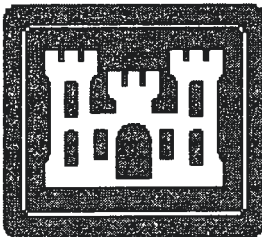
**FINAL**

**COLONIE FUSRAP SITE  
VICINITY PROPERTY OPERABLE UNIT  
PROPOSED PLAN**

**Colonie FUSRAP Site**

January 2017

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**U.S. Army Corps of Engineers  
New York District Office**

**Formerly Utilized Sites Remedial Action Program**

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**ACRONYMS AND ABBREVIATIONS**

<b>CERCLA</b>	Comprehensive Environmental Response, Compensation, and Liability Act
<b>CSX</b>	CSX Corporation
<b>DOE</b>	U.S. Department of Energy
<b>EPA</b>	U.S. Environmental Protection Agency
<b>FUSRAP</b>	Formerly Utilized Sites Remedial Action Program
<b>MARSSIM</b>	Multi-Agency Radiation Survey and Site Investigation Manual
<b>m<sup>2</sup></b>	square meters
<b>NCP</b>	National Oil and Hazardous Substances Pollution Contingency Plan
<b>NiMo</b>	Niagara Mohawk
<b>NL</b>	National Lead Industries
<b>NYSDEC</b>	New York State Department of Environmental Conservation
<b>pCi/g</b>	picocuries per gram
<b>RI</b>	Remedial Investigation
<b>ROD</b>	Record of Decision
<b><sup>238</sup>U</b>	Uranium-238
<b>USACE</b>	U.S. Army Corps of Engineers

## GLOSSARY OF TERMS

*Select technical terms are defined below for reference purposes. Unless specified otherwise, terms defined in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, 42 U.S.C. §9600 et. seq.) or the National Oil and Hazardous Substances Pollution Contingency Plan (NCP, 40 C.F.R. §300) are defined in the same way in this document.*

**Class 1 Survey Unit:** An area that has, or had prior to remediation, a potential for radioactive contamination. Classification is based on the sites operating history or previous contamination surveys which confirm the presence of contamination. A Class 1 area requires a Class 1 final status survey because it has been (1) impacted; (2) potential for delivering a dose above the release criterion; (3) potential for small areas of elevated activity; and (4) insufficient evident to support reclassification as Class 2 or Class 3 (MARSSIM, 2000).

**Final Status Survey:** Measurements and sampling to describe the radiological conditions of a site, following completion of decontamination activities or response actions (if any) in preparation for release (MARSSIM, 2000).

**Five-Year Review:** Under CERCLA, a Five-Year Review is required if a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure. The review provides an opportunity to evaluate the effectiveness of the remedy and whether it remains protective of human health and the environment.

**Formerly Utilized Sites Remedial Action Program (FUSRAP):** The FUSRAP program was initiated in 1974 to identify, investigate, and clean up sites throughout the United States that had become contaminated from the nation's early atomic weapons and energy programs. The program focuses on protecting human health and the environment throughout the investigation and cleanup phases. In accordance with Congress, DoE's focus is on the overall environmental impacts to the site, while USACE's focus is specifically on contamination that resulted from the early atomic energy program.

**Multi-Agency Radiation Site Survey and Investigation Manual (MARSSIM):** Provides detailed guidance for planning, implementing, and evaluating radiological surveys conducted to demonstrate compliance with a dose- or risk-based regulation. It was jointly developed by the Departments of Defense and Energy, the Environmental Protection Agency, and the Nuclear Regulatory Commission (2000).

**Operable Unit:** A discrete portion of a site for which the response action comprises an incremental step toward comprehensively addressing site problems. At the Colonie Site there are three separate Operable Units for Main Site Soil, Groundwater and the Vicinity Properties addressed by both the Department of Energy and the U.S. Army Corps of Engineers.

**Unrestricted Release:** Release of a site from regulatory control without requirements for future radiological restrictions. Also known as unrestricted use.

**Vicinity Property:** A parcel of land, together with any improvements thereon, which is located outside the boundary of an eligible FUSRAP site, is adjacent to or near such a site (but not necessarily contiguous), and is known or suspected to be contaminated with radioactive and/or hazardous substance resulting from work performed as part of the nation's early atomic energy program.

## 1.0 INTRODUCTION

The U.S. Army Corps of Engineers (USACE)-New York District is conducting the environmental restoration of the Formerly Utilized Sites Remedial Action Program (FUSRAP) Colonie Site. The Colonie FUSRAP Site consists of the Main Site and 56 Vicinity Properties. The Main Site is an 11.2-acre area where past industrial operations took place. The Vicinity Properties are residential and commercial properties in the vicinity of the Main Site that have been found eligible for study to determine whether they may have been impacted by past site operations. The Colonie FUSRAP Site has been divided into three separate operable units for the purpose of addressing restoration of the site in a systematic manner. These three operable units are the Main Site Soils Operable Unit, the Groundwater Operable Unit, and the Vicinity Properties Operable Unit. The Vicinity Properties Operable Unit is the subject of this Proposed Plan. The USACE-Baltimore District is providing technical support to the USACE-New York District for Vicinity Properties soils and dust work, which includes the development of this Proposed Plan.

The Colonie Main Site was originally owned and operated by National Lead Industries (NL) from 1937 to 1984. Authority for remediating the Main Site was assigned to the U.S. Department of Energy (DOE) by Congress through the *Energy and Water Development Appropriations Act* of 1984. In October 1997, authority for executing FUSRAP remediation activities was transferred from the DOE to the USACE by further Congressional action.

The USACE is utilizing the administrative, procedural, and regulatory provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S. Code Section (§) 9601, et. seq, and the *National Oil and Hazardous Substances Pollution Contingency Plan (NCP)*, 40 Code of Federal Regulations Part 300, to guide the remediation process at the Colonie FUSRAP Site. In accordance with CERCLA, this Proposed Plan presents the preferred alternative for the Vicinity Properties Operable Unit of the Colonie FUSRAP Site and is made available to the general public for review and comment either in writing or in person during a public comment period and a public meeting to be held locally during the comment period.

### 1.1 Purpose of Proposed Plan

This Proposed Plan describes the recommendations for all impacted media including contaminated soils and dust at the Colonie Vicinity Properties, and presents the supporting rationale. A listing of the Vicinity Properties addressed under this Proposed Plan is presented in Table 1. A separate Proposed Plan addresses the recommended response action for the Main Site: *Colonie FUSRAP Soils – Main Site Proposed Plan* (USACE, 2013a). The Vicinity Properties Operable Unit characteristics and previous Vicinity Properties removal actions summarized herein are described in additional detail in the following documents:

- *Action Memorandum: October 10, 2001, Revised Department of Energy Action Memorandum, dated February 14, 1997: Soil Removal at the Colonie Site*, (USACE, 2001)
- *Action Memorandum: Removal Action at the CSX Vicinity Property Adjacent to the FUSRAP Colonie Site* (USACE, 2006)

- *Technical Memorandum, Vicinity Property Assessment, Colonie FUSRAP Site, Colonie, New York (USACE, 2010a)*
- *Investigation of Two Colonie FUSRAP Site Vicinity Properties (USACE, 2012a)*
- *CSX and 50 Yardboro Avenue Vicinity Property Closure, Colonie FUSRAP Site, Colonie New York (USACE, 2013b).*
- *Confirmation Dust Sampling Report for the Colonie FUSRAP Site Vicinity Properties (USACE, 2012b)*
- *Colonie FUSRAP Site Vicinity Property Operable Unit Remedial Investigation Summary Report (USACE, 2016)*

This Proposed Plan will:

- 1) Inform the public of the USACE's recommendations for soil and dust for the Vicinity Properties.
- 2) Solicit public comments on the recommendations.

Previous removal actions (with the exception of dust) conducted by the DOE and the USACE for all of the Vicinity Properties have proved to be protective of human health and the environment, and have eliminated the need for additional remedial action. The USACE has determined that removal actions conducted to date at the Vicinity Properties for soil allow for the properties' unrestricted release, (i.e., cleanup action complete and property suitable for reuse with no requirements for land use restrictions or controls as documented in the Technical Memorandum, Vicinity Property Assessment and approved by the New York State Department of Environmental Conservation [NYSDEC]). Dust sampling results for residential and commercial Vicinity Properties showed that uranium was detected above background concentrations; however, in accordance with CERCLA and the NCP, the concentrations do not pose an unacceptable risk to current and future residents and workers.

The soils recommendation for the Colonie FUSRAP Vicinity Properties is No Further Action.

The dust recommendation for the Colonie FUSRAP Vicinity Properties is No Further Action.

Remedial action objectives have been met for all media (i.e., soil and dust) addressed within the Vicinity Property Operable Unit. As such, a Five-Year Review is not required for the Vicinity Property Operable Unit under CERCLA.

## **1.2 Public Participation**

The USACE is the lead agency for this CERCLA response action. The NYSDEC is the lead regulatory agency for the Vicinity Properties, and provides oversight and regulatory support. The USACE also coordinates with the New York State Department of Health and the Albany County Department of Health.

Public participation in the Colonie Site record is encouraged. The USACE is requesting public input on its recommendations at the Colonie Vicinity Properties. A Public Review and Comment Period and a Public Meeting will be held as detailed below.

### **Public Review and Comment Period**

This Proposed Plan is available for public review at the William K. Sanford Town Library, 629 Albany Shaker Road, Loudonville, New York 12211. The public comment period will be held from January 12, 2017 to February 13, 2017. Written comments on the Proposed Plan can be made and will be accepted for 30 days following public notice in local newspapers. Written comments will be accepted by the USACE at any time during the comment period, and should be submitted to:

U.S. Army Corp of Engineers, New York District  
Attn: James Moore, CENAN-PP-E  
26 Federal Plaza, Room 1811  
New York, New York, 10278-0090.

### **Public Meeting**

The USACE will hold a public meeting during the public comment period at the West Albany Fire Company No. 2, 36 Osborne Road, Colonie, New York on Wednesday February 1, 2017 at 7:00 p.m. EST to present the conclusions contained within this Proposed Plan, elaborate further on the reasons for proposing No Further Action, and solicit public comments.

After the public comment period has ended, the USACE will review and respond to all comments received during the specified comment period. The USACE will then select and document the decision for the Vicinity Properties in a Record of Decision (ROD). Additional information on the public comment period is presented in Section 7.0 of this plan.



## 2.0 SITE BACKGROUND

The Colonie FUSRAP Site consists of the 11.2-acre Main Site and 56 Vicinity Properties and has been divided into three operable units (Main Site Soils, Groundwater, and Vicinity Properties) for the purpose of investigation and cleanup. The Vicinity Properties with the exception of one (the Town of Colonie Vicinity Property addressed under the Main Site Soils Operable Unit) are the subject of this Proposed Plan. The Main Site is located at 1130 Central Avenue (New York State Route 5) in the Town of Colonie, Albany County, New York (Figure 1). Details on the site background are presented in the Action Memorandums (USACE, 2001; USACE 2006) and summarized below.

In October 1983, the DOE performed detailed radiological surveys designed to locate those Vicinity Properties where uranium concentrations were found to exceed the cleanup guidelines as agreed to by the State of New York and the DOE (35 picocuries per gram [pCi/g]). These surveys identified 56 Vicinity Properties that required cleanup (Figure 2). The DOE conducted soil removal activities at 53 of the 56 Vicinity Properties in 1984, 1985, and 1988. The soil removal activities were documented in the *Certification Docket for the Remedial Action Performed at the Colonie Interim Storage Site Vicinity Properties in Colonie and Albany, NY in 1984 and 1985* (DOE, 1989), and the *Certification Docket for the Remedial Action Performed at the Colonie Interim Storage Site Vicinity Properties in Colonie and Albany, NY in 1988* (DOE, 1990a).

Of the three remaining Vicinity Properties (Town of Colonie Property, the CSX Corporation [CSX, formerly the Conrail Railroad] Property, and the Niagara Mohawk [NiMo] Electrical Power Substation), the Town of Colonie and CSX Vicinity Properties were subsequently cleaned up during removal actions conducted by the USACE, along with the Main Site soils and groundwater. The NiMo Vicinity Property did not require remediation.

This Proposed Plan addresses the Vicinity Property soils and uranium dust. The USACE remedial action decisions for the Colonie Site groundwater are addressed in the *Colonie FUSRAP Site Record of Decision, Colonie Site Groundwater* (USACE, 2010b), and the USACE remedial action decisions for the Colonie Main Site soil are presented in the *Colonie FUSRAP Site, Colonie Main Site Soils Record of Decision* (USACE, 2015).

### 2.1 Site Description

As shown in Figure 3, the Vicinity Properties consist of residential and active commercial properties mainly along Central Avenue and Yardboro Avenue. Properties are located in both the Town of Colonie and the City of Albany, New York. The CSX Vicinity Property including the rail tracks is the predominant feature to the south of the Main Site and separates the Main Site from other Vicinity Properties along Yardboro Avenue. New York State Route 5 (Central Avenue) is the northern boundary of the Main Site and includes several Vicinity Properties.

### 2.2 Site History

Industrial operations began in approximately 1923 at the Colonie Main Site when the Embossing Company purchased a portion of the present day site to construct a manufacturing facility for wood products and toys. In 1927, Magnus Metal Company, Inc. purchased the property and

converted the facility to a brass foundry for manufacturing railroad components. Magnus Metal cast the brass components in sand molds and manufactured brass bearing housings with surfaces of babbitt metal (an alloy of lead, copper and antimony).

In 1937, NL purchased the facility and continued the brass foundry operations initiated by Magnus Metal. At some point before 1941, NL purchased an adjacent lot that contained a portion of Patroon Lake and began filling the lake with used casting sand, which contained high levels of lead and other metals. After World War II, the plant began casting aluminum parts and frames for aircraft. In 1958, the nuclear division of NL began producing items manufactured from uranium and thorium under a license issued by the Atomic Energy Commission.

From 1958 through 1984, NL carried out a number of processes using radioactive materials consisting primarily of depleted uranium but also of thorium and enriched uranium. The plant handled enriched uranium from approximately 1960 to 1972. From 1966 to 1972, NL held several contracts to manufacture fuel from enriched uranium for experimental nuclear reactors. Operations at the plant reduced depleted uranium-tetrafluoride to depleted uranium metal, which was then fabricated into shielding components, ballast weights for airplanes, and armor piercing projectiles.

In 1980, the DOE surveyed the Vicinity Properties surrounding the NL plant and determined that uranium released into the air during operations deposited on nearby residential and commercial properties and structures. Most of the dust was found in the direction of the area's prevailing winds (from the northwest and the southeast). In October 1983, the DOE performed more detailed radiological investigations of the individual Vicinity Properties to determine locations not meeting the remedial action objectives agreed upon by the State of New York and the DOE. The DOE identified 56 Vicinity Properties potentially requiring remedial action.

New York State officials closed NL in 1984, at which time Congress authorized the DOE to remediate the property. In February 1984, the Secretary of Energy accepted an offer from NL to donate the land, buildings, and equipment to the DOE in order to help expedite the cleanup.

In 1984, 1985 and 1988, 53 of the Vicinity Properties were remediated. Certification Dockets were prepared attesting to their radiological status, and all contaminated materials from remediation activities was staged on the Colonie Site pending disposal.

In 1985, the DOE acquired a portion of the NiMo property bordering the Colonie Site and subsequently designated it as part of the site.

From 1992 to 1996, the remaining NL plant buildings were demolished by the DOE. In October 1997, authority for executing FUSRAP remediation activities was transferred from the DOE to the USACE by Congressional action. By the end of 2007, the USACE had completed the removal of contaminated soils at the Main Site and the remaining three Vicinity Properties as well as at 50 Yardboro Avenue and 1118 Central Avenue.

Dust sampling at the Vicinity Property Operable Unit took place in 2012 and in 2014, and the results of these sampling efforts along with other information gathered were used in formulating the recommendations provided in this Proposed Plan.

## 2.3 Previous Removal Actions for Vicinity Properties

### 2.3.1 DOE Remedial Actions for 53 Vicinity Properties

In the 1980s, the DOE conducted remedial actions at 53 Vicinity Properties using the following cleanup criteria (USACE 2010a):

- $^{238}\text{U}$  - 35 pCi/g averaged over an area of 100 square meters ( $\text{m}^2$ ) and 5 centimeters (2 inches) in depth
- $^{238}\text{U}$  - 100 pCi/g maximum at a spot one  $\text{m}^2$  that contains more than 35 pCi/g  $^{238}\text{U}$  in the soil.

The locations of the Vicinity Properties are presented in Figure 2.

The USACE performed the *Technical Memorandum, Vicinity Property Assessment*, (USACE, 2010a) to compare the post-remedial status of the Vicinity Properties remediated by the DOE to the current soil cleanup criteria.

All of the Vicinity Properties with the exception of one met the cleanup criteria. While one individual sample result was above 35 pCi/g, (38.3 pCi/g, 1104 Central Avenue), the sample concentration met the stated soil cleanup criterion of 35 pCi/g averaged over a 100  $\text{m}^2$  area.

The remaining 52 Vicinity Properties remediated by the DOE met the remedial action objective for  $^{238}\text{U}$ .

### 2.3.2 Removal Action for the CSX Vicinity Property

The USACE conducted a removal action for soils on the 6.5-acre CSX Vicinity Property. Cleanup objectives and criterion are documented in the *CSX Vicinity Property Action Memorandum* (USACE, 2006). The USACE selected Alternative 4, Removal and Off-Site Disposal of Soil, With No Impact to the High-Speed Rail Line or the Utility Rail Spur. This alternative included the removal of soils with  $^{238}\text{U}$  concentrations greater than 96 pCi/g, as long as removal did not impact the structural integrity of the high speed rail line or the utility rail spur. The USACE derived the cleanup criterion for this Vicinity Property through the use of risk-based radiological modeling based on a “residential encroachment upon industrial land use” exposure scenario.

By August 2007, the USACE removed a total of 2,871 cubic yards of contaminated soil from the CSX Vicinity Property. Soils were not removed from underneath the utility rail spur, because they were considered inaccessible and part of the active rail line. There were three discrete locations along the rail spur in which  $^{238}\text{U}$  concentrations exceeded 96 pCi/g. A clay pipe extended from the Main Site to the CSX Vicinity Property at a depth of eight feet. Due to its proximity to the active rail line, the CSX portion of the pipe was not remediated. While a sediment sample obtained from the CSX portion did not exceed the Vicinity Property cleanup criterion for  $^{238}\text{U}$ , the actual extent, integrity, and direction of the pipe could not be verified. Detailed information regarding CSX Vicinity Property soil excavation activities is presented in the *Final Colonie FUSRAP Site CSX Vicinity Property Report* (USACE, 2008).

### **2.3.3 Limited Removal Action for Unnamed Tributary**

The USACE conducted a site investigation in 2003 for Patroon Creek, an unnamed tributary of Patroon Creek, and Three Mile Reservoir. Three Mile Reservoir is an offsite surface feature located downstream of the Main Site. Patroon Creek flows through Three Mile Reservoir prior to reaching the Hudson River. The objective of the investigation was to determine if radiological contamination potentially resulting from past activities conducted at the Colonie Site had contaminated the sediments within each surface water body. Results from the 32 sediment locations sampled were less than the radiological cleanup criteria for  $^{238}\text{U}$  (35 pCi/g). Detailed information regarding this investigation is presented in the *Site Investigation Report for the Unnamed Tributary of Patroon Creek, Patroon Creek and the Three Mile Reservoir* (USACE, 2004).

Subsequently, during the survey and sampling phase for the CSX Vicinity Property, the USACE discovered evidence suggesting that radiological contamination may have migrated off the steep southern slope and been deposited in the unnamed tributary. The USACE determined that a limited removal action in the unnamed tributary was warranted, and during March and April 2007 approximately 393 cubic yards of contaminated sediments were removed from the bed of the unnamed tributary. The USACE designated the remediated area as a Multi-Agency Radiation Site Survey and Investigation Manual (MARSSIM) Class 1 Survey Unit, and the analytical data associated with the unnamed tributary indicated full compliance with the radiological cleanup criterion of 35 pCi/g for  $^{238}\text{U}$ . The average  $^{238}\text{U}$  concentration for the eleven Final Status Survey samples was 5.1 pCi/g, with a data range of 0.5 pCi/g to 14.1 pCi/g. This limited removal action is documented in the *Final CSX Vicinity Property Report* (USACE, 2008). Based on the completion of the CSX Vicinity Property remediation, the limited removal action, and the results of the 2003 investigation (USACE, 2004), the USACE has determined that further action is not required in the unnamed tributary, Patroon Creek, or the Three Mile Reservoir.

### **2.3.4 Vicinity Property Data Gap Investigation Results**

As a follow-up to the actions previously taken at the Vicinity Properties, the USACE reviewed cleanup results relative to current standards for 53 of the 56 Vicinity Properties. Based on this review, the USACE identified two Vicinity Properties addressed by DOE as requiring additional investigation (USACE, 2010a). These were at 50 Yardboro Avenue and 1118 Central Avenue.

The property adjacent to 50 Yardboro Avenue contained elevated uranium in the back portion of the property along the south-facing railbed outslope, most likely from a drainage line beneath the CSX Rail Vicinity Property that discharged at the 50 Yardboro Avenue property boundary (USACE, 2010b). The property at 1118 Central Avenue was identified as containing elevated gross gamma readings using field instrumentation. The USACE then conducted a data gap investigation for the two Vicinity Properties in August 2011. The results are documented in the *Investigation of Two Colonie FUSRAP Site Vicinity Properties* (USACE, 2012a) and summarized below.

#### **2.3.4.1 50 Yardboro Avenue Vicinity Property**

The objective of the investigation at the 50 Yardboro Avenue Vicinity Property was to assess residual radioactivity concentrations at the location of the former drainage line outfall and

determine if it met the cleanup criterion of 35 pCi/g  $^{238}\text{U}$ . A total of 11 cubic yards of soil was removed and 22 soil samples collected. Four of the samples had  $^{238}\text{U}$  concentrations greater than 35 pCi/g (ranging from 37.6 pCi/g to 60.4 pCi/g). Based on these results, the USACE concluded that the 50 Yardboro Avenue Vicinity Property was not eligible for unrestricted release and further remediation was required (USACE, 2013b).

In June 2013, an additional 10 cubic yards of soil were removed from this location and a new drainage line was installed at the base of the railbed slope. Soil removal from the railbed slope was successfully completed as demonstrated by achievement of the remedial action objective of 35 pCi/g of  $^{238}\text{U}$  for all confirmation soil samples (USACE, 2013b). As such, the USACE has determined with NYSDEC concurrence that the 50 Yardboro Vicinity Property is eligible for unrestricted release.

#### **2.3.4.2 1118 Central Avenue Vicinity Property**

The investigation objectives for the 1118 Central Avenue Vicinity Property were to confirm that: 1) the DOE's finding that the source of elevated radioactivity in the asphalt surface that surrounds the building is natural radioactivity in bedding materials, and (2) the property is suitable for release for unrestricted use.

Samples were collected from both the asphalt/roadbed and soils beneath. The analytical results for the asphalt/roadbed material indicated that the uranium was naturally occurring. The cleanup criterion of 35 pCi/g was not exceeded in any sample; therefore, the USACE has determined with NYSDEC concurrence that this Vicinity Property is eligible for unrestricted release.

#### **2.3.5 Confirmation Dust Sampling Results**

In 2011, the USACE performed confirmation sampling at four Vicinity Property locations to verify the findings of an independent study performed in 2009 (known as the Lloyd Study) (Lloyd, et. al., 2009). A summary of the USACE's confirmation sampling is presented in the *Confirmation Dust Sampling Report* (USACE, 2012b). Results of the Lloyd Study indicated that residual uranium was detected at concentrations ranging from non-detectable to 1,065 milligram per kilogram (i.e., 426 pCi total uranium activity per gram of dust) in dust samples collected at the four Vicinity Properties in non-living, uninhabited areas such as basements, attics, and garages. The objective of the confirmation dust sampling project was to confirm the 2009 Lloyd assessment of uranium concentrations in non-living areas of the following Vicinity Properties:

- 1144 Central Avenue
- 1144A Central Avenue
- 1148 Central Avenue
- 78 Yardboro Avenue.

The locations of the Vicinity Properties are shown in Figure 2. The field work was performed between August 11 and August 19, 2011. As documented in the *Confirmation Dust Sampling Report* (USACE, 2012b), dust samples were collected from four non-living areas in separate locations at the individual Vicinity Properties. The 2011 USACE confirmation dust sampling data confirmed that select Vicinity Properties have low levels of radiologically-impacted dust

located in the uninhabited areas. The analytical data confirmed the results of the 2009 Lloyd Study.

Additional actions were performed at select Vicinity Properties since that time and NYSDEC has approved the cleanup of all Vicinity Properties. The additional actions are summarized in Sections 2.3.1 through 2.3.5.

### ***2.3.6 2014-2015 Vicinity Property Operable Unit Remedial Investigation Results***

After addressing media such as groundwater, soil, and other materials (e.g., roofing shingles, etc.) related to the Main Site and Vicinity Properties, a remedial investigation (RI) was performed to further evaluate levels of uranium in dust at select representative residential and commercial Vicinity Properties.

In 2014-2015, the USACE performed additional dust sampling for the presence of uranium at 12 Vicinity Property locations (including eight residential, three commercial, and one mixed residential/commercial use) as a part of the remedial investigation (RI) to assess current conditions of selected Vicinity Properties. The specialized sampling methodology, data results, and baseline risk assessment are presented in the *Vicinity Property Operable Unit Remedial Investigation Report* (USACE, 2016). This report is a part of the Colonie FUSRAP Site Administrative Record and is available to the public.

The purpose of the RI was to: 1) present data reflecting the current conditions of dust at representative Vicinity Properties (i.e., individually owned residential and commercial properties that surround the Colonie Main Site), 2) prepare a baseline risk assessment based on the data collected, and 3) provide an evaluation of the properties previously addressed by DOE (specifically at the Vicinity Property Operable Unit) to determine compliance with the Main Site Soils ROD. The information gathered during the RI was intended to describe the current nature and extent of uranium dust in sufficient detail to determine risk and aid in the development and evaluation of alternatives consistent with the CERCLA process if needed. Table 1 provides a listing of the residential and commercial Vicinity Properties sampled during this effort. At the individual Vicinity Properties, the basic sampling strategy was to collect dust for uranium analysis from living and non-living areas of the residential Vicinity Properties and from limited- and high-use areas of the commercial Vicinity Properties.

The dust sampling data showed that the highest concentrations observed were all in non-living areas (e.g., attics, basements, garages, etc.); furthermore, non-living areas contained the highest concentrations within each of the properties sampled regardless of whether that property was commercial or residential. As presented in the *Vicinity Property Operable Unit Remedial Investigation Report* (USACE, 2016), the baseline risk assessment concluded that the uranium concentrations do not pose an unacceptable risk in accordance with CERCLA and the NCP. Additional conclusions supporting this assertion were presented in the *Vicinity Property Operable Unit Remedial Investigation Report* (USACE, 2016) as follows:

- Uranium was detected in dust samples at residential and commercial Vicinity Properties above background concentrations. The concentrations do not pose an unacceptable risk in accordance with CERCLA and the NCP.

- Though not all Vicinity Properties were sampled, those that were sampled are representative of all Vicinity Properties.
- Analysis of the DOE and USACE cleanup actions at Vicinity Properties indicates that all properties are in compliance with the Main Site Soils ROD (USACE, 2015).
- Based on the available information, the USACE recommends “No Further Action” for dust at all Vicinity Properties.

NYSDEC concurs with the conclusions of the Vicinity Property Operable Unit RI Report.

### 3.0 VICINITY PROPERTY CHARACTERISTICS

This section provides a brief summary of the characteristics of the Vicinity Property Operable Unit, compiled from results of previous investigations conducted in support of FUSRAP cleanup activities.

The Vicinity Properties currently include residential and active commercial properties, including the high speed rail line associated with the CSX Rail Vicinity Property. The Vicinity Properties have been impacted by radiological contaminants from historical airborne releases during manufacturing and erosional processes from the Main Site. The property at 50 Yardboro Avenue was also contaminated by historical discharge from a storm water outfall that ran below the CSX Rail Vicinity Property. The outfall is no longer present.

Based on the results of previous removal actions, the remedial action objectives have been met for unrestricted release of the properties. The NYSDEC concurs with this conclusion as stated in their July 22, 2016 correspondence (NYSDEC, 2016).

The Vicinity Property Operable Unit RI (USACE, 2016) concluded that dust present in representative residential and commercial properties surrounding the Colonie FUSRAP Site property contains concentrations of uranium; however those concentrations pose no unacceptable risk to the inhabitants.

#### 3.1 Physical Characteristics of the Study Area

The land that comprises the Vicinity Property Operable Unit is relatively flat and slopes gently from the northwest to the south-southeast. An unnamed tributary of Patroon Creek discharges into Patroon Creek south of the Colonie Main Site in the area of the Vicinity Properties located on Yardboro Avenue. Patroon Creek is a perennial stream that drains an area of approximately 13 square miles in the Town of Colonie and the City of Albany. The drainage basin is mostly urban with commercial and residential properties. The creek is approximately seven miles long, from its headwaters to its discharge into the Hudson River.

##### 3.1.1 Geologic Setting

The primary geologic feature in the vicinity of the Vicinity Property Operable Unit is the Colonie Channel, which is a buried, glacially-scoured valley that occupies the Hudson-Champlain Lowlands of east-central New York. Like the Hudson River Valley of today, the Colonie Channel was the main artery of the river system draining the lowlands of eastern New York during pre-glacial times. Most of the unconsolidated sediments above the bedrock present at the Vicinity Property Operable Unit were deposited in glacial Lake Albany created during continental glacier advances and retreats in the Hudson Valley.

##### 3.1.2 Groundwater Hydrology

The Upper Silt soil layer forms the shallow water-bearing zone at the Vicinity Property Operable Unit and is referred to as the upper groundwater zone. The Lower Silt forms the lower groundwater zone at the Vicinity Property Operable Unit. The Upper Clay separates the upper and the lower groundwater zones. As the Vicinity Property Operable Unit did not need investigations of groundwater, no data was collected for this media. However, the Main Site



groundwater was thoroughly investigated and descriptions of that along with decisions reached are presented in the Groundwater ROD (USACE, 2010b).

### ***3.1.3 Meteorology***

The climate at the Vicinity Property Operable Unit is typical of upstate New York. The average annual daily maximum temperature is 57.6 degrees Fahrenheit (°F), and the average daily minimum is 36.8°F. The highest average monthly temperature is 83.2°F (July), and the lowest is 11.9°F (January). Average precipitation is 35.7 inches, with an average annual snowfall of 65.1 inches. Winds in the area blow predominantly out of the south-southeast to south sector and west to west north-west sector. The mean wind speed from these sectors is 10 miles per hour. Light winds (0 to 3 miles per hour) blowing in no specified direction are also generally prevalent (BNI, 1992).

## **3.2 Current and Future Land Use**

The Vicinity Property Operable Unit is situated in an urban area consisting of both residential and commercial properties. Current land use is somewhat more residential as the Town of Colonie is the most populous suburb in Albany County with a population of over 83,000 (Town of Colonie, 2016).

The most probable future land use at the Vicinity Property Operable Unit is considered to be urban residential. In accordance with U.S. Environmental Protection Agency (EPA) guidance for selecting a site's potential future land use, current land use, site setting, zoning laws/maps, and comprehensive community master plans were examined. The Town's master plan projects future commercial use for the Central Avenue strip, and the many residential Vicinity Properties located off Central Avenue will most likely remain residential. Future projected use will result in concentrated mixed use development with high population characteristics of an urban residential scheme.

#### 4.0 SCOPE AND ROLE OF THE REMEDIAL ACTION

The overall goal is to achieve unrestricted release for each of the 56 Vicinity Properties.

Fifty-three of the 56 Vicinity Properties at which the DOE performed successful removal actions in the 1980s meet the current USACE remedial action objectives for the Colonie FUSRAP Site Vicinity Properties. Accordingly, there is no unacceptable risk at those fifty-three Vicinity Properties and the USACE proposes No Further Action for those areas.

The remaining three of the 56 Vicinity Properties (including the 1118 Central Avenue, 50 Yardboro Avenue, and Town of Colonie Vicinity Properties) also meet remedial action goals and are proposed for No Further Action. The Vicinity Property Data Gap investigation conducted in 2011 concluded that the 1118 Central Avenue Vicinity Property is eligible for unrestricted release with No Further Action (USACE, 2012a). Sample results indicated that the uranium in the asphalt/roadbed is naturally occurring and that the cleanup criterion of 35 pCi/g was not exceeded in any sample. At the 50 Yardboro Avenue Vicinity Property, the USACE has determined that removal actions described in Section 2.3.4.1 successfully addressed the surface and subsurface contamination and eliminated the associated human health risks as summarized in Section 5.0. Therefore, the USACE proposes No Further Action at 50 Yardboro Avenue. Cleanup of the Town of Colonie Vicinity Property was successfully completed under the separate Main Site Soils Operable Unit.

Therefore, the USACE considers No Further Action protective of human health and the environment for soils.

In addition, the current conditions at representative residential and commercial properties in the vicinity of the Colonie FUSRAP Site have been characterized and the results demonstrate that dust containing concentrations of uranium found in various areas of the structures poses no unacceptable risk to inhabitants (USACE, 2016).

Therefore, the USACE considers No Further Action protective of human health and the environment for dust.

## 5.0 SUMMARY OF SITE RISKS

Under CERCLA, if no unacceptable risks to human health or the environment are identified, then No Further Action is appropriate.

### 5.1 Soils Risk Assessment Summary

The assessment of risk potentially posed by soils remaining in place after completion of removal actions at the various Vicinity Properties (as summarized in Sections 2.3.1 through 2.3.4) was evaluated by comparing the confirmation soil sampling results to the risk-based cleanup levels. This assessment determined that all of the Vicinity Properties (with the exception of one) met the risk-based cleanup criteria.

The exception was the 6.5-acre CSX Vicinity Property where the removal action conducted by the USACE involved excavating a total of 2,871 cubic yards of soil with  $^{238}\text{U}$  concentrations greater than 96 pCi/g (USACE, 2008). This work was performed under the constraint of preserving the structural integrity of the high speed rail line and the utility rail spur. As such, soils were not removed from beneath the utility rail spur, because the soils were considered inaccessible and part of the active rail line. The potential for human contact with the subsurface soils beneath the active railroad tracks is considered to be extremely low, and therefore, risk to human receptors is also considered to be very low under the current land use.

The removal actions conducted by the DOE and the USACE for several Vicinity Properties have proved to be protective of human health and the environment, and have eliminated the need to conduct additional remedial action. The USACE has determined that removal actions conducted to date at the Vicinity Properties for soil allow for the properties' unrestricted release, (i.e., cleanup action complete and property suitable for reuse with no requirements for land use restrictions or controls). The NYSDEC has concurred with this assessment in correspondence dated July 22, 2016.

### 5.2 Dust Risk Assessment Summary

A quantitative human health risk assessment was performed using dust sampling results for the Vicinity Property Operable Unit in accordance with the EPA's *Risk Assessment Guidance for Superfund: Volume 1, Human Health Evaluation Manual (Part A)*, and *Risk Assessment Guidance for Superfund: Volume 1, Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments)* (EPA, 1989 and 2001).

The human health risk assessment evaluated potential current or future human noncancer health hazards from exposure to depleted uranium in indoor dust in the selected residential and commercial Vicinity Properties as well as one off-site background property in Slingerlands, New York.

The receptor types evaluated included both residential (child and adult), adolescent garage user, and worker receptors. Eight indoor dust samples were collected at each property and were analyzed for depleted uranium. For each property the dust sample having the maximum depleted uranium concentration was used to estimate potential receptor exposure and calculate potential human health risks and hazards.

The non-cancer hazard was evaluated for potential uranium exposures found in dust and the hazard quotients were all found to be below one and thus do not pose a risk either now or in the future for all 13 Vicinity Properties. This means that uranium in indoor dust is not a contaminant of concern now or in the future at all evaluated vicinity properties. When carcinogenicity was considered for the combined child/adult receptor, the values were all within the EPA carcinogenic risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ , and therefore, do not pose an unacceptable risk.

The adolescent garage user at 1148 Central Avenue exhibited a non-cancer hazard index of 0.65 which is below the action level of 1.0 and not a health concern. Likewise, when the carcinogenic risk was evaluated, the calculated risk was on the low end of the carcinogenic risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$  and did not pose an unacceptable risk to this receptor.

The non-cancer hazard quotients for the adult workers exposed to uranium in indoor dust at the three commercial Vicinity Properties were all far less than 1 for all three properties. This means that uranium in indoor dust is not a contaminant of concern for the current and future adult workers at all three evaluated commercial properties.

Both the NYSDEC (2016) and the New York State Department of Health (2016) concurred with the conclusions presented in the *Colonie FUSRAP Site Vicinity Property Operable Unit Remedial Investigation Report* (USACE, 2016).

## 6.0 DESCRIPTION OF ALTERNATIVES

No Further Action is proposed for both soils and dust for the Vicinity Property Operable Unit. The site is protective for human health and the environment, does not pose unacceptable risks to identified receptors and therefore, no alternative remedies are proposed or described in this section.

## 7.0 COMMUNITY PARTICIPATION

The USACE encourages input on this Proposed Plan from the public, NYSDEC, New York State Department of Health, and other stakeholders. The Proposed Plan was made available for public review at the William K. Sanford Town Library, 629 Albany Shaker Road, Loudonville, New York 12211. Written comments on the Proposed Plan will be accepted for 30 days after a notice of public availability appears in local newspapers. The public comment period will extend from January 12, 2017 to February 13, 2017. Upon a timely request made prior to the end of the comment period, the comment period may be extended for an additional 30 days.

The USACE will hold a public meeting during the public comment period at the West Albany Fire Company No. 2, 36 Osborne Road, Colonie, New York on Wednesday February 1, 2017 at 7:00 p.m. EST to present the conclusions contained within this Proposed Plan, elaborate further on the reasons for proposing No Further Action, and solicit public comments. Written comments will be accepted by the USACE at any time during the comment period, and should be submitted to:

U.S. Army Corp of Engineers, New York District  
Attn: James Moore, CENAN-PP-E  
26 Federal Plaza, Room 1811  
New York, New York, 10278-0090.

The USACE will evaluate comments submitted during the comment period, with responses to public comments formally documented in a Responsiveness Summary. After considering all comments in consultation with the NYSDEC, the USACE will issue its decision (in a “Record of Decision”) selecting the final soils and dust remedies. The USACE’s Vicinity Property ROD will include the Responsiveness Summary. The ROD will be incorporated in the Administrative Record for the Colonie FUSRAP Site and will be available for review at the William K. Sanford Town Library, 629 Albany Shaker Road, Loudonville, New York 12211.

## 8.0 REFERENCES

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- USACE, 2004. *Site Investigation Report for the Unnamed Tributary of Patroon Creek, Patroon Creek, and Three Mile Reservoir*, U.S. Army Corps of Engineers – New York District, September 2004.
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- USACE, 2010b. *Colonie FUSRAP Site Record of Decision, Colonie Site Groundwater*, U.S. Army Corps of Engineers – New York District, April 2010.
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- USACE, 2013b. *Draft Final Report, CSX and 50 Yardboro Avenue Vicinity Property Closure, Colonie FUSRAP*, October, 2013.
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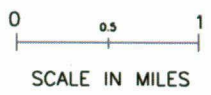
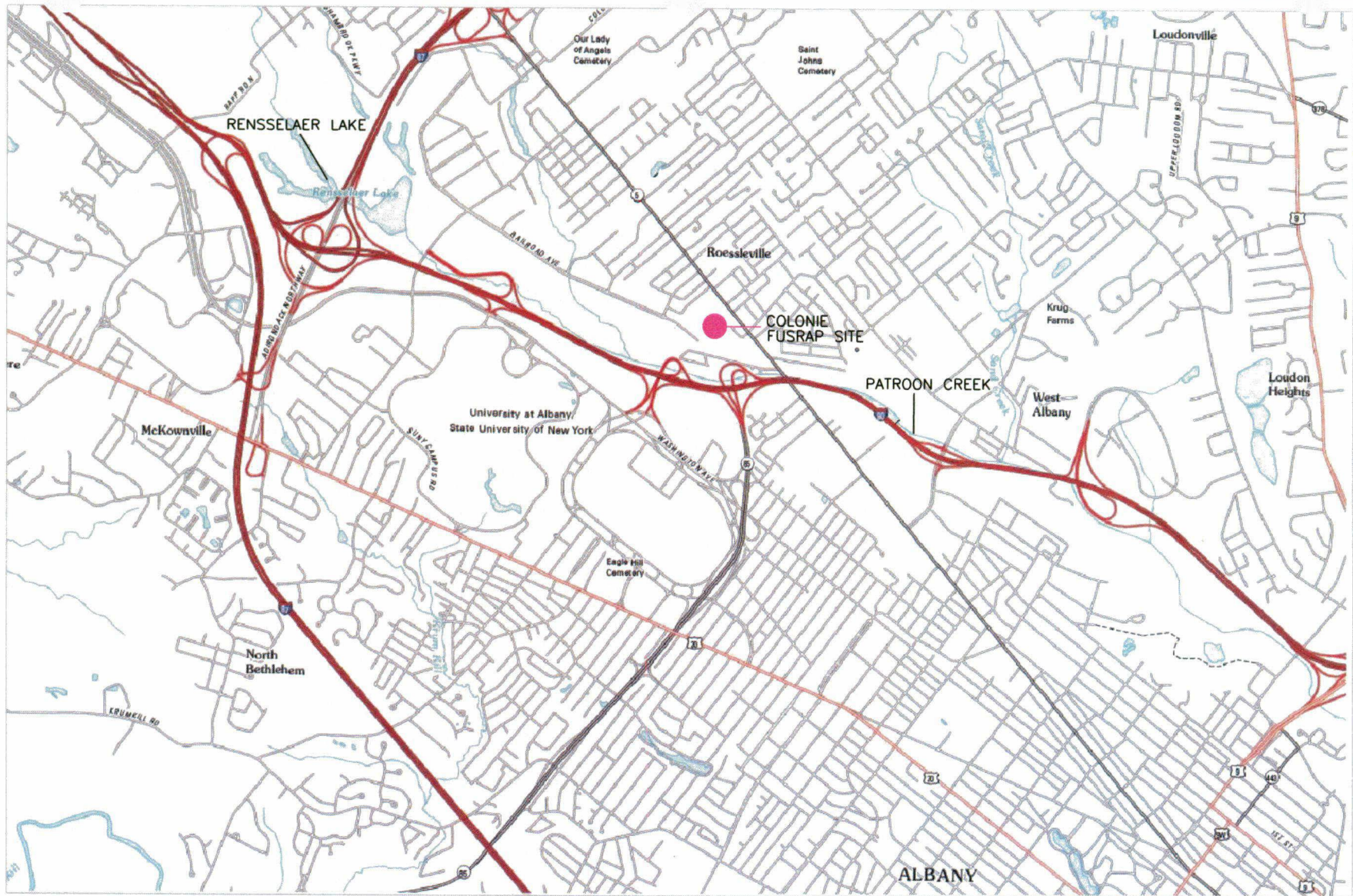







**FIGURES**

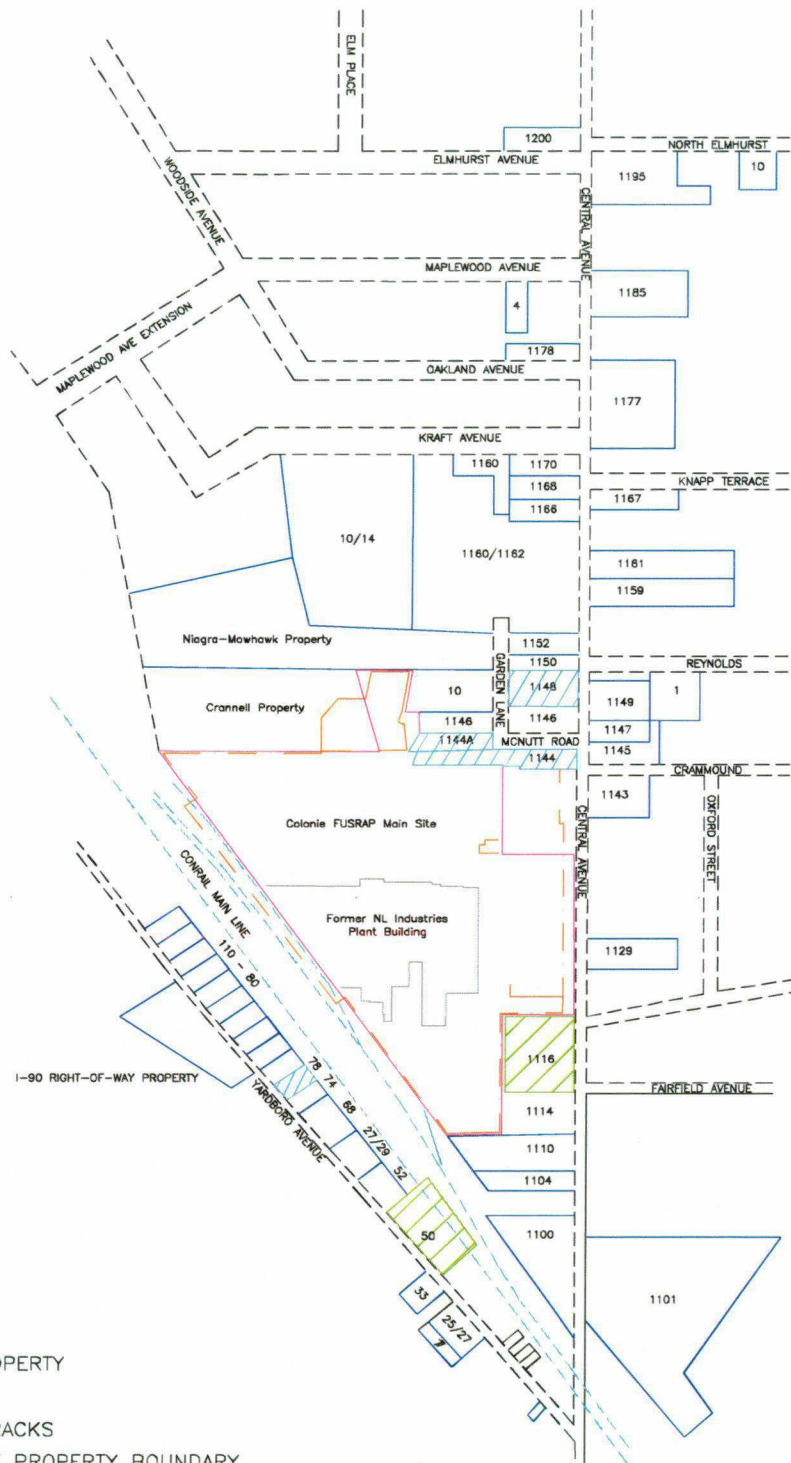
**Figure 1: Location Map – Colonie FUSRAP Site**



	U.S. ARMY CORPS OF ENGINEERS FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM		
	FIGURE 1 LOCATION MAP - COLONIE FUSRAP SITE		
US Army Corps of Engineers	COLONIE FUSRAP SITE 1130 CENTRAL AVENUE, ALBANY, NY 12205		
Cabrera Services	DRAWING NO.	SHEET NO. 1 OF 1	REVISION NO.

**Figure 2: Current Vicinity Property Locations**





**LEGEND**

- VICINITY PROPERTY
- ROADS
- RAILROAD TRACKS
- GOVERNMENT PROPERTY BOUNDARY
- EXISTING FENCE
- VICINITY PROPERTIES DATA GAP INVESTIGATION 2011
- CONFIRMATION DUST SAMPLING 2011

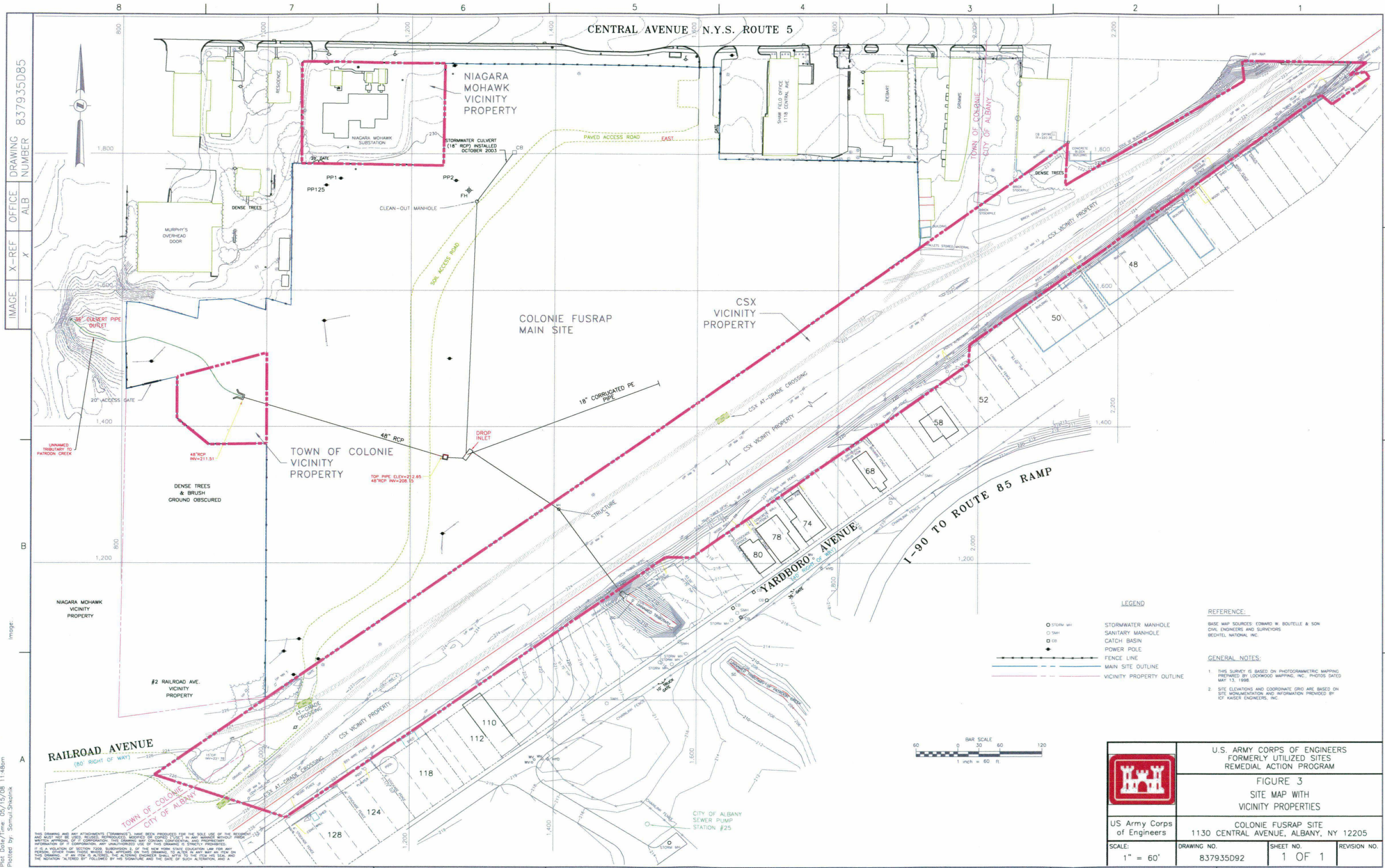
REFERENCE: TECHNICAL MEMORANDUM  
 VICINITY PROPERTY ASSESSMENT  
 COLONIE FUSRAP SITE, USACE 2010  
 CONFIRMATION DUST SAMPLING REPORT  
 FOR COLONIE FUSRAP SITE VPs USACE 2012

DRAWING NOT TO SCALE  
 PROPERTY LOCATIONS ARE APPROXIMATE

	U.S. ARMY CORPS OF ENGINEERS FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM		
	FIGURE 2 CURRENT VICINITY PROPERTY LOCATIONS		
US Army Corps of Engineers	COLONIE FUSRAP SITE 1130 CENTRAL AVENUE, ALBANY, NY 12205		
DRAWING NO.	SHEET NO.	REVISION NO.	
	1 OF 1		

**Figure 3: Site Map with Selected Vicinity Properties – Colonie FUSRAP Site**





DRAWING NUMBER 837935D85

OFFICE ALB

X-REF X

IMAGE

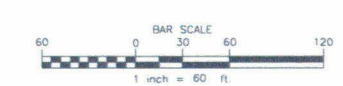
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**LEGEND**

○	STORM MH	○	STORM MANHOLE
○	SMH	○	SANITARY MANHOLE
○	CB	○	CATCH BASIN
●	POWER POLE	—	FENCE LINE
—	MAIN SITE OUTLINE	—	VICINITY PROPERTY OUTLINE

**REFERENCE:**  
 BASE MAP SOURCES: EDWARD W. BOUTELLE & SON  
 CIVIL ENGINEERS AND SURVEYORS  
 BECHTEL NATIONAL, INC.

**GENERAL NOTES:**  
 1. THIS SURVEY IS BASED ON PHOTOGRAMMETRIC MAPPING PREPARED BY LOCKWOOD MAPPING, INC., PHOTOS DATED MAY 13, 1998.  
 2. SITE ELEVATIONS AND COORDINATE GRID ARE BASED ON SITE MONUMENTATION AND INFORMATION PROVIDED BY IC KAISER ENGINEERS, INC.



	U.S. ARMY CORPS OF ENGINEERS FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM		
	FIGURE 3 SITE MAP WITH VICINITY PROPERTIES		
US Army Corps of Engineers	COLONIE FUSRAP SITE 1130 CENTRAL AVENUE, ALBANY, NY 12205		
SCALE: 1" = 60'	DRAWING NO. 837935D92	SHEET NO. 1 OF 1	REVISION NO.

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**TABLES**

**Table 1. List of Colonie Vicinity Properties**

Vicinity Properties	Property Address/Street Nos.	Agency Responsible for Cleanup
Properties along Central Avenue	Nos. 1100; 1101; 1104; 1110; 1114; <b>1118</b> ; 1129; 1143; <b>1144/1144A</b> ; 1145; 1146; 1147; <b>1148</b> ; 1149; 1150; 1152; 1159; 1160; 1161; 1160/1162; 1166; 1167; 1168; 1170; 1177; 1178; 1185; 1195; 1200	DOE USACE (supplemental cleanup for properties listed in <b>boldface print</b> )
Properties along Yardboro Avenue	Nos. 5; 16; 20; 24; 25/27; 27/29; <b>50</b> ; 52; 68; 74; <b>78</b> ; 80; 80-110	DOE USACE (supplemental cleanup for properties listed in <b>boldface print</b> )
Railroad Avenue	Crannell Property (no permanent structures observed in 2013 visit) Niagara Mohawk Property*	DOE USACE
Palmer Avenue	Nos. 7; 33	DOE
Elmhurst Avenue	10 North Elmhurst Avenue	DOE
Reynolds Avenue	1 Reynolds Avenue	DOE
	Exit 4, Interstate 90 Right of Way Property	DOE
Garden Lane	10 Garden Lane	DOE
Kraft Avenue	10/14 Kraft Avenue	DOE
Maplewood Avenue	4 Maplewood Avenue	DOE
CSX Rail	Adjacent to southern portion of Main Site	USACE DOE

Note: The Town of Colonie Vicinity Property is addressed as part of the Colonie Main Site Proposed Plan.

\* The Niagara Mohawk Vicinity Property did not require remediation.