



**US Army Corps
of Engineers**

Proposed Plan

Former Post Cemetery Dump Site Fort Custer Veteran Affairs Area Augusta, Michigan

Louisville District

Formerly Used Defense Site Property Number: E05MI0006

July 2020

Introduction

The U.S. Army Corps of Engineers (USACE), in cooperation with the Michigan Department of Environment, Great Lakes, and Energy (EGLE; formerly Michigan Department of Environmental Quality), issues this **Proposed Plan** to solicit input from the public on the proposed remedy for the Former Fort Custer Post Cemetery Dump Site (the Site). The Site is located within the Fort Custer National Cemetery in Kalamazoo County, Michigan, approximately 6 miles west of Battle Creek and 20 miles east of Kalamazoo. Remedial response activities for this project were completed under the **Defense Environmental Response Program (DERP) (Department of Defense [DoD] 2001)** and the Former Used Defense Sites (FUDS) program policy ER 200-3-1, which indicates that hazardous substances, pollutants, or contaminants are addressed in accordance with the provisions of the **Comprehensive Environmental Response, Compensation, and Liability Act of 1980**, as amended by the Superfund Amendments and Reauthorization

Act of 1986 (CERCLA), the **National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR 300 (NCP)**, and applicable DoD and Army policies.

This Proposed Plan provides an evaluation of the alternatives considered, presents the recommended Long-Term Management (LTM) with Land Use Controls (LUCs) remedy, and explains how the public can participate in the decision-making process. Information relied upon by USACE in making its decision may be found in the Administrative Record, copies of which may be found at the Information Repositories identified below. Comments on the Proposed Plan can be submitted during the **public comment period**, which runs from July 15, 2020 to August 16, 2020. USACE, in cooperation with EGLE, will select the remedy for the Site after reviewing and considering information submitted during the public comment period. Community involvement is critical, and the public is encouraged to review and comment on this Proposed Plan.

Mark Your Calendar for the Public Comment Period

Public Comment Period: July 15, 2020 to August 16, 2020

Submit Written Comments



Comments on the Proposed Plan will be accepted during the public comment period.

Submit written comments to the addresses provided below (postmarked by August 16, 2020).

Shatara R. J. Riis, MPR
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U.S. Army Corps of Engineers, Louisville District
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Attend the Virtual Public Meeting: July 29, 2020, 6:00 p.m.

By Internet:

<https://usace.webex.com/usace/j.php?MTID=mbd1e796b45f43fa8fe754f735bd7a31b>

By Phone: Call in +1 888-557-8511 ; conference ID 143 696 8

During this virtual public meeting, USACE will provide an overview of the Site, investigation findings, and the preferred alternative; answer questions; and receive public comments.

Information Repository Locations

Copies of this document and other site-related materials are available online at <http://fortcusterpostcemeterydump.com/> and at:

McKay-Dole District Library
105 South Webster Street
Augusta, MI 49012
(269) 731-4000

USACE Louisville District
Romano Mazzoli Federal
Building
600 Martin Luther King, Jr.
Place Louisville, KY 40202-
2232
(502) 315-7447

The selected remedy, along with responses to all comments received on the Proposed Plan, will be documented in a **Decision Document** for the Site. A glossary of specialized terms used in this Proposed Plan begins on page 9. Words included in the glossary are indicated in **bold type** the first time they appear in the plan.

USACE is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of CERCLA and Section 300.430(f)(3) of the NCP.

Site Description and History

The Site is part of former Fort Custer, a **Formerly Used Defense Site**, with a property number of E05MI0006. The U.S. Army established Fort Custer as a military reservation/training base in 1917, near Battle Creek, Michigan. The Site is part of the current Fort Custer National Cemetery and consists of approximately 10.5 acres of forest and wetland that lie mostly within the circular Fort Custer Drive (**Figure 1**). Gravesites at the cemetery are located outside of the dump area. The future use of the property is anticipated to remain a cemetery. The future use of the Site is anticipated to remain an undisturbed green area.

Historical aerial photographs taken between 1938 and 1974 show the Site area was disturbed and the wetland footprint shrunk over time. Based on interviews with former employees, Fort Custer used the wetland and basin as a dump to dispose of refuse, including barrels and garbage from the mess halls.

Two incinerators existed at Fort Custer based on review of sanitary sewer and water utility maps from 1950. Most material observed in the dump area (slag, cinders, ashes, debris, and melted glass/bottles) during clearing, trenching, and drilling activities indicate that a large portion of the wastes were incinerated before disposal.

According to the available information, it appears that the dumping activities began in the early to mid-1940s and continued even after Fort Custer was declared inactive in 1953, through 1967. The Army's use of Fort Custer officially ended on June 14, 1968, when the state

of Michigan (Department of Military) and VA took over operation of the property. The dump area was abandoned and overgrown with vegetation after the fort was shut down in 1968. Observations from field activities at the Site indicate that smaller/ isolated, more-recent dumping activities on top of older wastes (paper trash, tire, and plastic bottles) have occurred by unknown parties after 1968 but appear to be minor.

Site Characteristics

Four field-related environmental investigations have been performed to determine the nature and extent of contamination and whether contaminant concentrations in site media would pose potentially unacceptable risks to human health and the environment. These included three site investigations completed in 1997, 2010, and 2012, and a remedial investigation (RI) completed from 2016 to 2018.

In accordance with the U.S. Environmental Protection Agency's (EPA's) directive *Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills* (the presumptive remedy guidance), the presumptive remedy of source containment should be applied to military landfills in situations where landfill contents meet the municipal-type waste definition and excavation of contents is not practicable (EPA, 1996). This Site meets those definitions. Under the presumptive remedy guidance, complete characterization of the landfill contents or contamination is not necessary. However, evaluation of risks that could result if contaminants migrate from the landfill is still required for all potential exposure pathways outside the landfill limits. Because **chemicals of potential concern (COPCs)** exceeding applicable screening levels were identified during previous site investigations within the footprint of the waste, the RI was conducted to assess potential impacts to groundwater downgradient of the landfill, characterize potential risks to human and ecological receptors, and provide sufficient data to evaluate remedial alternatives.

The Site is a closed topographic basin bordered by steep to gently sloped ridges. The dump is

approximately 1,200 feet in length (from north to south) and varies from about 300 feet wide in the northern portion to about 640 feet wide in the southern portion of the Site (**Figure 1**). The approximate area of the dump is 10.5 acre with an estimated 95,315 cubic yards of waste material present. The dump is thickest in the southwestern portion, where wastes were recorded to a depth of 25 feet. The waste decreases in thickness to the north, east, and south from this thicker area. Waste is present under Fort Custer Drive (**Figure 1**). Waste/fill material was observed from 8 to 12 feet thick in the central portion of the dump area where the basin floor is relatively flat. Wastes within and adjacent to the wetland area were typically less than 5 feet thick.

The waste and fill material present within much of the closed basin are underlain in most areas of the basin by peat and clay deposits consistent with a wetland. Within the floor of the basin, a dark brown to black peat (4 to 11.5 feet thick) underlain by brown to gray, poorly-sorted, fine- to medium-grained sand was encountered below most of the waste and fill material. The peat is prevalent in the current wetland area and its presence below the waste material to the south most likely indicates the approximate existing topographic elevations prior to disposal of waste in this area. No peat was observed below the waste and fill material in the southwest portion of the dump, where the waste materials were the thickest, or where the borings were drilled high on the southwestern slope, or at the downgradient monitoring wells north of the wetland. Underlying the peat and clay deposits (where present), the predominant geologic materials present at the Site are glacial outwash sands with varying amounts of silt and gravel to depths between 60 and 100 feet below ground surface (bgs). Glacial sands with varying amounts of silt and gravel are present at permanent monitoring wells located downgradient of the wetland. Sandstone and shale bedrock, encountered across the cemetery between 59 to 115 feet bgs, also was not encountered at downgradient monitoring wells.

The water level data collected over 2 years of seasonal groundwater monitoring from monitoring wells indicate that groundwater in

the glacial outwash sands constitutes the uppermost aquifer. Groundwater from the Site flows west and northwest toward the Kalamazoo River. There is no current use of the onsite groundwater at the cemetery other than for irrigation purposes. Four wells were installed across the cemetery by the VA, including three irrigation wells and an observation well (used to measure drawdown for irrigation during initial pumping tests). In addition to the irrigation wells, several private water wells are located 1,800 to 2,900 feet in a downgradient direction of the Site. The private well directly downgradient and approximately 2,900 feet west/northwest from the Site is screened from 77 to 81 feet bgs. Potable water at the cemetery is provided by the Augusta public water supply. Based on the groundwater flow direction and **hydraulic conductivity measurements**, groundwater from the Site is not anticipated to reach the nearby municipal wells located on the west side of the river.

Since the Site is essentially a topographic "bowl," surface runoff drains into the basin and a shallow wetland in the northern portion of the Site (**Figure 1**). There is no outlet for water flowing into the wetland. The wetland is approximately 600 feet long by 100 to 300 feet wide, but the size varies seasonally in response to snowmelt and precipitation events. The Kalamazoo River is less than 1 mile northwest and Eagle Lake is approximately 0.5 mile south of the Site. The surface water and groundwater elevations indicate that surface water in the wetland is recharging groundwater downgradient of the waste (north, south, and west), but that upgradient groundwater is discharging to surface water. This relationship is consistent with the observation that the wetland has no outlet and is underlain by sediments that are less permeable than the glacial outwash that constitutes the uppermost aquifer.

An asbestos survey was conducted on surface materials within the footprint of the dump. The survey included a visual inspection, the collection and testing of suspect asbestos-containing material (ACM), and a final report. After completion of the visual inspection, the suspect materials that were observed were

separated into groups of homogeneous materials, classified as either friable or non-friable, and sampled; three samples of each material were collected. If the materials were in contact with soil, a soil sample was also collected from the surface directly beneath the suspect material. All visible friable asbestos was removed during sampling. Cement board materials were the most prevalent ACM identified during the visual inspection. These materials were non-friable at the time of the inspection. Based on aerial photographs from 1938 to 1974, it is believed that these materials have been present on the surface since at least 1974, although the exact age of the materials is unknown. Based on the length of time these materials have been present on the surface (at least 40 years) and their condition, it is unlikely that these materials will become friable with additional exposure to the elements onsite. The friable materials could pose a physical hazard to individuals if they entered the Site and disturbed these materials. However, this hazard is minimal because these materials were encountered only during intrusive test pit activities and at limited surface locations during the visual inspections. Visible materials on the surface were removed at the time of sampling to ensure sufficient sample volume. Soil analytical results indicate soil/waste that is in contact with the friable materials may contain some asbestos due to contact with a friable ACM. The majority of suspect ACM was noted in the central portion of the dump; however, the location and extent of ACM is heterogenous and not completely characterized.

During these investigations, surface soil/waste, subsurface soil/waste, groundwater/leachate, surface water, and sediment/waste samples were collected within the Site. Groundwater samples also were collected from monitoring wells downgradient of the Site to assess potential migration beyond the limits of the waste. Investigation samples were analyzed for parameters that included **volatile organic compounds, semivolatile organic compounds, polychlorinated biphenyls, dioxins/furans**, and metals.

The analytical data for these samples were first evaluated to determine if the chemical concentrations represent natural background conditions or site-related chemicals by comparing to State of Michigan and regional generic background concentrations. For site-related chemicals, their analytical results were then compared to the following screening levels to identify COPCs, which are defined as the chemicals with concentrations above the applicable screening levels:

- Soil/waste and sediment/waste: EPA Regional Screening Levels for industrial soil and State of Michigan Residential and Nonresidential Cleanup Criteria Requirements for Response Activity
- Groundwater outside the waste limits and groundwater/leachate: EPA Regional Screening Levels for tap water and EPA Maximum Contaminant Levels for drinking water quality
- Surface water: EPA Regional Screening Levels for tap water, State of Michigan Groundwater-Surface Water Interface Criteria, and State of Michigan Surface Water Quality Values (Rule 57)

The following chemicals were detected in Site media at concentrations exceeding the applicable screening levels and were thus considered COPCs. Because these chemicals were considered COPCs, they were reviewed in more detail in the human health and ecological risk assessments:

- Surface soil/waste: ACM, boron, cadmium, chromium, lead, mercury, and zinc
- Subsurface soil/waste: arsenic
- Sediment/waste: ACM, boron, selenium, zinc, and dioxins
- Groundwater/leachate (within the limits of the waste): arsenic, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, zinc,

benzo[b]fluoranthene, and indeno[1,2,3-c,d]pyrene¹

- Surface water: benzo(g,h,i)perylene, 1,2,3,4,6,7,8-Heptachlorodibenzofuran, 1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin, heptachlorinated dibenzofurans (total), heptachlorinated dibenzo-p-dioxins (total), octachlorodibenzo-p-dioxin², arsenic, barium, boron, cadmium, copper, lead, manganese, mercury, silver, and zinc
- Groundwater (outside the limits of the waste): arsenic and cadmium³

Summary of Site Risks

A baseline risk assessment was conducted as part of the RI to characterize potential risks to human health and ecological populations (plants and animals). This section summarizes the findings of the human health and ecological risk assessments.

Human Health Risks

Potential risks to human health were evaluated for the following exposure pathways:

- Site visitors and maintenance workers exposure to surface soil/waste through dermal contact and dust emissions
- Site visitors and maintenance workers exposure to sediment/waste through dermal contact
- Site visitors and maintenance workers exposure to surface water through dermal contact
- Maintenance workers exposure to groundwater through dermal contact (if irrigation wells are installed in impacted groundwater) and inhalation of indoor air (if a building is constructed on top of the impacted groundwater in the future)

The results indicated that the detected chemical concentrations in surface soil/waste, sediment/waste, surface water, and downgradient groundwater would not pose unacceptable risks to site visitors or maintenance workers. Therefore, no **chemicals of concern** were identified for the Site. Because no chemicals of concern were identified in evaluated Site media, there are no chemicals of concern that would migrate from the Site. Consequently, the waste can be considered contained under the presumptive remedy approach. Under the presumptive remedy guidance, complete characterization of the landfill contents is not necessary. The site-related COPCs present in the subsurface soil/waste and groundwater/leachate within the limits of the waste, although not completely characterized, present a low-level threat for potential exposure scenarios and migration pathways within the landfill.

Ecological Risks

An Ecological Risk Assessment (ERA) was conducted to evaluate potential risks to ecological receptors at the Site. Potential ecological receptors include aquatic and terrestrial plants, benthic invertebrates, soil invertebrates, and wildlife including but not limited to birds and raccoons. The upland area is a heavily vegetated habitat, with 100% ground cover and 70% canopy cover. The weight-of-evidence evaluation and risk description presented in the baseline ecological risk assessment resulted in no chemicals of ecological concern posing unacceptable ecological risk to receptors in the upland terrestrial area and the wetland area from concentrations in soil/waste, sediment/waste, and surface water. No further ecological-based consideration is required for soil/waste, sediment/waste, and surface water at the Site.

¹ The semivolatile organic compounds detected in groundwater/leachate samples all have very low solubilities and may be attributed to their adsorption to colloidal suspended solids.

² Detections of dioxins/furans in July 2016 were attributed to suspension of sediment particles in the surface water body.

³ Reported concentrations for arsenic and cadmium in Site groundwater during the 2016 RI were less than the maximum concentration reported for those chemicals in Kalamazoo County groundwater. Additionally, 2016 RI groundwater data were compared

to statewide background groundwater concentrations presented in a Michigan Department of Natural Resources and U.S. Geological Survey report (Dumouchelle et al., 1987). The 90th percentile metals statewide background concentrations for arsenic and cadmium were higher than the maximum 2016 RI groundwater detection. Therefore, concentrations of arsenic and cadmium in groundwater outside the limits of the waste are not attributed to migration of groundwater/leachate from within the limits of the waste.

There would be no unacceptable risks to terrestrial wildlife that would be exposed to surface soil/waste in the upland area or the semiaquatic wildlife that would use the surface water and sediment/waste in the wetland.

Because the detected chemical concentrations in downgradient groundwater were below the applicable ecological screening levels, all detected groundwater analytes were eliminated during the screening-level risk evaluation. There would be no unacceptable risks to downgradient aquatic receptors if Site groundwater is discharged offsite to surface water.

Remedial Action Objectives

No unacceptable risks to human health and ecological receptors were identified for surface soil/waste, sediment/waste, surface water, and groundwater downgradient of the waste. However, remedial action is warranted to address the low level threat from buried waste, potential exposures from migration of COPCs in subsurface soil/waste, groundwater/leachate, and potential exposures to ACM in accordance with the presumptive remedy guidance.

Remedial Action Objectives (RAOs) are the specific goals that the proposed remedial action is designed to achieve. Because there are no Site COCs in the media evaluated, there are no chemical-specific ARARs or quantitative remedial goals. In accordance with EPA's presumptive remedy guidance, the site-specific RAO established in the **Focused Feasibility Study** (FFS) is as follows:

- Protect human receptors from direct contact, ingestion, and inhalation exposure to subsurface soil/waste, groundwater/leachate within the limits of the waste, and surface water by preventing exposure pathways.

Five-Year Reviews will be performed, regardless of the alternative selected, to verify the protectiveness of the remedy. Due to the low-level threat from the buried municipal-type waste, remedial action is warranted.

Summary of Remedial Alternatives

To achieve the RAOs, three remedial alternatives were developed as part of the FFS to address the landfill wastes and they are summarized in the following sections. As required by the NCP, the No Action alternative was retained to provide a basis for comparison of other remedial approaches.

The total **present worth** cost (in 2019 dollars with a 2.6% discount rate) for each alternative was estimated based on a maximum 30-year remediation duration and are summarized herein. Cost estimates are expected to be accurate within a range of +50 to -30%.

Alternative 1: No Action

Total Present Worth \$0

Under Alternative 1, no remediation, monitoring, or access restrictions would be implemented at the Site. The landfill wastes would remain in place without any mitigation measures to protect human health and the environment. There would be no cost for implementing this alternative.

Alternative 2: LUCs and LTM

Total Present Worth \$784,603

Alternative 2 would consist of the following components:

- LUC Implementation Plan and a Landfill Long-term Management Plan.
- Limiting access to the Site and preventing/mitigating human interaction with landfill wastes through installation of education controls, including installation of warning signs to visitors and training materials for VA employees.
- Prohibiting installation of irrigation and municipal wells within the landfill limit, and restricting ground disturbances to only those areas where future ground disturbances are anticipated (e.g., for repair of current or installation of future utilities, roads, or similar activities).
- Restricting relocation of wastes to other areas of the cemetery.

- Conducting periodic inspections of the landfill and signage and performing maintenance and repairs as necessary.
- Conducting long-term groundwater monitoring with provisions for decreased or suspended monitoring, as appropriate, to assess potential migration of groundwater/leachate and migration of surface water to groundwater beyond the monitoring points.

Under Alternative 2, the existing soil cover, which did not pose an unacceptable risk to human and ecological receptors, has well-established vegetation across the landfill, including the wetlands. The existing soil cover minimizes direct exposure to underlying subsurface soil/waste, and the waste is considered contained under the presumptive remedy approach. The proposed LUC boundary is shown in **Figure 2**.

Alternative 3: Consolidation of Wastes, Construction of a Soil Cover, and LUCs with LTM

Total Present Worth **\$3,136,218**

Alternative 3 would consist of the following components:

- Conducting vegetation clearing and grubbing at areas where excavation and consolidation of wastes would be performed.
- Excavating wastes from the southernmost portion of the Site and consolidating the wastes onsite (excluding the wetland area) to shrink the footprint of the landfill and thus reduce the potential for site personnel and visitors from coming into direct contact with waste material.
- Constructing a vegetative soil cover over the consolidation area (excluding the wetland area). The soil cover would be at least 12 inches thick overlain by 6 inches of topsoil to support vegetation growth.
- Abandoning monitoring wells during construction of the soil cover and installing new monitoring wells.
- Preventing intrusive activities within the new limit of the soil cover.

- Implementing all actions listed under Alternative 2.

For Alternative 3, it is expected that LUCs will remain in place for the area of consolidated landfill waste.

Evaluation of Remedial Alternatives

The three remedial alternatives for the Site were evaluated against seven of the nine criteria described in Section 121(b) of CERCLA and the NCP §300.430(f); that is, threshold criteria and balancing criteria, as described in this section. The remaining two modifying criteria address community and agency acceptance and will be addressed after conclusion of the public comment period for this Proposed Plan.

The threshold criteria are standards that a remedial alternative must meet to be acceptable. The two threshold criteria are as follows:

- *Overall protection of human health and the environment:* Will the alternative adequately protect human health and the environment, in both the short- and long-term, from unacceptable risks posed by hazardous substances, pollutants, or contaminants present at the Site by eliminating, reducing, or controlling exposures to levels?
- *Compliance with **Applicable or Relevant and Appropriate Requirements (ARARs)**:* Does the remedial alternative meet the ARARs under federal, state, and local environmental laws or provide grounds for a waiver?

The balancing criteria weigh the tradeoffs between remedial alternatives. These criteria represent the standards upon which the detailed evaluation and comparative analysis of remedial alternatives are based. In general, a high rating on one criterion can offset a low rating on another balancing criterion. The following five criteria are considered balancing criteria:

- *Long-term effectiveness and permanence:* How reliable is the remedial alternative for

protection in the long run? Does it permanently address risk?

- *Reduction of toxicity, mobility, and volume through treatments:* Does the remedial alternative use treatment to reduce the toxicity, mobility, or volume of contamination?
- *Short-term effectiveness:* How soon will risks be reduced? Are there short-term hazards that could occur during the cleanup?
- *Implementability:* Is the remedial alternative technically and administratively feasible?
- *Cost:* How much does it cost to implement the remedial alternative?

Table 1 summarizes the comparative evaluation of the three alternatives based on the seven of the nine CERCLA criteria.

Upon conclusion of the public comment period, USACE will fully consider State and community acceptance of the preferred remedial alternative in the final balancing of trade-offs between alternatives. These modifying criteria are of equal importance to the balancing criteria. The final decision document will include a responsiveness summary of all comments received during the public comment period and a response to each.

Preferred Alternative

The preferred remedial alternative for the Site is Alternative 2 (LUCs with LTM).

Alternative 2 is recommended because it offers the best overall value in terms of cost-effectively addressing potential risks to human health and ecological receptors.

There are no ARARs for Alternatives 1 and 2. Alternative 3 would involve extensive earthwork and, therefore, require compliance with location-specific ARARs, including 40 CFR 230.10(a), 40 CFR 230.10(c), and 40 CFR 230.10(d) of the Clean Water Act, substantive portions of The Migratory Bird Treaty Act (16 U.S.C. 703(a)), if migratory birds are present during remedial actions, and substantive provisions of the Archaeological Resources Protection Act (16 U.S.C. 470aa, et seq.), if protected archeological resources are identified during remedial action on federal land.

Alternative 3 also would require compliance with action-specific ARARs including substantive requirements of the Hazardous Waste Management 40 CFR 265, National Emission Standards for Hazardous Air Pollutants for Asbestos (relevant and appropriate only), and substantive portions for implementing erosion and sediment control and other best management practices during land disturbing activities in 40 CFR 450.21.

Alternative 1 (No Action) would not protect human health and the environment because no action would be taken to mitigate potential risks. Alternatives 2 and 3 are protective of human health and the environment.

Alternative 2 (Land Use Controls with Monitoring) prevents direct exposure to underlying subsurface soil/waste through the existing soil cover with well-established vegetation across the landfill, including the wetlands, and complies functionally with the landfill cap within the presumptive remedy.

Alternative 2 prevents direct exposure because of the signage and modification of the VA's master plan restricting groundwater use and surface disturbance to preserve the existing soil cover and make the alternative protective.

Alternative 3 (Consolidation, Construction of a Soil Cover, and Land Use Controls with Long-term Management) includes consolidation to reduce the landfill footprint and construction of a soil cover and, therefore, minimizes direct exposure to underlying subsurface soil/waste during subsurface activities by maintenance workers. Alternative 3 would result in potential impact to wetland habitat and natural resources. Under Alternative 3, ecological receptors may be impacted from construction activities near the wetland; however, these activities would be temporary and the ecological habitats, although of low quality, are expected to recover.

Neither remedial alternative for the Site satisfies the statutory preference for treatment. Excavation and treatment of municipal waste constituting a low-level threat may pose more hazard than EPA's preferred remedy of containment.

Community Participation

Public participation is a component of remedy selection. USACE and EGLE are requesting input from the community on the Proposed Plan to implement LTM and LUCs. The comment period extends from July 15, 2020 to August 16, 2020.

The comment period provides an opportunity for public involvement in the decision-making process for the proposed action. USACE and EGLE will consider all public comments before selecting the remedy. The public is encouraged to review and comment on this Proposed Plan. During the public comment period, the public is encouraged to review documents and refer to the Administrative Record to stay apprised of the issues pertaining to the investigation and development of proposed remedial alternatives for the Site.

If the public would like to comment in writing on the Proposed Plan, please mail written comments (postmarked no later than August 22, 2020) to the address provided on Page 1 of this Proposed Plan.

USACE plans to hold a virtual public meeting at 6:00 p.m., July 29, 2020. The meeting will provide an opportunity for the public to verbally comment on the Proposed Plan.

Key References

- CH2M HILL, Inc. 2009. *Final Site Inspection Report, Former Fort Custer Military Reservation, Former Cemetery Landfill, Battle Creek, Michigan*. December.
- CH2M HILL, Inc. 2019. *Draft Focused Feasibility Study, Fort Custer Veterans Affairs Area Post Cemetery Dump, FUDS E05MI0006, Augusta, Michigan*. June.
- CH2M HILL, Inc. 2019. *Remedial Investigation Report for Veterans Affairs Area Post Cemetery Dump, Augusta, Michigan*. September.
- EPA. 1996. *Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills*. EPA/540/F-96/020. Directive No. 9355.0-67FS. December.
- Montgomery Watson Harza. 2009. *Fort Custer, Augusta and Battle Creek Michigan, Property Nos.*

E05MI0006 and E05MI0013, Final Preliminary Assessment. October.

Parsons Engineering Science, Inc. 1997. *Site Investigation Report, Former Fort Custer Military Reservation, Augusta, Michigan*. March.

Professional Environmental Engineers, Inc. 2016. *Site Inspection Report, Fort Custer National Cemetery – Former Post Dump, Kalamazoo County, Michigan*. April.

USACE. 1994. *Archives Search Report Findings, Fort Custer and Fort Custer Recreation Area, Augusta, Michigan. Property Nos. E05MI00060 and E05MI001300*. September.

Glossary

Administrative Record: A file of documents containing factual information, data and analysis of the factual information, and data that may form a basis for the selection of a response action.

Applicable or Relevant and Appropriate Requirements (ARARs):

Cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable. There are three types of ARARs:

- *Chemical-specific* ARARs are health-based or risk-based numbers or discharge limitations that restrict chemical concentrations in or discharged to the environment.
- *Location-specific* ARARs are restrictions on the concentration of hazardous substances or the conduct of activities solely because they occur in special locations and may impose additional constraints on the remedial action because of the location.
- *Action-specific* ARARs are activity or technology based. These ARARs control

remedial activities involving the design or use of certain equipment or impose specific requirements on discrete actions (such as, hazardous waste handling, landfill closure, air emission controls).

Chemical of Concern: Chemicals detected in environmental media at concentrations high enough to cause potentially unacceptable risk to human health or ecological receptors, as determined by a site-specific risk assessment.

Chemical of Potential Concern (COPC): Chemicals detected in environmental media that may cause unacceptable risk to human health or ecological receptors.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law established in 1980 and modified in 1986, also known as "Superfund." CERCLA established a nationwide process for cleaning up hazardous waste sites that potentially endanger public health and the environment.

Decision Document: A CERCLA requirement that documents the final cleanup decision for a site, provides the rationale for selecting the cleanup remedy, and establishes performance goals for achieving cleanup.

Defense Environmental Response Program: A program authorized by the Congress in 1986 that promotes and coordinates efforts for the evaluation and cleanup of contamination at Department of Defense (DoD) installations and Formerly Used Defense Sites.

Dioxins/Furans: A group of chemicals that are formed as an unintentional byproduct of many industrial processes involving chlorine such as waste incineration, chemical and pesticide manufacturing, and pulp and paper bleaching. They are highly toxic and can cause cancer, reproductive and developmental problems, damage to the immune system, and can interfere with hormones. Of all the dioxins and furans, 2,3,7,8-tetrachloro-p-dibenzo-dioxin (2,3,7,8 TCDD) is considered the most toxic.

Focused Feasibility Study (FFS): A mechanism for developing, screening, and evaluating remedial alternatives to address

potentially unacceptable risks to human health or the environment.

Five-Year Reviews. Under CERCLA, periodic reviews are required to evaluate whether a remedy selected for a contaminated site, where hazardous substances remain at levels that potentially pose an unacceptable risk, remains protective of human health and the environment. Such reviews must be conducted every 5 years or may be conducted more frequently, if necessary, regardless of the alternative selected.

Formerly Used Defense Site: A facility or site that was transferred from DoD control before October 17, 1986.

Hydraulic Conductivity: A characteristic of soils and rocks that describes the ease with which water can move through pore spaces or fractures.

Land Use Control (LUC): Legal, administrative, or physical constraint that restricts or controls access to property to protect the integrity of engineering remedies and to limit human exposure to contaminated media.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): The regulations that provide the structure and procedures for responding to discharges of oil and hazardous substances, as directed by CERCLA.

Polychlorinated Biphenyls: A group of manmade chemicals that were used widely in electrical equipment like capacitors and transformers. They are oily liquids or solids, clear to yellow in color, with no smell or taste. These chemicals are very stable mixtures that are resistant to extreme temperature and pressure.

Present Worth: The value of an expected income stream determined as of the date of valuation. The present value is always less than or equal to the future value because money has interest-earning potential, a characteristic referred to as the time value of money, except during times of negative interest rates when the present value will be less than the future value.

Proposed Plan: A document required by CERCLA that informs the public about alternatives that are considered for cleanup of a contaminated soil and identifies a preferred cleanup alternative.

Remedial Investigation (RI): An RI is a detailed evaluation of site conditions to determine if further action is needed to protect human health and the environment. If the RI determines that potentially unacceptable risks exist to human health or the environment, an FS will need to be completed to evaluate remedial alternatives to mitigate the unacceptable risks.

Semivolatile Organic Compounds: A group of organic compounds that tend to have a higher molecular weight and higher boiling point temperature. The health effects of these chemicals depend on their chemical nature and on the degree of exposure.

Volatile Organic Compounds: A group of organic chemicals that readily produce vapors at ambient temperatures. Some of these chemicals may have short- and long-term adverse health effects.

Table 1. Comparative Analysis of Alternatives

Former Fort Custer VA Area, Post Cemetery Dump, Augusta, Kalamazoo County, Michigan

Criteria	Alternative 1: No Action	Alternative 2: Land Use Controls with Long-term Management	Alternative 3: Consolidation, Construction of a Soil Cover, and Land Use Controls with Long- term Management
Overall Protection of Human Health and the Environment assesses the ability of an alternative to eliminate, reduce, or control the risks associated with exposure pathways including direct contact, potential migration, and risks to ecosystems.	■	⊙	⊙
Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) evaluates the potential of an alternative to achieve chemical-, location-, and action-specific ARARs.	⊙	⊙ ^a	⊙ ^{a,d}
Long-Term Effectiveness and Permanence evaluates the ability of an alternative to permanently protect human health and the environment.	■	⊙	⊙
Reduction of Toxicity, Mobility or Volume Through Treatment evaluates the ability of an alternative to permanently or significantly reduce the toxicity, mobility, or volume of the chemicals particularly through treatment.	■	○	○
Short-Term Effectiveness assesses the capability of an alternative to protect human health and the environment during implementation of the alternative (for example, the construction, removal, and disposal).	○	●	○
Implementability evaluates the technical feasibility or difficulty of applying the alternative at the site, the reliability of the technology, the unknowns associated with the alternative, and the need for treatability studies. Assesses regulatory agency concurrence and the need for permits and waivers. Assesses mobilization needs, the accessibility of equipment, and number of trained personnel required to complete the alternative.	⊙	⊙	⊙
Cost^b assesses the capital and operation and maintenance costs of each alternative.	\$0 ^b	\$784,603 ^b	\$3,136,218 ^b
State/Support Agency Acceptance	○	⊙	⊙
Community Acceptance^c	TBD	TBD	TBD
Ranking: ⊙ Well satisfies criterion ● Moderately satisfies criterion ○ Poorly satisfies criterion ■ Does not meet criterion			

Because of the variability of threshold versus balancing criteria, ranking scores cannot be summed to reach an unweighted final score.

^a There are no chemical-specific ARARs.

^b Cost is the total present-worth value; cost accuracy ranges from -30% to +50%.

^c To be determined (TBD).

^d Location-specific ARARs include 40 CFR 230.10(a), 40 CFR 230.10(c), and 40 CFR 230.10(d) of the Clean Water Act, substantive portions of The Migratory Bird Treaty Act (16 U.S.C. 703(a)), if migratory birds are present during remedial actions, and substantive provisions of the Archaeological Resources Protection Act (16 U.S.C. 470aa, et seq.), if protected archeological resources are identified during remedial action on federal land. Action-specific ARARs for Alternative 3 include substantive requirements of the Hazardous Waste Management 40 CFR 265, National Emission Standards for Hazardous Air Pollutants for Asbestos in 40 CFR 61.145(c)(6)(i) and 40 CFR 150(a)(1), and the substantive requirements for implementing erosion and sediment control and other best management practices during land disturbing activities in 40 CFR 450.21.



Legend

- Former Post Cemetery Dump Site – Approximate Extent of Waste (Dashed where inferred)
- ➔ Approximate Groundwater Flow Direction
- Wetland Area (As Defined by Low Water Level in 2012)
- Fort Custer National Cemetery

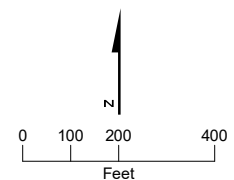


Figure 1
 Approximate Extent of Wastes
 Former Post Cemetery Dump Site
 Fort Custer Veteran Affairs Area
 Augusta, Michigan



Legend

- Former Post Cemetery Dump Site – Approximate Extent of Waste (Dashed where inferred)
- Wetland Area (As Defined by Low Water Level in 2012)
- Proposed Land Use Controls Boundary
- Fort Custer National Cemetery

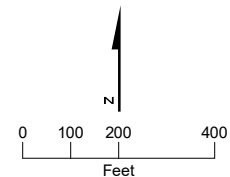


Figure 2
 Proposed Land Use Controls Boundary
 Former Post Cemetery Dump Site
 Fort Custer Veteran Affairs Area
 Augusta, Michigan