

Iowa Army Ammunition Plant

Proposed Plan for Construction Debris Sites

CC-IAAP-001 and CC-IAAP-002

Operable Unit Nine

Introduction

This Proposed Plan identifies the Preferred Remedial Alternatives for Construction Debris Sites 1 and 2 (respectively, CC-IAAP-001, Headquarters Army Environmental System [HQAES] identification number 19105.1062, and CC-IAAP-002, HQAES 19105.1063) at the Iowa Army Ammunition Plant (IAAAP) in Middletown, Iowa. These two sites are in the central portion of IAAAP (**Figure 1**) and collectively are referred to as Operable Unit 9 (OU-9).

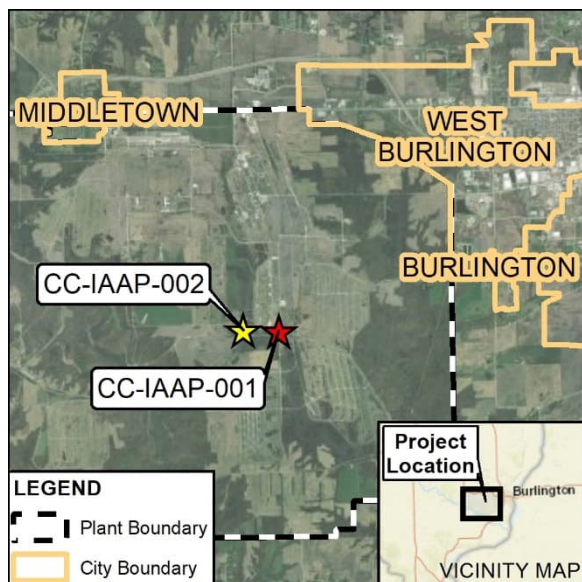


Figure 1 – Location of Construction Debris Sites

This work is being conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the IAAAP Federal Facility Agreement.

This document is issued by the U.S. Army, the IAAAP facility, and the U.S. Environmental Protection Agency (EPA). IAAAP is a Government Owned Contractor Operated (GOCO) facility. This active U.S. Joint Munitions Command facility is operated by the civilian

contractor American Ordnance, LLC. The State of Iowa is not a signatory to the IAAAP Federal Facility Agreement. The Army is the lead agency for environmental response actions, and the EPA is the primary regulatory agency.

The Army and EPA are issuing this Proposed Plan as part of the public participation responsibilities under CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan.

Dates to Remember:

- A) **Public Comment Period**
April 10 to May 10, 2023
- B) **Public Meeting**
April 20, 2023

The Army and EPA will accept written comments on the Proposed Plan during a 30-day public comment period. The Army will hold a public meeting to explain the Proposed Plan and the preferred alternative. Oral and written comments will also be accepted at the meeting. The meeting will be held at the Middletown Armed Forces Service Center, 17879 Highway 79, Middletown, Iowa.

For more information, see the Administrative Record File, which is located online at <https://iaaprestoration.com/adminrecord/>. Operable Unit 9. A hard copy is housed in the IAAAP Restoration Repository located at 17571 DMC Highway 79, Middletown, Iowa 52638-5000.

The Burlington Public Library has computers available to the public for those interested in viewing the electronic version of the Administrative Record.

This Proposed Plan summarizes information that is detailed in the Remedial Investigation (RI) report (PIKA 2014a), the RI Addendum report (Leidos 2020), the Focused Feasibility Study

(FFS) (PIKA 2014b), the Feasibility Study (FS) Addendum (Jacobs 2022), and other documents in the IAAAP Administrative Record File (see link above). The Administrative Record is a compilation of the information that was considered in developing this Proposed Plan and provides a comprehensive description of the site investigation and proposed remediation activities.

This Proposed Plan presents the four alternatives that were evaluated for OU-9 and the rationale for the preferred alternatives. The four alternatives were (1) no action, (2) security fencing with land use controls (LUCs) and long-term monitoring, (3) encapsulation/capping with LUCs and long-term monitoring, and (4) removal and disposal of asbestos-containing material (ACM) debris piles. (These alternatives are described in the Summary of Remedial Alternatives section of this Proposed Plan, p. 6.) The preferred alternative for Construction Debris Site 1 (CC-IAAP-001; HQAES19105.1062) is no action. The preferred alternative for Construction Debris Site 2 (CC-IAAP-002; HQAES 19105.1063) is removal and disposal of ACM debris piles. The rationale for these recommendations is included in the Preferred Alternatives section (p. 9).

The Preferred Alternatives presented in this Proposed Plan may be modified based on new information or public comments. Therefore, the public is encouraged to review and comment on all alternatives presented in this Proposed Plan.

Site History

The IAAAP is an active United States Joint Munitions Command facility that is operated by civilian contractor American Ordnance, LLC. It consists of 19,011 acres of land adjacent to Middletown in Des Moines County, Iowa. The IAAAP is located 8 miles west of Burlington. Approximately 8,000 acres of the IAAAP are leased for agricultural use, 7,500 acres are forested, and the remaining areas are used for administrative and industrial operations (USACE 2016). Recreational facilities are located on the IAAAP property and in the area immediately surrounding the IAAAP. The anticipated future land uses at the IAAAP are Commercial, Industrial, Agricultural, and Recreational (USACE and Dawson Solutions 2021).

Production of munitions began at the IAAAP in 1941. The current mission of the IAAAP is to load, assemble, and pack ammunition items, including projectiles, mortar rounds, warheads, demolition charges, and munitions components such as fuses, primers, and boosters. In accordance with CERCLA, EPA added the IAAAP to the National Priorities List of Superfund sites, on August 30, 1990, based on the presence of known and suspected releases of hazardous contaminants to the environment and on hazard ranking. The IAAAP was placed under the U.S. Department of Defense's Installation Restoration Program, which follows the CERCLA process, as amended by the Superfund Amendments and Reauthorization Act.

The IAAAP is currently divided into 11 active operable units (OUs) and one inactive OU (OU-2). OU-9 has been designated as the Construction Debris Areas OU and comprises the two environmental sites mentioned above.

OU-9 Site Background and Characteristics

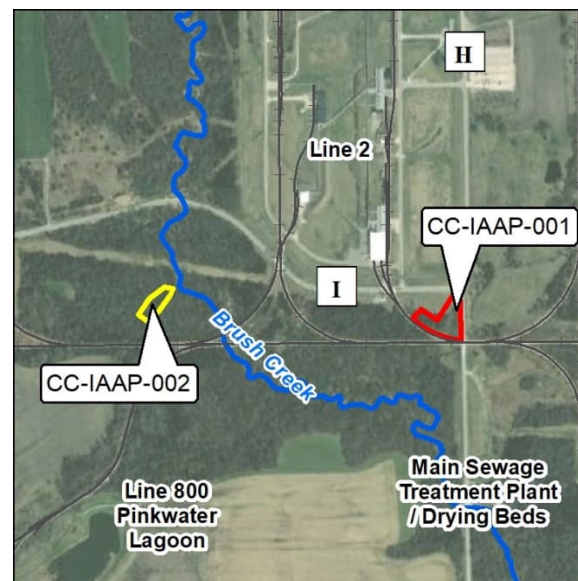


Figure 2 – OU-9 Construction Debris Site Locations

The two OU-9 Construction Debris Sites addressed in this Proposed Plan, CC-IAAP-001 and CC-IAAP-002 (Figure 2), were used for disposal of construction and demolition debris between the years 1941 and 1987. Neither site is currently active. Each site is detailed below.

CC-IAAP-001

CC-IAAP-001 was discovered in October 2007 at the intersection of Roads H and I, during work on a water line along Road H. The area shown on **Figure 3** is bounded by a curving railroad spur that crosses Road H at the south end of the site and Road I at the northeast end of the area. CC-IAAP-001 covers approximately 1.34 acres and was used to discard construction and demolition debris. CC-IAAP-001 was not used as part of IAAAP's manufacturing process. Debris was visible in several eroded areas along the steep embankment adjacent to Road H. Surface debris also exists along the drainage located at the base of the embankment along Road H. Visible debris included scattered bricks, corrugated metal, metal parts, wire, and metal banding. CC-IAAP-001 is an inactive area. It was not used as part of any of the IAAAP processes or load, assemble, and pack operations; nor did it receive wastes from any IAAAP processes.

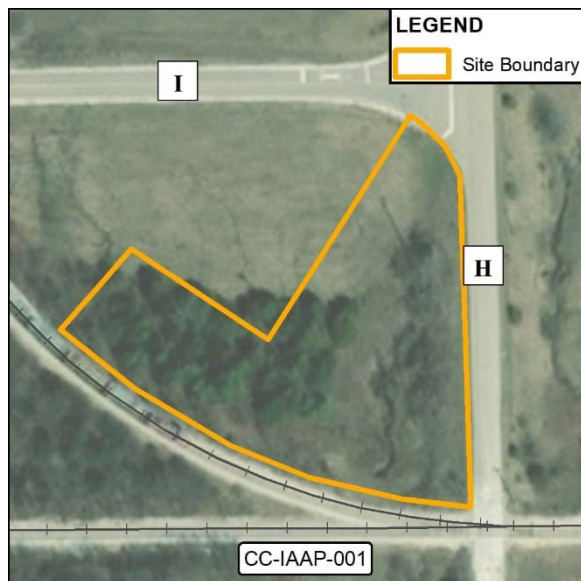


Figure 3 – CC-IAAP-001 Location

Due to the presence of the debris, a visual inspection was performed of the area during the RI that focused on the presence of asbestos-containing material (ACM). The visual inspection of CC-IAAP-001 identified no suspected ACM in site debris, surface soil, or boring cores. More detailed information regarding the ACM survey and RI results are discussed in the RI Addendum report (Leidos 2020).

CC-IAAP-002

CC-IAAP-002 was discovered by recreational users in March 2009 along an intermittent tributary to Brush Creek in a forested area south of Line 2, as depicted on **Figure 4**. CC-IAAP-002 covers approximately 0.625 acre and was used to discard construction and demolition materials, including sheets of metal, bricks, corrugated transite roofing/siding, wire, buckets, and wood. CC-IAAP-002 was not used as part of IAAAP's manufacturing process.

The debris appears to have been placed along the banks of a drainage feature that discharges to Brush Creek. The confluence of Brush Creek is 100 to 200 feet from the debris. CC-IAAP-002 is an inactive area. It was not used as part of any of the IAAAP processes or load, assemble, and pack operations; nor did it receive wastes from any IAAAP processes.

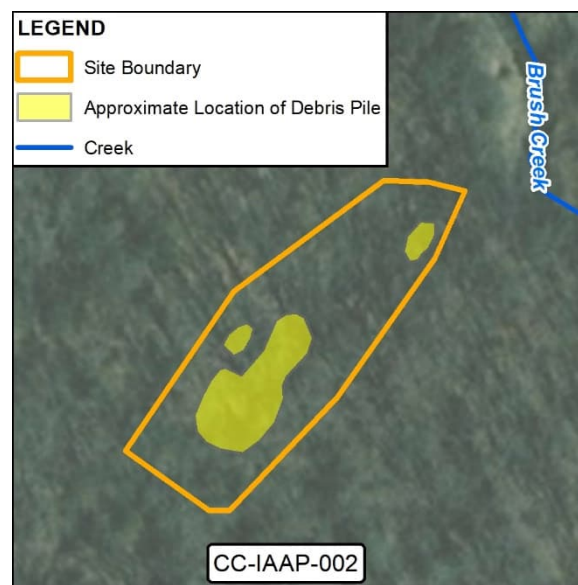


Figure 4 – CC-IAAP-002 Location

Due to the presence of the debris, a visual inspection of the area was performed during the RI. The visual inspection focused on the presence of ACM that could be associated primarily with asbestos cement (transite), and pieces of thermal insulation possibly from past building demolition and disposal activities. The inspection identified three areas along Brush Creek that contained significant quantities of asbestos-containing cement panels/roofing material, which exhibited disintegration due to exposure to the elements. No

ACM was visually identified in soil boring cores collected from CC-IAAP-002. Asbestos was not detected in soil boring core samples or sediment above laboratory analytical detection limits. More detailed information regarding the ACM survey and RI results are discussed in the RI Addendum report (Leidos 2020).

Summary of Previous Investigations and Studies

USACE conducted several environmental investigations and studies for the OU-9 sites between 2013 and 2021. Documents detailing these investigations and studies are available in the Administrative Record File (link p. 1). The following summarizes the OU-9 investigation and study history.

Based on the conclusions from the 2014 RI Report, an FFS was performed (PIKA 2014b) to develop and evaluate remedial alternatives to address the ACM in the CC-IAAP-002 debris piles. In the FFS (PIKA 2014b), four remedial alternatives were developed to address risk to human health and/or the environmental posed by ACM at CC-IAAP-002.

Subsequently, a Proposed Plan was completed in 2015 that identified removal and disposal of ACM debris piles (Alternative 4) as the preferred remedial action for OU-9 (PIKA 2015). However, because the 2014 Baseline Human Health Risk Assessment (BHHRA) did not include an evaluation of the Residential Land Use scenario, there was uncertainty whether LUCs were warranted to address potential unacceptable risks or hazards specific to residential receptors.

To address this uncertainty, an RI Addendum was completed in 2020 (Leidos 2020). The intent behind the RI Addendum was to supplement the 2014 BHHRA with a human health risk evaluation using the Residential Land Use scenario and to update the 2014 Screening Level Ecological Risk Assessment (SLERA). The RI Addendum confirmed that remedial action is only warranted to address ACM at OU-9 sites and no action is warranted for other media under the Residential Land Use scenario.

Based on the results of the RI Addendum, an FS Addendum (Jacobs 2022) was completed, which summarized the conclusions from the additional

risk assessments presented in the RI Addendum and documented how the conclusions impact the preferred alternative (Alternative 4). Because remedial action is only warranted to address the ACM, long-term monitoring (LTM) and LUCs were not included as part of Alternative 4, which involves removal of the ACM. The FS Addendum also updated the present worth costs for all the alternatives. No other changes were made to Alternatives 1 through 3 from the 2014 FFS.

Previous Public Participation

To support the previous (2015) Proposed Plan for OU-9, the document was issued for public comment between January 13 and February 11, 2015. A public meeting was held in February 2015 to present the preferred alternative and address questions. Public comments were in agreement with the preferred remedy, removal and disposal of ACM debris piles (Alternative 4). Comments from the February 2015 meeting are available at the Administrative Record File.

When applicable, OU-9 is discussed during public Remedial Advisory Board (RAB) meetings, which are typically held on a quarterly basis every year. Meeting minutes from the RAB meetings are also available at the Administrative Record File.

RI and RI Addendum Findings

The RI and RI Addendum reports collectively characterized the nature and extent of contamination, evaluated the fate and transport of contaminants, and assessed the potential risk to human health and the environment from the Construction Debris Sites. The RI investigated the nature and extent of chemicals of potential concern (COPCs) including metals, pesticides, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs) in OU-9 site media (soil, sediment, groundwater, and surface water) and compared the findings to respective project action limits or background concentrations.

Visual observations during the RI indicated that the debris was deposited at the Construction Debris Sites at least 20 years ago, indicating that previously released contaminants have had time to bind to the mineral matrix.

COPCs, including VOCs, pesticides, and poly-

cyclic aromatic hydrocarbons (PAHs), were detected in soil but were not detected in groundwater at concentrations greater than their respective project action limits, with a few exceptions. This indicated the levels of these chemicals detected in soil do not present enough total mass to yield detectable groundwater concentrations after dilution, dispersion, and other natural mechanisms reduce their concentrations. Additional discussion regarding COPCs is presented in the Summary of Site Risks section of this PP.

During the visual inspection of debris in OU-9 for ACM, three distinct areas of suspected ACM were identified in CC-IAAP-002 along Brush Creek. Laboratory analysis of samples of the suspected ACM collected during the RI confirmed asbestos fibers (chrysotile) at levels above regulatory limits. In addition to determining the nature and extent of chemical contamination at OU-9, soil and surface water samples were collected and analyzed for asbestos; asbestos fibers were not detected in any of these samples. Therefore, the extent of ACM in CC-IAAP-002 is limited to roofing material within the debris piles. The visual inspection of CC-IAAP-001 identified no suspect ACM.

Further details on the RI findings are presented in the RI Report (PIKA 2014a) and RI Addendum report (Leidos 2020).

Scope and Role of Response Action

This Proposed Plan outlines the proposed response actions for the two Installation Restoration Program sites within OU-9 at IAAAP. The actions selected will be the final actions for these sites. The overall cleanup strategy is to take appropriate action to remedy environmental contamination when there is an unacceptable risk to human health or the environment. There are no unacceptable risks or hazards associated with unlimited use and unrestricted exposure with respect to any media or ACM at CC-IAAP-001. Therefore, no further action (NFA) is warranted for this site. Environmental contamination at CC-IAAP-002 consists of friable asbestos. The remedial alternatives for CC-IAAP-002 presented in this Proposed Plan (other than No Action) were developed to mitigate potential unacceptable risks to human health and the environment.

The following remediation goals were defined in the FFS (PIKA 2014b):

- Eliminate the potential for future exposure to the ACM debris piles in Site CC-IAAP-002
- Obtain closure certification—NFA for both sites

Summary of Site Risks

Potentially unacceptable risks or hazards from exposure to contaminants in environmental media at the two OU-9 sites were evaluated in human health and ecological risk assessments. Those evaluations are summarized in the following subsections.

Human Health Risk Evaluation

Industrial Land Use Scenario

The BHHRA, presented in the RI report (PIKA 2014a) evaluated potential risks from exposure to residual contamination under the Commercial/Industrial Land Use scenario (the current and reasonably anticipated future land use for IAAAP) and concluded that there were no adverse carcinogenic risks or noncarcinogenic hazards above EPA target limits for COPCs for all evaluated exposure media, at both areas. Further, there are no industrial human health contaminants of concern or radionuclides of concern that require further evaluation of response action at OU-9.

However, a visual inspection conducted as part of the RI field investigation identified the presence of ACM associated with roofing material in three distinct locations of the CC-IAAP-002 debris piles. It was noted that the ACM exhibited disintegration from weathering, indicating that asbestos in the debris piles had become increasingly friable. Friability increases the potential for releases of microscopic fibers into the air, thereby raising the potential for human and environmental exposures. No ACM was observed at CC-IAAP-001; therefore, there is little or no risk of friable asbestos at that site.

Residential Land Use Scenario

The RI Addendum report (Leidos 2020) provided a supplement to the BHHRA by evaluating human health risk under the Residential Land Use

scenario to determine whether unlimited use and unrestricted exposure conditions had been met for the two OU-9 sites. Based on the results of the Residential BHHRA presented in the RI Addendum report, no contaminants of concern or radionuclides of concern requiring further evaluations in an FS and/or additional remedial actions were identified for either OU-9 site.

Because removal of ACM from the debris piles at CC-IAAP-002 has been determined to be necessary due to the presence of friable asbestos, this site will not achieve unlimited use and unrestricted exposure until after the ACM has been removed, even though no contaminants of concern or radionuclides of concern were identified in soil or groundwater at CC-IAAP-002.

Ecological Risk Evaluation

The SLERA, presented in the RI report (PIKA 2014a) evaluated exposures of terrestrial and aquatic species to contaminants of potential ecological concern identified in surface soil, surface water, and sediment. While there were hazard quotients greater than 1.0 (ranging from 1.2 to 14 at CC-IAAP-001 and 1.6 to 19 at CC-IAAP-002), the 2014 weight-of-evidence evaluation indicated that effects or hazards to all ecological receptors at both areas were not anticipated, and no additional remedial action was warranted to address ecological hazards.

The RI Addendum report (Leidos 2020) included a supplemental SLERA reevaluating potential receptors to address whether new federally listed threatened and endangered species could potentially use the areas for any purpose, and to reevaluate the comparison of area concentrations to current ecological screening values that may have changed since the 2014 SLERA was completed during the RI.

The supplemental SLERA concluded that there are no ecological adverse effects or hazards for ecological receptors from exposure to surface soil, surface water, or sediment at either of the OU-9 sites.

Remedial Action Objectives

Remedial Action Objectives (RAOs) describe what the proposed cleanup alternative is expected to accomplish and serves as the basis for

development and evaluation of the selected remedial alternatives.

The RAOs were defined in the final *Proposed Plan for Construction Debris Sites CC-IAAP-001 and CC-IAAP-002* (PIKA 2015). No RAOs are necessary for CC-IAAP-001 because no unacceptable risk was identified. Therefore, NFA is recommended for CC-IAAP-001. Because of this NFA recommendation for CC-IAAP-001, the remainder of this document focuses on presenting and evaluating the RAOs, alternatives, and costs for CC-IAAP-002.

The development of RAOs for CC-IAAP-002 focuses on addressing the physical hazards to human receptors. Thus, the RAOs for CC-IAAP-002 are to:

- Prevent migration of friable asbestos through wind, surface water runoff, and erosion pathways
- Remove all ACM debris from CC-IAAP-002 to prevent exposure and allow for unlimited use and unrestricted exposure

Summary of Remedial Alternatives

The remedial alternatives that were developed to address ACM at CC-IAAP-002 in the focused FS are described as follows:

- Alternative 1—No Action
- Alternative 2—Security Fencing with LUCs and LTM
- Alternative 3—Encapsulation/Capping with LUCs and LTM
- Alternative 4—Removal and Disposal of ACM Debris Piles

The No Action alternative is required by the National Oil and Hazardous Substances Pollution Contingency Plan for baseline comparison purposes (40 Code of Federal Regulations 300.430[e][6]).

Alternatives 2 and 3 include LUCs such as access restrictions, educational awareness, and fencing to limit the use of portions of the property and address the RAOs. These resource use restrictions are discussed in each alternative, as appropriate.

LTM to ensure the effectiveness of the remedy is also a component of several alternatives where the ACM is left in place.

The four alternatives are described below along with present worth total cost. Present worth cost is the amount of money that would need to be invested in the current year to sufficiently fund the alternative for its duration with a fixed discount rate.

Alternatives

Alternative 1—No Action

Total Present Worth Cost: \$0

This alternative is required and is provided as a baseline against which other alternatives are compared. Under this alternative, the site would remain in its present condition with periodic inspections to document any changes in site conditions that might affect the condition of the ACM debris piles.

Alternative 2—Security Fencing with LUCs and Long-term Monitoring

Total Present Worth Cost: \$139,862^{†}*

This alternative involves placing a barbed wire fence around the debris piles. This option would involve long-term maintenance of the fence and periodic vegetation removal. The 2014 FFS only assumed 1 year of long-term maintenance for cost-estimating purposes; however, LUCs and maintenance would be required until RAOs are met. Security fencing would limit access to the site, and signs would be posted to warn of potential hazards.

Alternative 3—Encapsulation/Capping with LUCs and Long-term Monitoring

Total Present Worth Cost: \$330,491^{†}*

This alternative involves the placement of a 2-foot-thick “cap” of clean fill material over the ACM debris piles with a suitable overlap around the edges. Following placement, the material would be graded to a uniform application and

compacted for stability. Suitable erosion control measures and revegetation would be implemented to ensure integrity of the cap material from potential runoff events within the unnamed drainage. LTM would be required to ensure the integrity of the cap and the stability and effectiveness of the erosion control measures. The 2014 FFS only assumed 1 year of LTM for cost-estimating purposes; however, LUCs and LTM would be required for an unknown number of years.

Alternative 4—Removal and Disposal of ACM Debris Piles

Total Present Worth Cost: \$562,341^{}*

This alternative involves removing the ACM debris piles and disposing of the material at an approved offsite facility. **Figure 4** shows the location of the ACM piles. After the material is removed, the site would be restored and revegetated. No additional action, including LUCs or monitoring, would be required.

Evaluation of Alternatives

In accordance with CERCLA regulations, the Army and EPA used the nine CERCLA Evaluation Criteria (see **Table 1**) to determine the best alternative for CC-IAAP-002.

Table 1—CERCLA Evaluation Criteria for Remedial Alternatives

Evaluation Criteria

Threshold Criteria:

- 1) **Overall Protection of Human Health and the Environment:** Each alternative was assessed to evaluate whether it can adequately protect human health and the environment, in both the short- and long-term, from unacceptable risks posed by contaminants 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

^{*} Present worth escalated from 2014 FFS Report (PIKA 2014b) to represent present-day (2022) value (Jacobs 2022).

[†] The costs presented in the 2014 FFS Report included cost for only 1 year of maintenance and/or long-term monitoring in the estimate.

^{*} Present worth escalated from 2014 FFS Report (PIKA 2014b) to represent present-day (2022) value (Jacobs 2022).

Table 1—CERCLA Evaluation Criteria for Remedial Alternatives

Evaluation Criteria
<p>compliance with Applicable or Relevant and Appropriate Requirements (ARARs).</p> <p>2) Compliance with ARARs: Remedial alternatives are required to achieve ARARs unless specifically waived. ARARs include substantive provisions of any promulgated Federal or more stringent state environmental or facility siting standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate requirements for a CERCLA site.</p>
<p>Balancing Criteria:</p> <p>3) Long-Term Effectiveness and Permanence: Each alternative was assessed for the long-term effectiveness and permanence it provides in maintaining protection of human health and the environment after the response objectives have been met.</p> <p>4) Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment: Each alternative was assessed against this criterion to evaluate the performance of alternative-specific treatment technologies. More specifically, this criterion evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.</p> <p>5) Short-Term Effectiveness: The short-term effectiveness of each alternative was 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.</p> <p>6) Implementability: The ease or difficulty of implementing each alternative was 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</p>

Table 1—CERCLA Evaluation Criteria for Remedial Alternatives

Evaluation Criteria
<p>to obtain any necessary approvals and permits from other agencies; and (c) availability of services and materials, including the availability of necessary equipment and specialists.</p> <p>7) Cost: The types of cost that were assessed included capital costs, including both direct and indirect costs; annual operation and maintenance; and net present worth of capital and of operation and maintenance costs. The present worth of each alternative provides the basis for the cost comparison.</p>
<p>Modifying Criteria:</p> <p>8) State/Support Agency Acceptance: The assessment reflects the State of Iowa's (and support agency's) apparent preferences among, or concerns about, alternatives.</p> <p>9) Community Acceptance: The assessment includes determining which components of the alternatives interested persons in the community support, have reservations about, or categorically reject.</p>

The findings from the evaluation of the alternatives developed for CC-IAAP-002 using the nine CERCLA criteria, as presented in the FFS and FS Addendum reports, are summarized in the following sections.

Threshold Criteria

Overall Protection of Human Health and the Environment

Alternative 1 (No Action) does not protect human health and the environment.

Alternative 2 (Security Fencing with LUCs and LTM) protects by deterring access to the site but would not reduce environmental risks, contaminant mobility, or volume of the ACM debris.

Alternative 3 (Encapsulation/Capping with LUCs and LTM) protects by eliminating contaminant mobility and the potential for receptor exposure.

Alternative 4 (Removal and Disposal of ACM Debris Piles) protects by eliminating contaminant mobility and the potential for receptor exposure.

Compliance with ARARs

Alternative 1 (No Action) does not meet ARARs, since no action would be taken.

Alternative 2 (Security Fencing with LUCs and LTM) does not meet ARARs, since environmental risks or contaminant mobility would not be reduced.

Alternative 3 (Encapsulation/Capping with LUCs and LTM) complies with ARARs.

Alternative 4 (Removal and Disposal of ACM Debris Piles) complies with ARARs.

Long-Term Effectiveness and Permanence

Alternative 1 (No Action) provides no controls or long-term management measures.

Alternative 2 (Security Fencing with LUCs and LTM) does not reduce risk or containment mobility and thus provides no long-term effectiveness or permanence.

Alternative 3 (Encapsulation/Capping with LUCs and LTM) provides temporary effectiveness as long as the cap and LUCs are maintained.

Alternative 4 (Removal and Disposal of ACM Debris Piles) provides long-term effectiveness and permanence.

Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment

Alternative 1 (No Action) does not significantly reduce toxicity, mobility, or volume.

Alternative 2 (Security Fencing with LUCs and LTM) does not significantly reduce toxicity, mobility, or volume.

Alternative 3 (Encapsulation/Capping with LUCs and LTM) does not reduce volume of the ACM debris piles; however, the encapsulation or capping reduces mobility and exposure by providing a physical barrier.

Alternative 4 (Removal and Disposal of ACM Debris Piles) provides maximum reduction in mobility and volume of hazardous materials through removal and offsite disposal.

Short-Term Effectiveness

Alternative 1 (No Action) does not pose additional risks to the community, the workers, or

the environment.

Alternative 2 (Security Fencing with LUCs and LTM) does not pose additional risks to the community, the workers, or the environment.

Alternative 3 (Encapsulation/Capping with LUCs and LTM) poses moderate risk of friable asbestos exposure to personnel involved in remedial field activities. Risk to surrounding community is not anticipated.

Alternative 4 (Removal and Disposal of ACM Debris Piles) poses moderate risk of friable asbestos exposure to personnel involved in remedial field activities. Risk to surrounding community is not anticipated.

Implementability

Alternative 1 (No Action) is implementable, as no action is needed.

Alternative 2 (Security Fencing with LUCs and LTM) is relatively simple to implement; however, long-term monitoring and LUCs will increase the length that the action needs to be implemented.

Alternative 3 (Encapsulation/Capping with LUCs and LTM) requires conventional heavy machinery and equipment that is commercially available; however, long-term monitoring and LUCs will increase the length that the action needs to be implemented.

Alternative 4 (Removal and Disposal of ACM Debris Piles) requires conventional heavy machinery and equipment that is commercially available. However, LTM and LUCs will not need to be implemented.

Cost

There are no projected costs associated with Alternative 1. The costs for implementation of Alternatives 2, 3, and 4 vary based on the level of effort to achieve the remediation goals. **Table 2** lists the estimated present-day cost for each alternative, including capital costs and one year of monitoring for Alternatives 2 and 3, as presented in the FS Addendum.

Table 2—Cost

Alternative	Estimated Cost
Alternative 1—No Action	No cost
Alternative 2—Security Fencing with LUCs and one-year Maintenance	\$139,862
Alternative 3—Encapsulation/Capping with LUCs and one-year LTM	\$330,491
Alternative 4—Removal and Disposal of ACM Debris Piles	\$562,341

However, because LUCs and LTM will be required for an unknown number of years under Alternatives 2 and 3, a more reasonable approach to comparing costs over the lifetime of each remedial alternative is to calculate the cost for LTM beyond one-year. Assuming the remedial action will occur over a 30-year timeframe, costs for Alternatives 2 and 3 would increase, as presented in Table 3 below.

Table 3— Long-Term (30-Year) Cost[‡]

Alternative	Estimated Long-Term Cost
Alternative 1—No Action	No cost
Alternative 2—Security Fencing with LUCs and 30-year LTM	\$915,293
Alternative 3—Encapsulation/Capping with LUCs and 30-year LTM	\$1,103,950
Alternative 4—Removal and Disposal of ACM Debris Piles	\$562,341

After considering the cost for 30-years of LTM, Alternative 4 is more cost effective.

[‡] Note that a discount factor was not applied for the additional 30-year cost projections.

Modifying Criteria

The modifying criteria, State/Support Agency Acceptance, and Community Acceptance will be evaluated in the Record of Decision following agency and public comments on this Proposed Plan.

Preferred Alternatives

No Further Action

As discussed previously, there are no unacceptable risks and no RAOs for Construction Debris Site 1 (CC-IAAP-001; HQAES 19105.1062), and therefore NFA is recommended.

Alternative 4—Removal and Disposal of ACM Debris Piles

The remedial goal for Construction Debris Site 2 (CC-IAAP-002; HQAES 19105.1063) is removal of ACM debris piles to eliminate the potential of future exposures to friable asbestos. Therefore, Alternative 4 is the preferred alternative to the remedial goal. Alternative 2 limits access to the site by installing a fence; however, this alternative does not meet ARARs, or reduce risk or contaminant mobility, and requires LTM, adding significant cost over the course of a 30-year remedy. For these reasons, Alternative 2 was not selected. Alternative 3 prevents future exposure by installing a barrier; however, this alternative requires LTM, which will result in significant additional costs and efforts over the course of a 30-year remedy following the implementation of the alternative. Further, Alternative 3 leaves the potential for future exposures in the event of degradation of the cap or erosion control measures. Alternative 4 provides the best solution to eliminate the risk of future exposure, and the costs incurred during remedial action could be offset by eliminating the need for LTM and LUCs (required for Alternatives 2 and 3) and future maintenance costs (required for Alternative 3).

The Army and EPA, in coordination with Iowa Dept of Natural Resources (IDNR), support the Preferred Remedial Alternatives stated above and believe they provide the best remedial alternatives

with respect to the evaluation criteria. The Army and EPA expect the Preferred Remedial Alternative to satisfy the following statutory requirements of CERCLA Section 121(b): 1) be protective of human health and the environment; 2) comply with Applicable or Relevant and Appropriate Requirements; 3) be cost effective and 4) utilize permanent solutions and alternative treatment technologies to the maximum extent practicable.

Community Participation

Detailed information regarding this proposed action is available in the Administrative Record File, which is located online at www.iaaap.adminrecord.com. A hard copy is located at the IAAAP Restoration Repository. The Burlington Public Library has computers available to the public for those interested in viewing the electronic version of the Administrative Record. An announcement of the availability of this Proposed Plan was published in the Hawk Eye newspaper during week of April 10, in accordance with CERCLA.

The Army is seeking comments on the action recommended in this Proposed Plan. A public comment period running from April 10 to May 10, 2023 is open during which comments will be accepted and considered prior to a final decision on the OU-9 Construction Debris Sites. In addition, a public meeting will be held at the Middletown Armed Forces Service Center, 17879 Highway 79, Middletown, Iowa, on April 20, 2023, to explain this proposed action and to answer questions and accept comments. A comment form has been included at the end of this document to submit input on the Proposed Plan.

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Acronyms and Abbreviations

ACM	asbestos-containing material
ARAR	Applicable or Relevant and Appropriate Requirement
BHHRA	Baseline Human Health Risk Assessment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EPA	U.S. Environmental Protection Agency
FFS	Focused Feasibility Study
FS	Feasibility Study
HQAES	Headquarters Army Environmental System
IAAAP	Iowa Army Ammunition Plant
LUC	land use control
LTM	long-term monitoring
NFA	No Further Action
OU	operable unit
RAO	Remedial Action Objective
RI	Remedial Investigation
SLERA	Screening Level Ecological Risk Assessment

Glossary of Terms

Administrative Record File – A compilation of documents that serve as the basis for the decision in selecting a response action to be taken at a site.

Applicable or Relevant and Appropriate Requirements (ARARs) – The federal and state environmental laws that a selected remedy will meet. These requirements may vary among sites and alternatives.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) – The federal law, known also as Superfund, that addresses problems resulting from releases of hazardous substances into the environment.

Feasibility Study (FS) – This CERCLA document develops and evaluates options for remedial action. The FS emphasizes data analysis and is generally performed concurrently and in an interactive fashion with the RI, using data gathered during the RI.

Focused Feasibility Study (FFS) – Similar to an FS but focuses on the targeted evaluation of a limited number of proposed alternatives concentrating on a particular contaminated medium or a specific portion of a site.

Land Use Controls (LUCs) – Physical, legal, or administrative mechanisms that restrict the use of, or limit access to, contaminated property to reduce risk to human health and the environment. Physical mechanisms encompass a variety of engineered remedies to contain or reduce contamination and physical barriers to limit access to property, such as fences or signs. The legal mechanisms are imposed to ensure the continued effectiveness of land use restrictions imposed as part of a remedial decision. Legal mechanisms include restrictive covenants, negative easements, equitable servitudes, and deed notices. Administrative mechanisms include notices, adopted local land use plans and ordinances, construction permitting, or other existing land use management systems that may be used to ensure compliance with use restrictions.

National Priorities List – EPA’s list of uncontrolled or abandoned waste sites that present the greatest potential threat to human health or the environment.

Operable Unit – A portion of a site separately considered for remedial or corrective action.

Operations and Maintenance – Measures required to operate and maintain remedial systems to ensure the effectiveness of the response action.

Preferred Remedial Alternative – The remedial alternative selected by the Army and EPA, based on a comparison of various remedial alternatives using specific evaluation criteria.

Present Worth – The amount of money that would need to be invested in the current year, at a particular discount rate, provides the basis for the cost comparison of each alternative.

Proposed Plan – CERCLA document that summarizes evidence to support the selection of a preferred remedial alternative at a CERCLA site. The document is intended for public distribution to solicit comments on the proposed action(s).

Record of Decision – The CERCLA decision document that presents the cleanup remedy selected by the Army and EPA.

Remedial Action Objectives (RAOs) – Site-specific goals to protect human health and the environment.

Remedial Investigation (RI) – A process under CERCLA to determine the nature and extent of the problem presented by a contaminant release. The RI includes sampling, monitoring, and gathering of sufficient information to determine the necessity for remedial action.

Remediation Goals – Contaminant concentrations used to identify the soil requiring excavation, treatment, and disposal to meet the RAOs and provide protection for human health and the environment.

