

**Final**



## **Action Memorandum**

**May 2019**  
**Version 00**

Non-Time Critical Removal Action  
Vault 4 and Trichloroethylene-Contaminated Sludge

**Former Racó Army Airfield and Missile Site**  
**Chippewa County, Michigan**

**Formerly Used Defense Sites Program Property No. E05MI0026**  
United States Army Corps of Engineers – Louisville District

Contract W912QR-12-D-0007 Delivery Order W912QR18F0390

---

# **Final Action Memorandum**

## **Vault 4 and Trichloroethylene-Contaminated Sludge (E05MI0026) Former Raco Army Airfield and Missile Site Chippewa County, Michigan**

May 2019  
Version 00

Formerly Used Defense Sites Program  
United States Army Corps of Engineers –Louisville District

---



U.S. Army Corps of Engineers-Louisville District  
Contract W912QR-12-D-0007  
Delivery Order W912QR18F0390

---

**CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW**

Bay West LLC has completed the Action Memorandum, Contract #W912QR-12-D-0007, Task Order W912QR18F0390, for Former Raco Army Airfield and Missile Site, Chippewa County, Michigan. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control Plan. During the independent technical review, compliance with established policy principals and procedures, utilizing justified and valid assumptions, was verified. This included review of assumptions; methods, procedures, and material used in the analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing Corps policy.

  
\_\_\_\_\_  
Peggy Churchill, Independent Technical Reviewer

30 May 2019

Date

  
\_\_\_\_\_  
Rick Van Allen, Senior Project Manager

30 May 2019

Date

Significant concerns and explanation of the resolution are as follows:

As noted above, all concerns resulting from independent technical review of the project have been considered.

**FINAL ACTION MEMORANDUM**

**Vault 4 and Trichloroethylene-Contaminated Soil/Sludge (E05MI0026)  
Former Raco Army Airfield and Missile Site  
Chippewa County, Michigan**

**APPROVAL**

This Action Memorandum presents the selected removal action to conduct the removal of trichloroethylene contaminated soil and sludge and Vault 4 at the Former Raco Army Airfield and Missile Base located in Chippewa County, Michigan. The Army is the lead agency under the Defense Environmental Restoration Program at the Former Raco Army Airfield and Missile Site and developed this Action Memorandum consistent with the Comprehensive Environmental Response, Compensation, and Liability Act as amended and the National Oil and Hazardous Substances Pollution Contingency Plan. This decision document will be incorporated into the Administrative Record file for Former Raco Army Airfield and Missile Site, which is available for public review at the Bayliss Public Library, 541 Library Drive Sault Ste. Marie, Michigan 49783. This document, presenting a selected removal action with a present worth cost estimate of \$147,290, is approved by the undersigned.



Stephen G. Durrett, P.E., SES  
Regional Program Director  
U.S. Army Corps of Engineers  
Lakes and Rivers Division



Date

## Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>ES-1</b>
<b>1.0 INTRODUCTION .....</b>	<b>1-1</b>
<b>2.0 STATEMENT OF BASIS AND PURPOSE .....</b>	<b>2-1</b>
2.1 Site Background .....	2-1
2.2 Summary of Investigations and Actions .....	2-1
2.3 Nature and Extent of Vault 4 Contaminated Materials .....	2-2
<b>3.0 PROJECT JUSTIFICATION .....</b>	<b>3-1</b>
3.1 Threats Posed to Human Health, Welfare and the Environment.....	3-1
3.2 Removal Action Objectives Criteria .....	3-3
<b>4.0 ALTERNATIVES CONSIDERED .....</b>	<b>4-1</b>
4.1 Alternative 1: No Action.....	4-1
4.2 Alternative 2: Collection and Removal of TCE-Contaminated Sludge with Off-Site Disposal and In-Place Closure of Vault 4.....	4-1
4.3 Alternative 3: Excavation of Vault 4 and TCE-Contaminated Sludge with Off-Site Disposal .....	4-1
<b>5.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION .....</b>	<b>5-1</b>
<b>6.0 REGULATOR COORDINATION SUMMARY .....</b>	<b>6-1</b>
<b>7.0 SELECTION CRITERIA .....</b>	<b>7-1</b>
<b>8.0 DESCRIPTION OF SELECTED ALTERNATIVE .....</b>	<b>8-1</b>
<b>9.0 EXPECTED CHANGE IN SITUATION SHOULD ACTION BE DELAYED OR NOT     TAKEN .....</b>	<b>9-1</b>
<b>10.0 RESPONSIVENESS SUMMARY .....</b>	<b>10-1</b>
<b>11.0 REFERENCES .....</b>	<b>11-1</b>

### List of Tables

Table 5-1 Highlights of Community Participation .....	5-1
Table 7-1 Comparative Evaluation Criteria and Results .....	7-1

### List of Figures

Figure 1-1 Site Location Map	
Figure 1-2 Site Map with Water Treatment Area Detail	

### List of Appendices

Appendix A	USDA-FS Concurrence Letter
Appendix B	Public Notice
Appendix C	Public Meeting Minutes

## Acronyms and Abbreviations

§ .....	section	NCP .....	National Oil and Hazardous Substances Pollution Contingency Plan
Action Memo ..	Action Memorandum	NTCRA .....	non-time critical removal action
ARAR .....	Applicable or Relevant and Appropriate Requirement	PP .....	Proposed Plan
Bay West.....	Bay West LLC	ppm.....	parts per million
CERCLA .....	Comprehensive Environmental Response, Compensation, and Liability Act	RAAM .....	Removal Action Approval Memorandum
CFR.....	Code of Federal Regulations	RAO.....	remedial action objective
COC .....	contaminant of concern	RCRA .....	Resource Conservation and Recovery Act
DCE .....	dichloroethane	RI .....	Remedial Investigation
DD.....	Decision Document	Site .....	Former Racó Army Airfield and Missile Site
DERP .....	Defense Environmental Restoration Program	Smithers .....	Smithers Scientific Services, Inc.
DoD.....	Department of Defense	TBC .....	to be considered
EE/CA .....	Engineering Evaluation/Cost Analysis	TCE .....	trichloroethylene
EGLE .....	Michigan Department of Environment, Great Lakes, and Energy	TCLP .....	toxicity characteristic leaching procedure
EO.....	Executive Order	USACE .....	U.S. Army Corps of Engineers
FS .....	Feasibility Study	USC.....	United States Code
ft.....	foot/feet	USEPA .....	U.S. Environmental Protection Agency
FUDS .....	Formerly Used Defense Sites	USDA-FS.....	United States Department of Agriculture Forest Service
GEO .....	GEO Consultants Corporation	VC.....	vinyl chloride
mg/kg .....	milligrams per kilogram	VOC.....	volatile organic compound
mg/L.....	milligrams per liter		

## **Executive Summary**

This Action Memorandum (Action Memo) has been prepared to provide a concise written record of the decision to select an appropriate alternative for a non-time critical removal action (NTCRA) for Vault 4 and trichloroethylene (TCE)-contaminated sludge and soil within Vault 4 at the former Racó Army Airfield and Missile Site (Site) located on land under the jurisdiction, custody, and control of the Hiawatha National Forest, in Chippewa County, Michigan. The intent of this Action Memo is to serve as the primary decision document to substantiate the need for the removal response, identify the selected action and explain the rationale for the removal response. Work at this Site is being conducted by Bay West LLC (Bay West) under Contract Number W912QR-12-D-0007, Delivery Order W912QR18F0390 with the United States Army Corps of Engineers (USACE) – Louisville District.

Based on previous investigation activities, contamination is believed to be contained within Vault 4 and consists of TCE-contaminated sludge and soil. Previous investigation activities may have breached the interior structure of Vault 4. Due to potential downward vertical migration of TCE-contaminated soil and sludge within the vault, there exists a potential release to the environment. This NTCRA is necessary because contamination remaining in Vault 4 poses a potential threat to human health and welfare due to residential drinking water wells being downgradient from the Site. The removal action objective (RAO) of the NTCRA is to abate, prevent, minimize, stabilize, mitigate or eliminate potential future risks to human health and the environment from a release or threatened release of TCE-impacted sludge to the soil or soil and groundwater of TCE and its daughter products.

The following alternatives were developed in the Engineering Evaluation/Cost Analysis (EE/CA) to abate, prevent, minimize, stabilize, mitigate or eliminate a release or threatened release into the environment:

- Alternative 1: No Action;
- Alternative 2: Collection and Removal of TCE-Contaminated Sludge with Off-Site Disposal and In-Place Closure of Vault 4; and
- Alternative 3: Excavation of Vault 4 and TCE-Contaminated Sludge with Off-Site Disposal. Following removal, soil samples will be collected, and any residual contamination will be evaluated through the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process pursuant to 5 Code of Federal Regulations (CFR) Section (§) 300.415(g). If data gathered during the NTCRA require reconsideration of the Remedial Investigation (USACE 2018a) and Feasibility Study (USACE 2018d) analysis and conclusions, those documents will be revisited as necessary.

The three alternatives were evaluated using the alternative technology selection criteria established by the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR § 300.430(e)(7) and ER 200-3-1, Table 4-3, for evaluating alternatives including effectiveness, implementability, and cost. Based on the comparative analysis of the effectiveness, implementability, and cost of the three alternatives, the selected alternative is Alternative 3, Excavation of Vault 4 and TCE-contaminated Sludge with Off-Site Disposal.

USACE is the lead agency and has selected the interim response alternative in coordination with the Michigan Department of Environmental, Great Lakes, and Energy (EGLE) as the state regulator and in coordination with the United States Department of Agriculture – Forest Service (USDA-FS) as the agency having jurisdiction of the property. The USDA-FS has reviewed the Action Memo and provided its written agreement/concurrence with the removal action. A copy of the letter dated May 20, 2019, is included in **Appendix A**. Execution of this removal action is contingent on USDA-FS granting USACE access to the property. All public involvement activities,

at the time of publishing this Action Memo, have been satisfied in accordance with the provisions of the NCP and Engineer Pamphlet (EP) 1110-3-8, as well as the Engineering Regulation (ER) 200-3-1, Environmental Quality Formerly Used Defense Sites (FUDS) Program Policy (USACE, 2004). Should the actions outlined in this Action Memo be delayed or not taken, the potential exists for continued and substantial endangerment to public health, welfare or the environment.

## **1.0 INTRODUCTION**

This Action Memorandum (Action Memo) has been prepared to provide a concise written record of the decision to select an appropriate alternative for a non-time critical removal action (NTCRA) for Vault 4 and trichloroethylene (TCE)-contaminated sludge within Vault 4 at the former Racó Army Airfield and Missile Site (Site) located on the Hiawatha National Forest in Chippewa County, Michigan (**Figure 1-1**) (Formerly Used Defense Sites [FUDS] Property No. E05MI0026). Previous investigations have found TCE-contaminated sludge at high concentrations contained in a concrete structure identified as Vault 4 (**Figure 1-2**). Work at this Site is being conducted by Bay West LLC (Bay West) under Contract Number W912QR-12-D-0007, Delivery Order W912QR18F0390 with the United States Army Corps of Engineers (USACE) – Louisville District.

This Action Memo has been prepared in accordance with ER 200-3-1 Environmental Quality FUDS Program Policy (USACE, 2004); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; 42 United States Code [USC] Section [§] 9601 et seq.) and the National Contingency Plan (NCP; 40 Code of Federal Regulations [CFR] 300.400). All activities were conducted in accordance with United States Army Corps of Engineers (USACE), Department of the Army, and DoD requirements, regulations and procedures.

The Site is eligible for environmental restoration under the FUDS Program. All work must comply with the Defense Environmental Restoration Program (DERP) Statute (10 USC 2701 et seq.), CERCLA (42 USC §9601 et seq.), Executive Orders (EOs) 12580 and 13016, the NCP, and all applicable DoD, Army, and USACE regulations, policies, and guidance for the FUDS Program.

The DoD has the authority to undertake CERCLA response actions, including NTCRAs, under Title 42 of the USC § 9604, 10 USC § 2701, and EO 12580 and 13016. CERCLA Section 104(a) authorizes removal responses whenever:

- Any hazardous substance is released or there is a substantial threat of such a release into the environment; or
- There is a release or substantial threat of release into the environment of any pollutant or contaminant which may present an imminent and substantial danger to the public health, welfare, or the environment.

The intent of this Action Memo is to serve as the primary decision document to substantiate the need for the removal response, identify the selected action and explain the rationale for the removal response.

## **2.0 STATEMENT OF BASIS AND PURPOSE**

This Action Memo presents the selected NTCRA to remove Vault 4 and TCE-contaminated sludge contained within Vault 4. The purpose of this Action Memo is to document the approval of the selected removal action described herein and in the Engineering Evaluation/Cost Analysis (EE/CA). The following sections present the site background, summary of previous investigations and actions, and nature and extent of contaminated materials.

### **2.1 Site Background**

The Site is located 18 miles southwest of Sault Ste. Marie, Michigan, and entirely within the eastern portion of the Hiawatha National Forest. The Site consists of 1,825.94 acres acquired between 1942 and 1945 via various transfer permits, licenses, leaseholds, easements, and fee purchases. Around 1960, the missile base was constructed southeast of the airfield. The DoD used the Site as an airfield for 21 years and as a missile base for about 13 years, ending in 1972. Between 1962 and 1964, the Air Force released all property interests to the United States Department of Agriculture Forest Service (USDA-FS) except for the 152.54-acre missile area and an additional 5-acre area. On 30 June 1973 and 24 March 1976, respectively, these 152.54-acre and 5-acre areas were released to the USDA-FS. Since that time, the property has remained under USDA-FS jurisdiction.

The Site historically consisted of a triangular-shaped airfield with 5,000-foot (ft) runways and a Bomarc Missile Site containing 28 missile launcher shelter mechanical/electrical pits, and associated support facilities. Except for the runways and some associated tarmac/hardstands, the original structures have all been removed, and the launcher shelter mechanical/electrical pits have been filled in and covered. The airfield runways and other portions of the Site are currently used year-round for automobile tire testing by Smithers Scientific Services, Inc (Smithers), under special use permit with the USDA-FS. The remainder of the Site is vacant.

Vault 4 is located within the former wastewater treatment area of the former missile battery area (**Figure 1-2**). A historical drawing was used to identify the features of the wastewater treatment area shown on the inset on **Figure 1-2**, Vault 4 was identified as a 12-ft-by-8-ft settling tank. Investigation of Vault 4 indicates the dimensions are approximately 12 ft in diameter and 18 ft tall.

### **2.2 Summary of Investigations and Actions**

A Remedial Investigation (RI; USACE, 2018a) was completed to characterize the nature, extent, and risks posed by a TCE groundwater plume present at the Site. The RI included a source investigation in the wastewater treatment area of the former missile battery area to determine whether remnants of subsurface concrete wastewater treatment structures/vaults are still present, and whether residual materials in these vaults could be a source of the TCE groundwater plume.

During the RI no demolitions or removals were completed below the ground surface at Vault 4. Vault 4 remained buried and partially uncovered. In September 2017, Geo Consultants (GEO) explored Vault 4 with an excavator as part of a field program to gather additional information (GEO, 2017) and assess if the vault was an active source to the existing TCE groundwater plume. According to the Field Summary Report (GEO, 2017), the excavation extended to approximately 8 ft where, because of the inner chamber walls, it was no longer safe to continue removing material from inside the vault for concern of damaging the exterior and possibly causing a release. It was assumed that this was the top chamber of a multichambered vault; additional soil samples were collected from the northern and southern compartments and an aqueous sample was collected from the center compartment. The excavation continued along the outside of the Vault to determine the dimensions and condition of Vault 4. Vault 4 was determined to be approximately 18 ft tall and could not be completely excavated and removed with the equipment present. At that

time, it was decided that Vault 4 would not be removed, but as much of the contents of the upper chamber as possible would be removed with the available equipment, and the drill rig would be used to attempt to collect deeper soil samples from within Vault 4. Based on the results of the excavation the vault is suspected to be an Imhoff Tank. No active leakages were observed; however, the bottom of Vault 4 was not exposed, and its condition remains unknown. Additionally, according to the Removal Action Approval Memorandum (RAAM; USACE, 2018b), during exploration of Vault 4, an interior section of the vault may have been breached, or partially breached, potentially causing migration of contaminated material into a lower section of the vault.

The material that was removed from the upper portion of Vault 4 was placed in roll-off bins and the vault was backfilled with clean fill from above the tank while leaving the lip of the vault exposed for surveying. Upon the completion of field tasks, surfaces were smoothed and returned to their original shape as much as possible. The area was then seeded, fertilized, and covered in straw to restore the area to its state prior to the investigation.

During the exploration of Vault 4, 31.33 tons of soil cuttings and excavation debris were generated and containerized. Samples were collected from the containerized material and analyzed for toxicity characteristic leaching procedure (TCLP) volatile organic compounds (VOCs). Based on the TCLP sample results, the soil cuttings and excavation debris were characterized and disposed of as non-hazardous waste. During the investigation of Vault 4, soil borings were completed within and near Vault 4 (VSB-35, -39, and -42). One boring (VSB-42), completed in Vault 4, revealed sludge material at approximately 13 ft below grade. Analytical results for this sludge sample indicated the presence of TCE at a concentration of 50 milligrams per kilogram (mg/kg). Soil samples collected at boring VSB-35 outside of Vault 4 did not indicate the presence of TCE in samples collected at 17.5, 20, 22.5, and 25 ft below grade.

An Engineering Evaluation/Cost Analysis (EE/CA; USACE, 2018c) was prepared to evaluate NTCRA alternatives for Vault 4. The EE/CA evaluated three alternatives to abate, prevent, minimize, stabilize, mitigate or eliminate a release or threatened release to the environment. The alternatives, alternative evaluation, and selected alternative are presented in **Section 4.0**, **Section 7.0**, and **Section 8.0**, respectively, of this Action Memo.

### **2.3 Nature and Extent of Vault 4 Contaminated Materials**

TCE is the primary contaminant of concern (COC) at Vault 4 along with its degradation products cis-1,2-dichloroethene (DCE), trans-1,2-DCE, and vinyl chloride (VC). Soil/sludge samples collected within Vault 4 contained concentrations of TCE exceeding United States Environmental Protection Agency (USEPA) Regional Screening Levels and EGLE Soil Screening Levels for Protection of Residential Drinking Water; however, no active leakages of Vault 4 were observed during the 2017 investigation.

In 2017 Vault 4 was partially excavated and upper portions of the concrete vault were removed. The contents of Vault 4 were sampled; however, the TCE-contaminated sludge remains in Vault 4. Following this investigative excavation work, Vault 4 was reburied and backfilled with soil. Currently, only the top of Vault 4 is visible at the ground surface. Based on the investigation data and conclusions of the RI, it is understood that the COCs in the sludge in Vault 4 are not actively contributing to the downgradient dissolved TCE groundwater plume and groundwater is not addressed in the EE/CA. Therefore, the nature and extent of groundwater contamination is not included in this discussion. If groundwater under Vault 4 is determined to be impacted by the TCE-contaminated sludge and further investigation is warranted, further remedial response activities will be conducted in accordance with 40 CFR §300.415(g).

The location and aerial extent of Vault 4 is shown on **Figure 1-2**. In accordance with the Performance Work Statement and for cost estimating purposes, the reinforced concrete vault is

estimated to be 20 ft deep (18 ft tall) with a 12-ft diameter. The concrete walls are approximately 12 inches thick. The footing appears to be 2 ft wider than the diameter of the vault with an assumed 3 ft depth. Vault 4 consists of multiple chambers separated by reinforced concrete. Approximately 61 tons of concrete and 104 tons of soil/sludge remains within Vault 4.

Elevated levels of TCE (up to 50 mg/kg) are present in soil/sludge-like material remaining in Vault 4. There is evidence of natural degradation of TCE occurring within Vault 4 (cis-1,2-DCE, trans-1,2-DCE, and VC were detected within the vault). None of the 2017 investigation soil samples collected adjacent to Vault 4 (boring VSB-35) exhibited COCs exceeding screening criteria. There is currently no evidence that the contents of Vault 4 are leaking into the surrounding soils, acting as an active source. However, no samples were collected directly beneath Vault 4. This represents a data gap.

TCE-contaminated sludge and soil remain inside Vault 4. Previous investigation and sampling activities may have damaged the interior structure of Vault 4 causing a release or threatened release of TCE-contaminated sludge to the environment. Vault 4 will continue to degrade with time and continued exposure to temperature extremes and precipitation infiltration increases the likelihood that a release to the environment may occur.

### 3.0 PROJECT JUSTIFICATION

Previous investigation activities may have breached the interior structure of Vault 4. Due to the potential downward vertical migration of TCE-contaminated soil and sludge within the vault there exists a potential release to the environment. NTCRA is necessary because contamination remaining in Vault 4 poses a threat to human health and welfare due to residential drinking water wells being downgradient from the Site. The following sections describe evaluation of the threats posed to human health, welfare and the environment, as well as the removal action objectives (RAOs).

#### 3.1 Threats Posed to Human Health, Welfare and the Environment

The EE/CA assessed five human health and welfare-related factors under 40 CFR 300.415(b)(2), as well as threats posed to the environment. The assessment indicated there is a threat to human health, welfare, or the environment posed by the contamination remaining in Vault 4. The factors, as presented in the RAAM, are described in **Sections 3.1.1 through 3.1.7**.

##### 3.1.1 Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release ((40 CFR 300.415(b)(2)(2)(iii)).

TCE-contaminated soil/sludge is determined as a hazardous waste when its concentration exceeds the regulatory level identified in 40 CFR 261.24, Table 1. USEPA Hazardous Waste Number, D040, is TCE with a regulatory level of 0.5 milligrams per liter (mg/L), which is equivalent to 0.5 parts per million (ppm). The analytical results presented in the 2017 Field Summary Report show that contaminant concentrations in soil/sludge inside Vault 4 are as high as 50 mg/kg, which is equivalent to 50 ppm for TCE. This is roughly 100 times the regulatory level. Based on professional judgment, this soil/sludge may be characteristically hazardous.

##### 3.1.2 High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate ((40 CFR 300.415(b)(2)(2)(iv)).

A source area investigation was performed near the wastewater treatment area in 2017 (GEO, 2017). Except for samples from inside Vault 4, none of the soil samples collected exhibited COCs with concentrations in exceedance of screening criteria. Although there is no evidence that the sludge and soils within Vault 4 are currently affecting soils outside of Vault 4, in the RAAM, USACE has noted that:

*“It is believed from the photos of the soil core columns and boring diagram that the contractor breached or partially breached a section of the interior concrete vault causing additional expansion/migration of contaminated sediments within the lower sections of the vault (see the “moist sand” below the concrete in the column profile). It is reasonable to assume that if the boring breached an interior, vertical concrete barrier, the contaminated sludge will be migrating downward into the dry sand. Furthermore, it is impossible to know whether the lower section of the exterior casing or the foundation have cracks through which contamination could be released into the exterior environment.”*

##### 3.1.3 Weather conditions that may cause hazardous substances, pollutants or contaminants to migrate or be released ((40 CFR 300.415(b)(2)(2)(v)).

Vault 4 is open to the environment with portions of exposed rebar and crushed concrete at the top of the structure. Vault 4 is not covered by any engineering barriers. In its present state it is likely that Vault 4 will continue to deteriorate as it continues to be exposed to conditions that occur at the Site and within the vault (i.e. microbial induced deterioration of concrete, freeze-thaw

cycles, and the continued expansion of rebar due to rust). Eventually, this is likely to cause a release of the TCE contaminated sludge and soil within this structure.

3.1.4 Potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants ((40 CFR 300.415(b)(2)(2)(i)) and Potential contamination of drinking water supplies or sensitive ecosystems ((40 CFR 300.415(b)(2)(2)(ii)).

Analytical data for soil and groundwater outside but in the immediate vicinity of Vault 4 indicate that Vault 4 is not likely acting as a current source of the existing TCE groundwater plume at the Site; however, the structural integrity of the vault is unknown. If a Removal Action is not performed and a TCE release from Vault 4 occurs, this will exacerbate the existing downgradient TCE groundwater plume. This could potentially reach private property owners with residential wells that are downgradient of the existing TCE groundwater plume.

3.1.5 Other situations or factors that may pose threats to public health or welfare of the United States or the environment ((40 CFR 300.415(b)(2)(viii)).

The TCE groundwater plume at the Site is being addressed through the CERCLA remedial process. The final Proposed Plan (PP)/Decision Document (DD) is not anticipated to be complete until Fiscal Year 2020. The state and condition of Vault 4 cannot be guaranteed as the project moves through the CERCLA remedial process. If a Removal Action is not performed and a TCE release from Vault 4 occurs, all sampling, migration and risk assumptions used in the CERCLA remedial process for the TCE groundwater plume may be invalidated. This will have major financial consequences as the Army would be obligated to conduct further costly investigations to reevaluate the TCE groundwater plume's stability and delineate the TCE groundwater plume.

3.1.6 Factors Not Considered Applicable

The factors not considered to be applicable are threat of fire or explosion ((40 CFR 300.415(b)(2)(vi))—the contents of Vault 4 do not present any explosive hazards—and The availability of other appropriate federal or state response mechanisms to respond to the release ((40 CFR 300.415(b)(2)(vii))—no other response mechanisms exist at this time.

3.1.7 Threats to the Environment

Vault 4 is not covered by any engineering barriers. In its present state it is likely that Vault 4 will continue to deteriorate as it continues to be exposed to conditions that occur at the Site and within the vault (i.e. microbial induced deterioration of concrete, freeze thaw cycles and the continued expansion of rebar due to rust). Eventually, this is likely to cause a release of the TCE-contaminated sludge within this structure.

Previous investigations and fieldwork performed during the RI did not reveal surface contamination concentrations in exceedance of screening criteria. Contaminated soil/sludge-like material was only found inside Vault 4. TCE-contaminated groundwater is present at the Site, but the water table occurs 50 ft bgs. The groundwater plume is located downgradient and approximately 40 feet southeast of Vault 4. Based on site conditions, direct exposure of ecological species to contaminated soil in Vault 4 and groundwater is considered unlikely. An ecological reconnaissance was performed near the missile battery area in August 2014, the results of which are detailed in the RI Report (USACE, 2018a). No additional ecological site assessments or ecological risk assessments were recommended for this site.

### 3.2 Removal Action Objectives Criteria

RAOs were developed in the EE/CA and consist of goals for protecting human health and the environment that can be achieved by reducing exposure and contaminant levels. The following elements were used to develop the Vault 4 and TCE-contaminated sludge NTCRA RAOs:

- Contaminants of Concern: TCE, cis-1,2-DCE, trans-1,2-DCE, and VC.
- Exposure Routes and Receptors: Vertical migration of COCs from Vault 4 to groundwater and inhalation and dermal contact by current and future construction workers performing intrusive activities.
- Cleanup Criteria: No chemical-specific cleanup criteria were identified; however, visual confirmation of the removal of the concrete comprising Vault 4 and the visual confirmation of the removal of the material within Vault 4 will be documented.
- NTCRA Objective: Address risk posed by the vault and the material within it and confirm whether there was a release from Vault 4

Based on previous investigation activities, contamination is presumed to be contained within Vault 4 and consists of TCE-contaminated sludge and soil. Previous investigation activities may have breached the interior structure of Vault 4, with potential downward vertical migration of TCE-contaminated soil and sludge within the vault resulting in a release or threatened release to the environment. The objective of the NTCRA is to address the risk of Vault 4 and its contents impacting soil and groundwater beneath Vault 4.

The following RAO will be achieved when the NTCRA is complete:

- To abate, prevent, minimize, stabilize, mitigate or eliminate potential future risks to human health and the environment from a release or threatened release of TCE-impacted sludge to the soil or soil and groundwater for TCE and its daughter products

Following removal, soil samples will be collected, and any residual contamination will be evaluated through the CERCLA process pursuant to 5 Code of Federal Regulations (CFR) Section (§) 300.415(g). If data gathered during the NTCRA require reconsideration of the RI/FS analysis and conclusions, those documents will be revisited as necessary.

## **4.0 ALTERNATIVES CONSIDERED**

In accordance with ER-200-3-1 (USACE, 2004) for a removal action, a limited number of alternatives are evaluated because removal actions generally have limited objectives, and typically are short-term actions to mitigate the threat posed by a release or threatened release of hazardous substances or pollutants or contaminants, thereby allowing completion of the remedial process. Therefore, the following alternatives were developed in the EE/CA and retained for comparative analysis:

- Alternative 1: No Action;
- Alternative 2: Collection and Removal of TCE-Contaminated Sludge with Off-Site Disposal and In-Place Closure of Vault 4; and
- Alternative 3: Excavation of Vault 4 and TCE-Contaminated Sludge with Off-Site Disposal.

### **4.1 Alternative 1: No Action**

Alternative 1 involves no actions to be performed under current or future land use scenarios. No land use controls such as fencing, warning signs, or institutional controls are included in the No Action alternative. The No Action alternative would result in this area being investigated and addressed under the existing CERCLA remedial action pending at the property. The NCP considers the No Action alternative as a baseline for comparison with other alternatives.

### **4.2 Alternative 2: Collection and Removal of TCE-Contaminated Sludge with Off-Site Disposal and In-Place Closure of Vault 4**

Under Alternative 2, Vault 4 would be exposed using an excavator. TCE-contaminated soil/sludge would be removed from inside Vault 4 using a combination of excavation and vacuum truck and disposed of off-Site. Vault 4 would be left in-place and backfilled with acceptable material following removal of its contents. The TCE-contaminated sludge would be sampled for TCLP analysis prior to transport and off-Site disposal. If the soil/sludge is characterized as non-hazardous waste by the composite sampling methodology it will be disposed of in a Resource Conservation and Recovery Act (RCRA) Subtitle D landfill. If TCLP results determine that the soil/sludge is hazardous waste, it will be disposed of as a hazardous waste in a licensed hazardous waste disposal facility.

Once the excavation is complete, the condition of the vault bottom and sidewalls will be inspected for deterioration, including cracks and spalling. The excavation and vault would be backfilled with acceptable material. The area would be seeded, fertilized, and covered in straw to restore the area to its state prior to the removal action.

### **4.3 Alternative 3: Excavation of Vault 4 and TCE-Contaminated Sludge with Off-Site Disposal**

Vault 4 would be demolished and the TCE-contaminated soil/sludge and Vault 4 concrete would be removed and disposed of off-Site. Excavation activities would be performed with an excavator. The concrete and TCE-contaminated soil/sludge would be sampled and analyzed for TCLP prior to transport and off-Site disposal. If the soil/sludge is characterized as non-hazardous waste by the composite sampling methodology it will be disposed of in a RCRA Subtitle D landfill. If TCLP results determine that the soil/sludge is hazardous waste, it will be disposed of as a hazardous waste in a licensed hazardous waste disposal facility.

Once the excavation is complete, confirmation soil samples would be collected from the bottom and sidewalls of the excavation and submitted to a fixed-base laboratory for VOC analysis. The soil excavation area would be backfilled with acceptable material. The area would be seeded, fertilized, and covered in straw to restore the area following the removal action. During work planning activities, USACE will coordinate with USDA-FS on the seed mix and source of straw.

## 5.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

The final EE/CA was published on December 6, 2018 and was made available for a 30-day public review and comment period from December 10, 2018 through January 10, 2019. Prior to the start of the public review period, on December 6, 2018, an announcement of the planned NTCRA and associated public comment period was made in *The St. Ignace News*. Nearby residents and interested parties were encouraged to submit written comments on the EE/CA during this 30-day comment period; however, no comments were received from the public. **Appendix B** includes the public notice inviting the public to comment on the EE/CA. A copy of the final EE/CA is available at the repository established at the Bayliss Public Library, Bay Mills Community College, and online at <https://www.lrl.usace.army.mil/Missions/Environmental/Raco-Army-Airfield/>. The public meeting was conducted on December 19, 2018, at Kinross Township Hall.

The following table provides the highlights of community participation and documents that all public involvement activities, at the time of publishing this Action Memo, have been satisfied in accordance with the provisions of the NCP and EP 1110-3-8, as well as ER 200-3-1.

**Table 5-1      Highlights of Community Participation**

Public Involvement Activities	Status
Contact Local Officials	C
Contact Property Owners	C
News Release	C
Workshops	NR
Community Interviews	C
Public Involvement Plan	C
Establish Information Repository and Inform Public	C
Initiate and Maintain the Administrative Record File	C
Determine Need for Restoration Advisory Board	C
Publicize Technical Assistance Opportunities	C
Fact Sheet	C
Public Notice	C
Public Meeting	C
Public Comment Period	C
Responsiveness Summary	C
Revise Public Involvement Plan	C

## **6.0 REGULATOR COORDINATION SUMMARY**

Project stakeholders include agencies/parties that provide support of the NTCRA process and will review project documents to concur that actions are protective of human health, welfare, and the environment. The lead organization is the USACE. The lead regulatory agency is the EGLE. The landowner is the United States. The USDA-FS has jurisdiction, custody, and control of the Site. USACE has committed to coordinate and communicate openly and freely with the lead regulatory agency and all regulatory coordination has been, and will continue to be, done as required by Chapter 9 of the Environmental Quality FUDS Program Policy (USACE, 2004).

## 7.0 SELECTION CRITERIA

The selection criteria used to evaluate the alternatives included effectiveness, implementability, and cost, as well as the nine evaluation criteria required by the NCP. The information presented in **Table 7-1** was developed in Section 5.0 of the EE/CA and summarizes the relative advantages and disadvantages of each alternative for the purposes of identifying the best alternative to address Vault 4 and TCE-contaminated sludge/soil.

**Table 7-1 Comparative Evaluation Criteria and Results**

Evaluation Criteria	Alternative 1: No Action	Alternative 2: Collection and Removal of TCE-Contaminated Sludge with Off-Site Disposal and In-Place Closure of Vault 4	Alternative 3: Excavation of Vault 4 and TCE-Contaminated Sludge with Off-Site Disposal
	Advantage/Disadvantage	Advantage/Disadvantage	Advantage/Disadvantage
<b>Effectiveness</b>			
Overall Protection of Human Health, welfare, or the Environment	Not protective to human receptor in the long term. No impacts to the environment were determined to be present.	Provides protection of human health, welfare, and the environment.	Provides protection of human health, welfare, and the environment. Meets RAOs.
Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) and Other Criteria <sup>1</sup>	There are no ARARs.	There are no ARARs.	There are no ARARs.
Long-Term Effectiveness and Permanence	Not effective in reducing potential long-term exposure.	May not be effective in the long term; does not provide a permanent solution as TCE-impacted concrete may remain, Vault 4 will continue to deteriorate, and potential TCE-impacted soil may be present and remain beneath Vault 4.	Provides an effective long-term, permanent solution to eliminate potential exposures.
Short-Term Effectiveness	No remedial action involved; therefore, short-term effectiveness not applicable.	Ineffective. Removal of residual contaminated soil and sludge using hand tools and excavation equipment may risk vault collapse and cave-in with an unacceptable risk to worker safety.	Short-term measurements would be implemented to protect workers during the excavation and transportation activities.

Evaluation Criteria	Alternative 1: No Action	Alternative 2: Collection and Removal of TCE-Contaminated Sludge with Off-Site Disposal and In-Place Closure of Vault 4	Alternative 3: Excavation of Vault 4 and TCE-Contaminated Sludge with Off-Site Disposal
	Advantage/Disadvantage	Advantage/Disadvantage	Advantage/Disadvantage
Reduction of Toxicity, Mobility, or Volume	No reduction of toxicity, mobility, or volume.	Reduces mobility, toxicity, and volume of TCE-impacted soil/sludge. Does not reduce mobility, toxicity, and volume of TCE-impacted concrete and TCE-contaminated soil may remain below Vault 4.	Reduces mobility, toxicity, and volume of TCE-impacted concrete and soil/sludge.
<b>Implementability</b>			
Implementability	No action proposed. Technically and administratively feasible.	Technically not feasible. The breach of the upper chambers of Vault 4 during previous investigation activities may have made access to the lowest portions of the vault and removal of all the contaminated soil and sludge impossible. Without removing Vault 4 entirely, it is impossible to assess the integrity of the base of the vault and technically difficult to fully assess if a release of TCE-contaminated sludge or soil to the environment has occurred.	Technically/administratively feasible. Equipment and supplies are available.
Regulatory Acceptance <sup>1</sup>	Not anticipated to be accepted by Regulators.	May not be accepted by Regulators.	Anticipated to be accepted by Regulators.
Community Support <sup>2</sup>	Not anticipated to be supported.	May not be supported.	Anticipated to be supported.
<b>Cost</b>			
Capital Cost	\$0	\$118,720	\$147,290
Annual O&M Costs	\$0	\$0	\$0
Total Net-Present Value Cost	\$0	\$118,720	\$147,290

Notes:

<sup>1</sup> Because the objective of the action is to address the vault and its contents, there will be no chemical-specific ARARs or to be considered (TBC) criteria.

## 8.0 DESCRIPTION OF SELECTED ALTERNATIVE

A comparative analysis was performed in the EE/CA to evaluate alternatives to mitigate hazards associated with Vault 4 and TCE-contaminated sludge. Alternative 3: Excavation of Vault 4 and TCE-Contaminated Sludge with Off-Site Disposal best achieves the NTCRA objective by meeting the criteria for protecting present and future human receptors from exposure to the COCs. Alternative 3 would also achieve the RAOs. No additional investigation under CERCLA would be required, unless the underlying and/or adjacent soils are found to be impacted by COCs.

In Alternative 3, Vault 4 will be demolished, and the TCE-contaminated soil/sludge and Vault 4 concrete will be removed and disposed of off-Site. Excavation activities will be performed with an excavator. The concrete and TCE-contaminated soil/sludge will be sampled and analyzed for TCLP prior to transport and off-Site disposal. The waste characterization samples of the sludge and soil will be collected as composites of the material staged on-Site in lined roll-off boxes. If the soil/sludge is characterized as non-hazardous waste by the composite sampling methodology it will be disposed of in a RCRA Subtitle D landfill. If TCLP results determine that the soil/sludge is hazardous waste, it will be disposed of as a hazardous waste in a licensed hazardous waste disposal facility.

Approximately 165 tons of concrete and soil/sludge will require excavation to an anticipated depth of 20 ft bgs to achieve the RAO. The approximate removal area represented by Vault 4 is shown on **Figure 1-2**.

Once the excavation is complete, confirmation soil samples will be collected from the bottom and sidewalls of the excavation and submitted to a fixed-base laboratory for VOC analysis. Any residual contamination will be evaluated through the CERCLA process pursuant to 5 CFR § 300.415(g). If data gathered during the NTCRA require reconsideration of the RI/FS analysis/conclusions, those documents will be revisited as necessary. Because the objective of this alternative is to remove the vault and its contents, there will be no chemical specific ARARs or TBCs. Soil sample locations and the final extent of the excavation will be surveyed using a hand-held Global Positioning System unit with sub-meter precision. The soil excavation area will be backfilled with acceptable material. The area will be seeded, fertilized, and covered in straw to restore the area following the removal action.

As this NTCRA moves forward in conjunction with a Removal Action Work Plan, it is recommended that the work elements are designed in accordance with requirements outlined in the following guidance documents to conduct the NTCRA actions in an environmentally beneficial way. Specific environmental considerations may include the recycling of debris, overall activities that result in the reduction of carbon dioxide emissions, the use of biodiesel, and comparisons of disposal locations to reduce fuel consumption and trucking distance. Environmental cost benefits to the removal action would be reported in the Field Summary Report following the completion of the NTCRA. The referenced guidance documents include the following:

- Methodology for Understanding and Reducing a Project's Environmental Footprint, EPA 542-R-12-002 by the USEPA;
- Green Remediation: Best Management Practices for Excavation and Surface Restoration, EPA 542-F-08-012 by the USEPA;
- Section 4.0 Green, Sustainable Remediation of the Environmental Restoration Program Optimization Guidance, Revision 0.9 by the Air Force Center for Engineering and the Environment; and
- Final Report: Green Remediation at Federal Facility Cleanups by the Association of State and Territorial Solid Waste Management Officials.

## **9.0 EXPECTED CHANGE IN SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

Should the actions outlined in this Action Memo be delayed or not taken, the potential exists for continued and substantial endangerment to public health, welfare, or the environment. Contaminant concentrations in soil/sludge inside Vault 4 are as high as 50 ppm for TCE. This is roughly 100 times the regulatory level. Based on professional judgment, this soil/sludge may be characteristically hazardous. A boring may have breached an interior vertical concrete barrier of Vault 4 and the condition of the lower section of the exterior casing or the foundation of the vault is unknown. In its present state, it is likely that Vault 4 will further deteriorate as it continues to be exposed to conditions that occur at the Site and within the vault. Based on these potential conditions and deterioration of Vault 4, the eventual, or potentially ongoing, release of the TCE contaminated sludge and soil from Vault 4 to the environment is likely. In addition, a no action response would not meet the RAO.

## **10.0 RESPONSIVENESS SUMMARY**

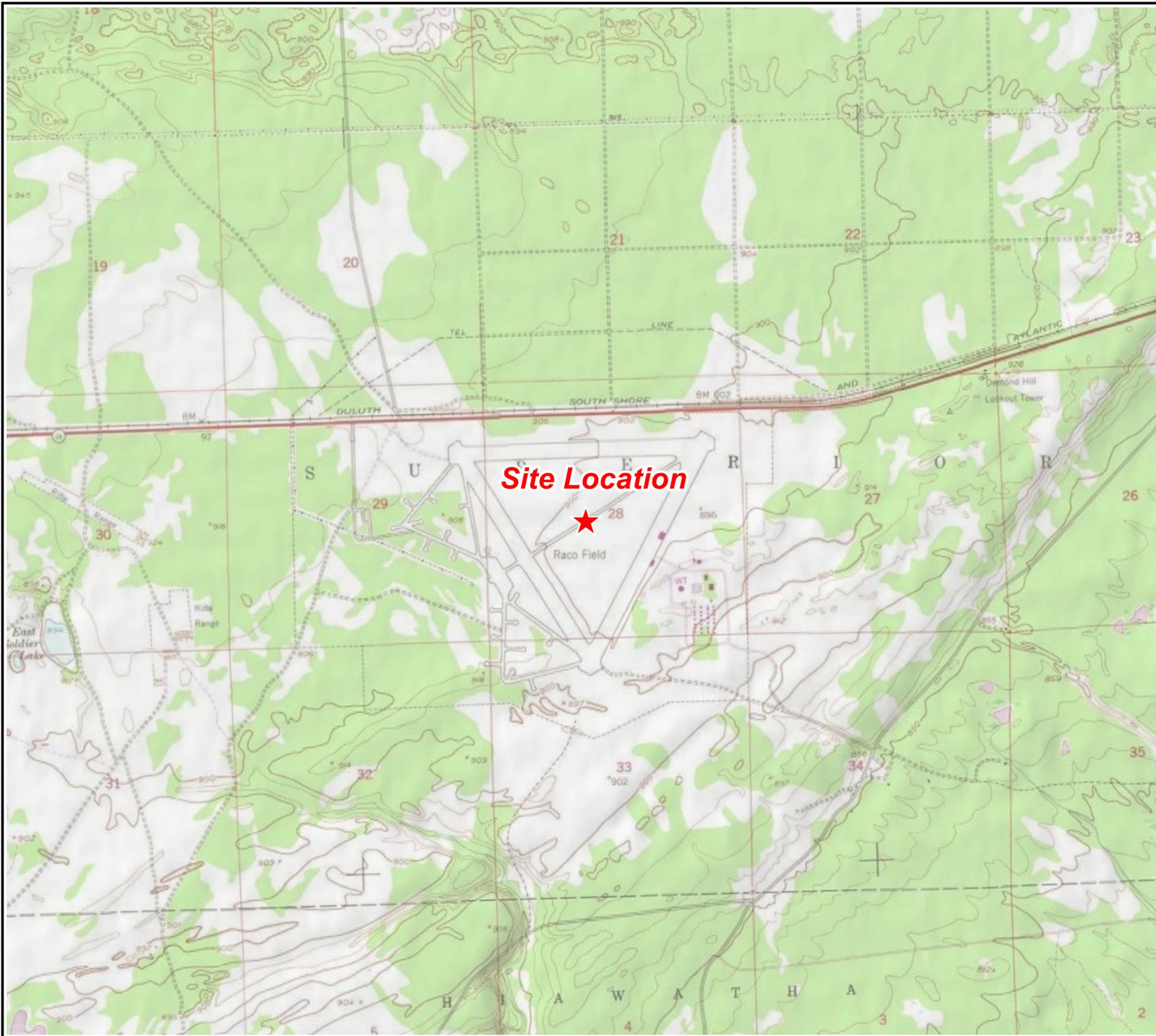
All public involvement activities, at the time of publishing this Action Memo, have been satisfied in accordance with the provisions of the NCP and EP 1110-3-8, as well as the Environmental Quality FUDS Program Policy (USACE, 2004), as stated in **Section 5.0**. No comments were received during the 30-day comment period. Two entities, Smithers and the USDA-FS, were present during the public meeting, in addition to Bay West, EGLE, and USACE. Meeting minutes from the public meeting are included in **Appendix C**. No changes were made to the selected alternative because no comments were received during public involvement process.

## **11.0 REFERENCES**

- GEO Consultants Corporation (GEO), 2017. *Field Summary Report, Source Investigation, Former Racó Army Airfield and Missile Site, Chippewa County, Michigan*. December 11. (Source: USACE, 2018b)
- USACE (U.S. Army Corps of Engineers), 2004. *Environmental Quality, Formerly Used Defense Sites (FUDS) Program Policy ER 200-3-1*. 10 May.
- USACE, 2018a. *Final Remedial Investigation Report, TCE Groundwater Plume, Former Racó Army Airfield and Missile Site, Chippewa County, Michigan*. May.
- USACE, 2018b. *Removal Action Approval Memorandum*. May.
- USACE, 2018c. *Engineering Evaluation/Cost Analysis, Former Racó Army Airfield and Missile Site, Non-Time Critical Removal Action Vault 4 and Trichloroethylene-Contaminated Sludge*. December.
- USACE, 2018d. *Draft-Final Feasibility Study Report TCE Groundwater Plume Former Racó Army Airfield and Missile Site Chippewa County, Michigan FUDS Property No. E05MI0026*. September.

## **Figures**

Y:\Clients\US\_ARMY\_CORP\_OF\_ENGINEERS\_LOUISVILLE\Raco\_Air\_Field\MapDocs\180557\001\_Updates\180557\001\_Site\_Location\_Map.mxd

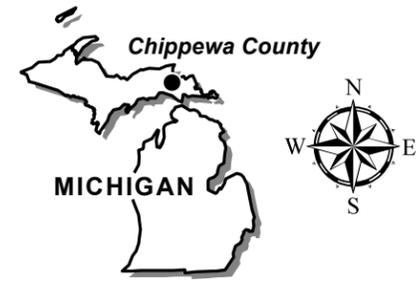


**Figure 1-1**

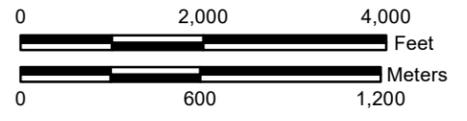
**Site Location Map**

**RACO Army Airfield  
and Missile Site**

Chippewa County, Michigan  
U.S. Army Corps of Engineers  
Louisville District



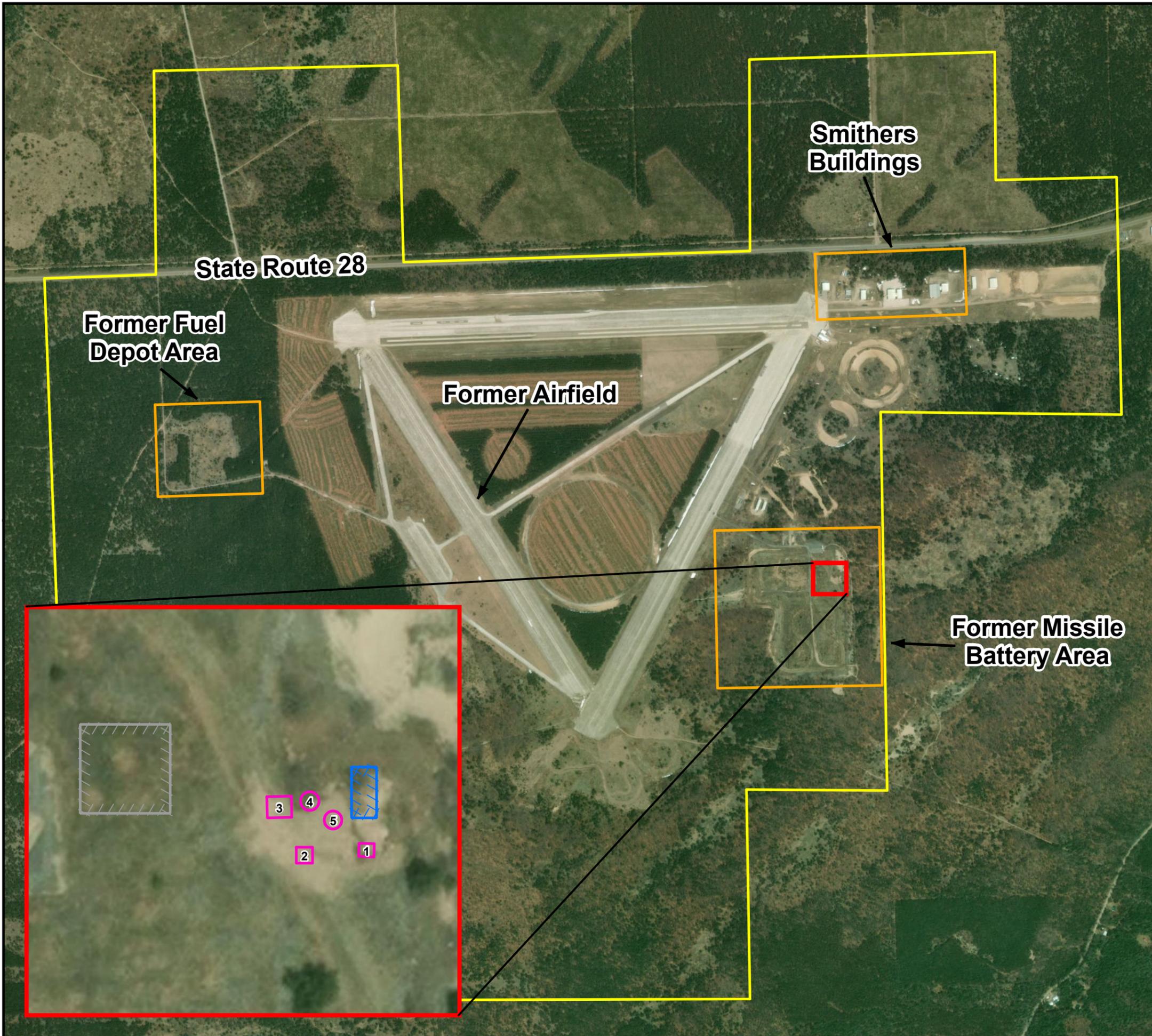
Map Projection: NAD 1983 State Plane Michigan North FIPS 2111  
Basemap: National Geographic Society, i-cubed



1 inch = 2,000 feet

★ Site Location

Y:\Clients\US\_ARMY\_CORP\_OF\_ENGINEERS\_LOUISVILLE\Raco\_Army\_Air\_Field\MapDocs\180557\001\_Updates\180557\001\_Site Map with Water Treatment Area Detail.mxd



**Figure 1-2**

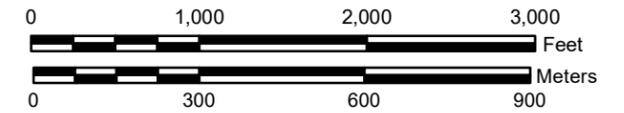
**Site Map with Wastewater Treatment Area Detail**

**RACO Army Airfield and Missile Site**

Chippewa County, Michigan  
U.S. Army Corps of Engineers  
Louisville District



Map Projection: NAD 1983 State Plane Michigan North FIPS 2111  
Basemap: ESRI World Imagery WMS, 4/24/2017



-  Approximate Vault Location
-  Former Assembly and Maintenance Building
-  Wastewater Lagoon
-  FUDS Boundary
-  Wastewater Treatment Area Detail

**Appendix A**  
**USDA-FS Concurrence Letter**



File Code: 2160

Date:

MAY 20 2019

Colonel Antoinette Gant  
Army Corps of Engineering Commander, Louisville District  
USACE Louisville District  
600 Dr. Martin Luther King Jr. Place  
Louisville, KY 40202-0059

RE: USDA Forest Service Concurrence with the Final Draft Non-Time Critical Removal Action Memo for the Vault 4 and Trichloroethylene-Contaminated Sludge Removal at the Former Racoon Army Airfield and Missile Site, Chippewa County, Michigan

Dear Colonel Gant:

This letter is provided to the United States Army Corps of Engineers (Corps) to signify the USDA Forest Service concurrence with the May 2019 Draft Final Removal Action Memo markup that has addressed the Forest Service comments summarized in the March 21, 2019, Comment Table (enclosed). This concurrence letter does not authorize access to the Racoon site. Any such access authorization must be approved by separate agreement between the Corps and the Forest Service and is also subject to approval of the final Work Plan to implement this removal action.

We look forward to working with the Corps to achieve the objectives of this response action and ensure the protection of human health and the environment.

If you have questions or concerns, please contact Jessica Stuntebeck [jessica.stuntebeck@usda.gov](mailto:jessica.stuntebeck@usda.gov) at (414) 297-3342.

Sincerely,

ROBERT LUECKEL  
Acting Regional Forester, Eastern Region

Enclosures (2)

cc: Joshua.Vanbogaert@usace.army.mil, Jessica Stuntebeck, Travis Haas



**Appendix B**  
**Public Notice**

## **PUBLIC COMMENT PERIOD**

### **Former Racó Army Airfield, Missile Base**

The U.S. Army Corps of Engineers invites you to review and comment on the Engineering Evaluation/Cost Analysis (EE/CA) for the Non-Time Critical Removal Action (NTCRA) at the former Racó Army Airfield and Missile Base, a Formerly Used Defense Site near Sault Ste. Marie, Michigan.

The Department of Defense used the site as an airfield for 21 years and as a missile base for approximately 13 years, ending in 1972. The Corps is currently conducting an environmental investigation at the site and an EE/CA as part of a NTCRA to address a former underground wastewater treatment structure.

The preferred alternative is explained in the EE/CA report, which details excavation of Wastewater Treatment Vault 4 and the TCE-Contaminated Sludge with Off-Site Disposal. Copies of the EE/CA are available for public review in the information repository established at the Bayliss Public Library, (906) 632-9331 and Bay Mills Community College, (906) 248-3354; and found online at <https://www.lrl.usace.army.mil/Missions/Environmental/Raco-Army-Airfield/>.

The U.S. Army Corps of Engineers encourages you to comment on the EE/CA during the 30-day Public Comment Period, Dec. 10, 2018 through Jan. 10, 2019. Written comments may be submitted by mail, postmarked no later than Jan. 10, 2019 to the following address: U.S. Army Engineer District, Louisville District Corps of Engineers, CELRL-ED-E, Aaron Steele, P.O. Box 59, Louisville, Kentucky, 40201-0059, or emailed to [aaron.b.steele@usace.army.mil](mailto:aaron.b.steele@usace.army.mil). Public comments received during this period will be considered in the final decision-making process for the former Racó Army Airfield and Missile Base.

A public meeting is scheduled to be held at 6 p.m., Dec. 19, 2018 at Kinross Township Hall, located at 4884 W Curtis Street, Kincheloe, MI 49788, for the public to ask questions and submit comments and concerns in person regarding the recommended removal action.

For more information, please contact the U.S. Army Corps of Engineers, Louisville District, Public Affairs Office at (502) 315-6769.

**Appendix C**  
**Public Meeting Minutes**

---

**Former Raco Missile Base Site  
Vault 4 Non-time Critical Removal Action  
Public Meeting  
19 December 2018  
Kinross Township Hall, Kincheloe, MI  
Meeting Minutes**

---

<b>Participants</b>	<b>Affiliation</b>	<b>Email Address</b>
Josh Van Bogaert	USACE	joshua.vanbogaert@usace.army.mil
Aaron Steele	USACE	aaron.b.steele@usace.army.mil
William Harmon	MDEQ	harmonw@michigan.gov
Beth Place	MDEQ	placeb1@michigan.gov
Rick Van Allen	Bay West LLC	rickv@baywest.com
Amanda Malaney	Bay West LLC	amandam@baywest.com

<b>Attendees</b>	<b>Affiliation</b>	<b>Email Address</b>
Sean Connolly	Smithers	sconnolly@smithers.com
Robert West	U.S. Forest Service	robertwest@usda.gov

1800 – The public meeting commenced. Participants introduced themselves and their roles on the project.

1810 – Aaron Steele and Rick Van Allen gave a presentation summarizing the EECA, the proposed path forward, and the schedule of future activities including the open and closing dates for the public comment period.

USACE received no comments from attendees on the EECA or proposed path forward.

1830 – Presentation concluded.

---