

**Decision Document**  
**Former Hanna City Air Force Station**  
**Hanna City, Illinois**

**U.S. Army Corps of Engineers**  
**Louisville District**

**July 2013**



**Decision Document**  
**Former Hanna City Air Force Station**  
**Hanna City, Illinois**

Date Issued – July 2013

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## ACRONYMS AND ABBREVIATIONS

ARARs	applicable or relevant and appropriate requirements
BLRA	Baseline Human Health Risk Assessment
BMP	Best Management Practice
CELRL	U.S. Army Corps of Engineers, Louisville District
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	contaminant of concern
COPC	chemical of potential concern
DD	Decision Document
DoD	Department of Defense
EPC	exposure point concentration
ERA	Ecological Risk Assessment
ESV	Ecological Screening Value
EU	Exposure Unit
FS	Feasibility Study
GSR	Green and Sustainable Remediation Practices
HCAFS	Hanna City Air Force Station
HI	Hazard Index
HQ	Hazard Quotient
ILCR	incremental lifetime cancer risk
Illinois EPA	Illinois Environmental Protection Agency
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
O&M	operation and maintenance
PAH	polycyclic aromatic hydrocarbon
PRP	Potentially Responsible Party
RAO	Remedial Action Objective
RI	Remedial Investigation
RG	Remediation Goal
SI	Site Inspection
SLERA	Screening Level Ecological Risk Assessment
SSI	Supplemental Site Investigation
TACO	Tiered Approach to Corrective Action Objectives
TCRPC	Tri-County Regional Planning Committee
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency

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## EXECUTIVE SUMMARY

The Selected Remedy will be the remedial action for portions of the Former Hanna City Air Force Base (HCAFS). The objectives for the remedial action at the included portions of the Former HCAFS are to prevent ingestion, inhalation, and direct contact with surface soils containing Department of Defense (DoD)-released polycyclic aromatic hydrocarbons (PAHs) above remediation objectives, to reduce migration of contaminants in surface soils; and, mitigate the possibility of contaminants leaving the site through surface water run-off and erosion of the surface soils. A discussion on the comparison of PAHs in the areas of concern with background PAH values due to road runoff, melting of plowed snow, and vehicular emissions are presented in Section 4.6.3.6 of the Remedial Investigation (RI) (GEO 2010). PAHs attributed to DoD-related activities were addressed in the Proposed Plan (GEO 2013) and contamination attributed to non-DoD sources (roadways) has been excluded.

The Army held a public availability session to discuss the recommendation in the Proposed Plan. The public meeting was held on May 20, 2013, where representatives of U.S. Army Corps of Engineers (USACE) presented the recommendation of the Proposed Plan. Notices for the public meeting and the public comment period were advertised in the local print media, the *Peoria Journal Star*, *Home Shopper*, *Farmington Shopper*, *Tri-County News*, *Peoria Shopper*, and *Pekin Extra* between May 2 and 8<sup>th</sup>, 2013. An updated Fact Sheet on the Former HCAFS and the Public Comment Period was mailed to residents and stakeholders (163 in total) on May 6, 2013. The public comment period was held from May 2, 2013 to June 3, 2013. Comments received on the Proposed Plan have been addressed in the Responsiveness Summary (Section 3) of this document.

The soil conditions at four Areas of Concern (AOCs) within the former HCAFS site meet the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) criteria for a removal action, including substantial threat to the construction, maintenance workers; and resident. The selected remedy for remediation at included portions of the Former HCAFS is Alternative 3 (Removal of Surface Soil Exceeding the Set 2 Remedial Goals). This alternative was selected because it will achieve the remedial objectives of preventing exposure to the contaminated soil and the risk to site users is reduced to levels that are within the acceptable range. USACE and Illinois Environmental Protection Agency believe the Selected Remedy would be protective of human health and the environment, would achieve the remedial objectives, would meet both short-and long- term effectiveness, would provide permanence, and is implementable and cost effective. Further, the proposed Tiered Approach to Corrective Action Objectives (TACO) Tier 1 industrial/commercial criteria are protective of potential future residents according to 40CFR300.430(e)(2)(A)(2-5). Failure to remove the impacted soils would not allow for unlimited use/unrestricted exposure of the property, causing yearly inspections and five year reviews.

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# Former Hanna City Air Force Station



Hanna City  
Peoria County, Illinois  
July, 2013

U.S. Army Corps of Engineers  
Louisville District

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## 1.0 DECLARATION

### 1.1 NAME AND LOCATION

Former Hanna City Air Force Station, Hanna City, Illinois  
FUDSMIS: E05IL0061-01

### 1.2 STATEMENT OF BASIS

This Decision Document (DD) presents the Selected Remedy for the Former Hanna City Air Force Station (HCAFS), Hanna City, Illinois, which was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The Selected Remedy satisfies Section 121 of CERCLA. This decision is based on the Administrative Record file for this site.

The State of Illinois concurs with the Selected Remedy. Regulatory concurrence with this DD is indicated by the signature of the Director of the Illinois Environmental Protection Agency.

### 1.3 ASSESSMENT OF AREAS OF CONCERN

The remedial action selected in this DD is necessary to protect public health, or welfare, or the environment from actual or threatened releases of pollutants or contaminants from the site. Carcinogenic polyaromatic hydrocarbons (PAHs) [e.g. benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, etc.] in soil exceed the upper end of the National Contingency Plan's acceptable risk of  $10^{-4}$  [40CFR300.430(e)(2)(i)(A)(2-5)] for unlimited use/unrestricted exposure.

### 1.4 DESCRIPTION OF THE SELECTED REMEDY

This DD records a Selected Remedy of Alternative 3, Removal of Surface Soil (0 to 1 foot below ground surface [bgs]) Exceeding the Set 2 Remediation Goals (RGs, shown in Appendix C) for PAHs, for the following areas of concern: Coal Area A, Coal Area B, Coal Area C (including the Paint Shed and Maintenance Building), and Main Entrance as depicted in Figure 2 in Appendix A. Soils deeper than 1 foot bgs will not be remediated because PAHs were not detected deeper than 1 foot and PAHs are not expected to migrate that deep. The Tiered Approach to Corrective Action Objectives (TACO) Tier 1 standards were used in evaluating the risk associated with the remedial alternatives. Alternative 2 is based on the TACO Tier 1 Residential RGs and Alternative 3 is based on the TACO Tier 1 industrial/commercial RGs. In order to determine if Alternative 3 requires land use restrictions or controls the residential risk levels for the industrial/commercial preliminary Remedial Action Objectives (RAOs) were calculated using the TACO Residential criteria (which reflect a risk level of  $10^{-6}$ ). The calculated residential risk levels for the proposed Alternative 3 RAOs are well below the upper limit of the NCP target risk range ( $10^{-4}$ ). For naphthalene, the residential risk level for the RG is well below  $10^{-6}$ .

Therefore, the Alternative 3 RGs will be protective of receptors under current land use, and will also be protective of residential users should the property be converted to residential use in the future.

## 1.5 STATUTORY DETERMINATIONS

As the lead agency on the site, it is the current judgment of the U.S. Army Corps of Engineers (USACE), Louisville District (CELRL) judges that the Alternative 3, Removal of Surface Soil Exceeding the Set 2 RGs, identified in this DD, is protective of human health and the environment, complies with Federal and State requirements, is cost-effective, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable. Because of the concerns associated with leaving soils on-site that present an unacceptable risk, the residential risk levels for the Alternative 3 RAOs were calculated. This calculation showed that the risk associated with the soil remaining in Alternative 3 is within the allowable risk according to CERCLA and therefore Five Year Reviews would not be needed. (see Section 2.10.3). Both on- and off-site soil treatment technologies were analyzed in the Feasibility Study (FS) (GEO 2012b), and were determined to either have limited effectiveness for PAHs or the volume of soil to be treated was too small to be cost competitive.

## 1.6 DECISION DOCUMENT CERTIFICATION CHECKLIST

**Table 1. Certification Checklist**

<b>Decision Document Data Checklist Item</b>	<b>Decision Document Section Number Reference</b>
The contaminants of concern (COCs) and their respective concentrations (Sources, Types and Extent of Contamination)	<ul style="list-style-type: none"> <li>• Section 2.2</li> <li>• Tables 2 through 8</li> <li>• Figures 4-9</li> </ul>
Current and reasonably anticipated future land use scenarios used for risk assessment	<ul style="list-style-type: none"> <li>• Section 2.6</li> </ul>
The estimate of potential risk (Summary of Area of Concern Risks)	<ul style="list-style-type: none"> <li>• Section 2.7</li> <li>• Tables 11 through 14</li> <li>• Tables 18 through 19</li> </ul>
The cleanup levels established for the COCs and their basis	<ul style="list-style-type: none"> <li>• Section 2.8</li> <li>• Appendix C</li> </ul>
The key factors that led to the selection of the Remedy	<ul style="list-style-type: none"> <li>• Section 2.10.2</li> <li>• Table 21</li> <li>• Section 2.11</li> </ul>
The estimated costs of the Selected Remedy (NCP Evaluation)	<ul style="list-style-type: none"> <li>• Section 2.10.2</li> <li>• Table 21</li> <li>• Table 22</li> </ul>

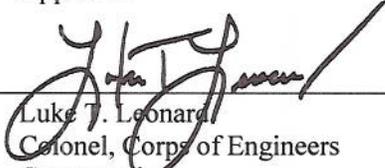
## 1.7 AUTHORIZING SIGNATURES

Acceptance of this DD is indicated by the signature of the U.S. Department of the Army Representative. Regulatory concurrence with this DD is indicated by the signature of the Director of the Illinois Environmental Protection Agency. Copies of the signature pages follow on pages 3 and 5. This DD will be incorporated into the Administrative Record file which is available for public view at the Farmington Area Public District Library, 266 East Fort Street, Farmington, Illinois 61531-1276. The Administrative Record is also maintained at the CELRL District Office at 600 Martin Luther King Jr. Place, Louisville, Kentucky 40202 and online at <http://bit.ly/HannaCityAFS>.

ARMY ACCEPTANCE  
OF THE DECISION DOCUMENT  
FORMER HANNA CITY AIR FORCE STATION  
HANNA CITY, ILLINOIS

The signature of the Army Representative of the U.S. Army Corps of Engineers, Louisville District, denotes acceptance of the Decision Document for the final remedy for the Former Hanna City Air Force Station in Hanna City, Illinois. The final remedy for Former HCAFS is Alternative 3, Removal of Surface Soil Exceeding the Set 2 Remediation Goals.

Approval:

  
Luke T. Leonard  
Colonel, Corps of Engineers  
Commanding

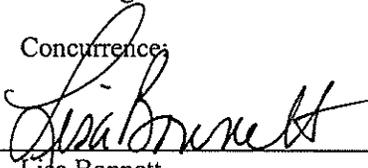
12 July 13  
Date

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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY CONCURRENCE  
OF THE DECISION DOCUMENT  
FORMER HANNA CITY AIR FORCE STATION  
HANNA CITY, ILLINOIS

The signature of the Representative of the Illinois Environmental Protection Agency denotes concurrence with the Decision Document for the final remedy for the Former Hanna City Air Force Station in Hanna City, Illinois. The final remedy for Former HCAFS is Alternative 3, Removal of Surface Soil Exceeding the Set 2 Remediation Goals.

Concurrence:



Lisa Bonnett

Director Illinois Environmental Protection Agency

9/3/13  
Date

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## 2.0 DECISION SUMMARY

The Decision Summary identifies that Alternative 3 is being selected, explains how remedial action is necessary to ensure protection of human health, and provides a substantive summary of the Administrative Record file that supports the remedy selection decision.

### 2.1 NAME, LOCATION, AND DESCRIPTION

Site Name:	Former Hanna City Air Force Station
Location:	Hanna City, Illinois
FUDSMIS:	E05IL0061-01
Lead Agency:	U.S. Army
State Support Agency:	Illinois Environmental Protection Agency
Source of Cleanup Monies:	Funding for remedial activities is provided by the Defense Environmental Restoration Account; a funding source approved by Congress to clean up contaminated sites on the U.S. Department of Defense (DoD) installations.
Site Type:	Former U.S. Air Force radar tracking and investigation facility with Contaminated Soil and Groundwater.
Site Description:	The site occupies approximately 43 acres of land and is located approximately 10 miles west of the city of Peoria and two miles west of the Village of Hanna City in Peoria County, Illinois (Figure 1). The U.S. Government acquired the property for use by the U.S. Air Force as a radar tracking and investigation facility from 1952 to 1968. In 1968, the property was declared excess and transferred to the General Services Administration, then quitclaimed to the State of Illinois.

### 2.2 HISTORY AND ENFORCEMENT ACTIVITY

The site occupies approximately 43 acres of land and is located approximately 10 miles west of the city of Peoria and two miles west of the Village of Hanna City in Peoria County, Illinois (Figure 1, all figures located in Appendix A) and is shown in Figure 2. Because contamination at approximately 4.5 acres may have been caused by other non-DoD Potentially Responsible Parties (PRPs), only 38.5 acres (highlighted on Figure 3) were evaluated for purposes of this remediation project and remedy.

The U.S. Government acquired the property for use by the U.S. Air Force as a radar tracking and investigation facility from 1952 to 1968. In 1968, the property was declared excess and transferred to the General Services Administration, then quitclaimed to the State of Illinois and occupied by the Illinois Department of Corrections until October 2002. In 2009, the property was transferred to Peoria County and is currently used by the Peoria County Sheriff's Office for Special Weapons and Tactics training, highway department storage of equipment and road maintenance supplies, County record and file storage, and miscellaneous short term events. When the property was transferred to the County there was a requirement that the property will be used for public purposes. Should the use change from public use the property will then revert to State ownership.

Site investigations performed in 1992 and 1996 revealed the following contaminants of concern: polycyclic aromatic hydrocarbons (PAHs) in surface soil in all areas of concern and in subsurface soil at the Vehicle Wash Rack, arsenic in the subsurface soil at Coal Storage Areas A, B, and C and the Paint Shed (Figure 2); and metals in groundwater for the site as a whole. Based on the Site Inspection (SI) and

Supplemental Site Investigation (SSI), the impacted media at the site were identified as surface soil, subsurface soil, and groundwater. There was no record or evidence of any significant releases or spills while the Former HCAFS was an active radar tracking facility identified. The previous data suggest that the contamination at the site is primarily the result of small releases that occurred over time during normal site operations at the Vehicle Wash Rack, Maintenance Building, and Paint Shed, as well as possible runoff or infiltration from the coal storage areas (Figure 2). Investigations at the Main Entrance were also completed. The likely source of contaminants at the Main Entrance is coal dust from coal being transported onto the site. The investigations found no indication that the Department of Corrections used the coal piles, Maintenance Building, Paint Shed and Vehicle Wash Rack. Examination of aerial photos from 1956 to the present did not indicate that the Main Entrance had been disturbed, except for tree removal, after DoD used the site.

In 2008 and 2009, the Remedial Investigation (RI) (GEO 2010) and FS (GEO 2012b) were conducted at the site by USACE. Types, quantities, and locations of contaminants along with the development of ways to address the contamination problems were identified in the RI/FS studies. Baseline Human Health Risk Assessment (BLRA) and a Screening Level Ecological Risk Assessment (SLERA) were conducted as part of the RI/FS, which determined that PAH surface soil exceedances of TACO Tier 1 criteria do exist, and the exposure pathway for PAHs in surface soil are through surface transport via surface water runoff and snow melt. Surface soils containing PAHs are subject to becoming airborne when the soils are disturbed and dust is produced. The recommended RAO for the Former HCAFS is to reduce human health risk posed by surface soils to acceptable levels for industrial/commercial use.

The RI that was conducted confirmed that surface soil quality had been impacted by activities at the facility. In particular, surface soil has concentrations of PAHs, which are a group of chemicals that occur in coal, crude oil, and gasoline. Concentrations of benzo(a)pyrene (a PAH) in the surface soil at the site is shown in Figure 4. The sources of these compounds at the facility include car emissions, coal transportation on the site, and the coal storage areas. The areas of surface soil to be remediated include the areas where it has been shown that the PAHs are the result of DoD actions and not solely from road traffic since road traffic is not specific to DoD use and road traffic is an ongoing activity associated with continued use of the site.

Contamination in subsurface soils was found only in small, isolated occurrences. An exception to this is arsenic which was found in the subsurface soil at many locations. However, the average of the concentrations reported is below the background concentration for metropolitan areas in Illinois. Since there is no known source of arsenic associated with site use and the average arsenic concentrations are below background concentrations, the conclusion of the RI was that the arsenic reported from the subsurface soil samples represents naturally occurring conditions. This conclusion is consistent with the geology of the site.

The RI and FS also concluded that the metals that were found above TACO groundwater criteria did not come from site activities, but are naturally occurring because of the geology of the site, therefore groundwater is not addressed in the remediation alternatives.

## **2.3 COMMUNITY PARTICIPATION**

In 2008, a Public Notice was placed in the *Peoria Journal Star* to advertise that the Administrative Record was established in the Peoria Public Library. A Community Research Survey was conducted in the spring of 2012 as a part of producing the Community Action Plan (GEO 2012a). The Survey consisted of 1300 surveys mailed to the residents of Hanna City, Illinois; 213 residents responded. As a result of the survey results, the Administrative Record was moved from the Peoria Public Library to the

Farmington District Public Library. The Administrative Record move was advertised in the *Peoria Journal Star*, *Farmington Shopper*, *Tri-County News* and *The Home Shopper* in June 2012. A Fact Sheet on the Former HCAFS was mailed to residents that provided an address during the Survey in June 2012.

The Proposed Plan for Former HCAFS was made available to the public on May 1, 2013. A copy of the Administrative Record file, which contains the Proposed Plan (GEO 2013) and its supporting documentation, is available at the following locations:

Farmington District Library  
266 East Fort Street  
Farmington, Illinois 61531-1276  
(309) 245-2175

CELRL District Office  
600 Martin Luther King Jr. Place  
Louisville, Kentucky 40202

Online  
<http://bit.ly/HannaCityAFS>

The Army held a public availability session to discuss the recommendation in the Proposed Plan. The public meeting was held on May 20, 2013, where representatives of USACE presented the recommendation of the Proposed Plan. Notices for the public meeting and the public comment period were advertised in the local print media, the *Peoria Journal Star*, *Home Shopper*, *Farmington Shopper*, *Tri-County News*, *Peoria Shopper*, and *Pekin Extra* between May 2 and 8, 2013. An updated Fact Sheet on the Former HCAFS and the Public Comment Period was mailed to residents and stakeholders (163 in total) on May 6, 2013. The public comment period was held from May 2, 2013 to June 3, 2013.

Several comments were presented by the public at the meeting and are addressed in Section 3. Written and email comments were received which are also addressed in Section 3. At the public meeting representatives from the Peoria County Board expressed concurrence with the Selected Alternative. No changes were made to the Alternative 3: Removal of Surface Soil Exceeding the Set 2 RGs recommendation.

## **2.4 SCOPE AND ROLE OF THE REMEDIAL ACTION**

The selected action will be the remedial action for portions of the Former HCAFS. The objectives for the remedial action at the included portions of the Former HCAFS are to prevent ingestion, inhalation, and direct contact with surface soils containing DoD-released PAHs above remediation objectives and to reduce migration of contaminants in surface soils and mitigate the possibility of contaminants leaving the site through surface water run-off and erosion of the surface soils. A discussion on the comparison of PAHs in the areas of concern with background PAH values due to road runoff, melting of plowed snow, and vehicular emissions are presented in Section 4.6.3.6 of the RI (GEO 2010). PAHs attributed to DoD-related activities are being addressed in the Proposed Plan (GEO 2013) and contamination attributed to non-DoD sources (roadways) has been excluded.

## **2.5 AREAS OF CONCERN CHARACTERISTICS**

The site lies on relatively flat ground with elevations ranging from approximately 740 to 756 feet above mean sea level and is located on top of a gentle north-south trending ridge. The surface water bodies within the Former HCAFS include two wastewater treatment ponds (installed after the Former

HCAFS was deactivated) and the water treatment lagoon (which has not been operational since the Hanna City Water Supply was shut down in 1987). The surface water areas are not being remediated.

Drinking water is supplied to the surrounding residents from the Illinois of America Water Company. Groundwater in the vicinity of the site is not used as a major water source. On March 1, 2005, the Village of Hanna City passed Ordinance 5-03-01, which prohibits the use of groundwater for potable water supply in the Village. According to the Ordinance, the reason for this prohibition is that certain properties within the Village had been used for commercial and industrial purposes and, as a result, “the groundwater beneath the Village may exceed Class I groundwater quality standards for potable resource groundwater, as set forth in 35 Illinois Administrative Code 620 or Tier I residential remediation objectives.” A 1864-foot deep water supply well and water treatment facility was operated on the Former HCAFS by the Village of Hanna City until 1987, when the water supply well was closed by the Illinois EPA due to elevated levels of naturally occurring radon.

## **2.6 CURRENT AND POTENTIAL AREAS OF CONCERN RESOURCES**

The majority of the site is unused or infrequently used. There are currently no full-time residents or employees on the site. In 2009, the property was transferred to Peoria County and is currently used by the Peoria County Sheriff’s Office for Special Weapons and Tactics training, highway department storage of equipment and road maintenance supplies, County record and file storage, and miscellaneous short term events. When the property was transferred to the County there was a requirement that the property be used for public purposes. Should the use change from public use the property will revert to State ownership.

The land and buildings of Tract 3 on the site (Figures 2 and 3) are currently used by the Federal Aviation Administration as a navigation facility. Surrounding land use is rural/agricultural with a few buildings in the site vicinity. There are two groups of farm buildings, including residences and barns, immediately adjacent to the southwest corner of the Former HCAFS. The agricultural land use in the surrounding area appears to be stable and is likely to remain unchanged in the future.

The Former HCAFS is located approximately 2 miles west of Hanna City, Illinois and 10 miles west of Peoria, Illinois. There is an ordinance from the Village of Hanna City (Ordinance 5-03-01) that prohibits the use of groundwater for potable water supply because industrial/commercial land use in the Village resulted in groundwater quality not meeting Illinois standards (35 Illinois Administrative Code 620 or Tier I residential remediation objectives). It is not likely that residential or commercial receptors will use the shallow groundwater underlying the Former HCAFS.

## **2.7 SUMMARY OF AREA OF CONCERN RISKS**

This section summarizes the human health and ecological risk assessments that were performed for the Former HCAFS. A Conceptual Site Exposure Model from the RI (GEO 2010) is shown in Appendix B. The BLRA estimates what risks the site poses if no action were taken. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. This section of the DD summarizes the results of the BLRA for this site.

### **2.7.1 Human Health Risks**

In 2010, a BLRA was conducted to evaluate potential human health risks resulting from exposure to soil and groundwater contamination if no remedial action is taken at the Former HCAFS. In evaluating risk from soil contamination, Coal Area A, Coal Area B, the Vehicle Wash Rack and Main Entrance were each considered as separate Exposure Units (EUs). Because of their proximity to each other, Coal Area C,

the Maintenance Building, and the Paint Shed were combined into one EU. To evaluate risks from groundwater, the entire site was considered as a single EU.

The BLRA focused on chemicals of potential concern (COPCs) in areas where chemical analyses from the SI and SSI exceeded human health screening criteria. To identify the COPCs that were to be carried through the quantitative BLRA, data were compared against human health screening criteria that consisted of the TACO background concentrations for metals or the lowest of the TACO and U.S. Environmental Protection Agency (USEPA) Regional Screening Level criteria for soil, and the lowest of the TACO groundwater criteria, as well as state and federal drinking water standards for groundwater.

Based on recent land use, the site receptor considered in the BLRA was a commercial/industrial worker. An unlimited land use scenario was incorporated in the risk assessment by including residential receptors (adult and child). In the conceptual site model, it was assumed that there were completed pathways from surface and subsurface soil to all four site receptors and from groundwater to residential receptors. These completed pathways were then included in the BLRA. This site is industrial and is likely to stay industrial, making the site receptor considered in the BLRA the commercial/industrial worker. Additionally, risk for potential residents was evaluated pursuant to the Defense Environmental Restoration Program Management Guide that requires an alternative be analyzed that allows for unlimited use and unrestricted exposure (which USACE considers equivalent to a safe resident exposure).

Tables 2 through 8 present the COPCs and exposure point concentrations (EPCs) for each of the COPCs detected in surface soil (Tables 2 through 6), subsurface soil (Table 7), and groundwater (Table 8). The tables include the range of concentrations detected for each COPC, as well as frequency of detection, the EPC, and how the EPC was derived. Further information on EPC derivation can be found in the RI Report (GEO 2010).

**Table 2. Chemicals of Potential Concern for Surface Soil at Coal Area A**

Chemical of Concern	Minimum Detected (µg/kg)	Maximum Detected (µg/kg)	Frequency of Detection	Exposure Point Concentration (µg/kg)	Statistical Measure
Benzo(a) anthracene	14	3500	9 of 9	2869	95% UCL
Benzo(b)fluoranthene	25	2800	9 of 9	1804	95% UCL
Benzo(k)fluoranthene	7.4	2000	9 of 9	1681	95% UCL
Benzo(a)pyrene	13	3000	9 of 9	2746	95% UCL
Indeno(1,2,3-cd)pyrene	12	2300	9 of 9	2300	Maximum detected*
Dibenzo(a,h)anthracene	2.6	690	9 of 9	690	Maximum detected*

UCL: Upper Confidence Limit, µg/kg: micrograms per kilogram

\* Maximum detected was utilized because it was the lower value between the 95% UCL and maximum detected.

**Table 3. Chemicals of Potential Concern for Surface Soil at Coal Area B**

Chemical of Concern	Minimum Detected (µg/kg)	Maximum Detected (µg/kg)	Frequency of Detection	Exposure Point Concentration (µg/kg)	Statistical Measure
Benzo(a) anthracene	120	14000	11 of 11	3429	95% UCL
Benzo(b)fluoranthene	96	14000	11 of 11	4636	95% UCL
Benzo(k)fluoranthene	36	7000	11 of 11	1853	95% UCL
Benzo(a)pyrene	94	11000	11 of 11	2993	95% UCL
Indeno(1,2,3-cd)pyrene	53	6600	11 of 11	2188	95% UCL
Dibenzo(a,h)anthracene	8.6	280.1	11 of 11	689	95% UCL

UCL: Upper Confidence Limit, µg/kg: micrograms per kilogram

**Table 4. Chemicals of Potential Concern for Surface Soil at Coal Area C**

<b>Chemical of Concern</b>	<b>Minimum Detected (µg/kg)</b>	<b>Maximum Detected (µg/kg)</b>	<b>Frequency of Detection</b>	<b>Exposure Point Concentration (µg/kg)</b>	<b>Statistical Measure</b>
Benzo(a) anthracene	92	18000	28 of 28	10296	99% UCL
Chrysene	110	21000	28 of 28	11612	99% UCL
Benzo(b)fluoranthene	140	31000	28 of 28	16134	99% UCL
Benzo(k)fluoranthene	41	9600	28 of 28	5798	99% UCL
Benzo(a)pyrene	80	19000	28 of 28	10596	99% UCL
Indeno(1,2,3-cd)pyrene	56	14000	28 of 28	7725	99% UCL
Dibenzo(a,h)anthracene	15	3600	28 of 28	993	99% UCL

UCL: Upper Confidence Limit, µg/kg: micrograms per kilogram

**Table 5. Chemicals of Potential Concern for Surface Soil at the Vehicle Wash Rack**

<b>Chemical of Concern</b>	<b>Minimum Detected (µg/kg)</b>	<b>Maximum Detected (µg/kg)</b>	<b>Frequency of Detection</b>	<b>Exposure Point Concentration (µg/kg)</b>	<b>Statistical Measure</b>
Benzo(a) anthracene	17	8400	11 of 11	4811	95% UCL
Benzo(b)fluoranthene	16	8800	11 of 11	4945	95% UCL
Benzo(k)fluoranthene	11	4400	11 of 11	2543	95% UCL
Benzo(a)pyrene	17	7900	11 of 11	4441	95% UCL
Indeno(1,2,3-cd)pyrene	9.8	4200	11 of 11	2163	95% UCL
Dibenzo(a,h)anthracene	3.2	2300	11 of 11	1252	95% UCL

UCL: Upper Confidence Limit, µg/kg: micrograms per kilogram

**Table 6. Chemicals of Potential Concern for Surface Soil at the Main Entrance**

<b>Chemical of Concern</b>	<b>Minimum Detected (µg/kg)</b>	<b>Maximum Detected (µg/kg)</b>	<b>Frequency of Detection</b>	<b>Exposure Point Concentration (µg/kg)</b>	<b>Statistical Measure</b>
Benzo(a) anthracene	34	5800	9 of 9	3401	95% UCL
Benzo(b)fluoranthene	70	8600	9 of 9	5127	95% UCL
Benzo(k)fluoranthene	22	4500	9 of 9	3134	95% UCL
Benzo(a)pyrene	43	5900	9 of 9	3379	95% UCL
Indeno(1,2,3-cd)pyrene	34	4200	9 of 9	2477	95% UCL
Dibenzo(a,h)anthracene	8.8	1500	9 of 9	1142	95% UCL

UCL: Upper Confidence Limit, µg/kg: micrograms per kilogram

**Table 7. Chemicals of Potential Concern for Subsurface Soil**

Exposure Unit	Chemical of Concern	Minimum Detected (µg/kg)	Maximum Detected (µg/kg)	Frequency of Detection	Exposure Point Concentration (µg/kg)	Statistical Measure
VWR	Benzo(a) anthracene	3	455	4 of 14	3.1	Median*
VWR	Benzo(b)fluoranthene	3	650	3 of 14	3.1	Median*
VWR	Benzo(a)pyrene	4.6	560	13 of 14	441	99% UCL
VWR	Indeno(1,2,3-cd)pyrene	3	400	3 of 14	3.1	Median*
VWR	Dibenzo(a,h)anthracene	3	160	3 of 14	3.1	Median*
Coal Area A	Arsenic	8.8	18	17 of 17	12.6	95% UCL
Coal Area B	Arsenic	3.9	13.8	17 of 17	10.53	95% UCL
Coal Area C	Arsenic	7.4	16.2	17 of 17	11.91	95% UCL

UCL: Upper Confidence Limit, VWR: Vehicle Wash Rack, µg/kg: micrograms per kilogram

\*The median values were utilized due to the high percentage of non-detects in the data set.

**Table 8. Chemicals of Potential Concern for Groundwater for the Former HCAFS**

Chemical of Concern	Minimum Concentration (µg/L) (Filtered/Unfiltered)	Maximum Concentration (µg/L) (Filtered/Unfiltered)	Exposure Point Concentration (µg/L)	Statistical Measure
Aluminum	ND/106	893/52000	52000	Maximum
Arsenic	ND/2.3	ND/21	21	Maximum
Iron	ND/370	1570/64000	64000	Maximum
Lead	ND/2.6	4.4/96.9	96.9	Maximum
Manganese	67/100	490/1810	1810	Maximum

ND: Non-detect, UCL: Upper Confidence Limit, µg/L: micrograms per liter

Table 9 provides carcinogenic risk information which is relevant to the COPCs in soil. At this time, slope factors are not available for the dermal route of exposure, and values have been extrapolated from oral values. Carcinogenic risk information is not available for three of the COPCs, either because the compound is not a carcinogen or there is no information available.

**Table 9. Cancer Toxicity Data Summary**

Chemical of Potential Concern	Carcinogen Class <sup>[1]</sup>	Oral Slope Factor (mg/kg/day) <sup>-1</sup>	Source	Inhalation Unit Risk (mg/m <sup>3</sup> ) <sup>-1</sup>	Source	GAF	Dermal Slope Factor (mg/kg-day) <sup>-1</sup>
Benzo(a)anthracene	B2	7.3x10 <sup>-1</sup>	TEF=0.1	1.1x10 <sup>-1</sup>	CalEPA	1.0	7.3x10 <sup>-1</sup>
Chrysene	B2	7.3x10 <sup>-3</sup>	TEF=0.0001	1.1x10 <sup>-2</sup>	CalEPA	1.0	7.3x10 <sup>-3</sup>
Benzo(b)fluoranthene	B2	7.3x10 <sup>-1</sup>	TEF=0.1	1.1x10 <sup>-1</sup>	CalEPA	1.0	7.3x10 <sup>-1</sup>
Benzo(k)fluoranthene	B2	7.3x10 <sup>-2</sup>	TEF=0.01	1.1x10 <sup>-1</sup>	CalEPA	1.0	7.3x10 <sup>-2</sup>
Benzo(a)pyrene	B2	7.3x10 <sup>1</sup>	IRIS	1.1x10 <sup>1</sup>	CalEPA	1.0	7.3x10 <sup>1</sup>
Indeno(1,2,3-cd)pyrene	B2	7.3x10 <sup>-1</sup>	TEF=0.1	1.1x10 <sup>-1</sup>	CalEPA	1.0	7.3x10 <sup>-1</sup>
Dibenzo(a,h)anthracene	B2	7.3x10 <sup>1</sup>	TEF=1	1.2x10 <sup>1</sup>	CalEPA	1.0	7.3x10 <sup>1</sup>
Aluminum	D	NC	--	NC	--	--	NC
Arsenic	A	1.5x10 <sup>1</sup>	IRIS	4.3x10 <sup>1</sup>	IRIS	1.0	1.5x10 <sup>1</sup>
Iron	NA	NA	--	NA	--	--	NA
Manganese (water)	D	NC	--	NC	--	--	NC
Vanadium	NA	NA	--	NA	--	--	NA

CalEPA: California Environmental Protection Agency, GAF: Gastrointestinal Absorption Factor, IRIS: Integrated Risk Information System, mg/kg/day: milligram per kilogram per day, mg/kg-day: milligram per kilogram – day, mg/m<sup>3</sup>: milligram per cubic meter, NA: Not Available, NC: Not Carcinogenic, TEF: Toxicity Equivalent Factor

<sup>[1]</sup> A: Human carcinogen, B1 or B2: Probable human carcinogen, C: Possible human carcinogen, D: not classifiable as a human carcinogen

Table 10 provides non-carcinogenic risk information which is relevant to the COPCs in soil. At this time, reference doses/concentrations are not available for the dermal route of exposure, and values have been extrapolated from oral values using adjustment factors which indicate how well the chemical is absorbed via the ingestion route (Table 10, Column 6: GAF). Only 4 of the COPCs have toxicity data indicating potential adverse non-carcinogenic health effects in humans.

**Table 10. Non-carcinogenic Toxicity Data Summary**

<b>Chemical of Potential Concern</b>	<b>Oral Reference Dose (mg/kg/day)</b>	<b>Source</b>	<b>Inhalation Reference Conc. (mg/m<sup>3</sup>)</b>	<b>Source</b>	<b>GAF</b>	<b>Dermal Reference Dose (mg/kg-day)</b>
Benzo(a)anthracene	NA	--	NA	--	1.0	NA
Chrysene	NA	--	NA	--	1.0	NA
Benzo(b)fluoranthene	NA	--	NA	--	1.0	NA
Benzo(a)pyrene	NA	--	NA	--	1.0	NA
Indeno(1,2,3-cd)pyrene	NA	--	NA	--	1.0	NA
Dibenzo(a,h)anthracene	NA	--	NA	--	1.0	NA
Aluminum	1.0x10 <sup>1</sup>	PPRTV	5.0x10 <sup>-3</sup>	PPRTV	1.0	1.0x10 <sup>1</sup>
Arsenic	3.0x10 <sup>-4</sup>	IRIS	3.0x10 <sup>-5</sup>	CalEPA	1.0	3.0x10 <sup>-4</sup>
Iron	7.0x10 <sup>-1</sup>	PPRTV	NA	--	1.0	7.0x10 <sup>-1</sup>
Lead	NA	--	NA	--	1.0	NA
Manganese (water)	2.0x10 <sup>-2</sup>	IRIS	NA	--	0.04	8.0x10 <sup>-4</sup>
Vanadium	5.0x10 <sup>-3</sup>	IRIS	NA	--	0.026	1.3x10 <sup>-4</sup>

CalEPA: California Environmental Protection Agency, GAF: Gastrointestinal Absorption Factor, IRIS: Integrated Risk Information System, mg/kg/day: milligram per kilogram per day, mg/kg-day: milligram per kilogram – day, mg/m<sup>3</sup>: milligram per cubic meter, NA: Not Available, NC: Not Carcinogenic, PPRTV: Provisional Peer Reviewed Toxicity Value, TEF: Toxicity Equivalent Factor

The TACO Tier 1 standards were used in evaluating the risk associated with the remedial alternatives. Alternative 2 is based on the TACO Tier 1 Residential RGs and Alternative 3 is based on the TACO Tier 1 industrial/commercial RGs. In order to determine if Alternative 3 requires land use restrictions or controls the residential risk levels for the industrial/commercial preliminary RAOs were calculated using the TACO Residential criteria (which reflect a risk level of 10<sup>-6</sup>). The calculated residential risk levels for the proposed Alternative 3 RAOs are well below the upper limit of the NCP target risk range (10<sup>-4</sup>). For naphthalene, the residential risk level for the RG is well below 10<sup>-6</sup>. Therefore, the Alternative 3 RGs has been determined to be protective of receptors under current land use, and will also be protective of residential users should the property be converted to residential use in the future.

The incremental lifetime cancer risks (ILCRs) for the correctional facility land use are shown in Table 11 for the five EUs. The correctional facility worker and inmate are used to represent the larger class of industrial/commercial workers as the most recent fulltime land use was as a correctional facility. The ILCRs for unlimited land use for the five EUs are shown in Table 12. Generally, ILCR values within or below the NCP target range of 10<sup>-4</sup> to 10<sup>-6</sup> are considered acceptable.

**Table 11. Summary of ILCRs for Commercial/Industrial Worker Site Receptors Exposed to Surface and Subsurface Soil**

Exposure Unit	Surface Soil		Subsurface Soil	
	Correctional Facility Inmate	Correctional Facility Worker	Correctional Facility Inmate	Correctional Facility Worker
Coal Area A	1.6x10 <sup>-5</sup>	1.8x10 <sup>-5</sup>	6.8x10 <sup>-6</sup>	7.7x10 <sup>-6</sup>
Coal Area B	1.8x10 <sup>-5</sup>	2.1x10 <sup>-5</sup>	5.7x10 <sup>-6</sup>	6.5x10 <sup>-6</sup>
Coal Area C (including Paint Shed and Maintenance Building)	5.9x10 <sup>-5</sup>	3.1x10 <sup>-5</sup>	6.4x10 <sup>-6</sup>	7.3x10 <sup>-6</sup>
Vehicle Wash Rack	2.7x10 <sup>-5</sup>	6.7x10 <sup>-5</sup>	1.7x10 <sup>-6</sup>	2.0x10 <sup>-6</sup>
Main Entrance	2.2x10 <sup>-5</sup>	2.5x10 <sup>-5</sup>	--	--

Note: Acceptable cancer risk is between one in ten thousand (10<sup>-4</sup>) and one in one million (10<sup>-6</sup>).

**Table 12. Summary of ILCRs for Unlimited Land Use Site Receptors Exposed to Surface and Subsurface Soil**

Exposure Unit	Surface Soil		Subsurface Soil	
	Resident Adult	Resident Child	Resident Adult	Resident Child
Coal Area A	2.8x10 <sup>-4</sup>	2.4x10 <sup>-4</sup>	3.2x10 <sup>-5</sup>	2.2x10 <sup>-5</sup>
Coal Area B	3.1x10 <sup>-4</sup>	2.6x10 <sup>-4</sup>	2.7x10 <sup>-5</sup>	1.9x10 <sup>-5</sup>
Coal Area C (including Paint Shed and Maintenance Building)	3.5x10 <sup>-4</sup>	2.9x10 <sup>-4</sup>	3.1x10 <sup>-5</sup>	2.1x10 <sup>-5</sup>
Vehicle Wash Rack	1.1x10 <sup>-3</sup>	9.0x10 <sup>-4</sup>	3.0x10 <sup>-5</sup>	2.6x10 <sup>-5</sup>
Main Entrance	5.0x10 <sup>-4</sup>	4.3x10 <sup>-4</sup>	--	--

Note: Acceptable cancer risk is between one in ten thousand (10<sup>-4</sup>) and one in one million (10<sup>-6</sup>).

The ILCRs were below the acceptable risk range of 10<sup>-4</sup> to 10<sup>-6</sup> for all EUs for a commercial/industrial scenario for exposure to surface and subsurface soils. ILCRs were above 10<sup>-4</sup> for a Residential Adult and Child under an unlimited land use scenario for exposure to surface soils.

ILCRs from unfiltered groundwater for the residential receptors exceed 10<sup>-4</sup>, primarily from arsenic (Table 13). The arsenic is associated with suspended solids, since there are no carcinogenic COPCs in the filtered groundwater samples.

**Table 13. Summary of ILCRs for Site Receptors Exposed to Unfiltered Groundwater.**

Chemical of Potential Concern	Resident Adult	Resident Child
Aluminum	NC	NC
Arsenic	3.7x10 <sup>-4</sup>	1.7x10 <sup>-4</sup>
Iron	NA	NA
Lead	9.7x10 <sup>-6</sup>	4.5x10 <sup>-6</sup>
Manganese	NC	NC
Vanadium	NA	NA
<b>Total from Groundwater</b>	<b>3.8x10<sup>-4</sup></b>	<b>1.8x10<sup>-4</sup></b>

NA: not applicable, NC: non-carcinogen,

Note: Acceptable cancer risk is between one in ten thousand (10<sup>-4</sup>) and one in one million (10<sup>-6</sup>).

Hazard Indexes (HIs) for both commercial/industrial workers and residential receptors exposed to surface soil are shown in Table 14. An HI value of less than 1 indicates that adverse non-cancer health effects are considered extremely unlikely while an HI of greater than 1 indicates that adverse health effects may occur. HI values for surface soil were not calculated. The HI from surface soil cannot be

calculated because there are no non-carcinogenic toxicity values available for PAHs. The HIs from arsenic in subsurface soil are below 1 for all site receptors. The HIs from unfiltered groundwater for the residential receptors are greater than 1, with hazard quotients (HQs) exceeding one. The HIs from filtered groundwater is greater than 1 for a Resident Child and less than 1 for a Resident Adult, with dissolved manganese being the only contributor to this hazard. However, manganese has been determined to be naturally occurring as a result of the site geology.

**Table 14. Summary of HIs for Commercial/Industrial Worker and Residential Site Receptors Exposed to Subsurface Soil and Groundwater.**

Exposure Unit	Correctional Facility Inmate	Correctional Facility Worker	Resident Adult	Resident Child
Coal Area A	0.07	0.05	0.17	0.58
Coal Area B	0.06	0.04	0.14	0.49
Coal Area C (including Paint Shed and Maintenance Building)	0.07	0.05	0.16	0.55
Vehicle Wash Rack	--	--	--	--
Main Entrance	--	--	--	--
Groundwater (filtered)	--	--	0.82	1.7
Groundwater (unfiltered)	--	--	10	22

Note: Acceptable non-cancer risks are below a target HI of 1.

## 2.7.2 Ecological Risks

A SLERA was performed to evaluate ecological risks from current and potential future exposure to contamination at the Former HCAFS if no remedial action is taken, and to determine if a baseline Ecological Risk Assessment (ERA) is required to protect important ecological resources within and in the vicinity of the Former HCAFS. A field ecological reconnaissance was conducted in 2008 to document habitats, observe wildlife within and around the Former HCAFS, and identify designated wetlands and critical or sensitive habitat for threatened or endangered species. No sensitive areas or important ecological resources were found within 0.5 miles of the site. No record of state-listed threatened or endangered species, Illinois Natural Inventory sites, dedicated Illinois Natural Preserves, or registered land and water reserves were found in the vicinity of the site. The SLERA did not recommend conducting a baseline ERA; the scope and results for the SLERA were considered sufficient to make decisions regarding future remedial actions at the Former HCAFS.

Chemicals of Potential Ecological Concern are shown in Table 15. Only compounds that exceeded the Ecological Screening Value (ESV) are shown, data for the remaining compounds can be found in Section 7 of the RI Report (GEO 2010). Metal compounds are shown if the maximum exceeded both the ESV and the TACO Metro background value.

**Table 15. Chemicals of Potential Ecological Concern (PAHs) for Surface Soil at the Former HCAFS.**

Chemical of Potential Ecological Concern	Minimum Detected (µg/kg)	Maximum Detected (µg/kg)	Frequency of Detection	Ecological Screening Value (µg/kg)	Source
Naphthalene	2.6	10000	53 of 68	99.4	EPA Region V
Benzo(a)anthracene	14	18000	68 of 68	5210	EPA Region V
Crysene	17	21000	68 of 68	4730	EPA Region V
Benzo(a)pyrene	13	19000	68 of 68	1520	EPA Region V

EPA: (US) Environmental Protection Agency, µg/kg: micrograms per kilogram

Note: Maximum detected values were used for screening.

**Table 16. Chemicals of Potential Ecological Concern (Metals) for Surface Soil at the Former HCAFS.**

<b>Chemical of Potential Ecological Concern</b>	<b>Minimum Detected (mg/kg)</b>	<b>Maximum Detected (mg/kg)</b>	<b>Frequency of Detection</b>	<b>Ecological Screening Value (mg/kg)</b>	<b>Source</b>	<b>TACO Metro Background (mg/kg)</b>
Mercury	0.008	0.140	9 of 13	0.00051	ORNL-PRG	0.06
Aluminum	1600	17000	13 of 13	50	ORNL-Plants	9500
Barium	12	182	13 of 13	1.04	EPA Region V	110
Beryllium	0.17	0.83	13 of 13	1.06	EPA Region V	0.59
Cadmium	0.095	1.7	6 of 13	0.00222	EPA Region V	0.6
Chromium	6.2	20	13 of 13	0.4	EPA Region V	16.2
Cobalt	3	10.7	13 of 13	0.14	EPA Region V	8.9
Copper	12	32	13 of 13	5.4	EPA Region V	19.6
Iron	7300	23000	13 of 13	200	EPA Region V	15900
Lead	11	93	17 of 17	0.0537	EPA Region V	36
Magnesium	2950	34000	13 of 13	--	--	4820
Manganese	240	1110	13 of 13	100	ORNL-BM	636
Nickel	8.1	22	13 of 13	13.6	EPA Region V	18
Potassium	480	1890	13 of 13	--	--	1268
Selenium	0.47	1	9 of 13	0.0276	EPA Region V	0.48
Sodium	47	160	8 of 13	--	--	130
Vanadium	13	37.6	13 of 13	1.59	EPA Region V	25.2
Zinc	29	330	13 of 13	6.62	EPA Region V	95

BM: benchmark, EPA: (US) Environmental Protection Agency, mg/kg: milligrams per kilogram, ORNL: Oak Ridge National Laboratories, PRG: preliminary remediation goal, µg/kg: micrograms per kilogram, TACO: Tiered Approach to Corrective Action Objectives

Note: Maximum detected values were used for screening.

**Table 17. Chemicals of Potential Ecological Concern (Metals) for Subsurface Soil at the HCAFS.**

<b>Chemical of Potential Ecological Concern</b>	<b>Minimum Detected (mg/kg)</b>	<b>Maximum Detected (mg/kg)</b>	<b>Frequency of Detection</b>	<b>Ecological Screening Value (mg/kg)</b>	<b>Source</b>	<b>TACO Metro Background (mg/kg)</b>
Mercury	0.02	0.07	9 of 9	0.00051	ORNL-PRG	0.06
Aluminum	8800	15000	9 of 9	50	ORNL-Plants	9500
Arsenic	7	18	53 of 53	5.7	EPA Region V	13
Barium	96	170	9 of 9	1.04	EPA Region V	110
Beryllium	0.54	1.1	9 of 9	1.06	EPA Region V	0.59
Chromium	14	20	9 of 9	0.4	EPA Region V	16.2
Cobalt	6.7	16	9 of 9	0.14	EPA Region V	8.9
Copper	18	36	9 of 9	5.4	EPA Region V	19.6
Iron	19000	37000	9 of 9	200	EPA Region V	15900
Lead	8.4	58.5	11 of 11	0.0537	EPA Region V	36
Magnesium	2700	13000	9 of 9	--	--	4820
Manganese	265	1100	9 of 9	100	ORNL-BM	636
Nickel	18.5	39	9 of 9	13.6	EPA Region V	18
Selenium	0.49	0.96	5 of 9	0.0276	EPA Region V	0.48
Sodium	120	230	5 of 9	--	--	130
Thallium	1.3*	1.3*	0 of 9	0.0569	EPA Region V	0.32
Vanadium	27	45	9 of 9	1.59	EPA Region V	25.2
Zinc	45	104	9 of 9	6.62	EPA Region V	95

BM: benchmark, EPA: (US) Environmental Protection Agency, mg/kg: milligrams per kilogram, ORNL: Oak Ridge National Laboratories, PRG: preliminary remediation goal, µg/kg: micrograms per kilogram, TACO: Tiered Approach to Corrective Action Objectives

\*Thallium was not detected, value shown is ½ of the reporting limit.

Note: Maximum detected values were used for screening.

The RI concluded that there are no ecological risks from low molecular weight PAHs (GEO 2010). Hazard calculations for three types of mammals (herbivore, ground insectivore, and carnivore) show hazards from exposure to high-molecular weight PAHs to be greater than one for the mammalian ground insectivore (shrew) and less than one for mammalian herbivores (vole) and carnivores (weasel) (Table 18).

The SLERA concluded that even though zinc and lead were present at levels above ecological screening criteria (Tables 18 and 19), further action to address ecological risk was not warranted based on the following:

- There are no records of federal or state-listed threatened or endangered species within 0.5 miles of the Former HCAFS and the receptor groups found at the Former HCAFS consist of common, widely distributed species.
- The HQs are conservative or comparable to background ecological risks. The HQs were calculated using maximum detected concentrations rather than average concentrations.
- The median values for lead and zinc in surface soil were below the respective TACO background values for metro areas and, in addition, the maximum detected concentrations used were outliers.

The risks from lead and zinc are elevated in localized areas, but on average are comparable or below the TACO regional background values.

**Table 18. Hazard Quotients for Ecological Receptors Exposure to PAHs in Surface Soil at the Former HCAFS.**

Chemical Class/Compound	Exposure Conc. (mg/kg)	Plants	Soil Invertebrates	Avian Wildlife	Mammalian Wildlife	Avian herbivore (dove)	Avian ground insectivore (woodcock)	Avian carnivore (hawk)	Mammalian herbivore (vole)	Mammalian ground insectivore (shrew)	Mammalian carnivore (weasel)
LMW PAHs	8.1	NA	0.28	NA	0.08	--	-	--	0.02	0.08	0.01
HMW PAHs	28.9	NA	1.6	NA	26.24	--	--	--	0.74	26.24	0.26
Cadmium	1.7	0.05	0.01	2.21	4.72	0.06	2.21	0.00	0.02	4.72	0.02
Copper	32	0.46	0.40	1.14	0.63	0.42	1.14	0.02	0.03	0.65	0.06
Lead	93	0.78	0.05	8.45	1.66	2.02	8.45	0.18	0.08	1.66	0.20
Manganese	1110	5.05	2.47	0.26	0.28	0.26	0.26	0.02	0.21	0.28	0.18
Selenium	1	1.92	0.24	0.83	1.59	0.45	0.83	0.01	0.37	1.59	0.36
Vanadium	37.6	NA	NA	4.82	0.13	2.89	4.82	0.27	0.03	0.13	0.06
Zinc	330	2.06	2.75	7.17	4.18	0.35	7.17	0.01	0.01	5.89	0.72

HMW: high-molecular weight, LMW: low-molecular weight, NA: Not available because of insufficient toxicity data.

**Table 19. Hazard Quotients for Ecological Receptors Exposure to PAHs in Subsurface Soil at the Former HCAFS.**

Compound	Exposure Conc. (mg/kg)	Plants	Soil Invertebrates	Avian Wildlife	Mammalian Wildlife	Avian herbivore (dove)	Avian ground insectivore (woodcock)	Avian carnivore (hawk)	Mammalian herbivore (vole)	Mammalian ground insectivore (shrew)	Mammalian carnivore (weasel)
Arsenic	18	1.00	NA	0.42	0.39	0.27	0.42	0.02	0.11	0.39	0.11
Cobalt	16	1.23	NA	0.13	0.07	0.06	0.13	0.01	0.01	0.07	0.03
Copper	36	0.51	0.45	1.29	0.71	0.47	1.29	0.02	0.03	0.73	0.06
Lead	58.5	0.49	0.03	5.32	1.04	1.27	5.32	0.11	0.05	1.04	0.13
Manganese	1100	5.00	2.44	0.26	0.28	0.26	0.26	0.02	0.21	0.28	0.18
Selenium	0.96	1.85	0.23	0.80	1.52	0.44	0.80	0.01	0.36	1.52	0.34
Vanadium	45	NA	NA	5.77	0.16	3.46	5.77	0.32	0.03	0.16	0.08
Zinc	104	0.65	0.87	2.26	1.32	0.11	2.26	0.00	0.00	1.86	0.23

NA: Not available because of insufficient toxicity data.

### 2.7.3 Summary

As the lead agency on the site, it is the current judgment of the USACE that the Alternative 3, Removal of Surface Soil Exceeding the Set 2 RGs, identified this action is necessary to protect public health or welfare from actual or threatened releases of hazardous substances into the environment.

## 2.8 REMEDIAL ACTION OBJECTIVES

CERCLA and the NCP define RAOs that are applicable to all Superfund sites. They relate to the statutory requirements for the development of remedial actions. Site specific RAOs relate to potential exposure routes and specific contaminated media, such as soil, and are used to identify target areas of remediation and contaminant concentrations. They require an understanding of the contaminants in their respective media and are based on the evaluation of risk to human health and the environment, protection of groundwater, information gathered during the RI and applicable guidance documents. In consideration of the data collected and the findings of the risks assessments conducted, RAOs are recommended for surface soil only. Because there are no unacceptable risks posed by contaminants from DoD site activities for groundwater or subsurface soil, there are no recommended RAOs for groundwater or subsurface soil. Metals in surface soils are within the range of background concentrations and metals in groundwater are also naturally occurring. The RAOs for surface soil are as follows:

- Prevent ingestion, inhalation, and direct contact with surface soils containing PAHs above the remediation objectives; and
- Reduce migration of contaminants in surface soils and mitigate the possibility of contaminants leaving the site through surface water run-off and erosion of the surface soils.

**Table 20. Summary of Exposure Routes, Receptors, and Remediation Goals**

Contaminant of Concern	Exposure Route	Receptor	Remediation Goal
Benzo(a)pyrene*	Inhalation, Ingestion, Dermal Contact	Resident	Alternative 2 Set 1 – 90 µg/kg
Benzo(a)pyrene*	Inhalation, Ingestion, Dermal Contact	Industrial/Commercial worker	Alternative 3 Set 2 – 800 µg/kg

\*Benzo(a)pyrene is a marker compound, remediation of benzo(a)pyrene will remove other COPCs. The Remediation Goals for all other COPCs are shown in Appendix C.

CERCLA Section 121 requires that on-site remedial actions attain compliance with federal standards determined to be legal applicable or relevant and appropriate requirements (ARARs). The USACE, as the lead agency on this site, has determined that no chemical-specific ARARs exist. Off-site activities specific to the remedial work at the Former HCAFS will comply with Federal and Illinois laws governing off-site transportation, handling, and disposal of excavated soil.

## 2.9 DESCRIPTION OF ALTERNATIVES

Based on the established site conditions, contaminant characteristics, and the volume of contaminated soil requiring remediation, three potential remedial actions were evaluated. They were: no action and the removal and disposal of surface soil that exceeds two different sets of RGs, Set 1 and Set 2. RGs were derived from the following sources shown in Appendix C. The TACO Tier 1 standards were used in evaluating the risk associated with the remedial alternatives. Alternative 2 is based on the TACO Tier 1 Residential RGs and Alternative 3 is based on the TACO Tier 1 industrial/commercial RGs.

Following discussions with the Illinois EPA, two sets of RGs were considered in the FS, as described below:

- RG Set 1 is designed to leave the site protective for residential exposure and therefore based on TACO residential criteria. This set of RGs reflects a target risk of  $10^{-6}$ , which is more protective than required by the NCP.
- RG Set 2 assumes the area will continue to be used as industrial in the future and is therefore based on the minimum of the TACO industrial/commercial and construction worker criteria for ingestion and inhalation. However, to evaluate the proposed remediation objectives under unlimited land use, the residential risk levels for the preliminary remediation objectives were calculated using the TACO industrial/commercial. With the exception of naphthalene, the calculated residential risk levels for the proposed Set 2 RGs are greater than  $10^{-6}$ , but below  $10^{-5}$ , and are well below the upper limit of the NCP target risk range ( $10^{-4}$ ). For naphthalene, the residential risk level for the RG is well below  $10^{-6}$ . Therefore, the Set 2 RGs will be protective of receptors under current land use, and will also be protective of residential users should the property be converted to residential use in the future. Since these remediation objectives are also protective of possible residential users, land use restrictions would not be required. Surface soil to be removed based on Set 2 RGs are shown in Figures 5 through 9 in Appendix A. Surface soil removed based on the Set 2 RGs will effectively remove contaminated soils that would have been removed based on Illinois EPA Proposed RGs shown in Appendix C.

### **2.9.1 Alternative 1 – No Action**

The no action response is identified, as required by the NCP, for the purpose of establishing a baseline against which other alternatives are compared. There would be no preventative or remedial action implemented, as a result of the no action response and the current contamination at the site would remain in place and exposed at the surface.

### **2.9.2 Alternative 2 – Removal of Surface Soil Exceeding Set 1 RGs**

The removal would be accomplished by excavation of the surface soil (0 – 1 foot below ground surface) that has been determined to have PAH concentrations above the Set 1 RG. Implementation of this alternative would result in soil being removed from all five EUs. The exact volume of soil removed will be based on the data collected to date and the data collected during sampling and analysis as part of remedial design, which will be conducted to determine that the soil at the boundary of the removal area(s) does not exceed the Set 1 RGs. An estimated removal volume for Alternative 2 is 2577 cubic yards. Should the results of the boundary sampling show that this objective has not yet been achieved, soil removal will be extended until the objective has been achieved. The sampling plan for confirmatory sampling and details of removal and disposal implementation will be developed as part of the design documents.

In the areas from which the soil is removed, backfill soil will be used to bring the surface up to grade and the area would be seeded to blend in with the surroundings and mulched. The removed soil will be disposed of or treated at an approved off-site facility. Off-site disposal or treatment leaves no maintenance requirements at the site. A five-year review will not be required (see Section 2.10.3).

### **2.9.3 Alternative 3 – Removal of Surface Soil Exceeding Set 2 RGs**

The removal would be accomplished by excavation of the surface soil (0 – 1 foot below ground surface) that has been determined to have PAH concentrations above the Set 2 RGs. Similar to

Alternative 2; sampling will be conducted to determine that the soil at the boundary of the removal area(s) does not exceed the Set 2 RGs. An estimated removal volume for Alternative 3 is 305 cubic yards. Should the results of the sampling show that this objective has not yet been achieved; soil removal will be extended until the objective has been achieved. A number of the removal locations are close to or bounded by roads; removal will not extend under roads or in such proximity to roads that the integrity of roads is undermined. The sampling plan for confirmatory sampling and details of removal and disposal implementation will be developed as part of the design documents.

In the areas from which the soil is removed, clean soil will be used to bring the surface up to grade and the area will be seeded and mulched. The removed soil would be disposed of or treated at an approved off-site facility. Off-site disposal or treatment leaves no maintenance requirements at the site. A five-year review will not be required (see Section 2.10.3).

## **2.10 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES**

### **2.10.1 Consideration of Green and Sustainable Remediation Practices**

The 2012 Defense Environmental Restoration Program Manual directs, “when feasible” and where “practicable based on economic and social benefits and costs” the use of Green and Sustainable Remediation (GSR) Practices strategies for remedial actions that:

- Use natural resources and energy efficiently;
- Reduce negative impacts on the environment;
- Minimize or eliminate pollution at its source; and
- Reduce waste to the greatest extent possible.

The GSR Best Management Practice (BMP) list from the Army GSR Study (USACE EM CX 2012) was reviewed and Alternative 3 was determined to be the feasible alternative that is most effective in that it results in the smallest volume of soil to be removed, transported and disposed. Alternative 3 also allows beneficial reuse of the property without restrictions, e.g. the vegetable gardening suggested by one of the Peoria County board members as indicated in the Responsiveness Summary (Section 3). Technologies that would result in no removal of soil were found to not be feasible or effective for this site.

The contract for the remediation will include language for potential inclusion and documentation of GSR per these BMPs from the Army GSR Study (USACE EM CX 2012), e.g. reduction of equipment idling times and selection of transportation routes for trucks and heavy equipment to minimize impacts to residential areas, and any additional GSR that the USACE and/or any additional GSR that the USACE and/or the contractor may identify for implementation of the remedy.

### **2.10.2 NCP Evaluation**

In accordance with the NCP, the selected alternatives were evaluated against the following nine criteria:

1. Overall protection of human health and the environment – assessed to determine whether it can adequately protect human health and the environment, in both the short- and long-term, from unacceptable risks posed by contaminants present at the site by eliminating, reducing, or controlling exposures to levels established during development of the remedial goals. Overall protection of human health and the environment draws on the assessments of other evaluation criteria, especially long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs.

2. Compliance with ARARs – addresses whether or not a remedy will meet all of the ARARs of other federal and state environmental statutes and requirements, or provide grounds for invoking a waiver.
3. Long-term effectiveness and permanence – assessed for the long-term effectiveness and permanence it presents in maintaining protection of human health and the environment after the response objectives have been met.
4. Reduction of toxicity, mobility, or volume through treatment – assessed against this criterion to evaluate the performance of the specific treatment technologies the alternative may employ.
5. Short-term effectiveness – assessed considering the short-term risks that might be posed to the community during implementation of the alternative; potential environmental impacts of the remedial action and the effectiveness and reliability of measures taken to mitigate impacts during implementation; and length of time needed until protection is achieved.
6. Ease of implementation – assessed by considering the following types of factors (as appropriate).
  - a) Technical feasibility, including technical difficulties and unknowns associated with the construction and operation of a technology, the reliability of a technology, ease of undertaking additional remedial actions, and the ability to monitor the effectiveness of the remedy.
  - b) Administrative feasibility, including activities needed to coordinate with other offices and agencies and the ability and time required to obtain any necessary approvals and permits from other agencies.
  - c) Availability of services and materials, including the availability of necessary equipment and specialists and the availability of services and materials.
7. Estimated cost – assessment included: capital costs, including both direct and indirect costs; annual operation and maintenance (O&M); and net present worth of capital and O&M costs. The present worth of each alternative provides the basis for the cost comparison. Assumptions that were used to develop the cost estimates for Alternatives 2 and 3 include: that the soil will be considered non-hazardous for disposal, a work plan will be developed based on the collection of additional surface soil samples to determine the extent of PAH contamination, site restoration, and a construction completion report. The assumption that the soil to be disposed will be non-hazardous is based on discussion with potential vendors however the final determination will be made at the time of excavation. Additional assumptions regarding the cost estimates can be found in the FS (GEO 2012b).
8. State regulatory acceptance – assessed based on the evaluation of the technical and administrative issues and concerns the state may have regarding each of the alternatives.
9. Community acceptance – assessed based on the evaluation of public comments received on the Proposed Plan.

In order to establish priority among the screening criteria, they are separated into three groups. The first two criteria listed are threshold criteria, and must be satisfied by the remedial action alternative being considered. The next five criteria are secondary criteria used as balancing criteria among those alternatives which satisfy the threshold criteria.

State and community acceptance is evaluated during the public comment period of the Proposed Plan, and a Responsiveness Summary (Section 3) is incorporated into the DD.

**Table 21. Summary of Remedial Alternative Evaluation**

<b>Description of Alternative</b>	<b>Alternative 1 No Action</b>	<b>Alternative 2 Removal of Surface Soil Exceeding Set 1 RGs</b>	<b>Alternative 3 Removal of Surface Soil Exceeding Set 2 RGs (Preferred Alternative)</b>	<b>Alternative that Best Satisfy Evaluation Criteria</b>
Key Elements of Alternative	No action will be taken	The removal would be accomplished by excavation of the surface soil (0 – 1 foot bgs) that has been determined to have PAH concentrations above the Set 1 RG.	The removal would be accomplished by excavation of the surface soil (0 – 1 foot bgs) that has been determined to have PAH concentrations above the Set 2 RGs.	--
Overall Protection of Human Health and the Environment	Does not eliminate exposure pathways or reduce the level of risk. Does not limit migration, or removal of, contaminants.	Eliminates exposure pathways and reduces the level of risk to acceptable levels and allow unlimited use and unrestricted exposure of the site. Disposal of soil isolates contamination and eliminates further migration. Site activities specific to Remedial Work must comply with Federal and State laws governing off-site transportation, handling, and disposal of excavated soil.	Eliminates exposure pathways and reduces the level of risk to acceptable levels and allow unlimited use and unrestricted exposure of the site. Disposal of soil isolates contamination and eliminates further migration. Site activities specific to Remedial Work must comply with Federal and State laws governing off-site transportation, handling, and disposal of excavated soil.	2 and 3
Compliance with ARARs	No ARARs exist.	No chemical-specific ARARs exist for the site . Off-site remedial work will comply with Federal and Illinois laws for off-site transportation, handling and disposal of excavated soil.	No chemical-specific ARARs exist for the site. Off-site remedial work will comply with Federal and Illinois laws for off-site transportation, handling and disposal of excavated soil.	Not Applicable
Long-term effectiveness and permanence	Would leave the contaminated surface soil in place with neither treatment nor containment.	Will remove the soil above the remediation objective from the site. The soil will be transported to an approved site for disposal or treatment and will be effectively and permanently removed from the Former HCAFS.	Will remove the soil above the remediation objective from the site. The soil will be transported to an approved site for disposal or treatment and will be effectively and permanently removed from the Former HCAFS.	2 and 3

ARARs: Applicable or Relevant and Appropriate Requirements, bgs: below ground surface, HCAFS: Hanna City Air Force Station, PAH: polycyclic aromatic hydrocarbon, RAOs: Remedial Action Objectives, RG: Remediation Goal, yd<sup>3</sup>: cubic yards

**Table 22. Summary of Remedial Alternative Evaluation (continued)**

Reduction of toxicity, mobility, or volume through treatment	No effect on the mobility, toxicity, or volume of the contaminated soil	No treatment proposed. Will remove the contaminants from the site to an approved facility where potential mobilization is controlled. Regardless of the final disposition of the soil, the mobility, toxicity, and volume of contaminants at Former HCAFS will be reduced.	No treatment proposed. Will remove the contaminants from the site to an approved facility where potential mobilization is controlled. Regardless of the final disposition of the soil, the mobility, toxicity, and volume of contaminants at Former HCAFS will be reduced.	1, 2 and 3
Short-term effectiveness	Would not increase the risk to the surrounding community or site workers, but the risk to site users would remain.	Impacts to community include increased truck traffic and noise. Hazards to on-site remedial action workers. Would require site workers to have precautionary protection against dermal contact and inhalation of dust during soil excavation and handling. Will require ~6 months to complete final design and required plans. The implementation expected to be completed in ~6 months.	Impacts to community include increased truck traffic and noise. Hazards to on-site remedial action workers. Would require site workers to have precautionary protection against dermal contact and inhalation of dust during soil excavation and handling. Will require ~6 months to complete final design and required plans. The implementation expected to be completed in ~6 months.	2 and 3
Ease of implementation	Could be implemented immediately.	Use established methods that have been successfully demonstrated in applications for heavy molecular weight PAHs. Conditions external to the site (e.g., equipment availability, materials, and services) present no problem at this time.	Use established methods that have been successfully demonstrated in applications for heavy molecular weight PAHs. Conditions external to the site (e.g., equipment availability, materials, and services) present no problem at this time.	1, 2, and 3
Estimated Cost	\$0	\$502,398 (removal action of ~2577 yd <sup>3</sup> of soil).	\$134,980 (removal action for ~305 yd <sup>3</sup> of soil).	3
State Regulatory Acceptance	--	--	The State of Illinois has concurred with this alternative.	3
Community Acceptance	The community has reviewed the Proposed Plan and made comments as addressed in Section 3.	The community has reviewed the Proposed Plan and made comments as addressed in Section 3.	The community has reviewed the Proposed Plan and made comments as addressed in Section 3.	3

ARARs: Applicable or Relevant and Appropriate Requirements, bgs: below ground surface, HCAFS: Hanna City Air Force Station, PAH: polycyclic aromatic hydrocarbon, RAOs: Remedial Action Objectives, RG: Remediation Goal, yd<sup>3</sup>: cubic yards

### 2.10.3 Five-Year Review Requirement

Because selected remedy will reduce the risk to site users to acceptable levels and allow unlimited use of the site in accordance with 40CFR300.430(e)(2)(A)(2-5), a statutory review does not need to be conducted within 5 years of initiation of the remedial action.

### 2.11 REMEDY

The selected remedy for remediation at included portions of the Former HCAFS is Alternative 3 (Removal of Surface Soil Exceeding the Set 2 RGs). This alternative was selected because it will achieve the remedial objectives of preventing exposure to the contaminated soil and the risk to site users is reduced to levels that are within the acceptable range, as defined by the NCP.

USACE and Illinois EPA believe the Selected Remedy would be protective of human health and the environment, would achieve the remedial objectives, would meet both short-and long- term effectiveness, would provide permanence, is implementable and more cost effective than Alternative 2. The selected remedy satisfies Section 121 of CERCLA. Both Illinois EPA and the landowner have concurred with Alternative 3. A summary of the cost estimate for the Selected Remedy are shown in Table 22.

The proposed Set 2 RGs are protective of potential future residents according to 40CFR300.430(e)(2)(A)(2-5) and, based on the risk assessment discussed in Section 8, the Set 2 RGs are also protective of residential users.

**Table 23. Cost Estimate Summary for the Selected Remedy**

Item	Activity/Component	Quantity	Unit	Unit Cost	Total Cost
Soil Delineation	Collection and analysis of soil samples to determine extent of removal action	50	Sample	\$375	\$18,750
Site Preparation	Mobilization	1	Lump Sum	\$12,000	\$12,000
	Setup staging area	1	Lump Sump	\$5,000	\$5,000
	Site setup & erosion control measures	1	Lump Sum	\$-	\$-
	Haul road construction	0	Linear foot	\$6	\$-
Removal Activities	Soil excavation	305	Cubic yard	\$7	\$2132
Waste Disposal	Load and transport waste material	365	Ton	\$30	\$10,963
	Landfill disposal	365	Ton	\$30	\$10,963
	Analytical (TCLP)	6	Sample	\$330	\$1,980
Site Restoration	Backfill material	305	Cubic yard	\$25	\$7,613
	Vegetative cover (seed)	0.14	Acre	\$228	\$32
	Vegetative cover (straw/mulch)	0.14	Acre	\$250	\$35
	Vegetative cover (fertilize)	0.14	Acre	\$120	\$17
	Road repair/removal	0	Linear foot	\$5	\$-
Demobilization	Decontamination and site tear down	1	Lump sum	\$2,000	\$2,000
	Demobilization	1	Lump sum	\$4,000	\$4,000
Project Plans	Work Plan, Health and Safety Plan, Quality Control Plan, Environmental Protection Plan	1	Lump sum	\$21,000	\$21,000
	Construction completion report	1	Lump sum	\$11,500	\$11,500
				Construction Subtotal	\$107,984
			Project Management (10%)	\$10,798	
			Contingency (15%)	\$16,168	
			<b>Total Costs</b>	<b>\$134,980</b>	

TCLP: toxicity characteristic leaching program

## **2.12 STATUTORY DETERMINATIONS**

Under Section 121 of CERCLA and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with ARARs, are cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The following sections discuss how the Preferred Alternative meets these Statutory Requirements.

### **2.12.1 Protection of Human Health and the Environment**

The Preferred Alternative will protect human health and the environment through the removal and disposal of soil. Disposal of soil isolates contamination and eliminates further migration. The Preferred Alternative will reduce cancer risks to less than  $1 \times 10^{-5}$  and the Hazard Index to less than 1. This level falls within the USEPA's target risk of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ .

### **2.12.2 Compliance with ARARs**

There are no ARARs for the site. Off-site remedial work will comply with Federal and Illinois laws for off-site transportation, handling and disposal of excavated soil.

### **2.12.3 Other Criteria, Advisories, or Guidance to be Considered for this Remedial Action**

In implementing the Preferred Alternative, USACE and Illinois EPA have determined that the result of the remedial action will effectively remediate the site to the Illinois EPA recommended RGs shown in Appendix C. Surface soil removed based on the Set 2 RGs will effectively remove contaminated soils that would have been removed based on Illinois EPA Proposed RGs shown in Appendix C.

### **2.12.4 Cost Effectiveness**

USACE is recommending Alternative 3 which is protective of human health, does not restrict how Peoria County chooses to utilize the land, and is less than half of the cost of Alternative 2.

### **2.12.5 Utilization of Permanent Solutions and Alternative Treatment Technologies (or Resource Recovery Technologies) to the Maximum Extent Practicable**

USACE has determined that Alternative 3 represents the maximum extent practicable to which permanent solutions and treatment technologies can be utilized in a practicable manner at the site.

### **2.12.6 Preference for Treatment as a Principal Element**

USACE has determined that Alternative 3 addressed the principal threats posed by the site through excavation and removal from the site.

### **2.12.7 Five-Year Review Requirements**

Because selected remedy will reduce the risk to site users to acceptable levels and allow unlimited use of the site in accordance with 40CFR300.430(e)(2)(A)(2-5), a statutory review does not need to be conducted within 5 years of initiation of the remedial action.

## **2.13 DOCUMENTATION OF SIGNIFICANT CHANGES FROM PREFERRED ALTERNATIVE**

The Proposed Plan for the Former HCAFS was released for public comment on May 1, 2013. The Proposed Plan identified Alternative 3, Removal of Surface Soil Exceeding the Set 2 RGs, as the recommendation for the Former HCAFS. Verbal public comments were received during the public meeting and by mail. There are no changes to the Preferred Alternative.

### 3.0 RESPONSIVENESS SUMMARY

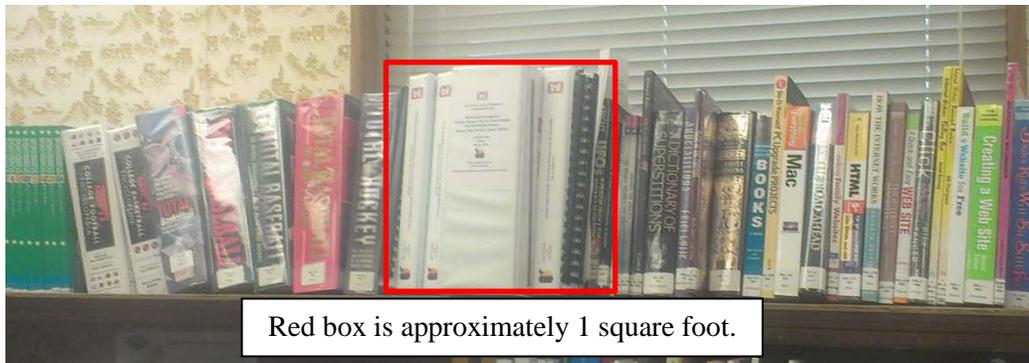
This section provides a summary of the public comments regarding the Proposed Plan for the Former HCAFS and the USACE response to comments. At the time of the public review period, USACE had selected Alternative 3, Removal of Surface Soil Exceeding Set 2 RGs, as the recommended action for the site.

#### 3.1 STAKEHOLDER COMMENTS AND LEAD AGENCY RESPONSES

Written comments were received prior to and after the May 20, 2013 public meeting and during the public meeting. Public meeting verbal comments were received from Peoria County Board Members and the adjacent land owner.

**Comment 1** – Robert W. Chick. Written comment. I have one question regarding the Hanna City thing. I have been to the Farmington Library and looked at the huge stack of hard-bound volumes produced by the Wickliffe, KY people. What was the total amount paid by the U.S. Government Official for the Study and Production of these materials?

**Response** – The total contract value for the Administrative Record, which includes both labor and supplies (paper, binders, shipping) for the production of the Administrative Record, was \$11,263.24. The current space taken up at the Farmington District Library for the Administrative Record documents is less than 1 foot of shelving space and includes 7 volumes. The total cost of the environmental studies which include the Preliminary Assessment, Site Inspection, Supplemental Site Inspection, Remedial Investigation Work Plan, Sampling and Analysis Plan, Remedial Investigation, Feasibility Study, Community Action Plan, Proposed Plan, and Decision Document for the site to date is approximately \$1,180,000.



**Comment 2** – Christine Strough. Written comment. Thank you for having the reports available at the Farmington Area Public Library. I would like to see you use the Alternative 2 for the clean-up. I cannot be at the public meeting but please continue to send the information to the Library.

**Response** – While we appreciate your comment and concern, both the Illinois EPA and the landowner (Peoria County) have concurred with Alternative 3 for site cleanup. Site cleanup activities as described in Alternative 3 would allow for unrestricted use of the land by the County. Cost, state concurrence, and community acceptance are balancing criteria to determine the best alternative for site cleanup. USACE is recommending Alternative 3 which is protective of human health, does not restrict how Peoria County chooses to utilize the land, and is less than half of the cost of Alternative 2.

**Comment 3** – Riley Beecher. Written comment. Stop wasting taxpayers money return it to Farming for a positive return instead of spending money on it.

**Response** – The land is currently owned by Peoria County and USACE cannot prescribe how the County can use the site. When the property was transferred to the County there was a requirement that the property be used for public purposes. Should the use change from public use the property will revert to State ownership. Site cleanup activities as described in Alternative 3 would allow for unrestricted use of the land by the County.

**Comment 4** – Roger Beecher. Written comment. - I know nothing of your plan ‘May 12’ but I know what you should do, return it to farming.

**Response** - The land is currently owned by Peoria County and USACE cannot prescribe how the County can use the site. When the property was transferred to the County there was a requirement that the property be used for public purposes. Should the use change from public use the property will revert to State ownership. Site cleanup activities as described in Alternative 3 would allow for unrestricted use of the land by the County.

**Comment 5** – Terry D Kohlbuss, Tri-County Regional Planning Commission (TCRPC). Written comment. This letter is in reference to the U.S. Army Corps of Engineers proposed plan for the former Hanna City Air Force Station. Our organization provides land use and transportation planning services to Peoria County, the Village of Hanna City and surrounding areas. We have been involved in efforts undertaken by the county to utilize a portion of the land at the aforementioned station for local food production. A few acres in the western portion of the station are under consideration for such use.

After reviewing the studies conducted and documents prepared by USACE, our organization is in favor of the preferred alternative identified in the proposed remediation plan. Although land considered for agricultural use if not near any areas of contamination, some buildings that may be utilized to support this use are. The proposed remediation plan appears to remove the identified contamination to a level that makes the site safe for commercial/industrial use. There, TCRPC supports the proposed remediation plan as it makes the site safe for a use that achieves a public benefit.

We certainly appreciate USACE efforts in protecting the environment and transforming the site into a public asset. Please contact our office should you have any questions.

**Response** – We appreciate your comment and participation in the Public Comment Period. Site cleanup activities as described in Alternative 3 would allow for unrestricted use of the land by the County.

**Comment 6a** – Mary Ardapple, Peoria County Board, District 11. Verbal comment. What role – you’ve not expressed any communications with the current owner, Peoria County, in your decision on your feasibility strategy. I’d like to know as one of the 18 members that own title to this why has the county not been included in that conversation. By your decision with the alternative that you determined, you have decided what Peoria County wants to do with the site being commercial and industrial and you remove any discussion from our body of ownership if we wanted to have any kind of residential. Your response, please.

**Response** – Dr. Brancato, CELRL. Verbal response. Thank you for the question. Again we made available the remedial investigation through the public in around 2008. This decision right here based on the CERCLA process affords the community the input to the decision. What’s important to

recognize is that the decision that's being made allows Peoria County unlimited use unrestricted exposure. So while your deed indicated that it's for public use and not residential, you're free to use the property as you wish and we have forms for comments and I'll be happy to address those comments more formally, but this is the purpose of the public meeting.

**Comment 6b** – Mary Ardapple, Verbal follow-up question. So just for example from a safety prospective, if we wanted a junior college to put a site out there and build a dormitory, you're assuring us that the ground remediation is adequate for that type of residential?

**Response** – Dr. David Brancato, CELRL. Verbal response. Yes, I am. The state can weigh in on this as well.

**Comment 6c** – Mary Ardapple, Verbal follow-up question. So it's really a budgetary situation? You just don't want to spend the money to clean it up as fully as it could be?

**Response** – Dr. David Brancato, CELRL. Verbal response. Dollars do have an input because as I indicated under the feasibility study, that's one of the balancing criteria as well as the threshold criteria, which is protectiveness to public health. Now incrementally, as I explained what the difference is between an incremental increase of one in one hundred thousand, it's nil. The Journal of American Medical Association 1987 purported that the only time action should be taken from a medical perspective is one in ten thousand. The other incremental increases are acts of God, as the Journal of American Medical Associates. So I assure you if you want to build a dorm, you're going to be protective to those dorm residents.

**Comment 6d** – Mary Ardapple, Verbal follow-up question. You indicated you do not do any testing on herbicides and pesticides, that another agency would be required to do that if we wanted that to have done, is that correct?

**Response** – Dr. David Brancato, CELRL. Verbal response. In our preliminary assessment if it's determined that there's been an unexpected or inappropriate release, like someone would dump chlordane, we would find that out and then investigate it, but if the herbicide or pesticide is applied by label conditions, yes, it's covered under FIFRA, the Federal Insecticide, Fungicide, Rodenticide Act.

**Comment 6e** – Mary Ardapple, Verbal follow-up question. From your experience would you recommend the property owner have that site tested for any of those chemicals considering the agricultural use that's around it?

**Response** – Dr. David Brancato, CELRL. Verbal response. I believe in our site inspection – if you want to write that comment down, I can research it for you, but I believe we did test for that.

**Errata Response** – A soil sample was collected for pesticide analysis in 1996, no pesticides exceeded Tier 1 cleanup objectives. There is no evidence that the site has been sampled for herbicides.

**Comment 6f** – Mary Ardapple, Verbal follow-up question. Though as property owner we assumed the property as is, personally we probably didn't negotiate that very well considering the asbestos and some of the buildings out there, but the Department of Defense spends a great deal of money on healthy food initiatives for our military families and there are a lot of emerging programs that I've read about on that. As a reinvestment into this site once it's remediated, what would the process be again from the Corps' experience that you would guide a property owner to seek additional remediation funds so that those buildings could be put back into lively use or asbestos abatement?

**Response** – Dr. David Brancato, CELRL. Verbal response. That is a good question. Right now our remedial investigation does not involve any type of incidental cleanup at the buildings. So the appropriation of congressional funds would prohibit us from doing any type of building activity. However, that’s a good question. I’ll have to investigate that because all that I know is under the funds that I’m appropriated to operate under we’re very restrictive. If something is done out of normal, I’m getting hit with an antideficiency act, which means a prison term and a fine. So what would be the proper avenues? I guess the individuals that have negotiated the deed, because it started with the General Services Administration and the Department of Health Education and Welfare was involved in making that available thirty years for educational purposes and then after the fact once the Illinois Department of Corrections was closed in 2002, it became open to the county, and so I’m just not familiar with what happened after that point.

**Comment 6g** – Mary Ardapple, Verbal follow-up question. I recognize this is not your immediate area of expertise but trying to seek contacts within the Corps of Engineers of the Department of Defense on the local government level is a challenge because it’s a rather large and cumbersome organization. No offense, but it’s big. I understand that the Department of Defense has high concern about obesity in our country and I believe there are thirteen test sites of military bases across the country of pilots that are doing programs to encourage healthy living, health food within their military families, and those sites have already been identified. I’m just asking and requesting this one question as the owner, one of the 18 owners, if you could, if we wrote down some questions, if you could at least assist us in seek out the proper channels to ask some of these questions for future use for the site.

**Response** – Dr. David Brancato, CELRL. Verbal response. Currently, I’ve been in contact with one of your board members and they’re wanting to place a vegetable garden on the property. Which is perfectly acceptable. The constituents of PAHs really are not taken up into the root structure. The way that the property – once we mitigate, once we remove the soil, we return it to like conditions so we’re going to bring in backfill which is very appropriate for agricultural purposes, and we’ll seed it to make it in a like use condition.

**Errata Response** – Further research indicates that roots do uptake PAHs; however, the location of the currently planned vegetable garden is outside the area of concern for PAHs.

**Response** - Chris Hill, IL EPA. Verbal response. I would just add that if you’re contemplating putting vegetable gardens out there, that maybe a little coordination going on between the county and the Corps of Engineers and maybe even us to make sure that those gardens aren’t in areas where the cleanup is going to occur, not necessarily from a risk perspective of human health but because we like to minimize the amount that those soils get moved around, disturbed, or tilled until the remediation is completed. It’s a pretty small area.

**Comment 7** – Mark Rotherth, Peoria County. Verbal comment. You just brought up a good question or a good point. Can we start our project with planting before the Corps does remediation I guess is the only question I have, and then my second one is how long do you think it will take or do you have a schedule of when you will be complete with your remediation of the site?

**Response** – Dr. David Bracato, CELRL. Verbal response. Thank you for the question, and I want to assure Chris that we looked at the maps and the current vegetable garden is not anywhere near where our soil mitigation is going to occur, and the second part of your question, once the public comment period ends which is June 1<sup>st</sup>, then we look at if there is any concerns on what has been decided taking into perspective the community’s interest. We then go to the state and discuss with them the concerns of the citizens, if any, and if the alternative stays as is, then I’m ready with program dollars through my project manager, Valerie, to release a cleanup or a construction contract by June 30<sup>th</sup>, which means that possibly we can be in the field by August. Barring any weather changes, we have

approximately – we have to account for weather so right now we’re saying between ninety and one hundred days that it will be done. Once we’re done with the mitigation, we take confirmatory samples that make sure that we’ve met the criteria and we show these confirmatory samples in a remedial action completion report to the state. If they concur, if USACE concurs, then we’re good to go. We re-enter the CERCLA process and go with what they call a no further action proposed plan and decision document. It’s essentially the formal process of closing out the site that has been introduced into the CERCLA process. So by January, I was telling one of the other members here that’s interested in farming as well that hopefully by January the construction activity will be – I’m not assuming the land is going to freeze. I know the winters are early here, but I’m believing that we can get done prior to January if we start in August.

**Errata Response** – After the proposed remediation activities in this document, the CERCLA site will be closed with a Removal Action Completion Report.

**Comment 8a** – Faye Harding. Verbal Comment. I have so many questions, I don’t know where to begin. We went to a meeting this winter and talked with the county people that were at this meeting, and they basically said – we farm around this site and we basically asked why, if someone is going to clean that up, all those buildings, why it couldn’t be farmed as we farm around it, and they said that was not possible because of some law. I don’t know what law it was. But now you’re saying the word farming. She’s saying the word garden. There a whole big difference between farming and gardening. And my concern is because we farm around the area right up to the fence, we apply everything you apply on a farm on that land and if there are people in that unit having gardens and their concerns are going to be about the products we put on the farm in order to raise our crops, the things in the air, the things in the ground, the things in the water supply, a garden doesn’t see like a very good choice there where it is isolated amongst farm ground across the road, all around the farm, all around the unit or whatever you want to call that site, but I don’t understand why anybody, including the county, would have accepted the property with all the problems it’s got, all the buildings that are falling down and the mess it is and then take on the responsibility of cleaning it up, bussing people out there to make a garden, from where I don’t know. I just don’t understand it and I don’t understand why the Corps of Engineers ever got involved in that site. The Corps of Engineers to me is water, things like that, like our rivers. I just don’t understand why the Corps of Engineers is involved in that.

**Response** – Dr. David Brancato, CELRL. Verbal response. Those are good questions and we appreciate the opportunity to answer them. To take the last question, why did the Corps get involved, remember that it is a Formerly Used Defense site. The Department of Defense delegates cleanup, if necessary, or investigation to the U.S. Army Corps of Engineers on Formerly Used Defense sites. So we are mandated to investigate the media to see if the Department of Defense contributed to any contamination. Second point, the good news is farming around the area, like I indicated, we tested the groundwater, we tested the soils. We are not finding anything that has transferred from the farming activity onto this site. So as far as the third point, why it’s being used for gardening and so forth, again we don’t, the U.S. Army Corps of Engineers does not want to get involved in telling the property can be used for. What the Department of Defense has requested of us, if the test the chemicals and the risk assessment, both environmental and human health, tell us that it can be used for unlimited use unrestricted exposure, then it’s free. It’s free as determined on how they want it. Now, as far as – and I don’t have a good answer. I was not a real estate attorney. I was not an office of counsel person. Back in 1968 when the property was transferred, it was transferred with improvements. So that’s a pretty poor answer, but that’s the only answer I have for you because the lawyers are involved in those deed transactions. From a program perspective, from a project perspective, we have delegated funds as to what we’re permitted to do and what we’re not permitted to do in order to keep us out of the hot box. So I’m hoping I give you some answers. It’s probably not what you want to hear, but again if you want to farm up to the property line, that’s all well and good.

We're not finding any of the chemicals that you're using on your farm. This is an evolving technology and I can't give it from a doctor's perspective on what's in store with genetically modified products that are used by, that are produced by certain herbicides. I'm not obligated to get into that, but it's a whole different science.

**Comment 8b** – Faye Harding. Verbal follow-up question. Well, is there a law that says everything couldn't be torn down and that property sold or rented to a farmer to just farm?

**Response** – Dr. David Brancato, CELRL. Verbal response. I don't believe so. Go ahead, sir.

**Response** – Mark Rothert, Peoria County. Verbal response. When the county took over the property from the state of Illinois, there is language in the state statute that says that the property will be used for public purposes only and once it's used for private purposes, it reverts back to the state. So the county has taken the position that we will not use it for private purposes at this point and we're obviously looking for ways to use it for the public. So that's the law, so to speak, that you're referring to or someone referred you to.

**Comment 9** – David Pearsall. Email comment. - I wish to add my thoughts about the former USAF camp near Hanna City, IL. I attended a meeting last year and joined a discussion group who talked about, among other things, using the land as an agricultural demonstration site. I believe Peoria County could use a place to try new ideas in agriculture, a crucial economic factor in America. I have a few ideas myself. As discussed in the meeting the produce from the "farm" could help feed the county's nursing home residents. I hope these ideas will be included in the final planning for the site. Thank you.

**Response** - The land is currently owned by Peoria County and USACE cannot prescribe how the County can use the site. The Peoria County Board has expressed interest in placing a vegetable garden on the property. The cleanup will allow Peoria County unlimited use unrestricted exposure of the site, including gardening.

**Comment 10** – Mary Ardapple, Peoria County Board District 11. Written comment. Thank you for the recent public meeting on May 20th, 2013. The information was useful and was quality content. As stated that evening, Peoria County is developing a Business plan for the possible establishment of a local food hub initiative at the site. The work group developing the plan is interested in your assistance to identify possible resources within both the USDA and Dept of Defense for rehabilitory funds toward building rehabilitation and future use. We appreciate in advance your assistance.

**Response** - USACE cannot authorize the use of DERP funds for building rehabilitation. An email was sent directly to Mary Ardapple with information on potential funding sources.

**Comment 11** – Mary Ardapple, Peoria County Board District 11. Written comment. Peoria County will be abating asbestos from Roadside structures along with demolition by local firefighters as a training exercise. Peoria County asks the Corp of Engineers to work with staff to coordinate the removal of the resulting ash/debris as part of the mitigation process. Additionally Peoria County asks for the Corp of Engineers to top dress the same area with new soil at the time this phase is applied to the area within the project scope. The resulting site areas would both be completed by end of 2013.

**Response** – The area being remediated does not appear to be the same as the roadside structures that are planned for demolishing. USACE cannot authorize the use of DERP funds for either the disposal or reseedng activities.

**Comment 12** – Bethea Harding, Harding Farms Group. Written comment. As farmers who farm on the west, north, and east sides of this facility, we think the plans to removed layers of top soil from the site at the cost fiven is wasted money and unnecessary until the final decision for that property’s use is decided upon. The plans proposed by some members of the County Board seem very unrealistic and impossible to initiate considering the surrounding farms and the expense to the county. The safety of the area farmers is also a concern if it is used as a shooting area. Considering the necessary reality of knocking down and removing most, if not all, the houses and assorted buildings there, there is bound to be further contaminants to the soil from leaded paint, asbestos, etc. That will mean another layer of dirt removed after that process is complete. So any removal at this time is premature at best. If the restrictions on the property are as I was told, for the public good, I think better ideas can be formed than a shooting range, that endanger area residents and farmers working the field, or an organic farming experimental demonstration station. Please reconsider your plans to remove layers of soil, that you report are not contaminated, and wait until a realistic plan is decided upon by those who have the authority to do so.

P.S. The County was storing some of their bulk road salt there on the property this winter which if continued will contaminate the soil and cause a salt run-off to surrounding properties and that property. The property needs careful consideration before anything is done of permanence. Please! Wait! Thank you!

**Response** – The site was operated and owned by DoD and under DERP-FUDS, the Army is obligated to take care of residual contaminants that were related to their activity. The property was transferred from DoD ownership in 1968 with improvements, the current landowner is responsible for renovations including any demolition debris containing lead paint and/or asbestos. The planned removal action accounts for DoD impacted areas and DERP-FUDS congressional obligations/funding is only for specific media impacted by prior military use. DERP-FUDS funding cannot be used for property owner actions subsequent to acquisition, improvements of buildings on the site, or the aftermath of actions taken on the buildings. The land is currently owned by Peoria County and USACE cannot prescribe how the County can use the site or how the County allows the Sherriff’s Department/Highway Department to use the site. Any concerns regarding use of the site by the Sherriff’s Department for target practice or Highway Department for road salt storage should be brought up with the Sherriff’s Department and/or the Peoria County Board.

### **3.2 TECHNICAL AND LEGAL ISSUES**

No technical or legal issues were identified during the public review period of the Proposed Plan.

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#### **4.0 REFERENCES AND KEY DOCUMENTS**

- Department of the Army. 2004. ER-200-3-1. Environmental Quality, Formerly Used Defense Sites (FUDS) Program Policy. May
- GEO (GEO Consultants, LLC) 2010. GEO/09-195. Remedial Investigation, Former Hanna City Air Force Station, Hanna City, Peoria County, Illinois. March.
- GEO (GEO Consultants, LLC) 2012a. GEO 12-311. Community Action Plan, Former Hanna City Air Force Station. Hanna City, Peoria County, Illinois. June.
- GEO (GEO Consultants, LLC) 2012b. GEO/09-222. Feasibility Study, Former Hanna City Air Force Station. Hanna City, Peoria County, Illinois. September.
- GEO (GEO Consultants, LLC) 2013. GEO/11-298. Proposed Plan, Former Hanna City Air Force Station. Hanna City, Peoria County, Illinois. May.
- Tetra Tech (Tetra Tech EC, Inc.) 2008. Supplemental Site Investigation, Former Hanna City Air Force Station, Hanna City, Peoria County, Illinois. March.
- US Army Corps of Engineers Huntsville Center Environmental and Munitions Center of Expertise (USACE EM CX) 2012. Evaluation of Consideration and Incorporation of Green and Sustainable Remediation (GSR) Practices in Army Environmental Remediation, performed by the USACE EM CX for the Office of the Assistant Chief of Staff for Installation Management (OACSIM) Installation Services Directorate – Environmental Division, August 27, 2012, [http://www.fedcenter.gov/Documents/index.cfm?id=22322&pge\\_prg\\_id=27392](http://www.fedcenter.gov/Documents/index.cfm?id=22322&pge_prg_id=27392)

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## 5.0 GLOSSARY OF TERMS

This glossary defines the technical terms used in this Decision Document. These terms and abbreviations contained in this glossary are often defined in the context of hazardous waste management, and apply specifically to work performed under the Superfund program. Therefore, these terms may have other meanings when used in a different context.

**Administrative Record File** – A file maintained by the lead agency containing all the information used to make its decision on the selection of a response action under CERCLA. A copy of this file is to be available for public review at or near the site.

**Applicable or relevant and appropriate requirement (ARAR)** – The Federal and State environmental laws that, along with risk to human health and the environment, determine how much contamination must be remediated. These requirements may vary among sites and alternatives.

**Baseline Human Health Risk Assessment (BLRA)** – The NCP calls for a site-specific baseline risk assessment to be conducted as part of the RI. The BLRA characterizes the current and potential threats to human health and the environment that may be posed by contaminants at the site. The primary purpose of the BLRA is to provide risk managers with an understanding of the actual and potential risks posed by the site and any uncertainties associated with the assessment.

**Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) as amended** – Also known as the “Superfund Program”. A Federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act. This law provides for the investigation and remediation of hazardous substances released into the environment.

**Conceptual site model** – The set of descriptions concerning 1) Identification of potential contaminants. 2) Identification and characterization of the source(s) of contaminants. 3) Delineation of potential migration pathways through environmental media, and 4) Establishment of background areas of contaminants for each contaminated media (natural, other anthropogenic source, source dependent). In effect, CSM determines complete and incomplete exposure routes/pathways (inhalation, ingestion and/or dermal absorption) to relevant receptors at the area being investigated. Additionally it evaluates migration of contaminants from one media to another; and whether that secondary pathway of contaminant migration is a complete or incomplete exposure to the area receptors.

**Decision Document (DD)** – The term adopted by the DoD for the documentation of remedial response decisions at non-National Priorities List FUDS Properties. The DD shall be maintained in the project Administrative Record file and permanent Project File (ER-200-3-1., Department of the Army 2004).

**Ecological Risk Assessment (ERA)** – An ERA evaluates the potential adverse effects that human activities have on the living organisms that make up ecosystems. The risk assessment process provides a way to develop, organize and present scientific information so that it is relevant to environmental decisions. When conducted for a particular place such as a watershed, the ERA process can be used to identify vulnerable and valued resources, prioritize data collection activity, and link human activities to their potential effects. ERA results provide a basis for comparing different management options, enabling decision-makers and the public to make better informed decisions about the management of ecological resources.

**Feasibility Study (FS)** – A comprehensive evaluation of potential alternatives for remediating contamination. The FS identifies general response actions, screens potentially applicable technologies and process options, assembles alternatives, and evaluates alternatives in detail.

Formerly Used Defense Site (FUDS) – Defined as a facility or site (property) that was under the jurisdiction of the Secretary of Defense and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to contamination by hazardous substances. By DoD Environmental Restoration Program policy, the FUDS program is limited to those real properties that were transferred from DoD control prior to 17 October 1986. FUDS properties can be located within the 50 States, District of Columbia, Territories, Commonwealths, and possessions of the United States.

Groundwater – Underground water that fill pores in soils or openings in rocks to the point of saturation. Groundwater is often used as a source of drinking water via municipal or domestic wells.

Hazard Index (HI) – A numerical presentation of the health hazard, unrelated to cancer, posed by contaminants through one or more exposure pathways. An HI value of 1 is similar in concept to a ‘threshold level’ for non-cancer toxicity. An HI value less than one indicates the lack of any non-cancer hazard, while a value greater than 1 indicates the potential for a health hazard.

Incremental lifetime cancer risk (ILCR) – Incremental probability of an individual developing cancer as a result of potential carcinogen exposure averaged over a lifetime.

National Oil and Hazardous Substance Pollution Contingency Plan [also known as the National Contingency Plan] (NCP) – Revised in 1990, the NCP provides the regulatory framework for responses under CERCLA.

Potentially Responsible Party (PRP) – Any individual or company (such as owners, operators, transporters, or generators of hazardous waste) that is potentially responsible for, or contributing to, the contamination problems at a CERCLA site. Whenever possible, USEPA requires PRPs, through administrative or legal actions, to clean up hazardous waste sites they have contaminated.

Proposed Plan – In the first step of the remedy selection process, the lead agency identifies the alternative that best meets the requirements in CERCLA 300.430(f)(1) and presents that alternative to the public in a Proposed Plan. The purpose of the Proposed Plan is to supplement the RI/FS and provide the public with a reasonable opportunity to comment on the preferred alternative for remedial action at a site.

Remedial Action Objective (RAO) – Site-specific goals for protecting human health and the environment. RAOs are developed by evaluating ARARs that are protective of human health and the environment and the results of the RI, including human and ecological risk assessments.

Remedial Investigation (RI) – The study which determines how much and what kind of contamination exists at a site. A RI generally involves collecting and analyzing samples of groundwater, surface water, soil, sediment, and air.

Screening Level Ecological Risk Assessment (SLERA) – A simplified risk assessment that can be conducted with limited data; where site-specific information is lacking, assumed values should consistently be biased in the direction of overestimating risk. The need for conservatism is to provide a defensible conclusion that negligible ecological risk exists or that certain contaminants and exposure pathways can be eliminated from consideration.

Tiered Approach to Corrective Action Objectives (TACO) – The Illinois EPA’s method for developing remediation objectives for contaminated soil and groundwater. These remediation objectives protect human health and take site conditions and land use into account. Remediation objectives generated by TACO are risk-based and site-specific.

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## **APPENDIX A**

### **FIGURES**

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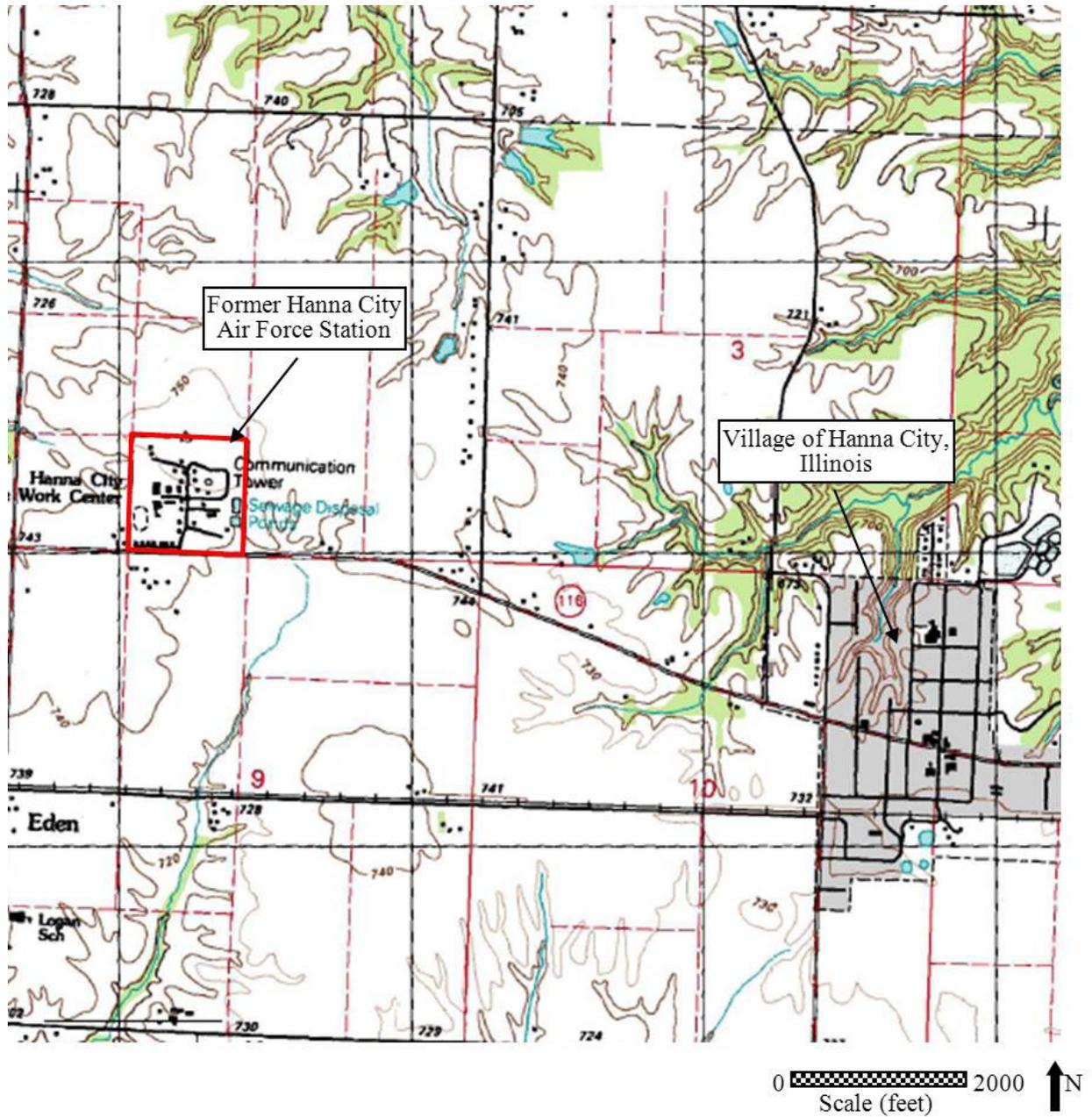
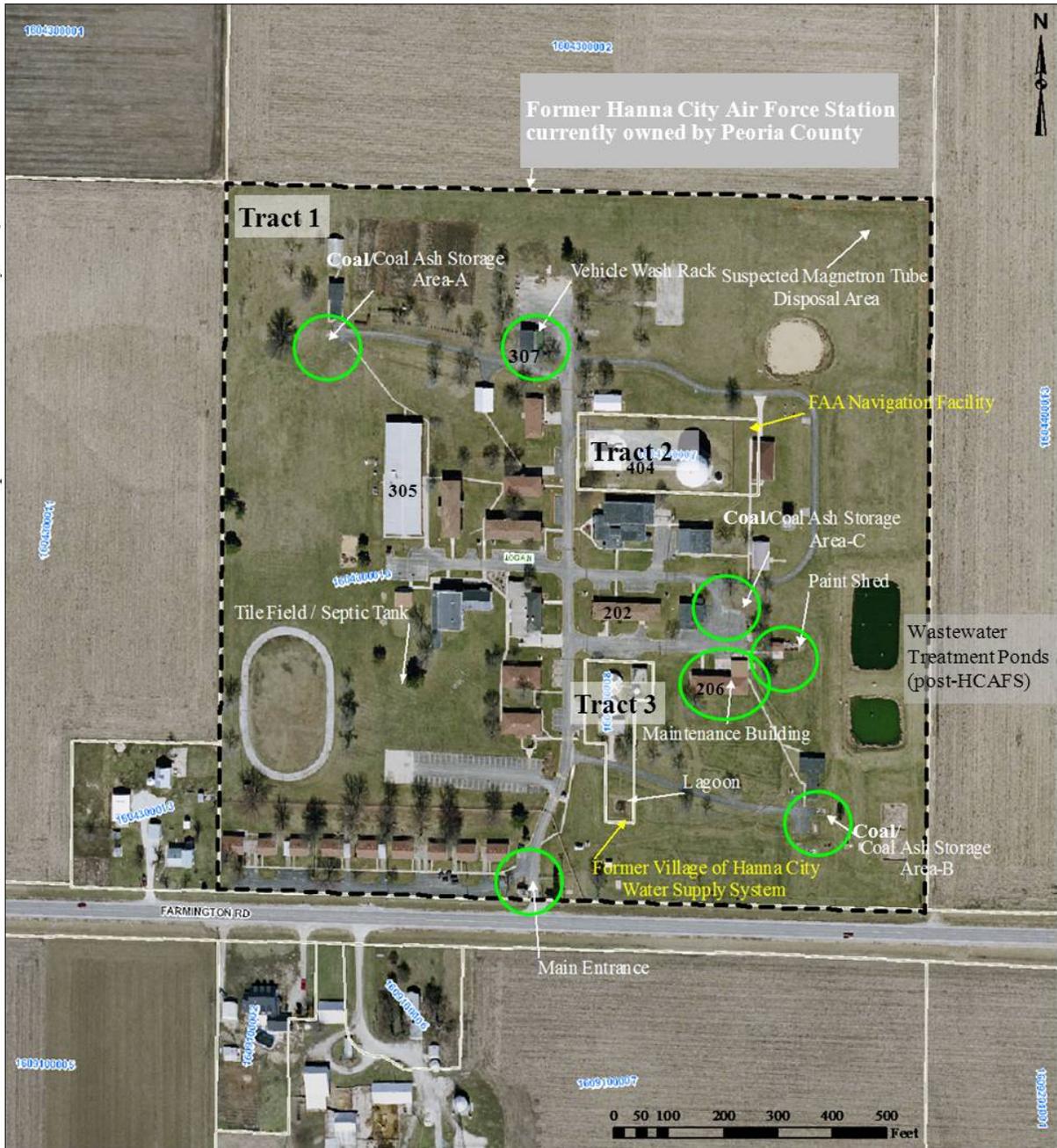


Figure 1. Location of Former HCAFS.

Aerial photo from Peoria County GIS, 2003.



**Figure 2. Historical and current site layout for the Former HCAFS.**

(Green circles are areas of potential concern, building numbers shown in black text, referenced areas shown in white text.)

Aerial photo from Peoria County GIS, 2003.

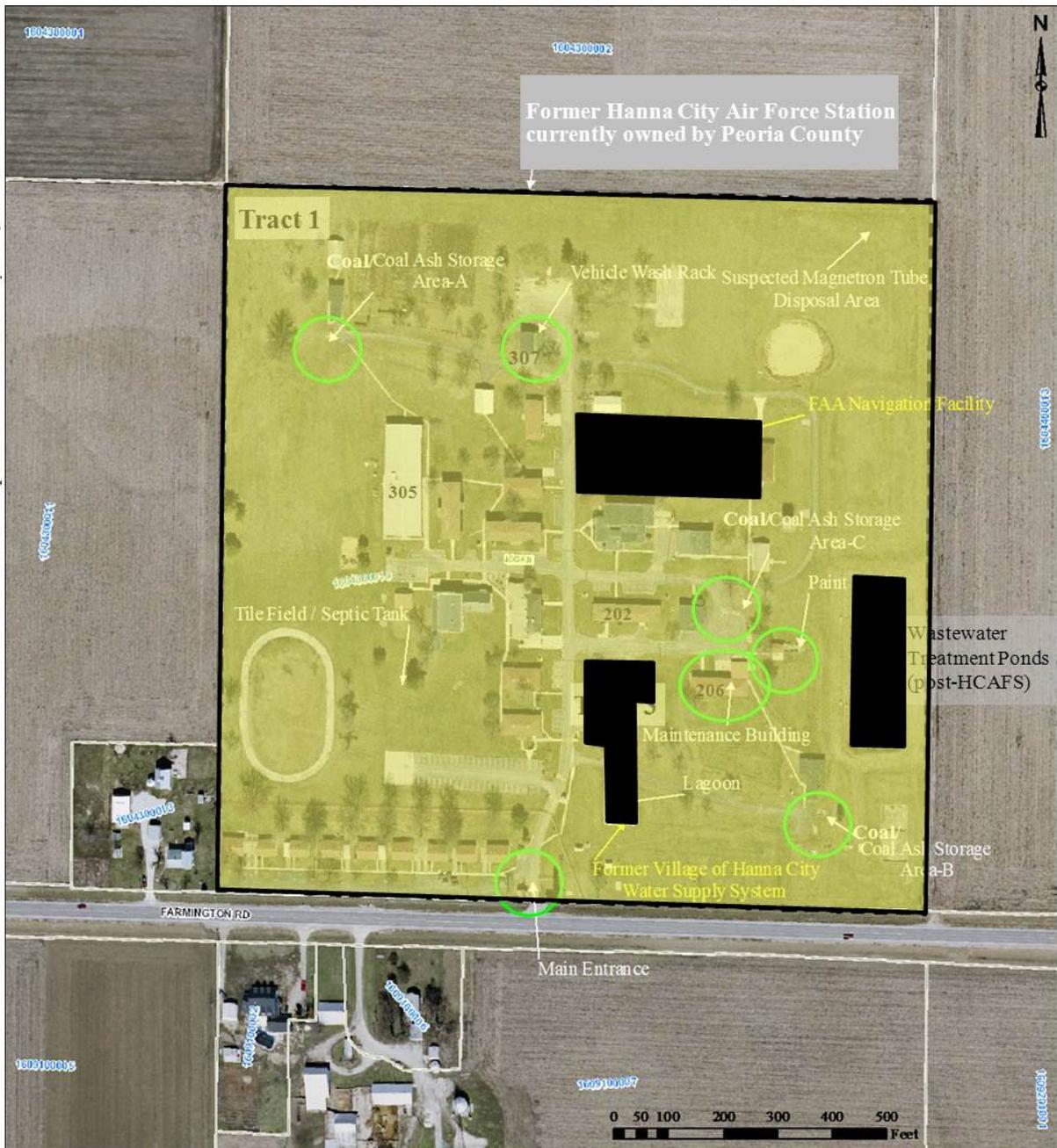


Figure 3. Portion of the Former HCAFS that is included in this Decision Document. (Black areas were not included in the Remedial Investigation.)

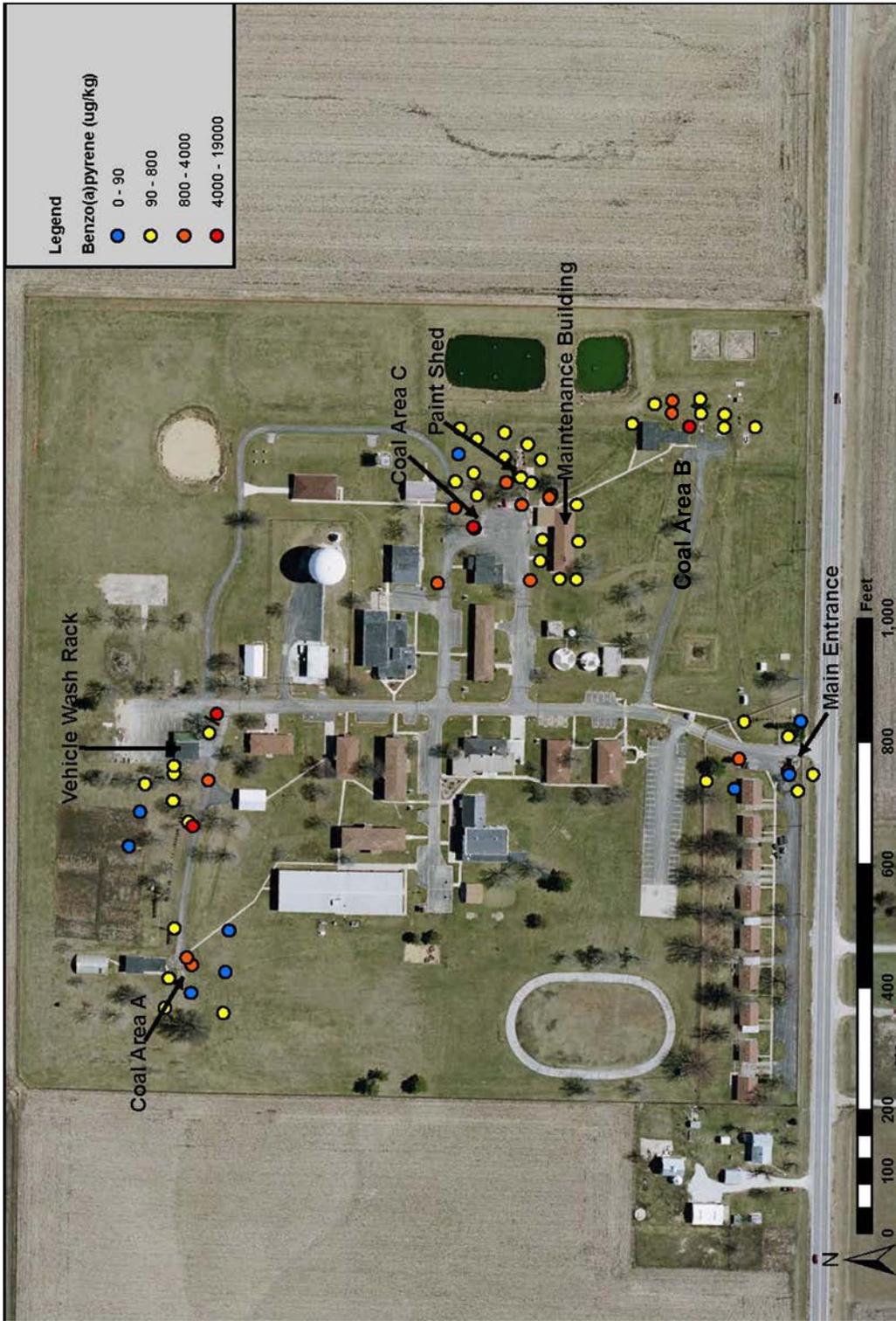


Figure 4. Concentrations of benzo(a)pyrene in surface soil.

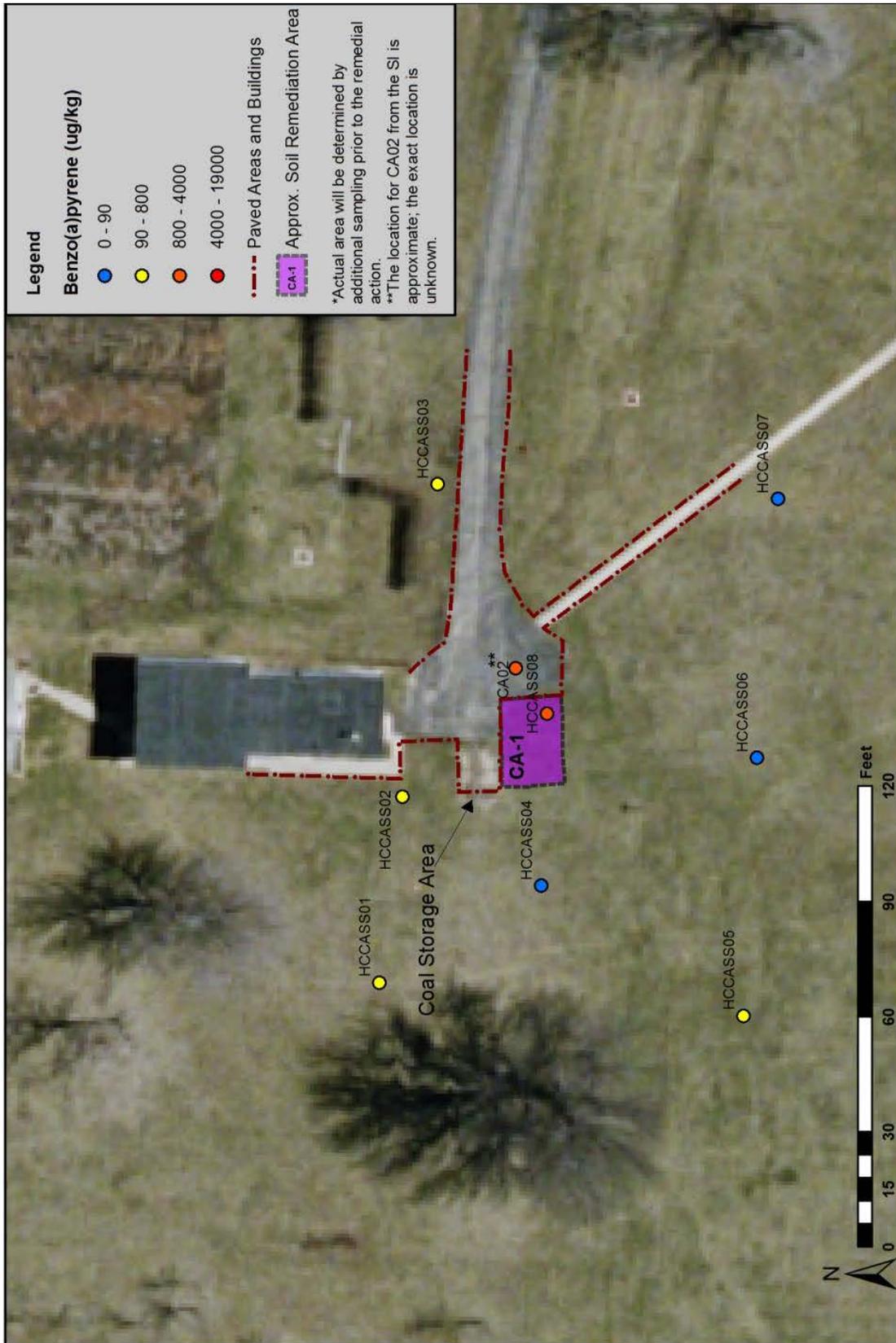


Figure 5. Coal Area A soil remediation area using Set 2 RGs.

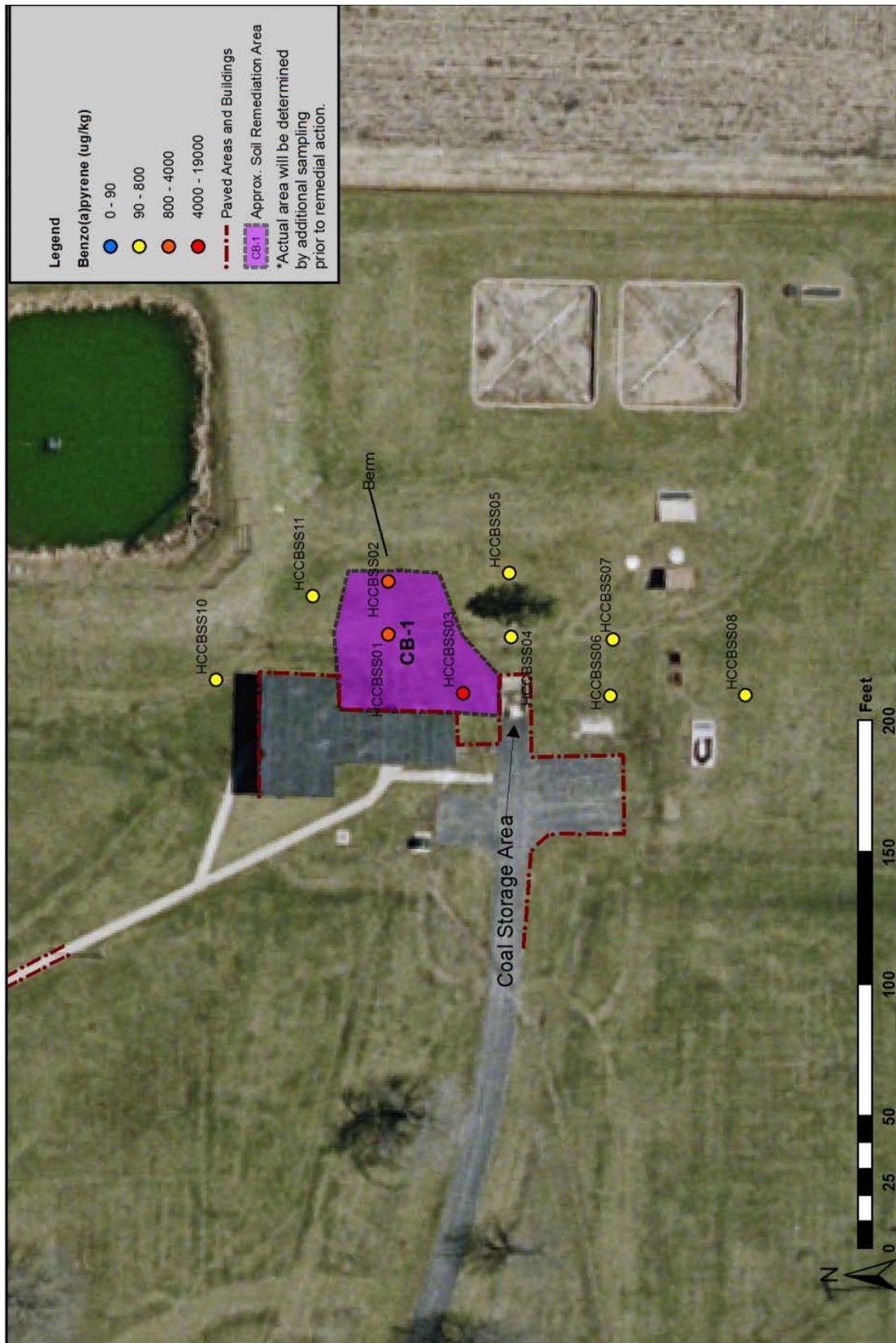


Figure 6. Coal Area B soil remediation area using Set 2 RGs.

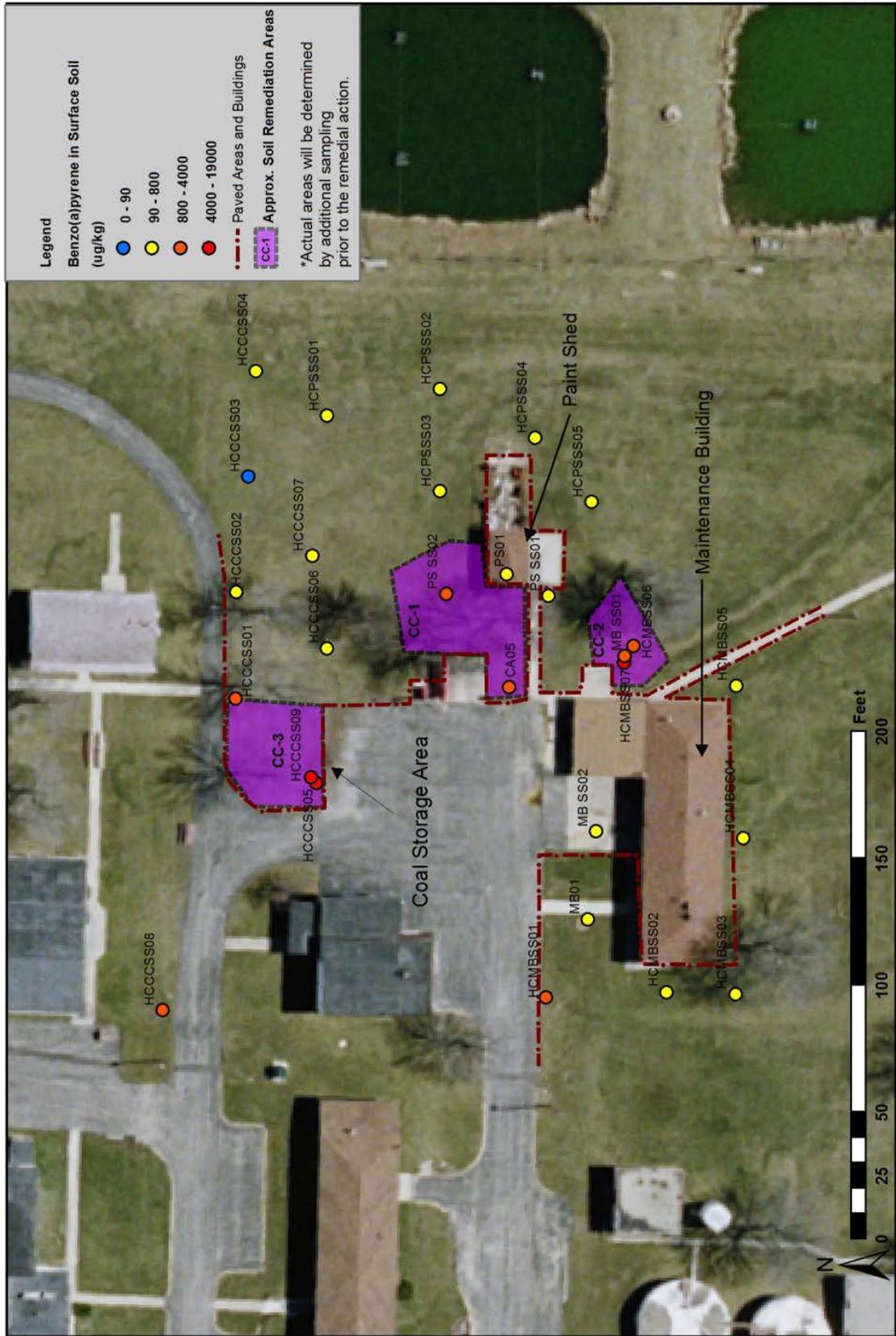


Figure 7. Coal Area C/Maintenance Building/Paint Shed soil remediation area using Set 2 RGs.



Figure 8. Main Entrance soil remediation area using Set 2 RGs.



Figure 9. Vehicle Wash Rack soil remediation area (none) using Set 2 RGs..

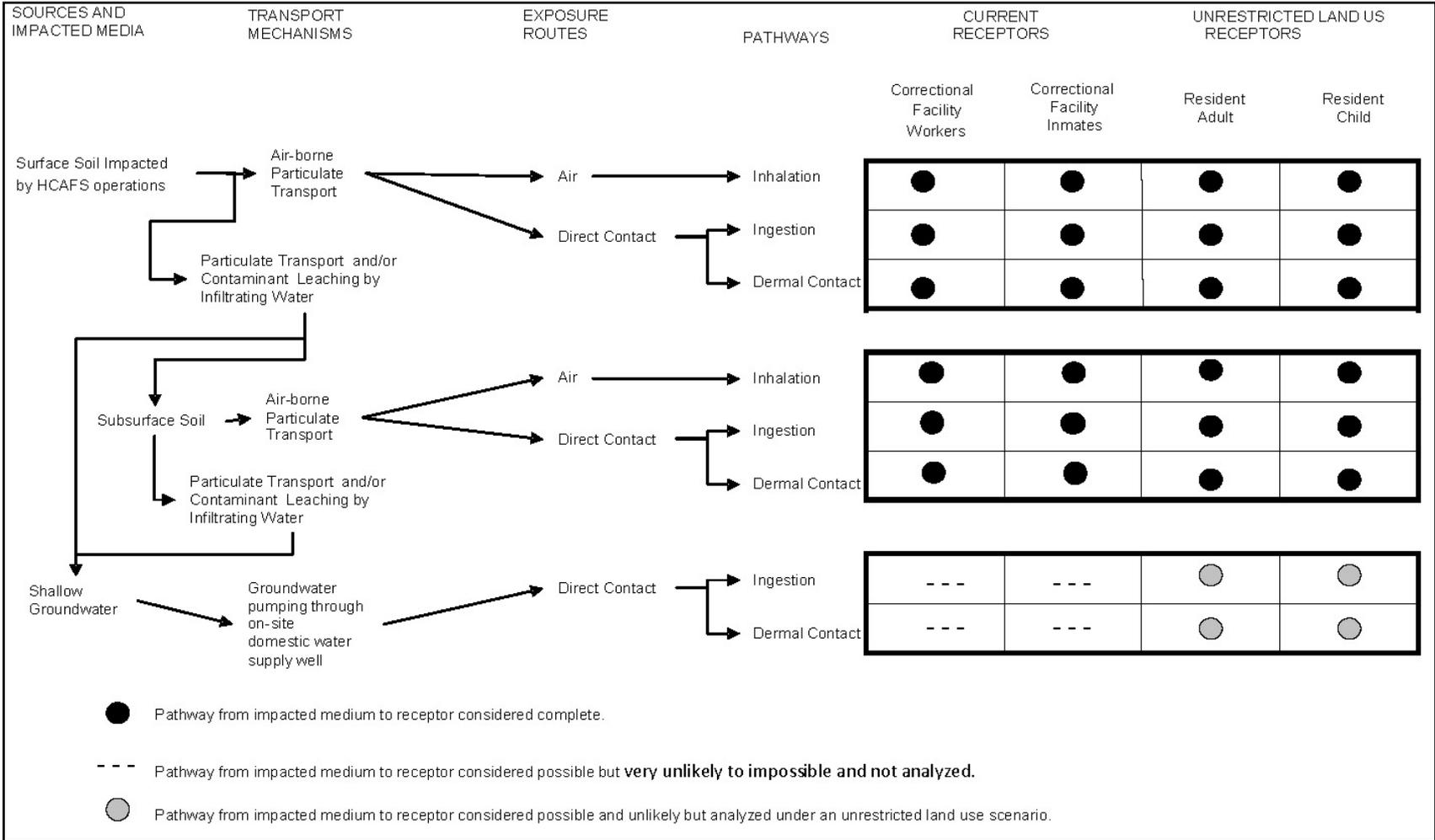
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## **APPENDIX B**

### **CONCEPTUAL SITE EXPOSURE MODEL FOR THE FORMER HCAFS**

**(REMEDIAL INVESTIGATION, GEO 2010)**

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## **APPENDIX C**

### **PRELIMINARY REMEDIATION GOALS**

**(FEASIBILITY STUDY, GEO 2012B)**

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Chemical	Carcinogen	Illinois EPA Proposed Remediation Goals <sup>1</sup>		Set 1 Remediation Goals (TACO Residential; 02/2007)		Set 2 Remediation Goals (Preferred Alternative)	
		(µg/kg)	Source [a]	(µg/kg)	Source [a]	(µg/kg)	Source [a]
Naphthalene	Yes	1800[c]	TACO CW Inhalation	170000[c]	TACO Res Inhalation	1800[c]	TACO CW Inhalation
Acenaphthylene	No	2300000[c]	TACO Res Ingestion	2300000[c]	TACO Res Ingestion	6100000[c]	I/C Ingestion[d]
Acenaphthene	No	4700000[c]	TACO Res Ingestion	4700000[c]	TACO Res Ingestion	12000000[c]	TACO Ind/Comm Ingestion
Fluorene	No	3100000[c]	TACO Res Ingestion	3100000[c]	TACO Res Ingestion	8200000[c]	TACO Ind/Comm Ingestion
Phenanthrene	No	2300000[c]	TACO Res Ingestion	2300000[c]	TACO Res Ingestion	6100000[c]	I/C Ingestion[d]
Anthracene	No	23000000[c]	TACO Res Ingestion	23000000[c]	TACO Res Ingestion	61000000[c]	TACO Ind/Comm Ingestion
Fluoranthene	No	3100000[c]	TACO Res Ingestion	3100000[c]	TACO Res Ingestion	8200000[c]	TACO Ind/Comm Ingestion
Pyrene	No	2300000[c]	TACO Res Ingestion	2300000[c]	TACO Res Ingestion	6100000[c]	TACO Ind/Comm Ingestion
Benzo(a)anthracene	Yes	800	TACO Ind/Comm Ingestion	90	TACO Res Ingestion	800	TACO Ind/Comm Ingestion
Chrysene	Yes	78000	TACO Ind/Comm Ingestion	88000	TACO Res Ingestion	78000	TACO Ind/Comm Ingestion
Benzo(b)fluoranthene	Yes	800	TACO Ind/Comm Ingestion	90	TACO Res Ingestion	800	TACO Ind/Comm Ingestion
Benzo(k)fluoranthene	Yes	78000	TACO Ind/Comm Ingestion	9000	TACO Res Ingestion	78000	TACO Ind/Comm Ingestion
Benzo(a)pyrene	Yes	800	TACO Ind/Comm Ingestion	90	TACO Res Ingestion	800	TACO Ind/Comm Ingestion
Indeno(1,2,3-cd)pyrene	Yes	8000	TACO Ind/Comm Ingestion	900	TACO Res Ingestion	8000	TACO Ind/Comm Ingestion
Dibenzo(a,h)anthracene	Yes	800	TACO Ind/Comm Ingestion	90	TACO Res Ingestion	800	TACO Ind/Comm Ingestion
2-Methylnaphthalene	No	310000[c]	TACO Res Ingestion	310000[c]	TACO Res Ingestion	820000[c]	I/C Ingestion[d]
Benzo(g,h,i)perylene	No	2300000[c]	TACO Res Ingestion	2300000[c]	TACO Res Ingestion	6100000[c]	I/C/CW Ingestion[d]

**Notes:**

[1] IL EPA proposed RGs correspond to a target hazard quotient of 1 for non-carcinogen compound clean-up levels.

[a] IL EPA provides risk-based soil cleanup criteria for different receptors/pathways. The criteria selected as PRGs are the lower of criteria for ingestion and inhalation pathways.

[b]  $ILCR_{Res-PRG} = PRG \times (10^{-6} / TACO-Res)$

[c] Calculated using a target hazard quotient of 1.

[d] Chemicals not in TACO Tier I Tables. - <http://www.epa.state.il.us/land/taco/chemicals-not-in-taco-tier-1-tables.html>

IL EPA: Illinois EPA; TACO: Tiered Approach to Corrective Action Objectives (February 2007); Res: Residential; CW: Construction Worker; I/C and Ind/Comm: Industrial/Commercial

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