

**C02NJ0004 Fort Hancock - 08 - MMRP - NPS Excluded Area****Table A****MRS Background Information**

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the MRS Summary, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g. benzene, trichlorethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: NPS Excluded Area

Component: USACE FUDS/USACE FUDS/NAD/New England District (NAE)

Installation/Property Name: NJ29799F692400 Fort Hancock

Location (City, County, State): HIGHLANDS, MONMOUTH, NJ

Site Name/Project Name (Project No.): NPS Excluded Area (08)

Date Information Entered/Updated: 3/22/2024

Point of Contact (Name/Phone): Public Affairs, 978-318-8238

**Project Phase (check only one):**

<input type="checkbox"/> PA	<input type="checkbox"/> SI	<input type="checkbox"/> RI	<input type="checkbox"/> RI/FS	<input checked="" type="checkbox"/> RD
<input type="checkbox"/> RA-C	<input type="checkbox"/> RIP	<input type="checkbox"/> RA-O	<input type="checkbox"/> RC	<input type="checkbox"/> LTM

**Media Evaluated (check all that apply):**

<input checked="" type="checkbox"/> Groundwater	<input type="checkbox"/> Sediment (human receptor)
<input type="checkbox"/> Surface soil	<input type="checkbox"/> Surface Water (ecological receptor)
<input type="checkbox"/> Sediment (ecological receptor)	<input type="checkbox"/> Surface Water (human receptor)

**MRS Summary:**

**MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:**

The Fort Hancock NPS Excluded Area was used by the U.S. Army from 1874 to 1918 for testing weapons and ordnance; it consists of 140 acres encompassing portions of the six MRS's described in the 2014 RI covering the former proving ground: southwest corner of MRS-1; western edges of MRS-2 and MRS-6; small northwest and southwest corners of MRS-3; western one-third of MRS-4; and western two-thirds of MRS-5. The National Park Service restricted access to these areas during the 2014 RI because of concerns about impacts to sensitive plant communities (i.e., maritime forest). Based on the 2018 RI Addendum #3 investigation, MEC exists in the MRS: 4-inch Mk10 APHE projectile, 57mm Mk1 APHE projectile, 57mm M86 and M303 rounds, and a 3-inch Mk3 projectile (See 2018 RI Addendum #3 Report). The RI Addendum #3 effort provided additional information about the locations and potential locations of MEC and MD within MRS 08, and areas known or suspected to contain MEC or MD are now smaller. Consequently, the MRS 08 boundary has been reduced accordingly. The revised MRS footprint for MRS 08 is based on identified CMUAs assessed to present an Unacceptable explosive risk. The new acreage for the revised MRS 08 is 71.0 acres; the remaining 69 acres became MRS 13.

Five groundwater samples collected during the 2014 RI were used to represent conditions across all MRSs. No explosives were detected; metals detected are not attributable to the FUDS because they reflect background conditions (Secs 4.2.3 and 5.3.3, RI Report). Sediment and surface water samples were collected from three locations in the Nike pond within MRS 08 during the 2014 RI. No explosives were detected in the surface water samples, but several MC metals were detected above background concentrations. 2,6-Dinitrotoluene was detected in sediment, along with several metals above background. However, the human health and ecological risk assessments determined that no unacceptable risk is posed by surface water or sediment (Sections 6.2.3.3 and 6.2.3.8, 2014 RI Report). Per the soil sampling data quality objective (DQO) in the approved 2014 RI work plan and approved Work Plan Addendum, no soil samples were collected in MRS 08 during the 2018 RI Addendum #3 investigation, as no visible evidence of energetic material, e.g., munitions items which are breached, was observed. However, in adjacent MRS 06, 5 surface soil samples were collected during the 2007 SI, and 21 surface soil samples were collected during the 2014 RI. No explosives were detected, and all metals were consistent with background concentrations (Secs 5.3.1.2, 6.1.1, and 6.2.3.5, 2014 RI Report). The human health and ecological risk assessments determined that no unacceptable risk is posed by these media, and therefore the HHE module has been assigned a No Known or Suspected MC Hazard rating.

Both physical and historical evidence indicates that CWM was not present at this MRS (Secs 1.2.1 and 1.4.2, RI Report). Therefore, the CHE module has been assigned the alternative rating of No Known or Suspected CWM Hazard. The overall Priority Rating for MRS 08 is '3', based on the EHE module.

Stakeholder coordination of the MRSP evaluation occurred through the technical project planning process for the RI. Documentation of stakeholder coordination can be found in FUDSDocs at C02NJ000403\_01.22\_0500. The MRSP scores were also provided in the RI Report and Addendums, which the stakeholders reviewed. Documentation of stakeholder coordination of the RI and Addendums can be found in FUDSDocs at C02NJ000403\_03.01\_0640\_a, C02NJ000403\_03.01\_0531\_a, C02NJ000403\_03.01\_0558\_a and C02NJ000403\_03\_01\_0574.

Throughout this MRSP:

- "RI Report" refers to the "Final MMRP Remedial Investigation Report, Remedial Investigation/Feasibility Study, Fort Hancock Formerly Used Defense Site, Monmouth County, New Jersey," dated January 2014, on FUDSDocs at C03NJ000403\_03.10\_0500 and \_0501.
- "RI Addendum #1" refers to the "Final Military Munitions Response Program, Remedial Investigation Addendum #1 Report," dated September 2016, located on FUDSDocs at C03NJ000403\_03.10\_0502
- "RI Addendum #3" refers to the "Final Military Munitions Response Program, Remedial Investigation Addendum #3 Report," dated November 2018, located on FUDSDocs at C03NJ000403\_03.10\_0508
- "EOD, 2015" refers to an e-mail from EOD, Naval Weapons Station Earle, to USACE listing items found at Sandy Hook in 2010, 2011, and 2013, dated October 29, 2015 and located on FUDSDocs at C03NJ000407\_01.01\_0500.

**Description of Pathways for Human and Ecological Receptors:**

The potential exposure media and associated exposure pathways for human receptors are: Soil: direct contact with surface soil (ingestion, dermal contact); inhalation via the soil-to-air pathway; Sediment: direct contact (ingestion, dermal

	contact); Surface water: direct contact (ingestion, dermal contact); and Groundwater: direct contact (ingestion, dermal contact). The potential exposure pathways for ecological receptors are: Soil: Direct contact; and Bioaccumulation into plants, soil invertebrates, and small mammals, and consumption of these food items (Sections 6.2.1 and 6.3.1, 2014 RI Report).
<b>Description of Receptors (Human and Ecological):</b>	Based on the current land use, the following human receptors were identified: (1) Outdoor maintenance worker (represents a National Park Service [NPS] ranger who spends the majority of his/her time patrolling the area on foot); (2) Adult and child recreational user (represent members of the public who partake in recreational activities at Fort Hancock); and (3) NPS Archaeologist. Ecological receptors include three potentially-affected terrestrial avian communities (granivores, insectivores, and carnivores) are represented by the mourning dove (granivore), American woodcock (insectivore), red-tailed hawk (carnivore) and the great blue heron (piscivore). For terrestrial mammals, the representative species will be the meadow vole (herbivore), short-tailed shrew (insectivore), and red fox (carnivore)(see Sections 6.2.1.2 and 6.3.1 2014 RI Report).

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Table 1

## EHE Module: Munitions Type Data Element Table

Directions: Below are 11 classifications of munitions and their descriptions. Check the scores that correspond with all the munitions types known or suspected to be present at the MRS.

Notes: The terms practice munitions, small arms ammunition, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	*UXO that are considered most likely to function upon any interaction with exposed persons (e.g. submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). *Hand grenades containing energetic filler. *Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	<input type="checkbox"/> 30
High explosive (used or damaged)	*UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." *DMM containing a high-explosive filler that have: *Been damaged by burning or detonation *Deteriorated to the point of instability	<input checked="" type="checkbox"/> 25
Pyrotechnic (used or damaged)	*UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). *DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: *Been damaged by burning or detonation *Deteriorated to the point of instability	<input type="checkbox"/> 20
High explosive (unused)	*DMM containing a high-explosive filler that: *Have not been damaged by burning or detonation *Deteriorated to the point of instability	<input type="checkbox"/> 15
Propellant	*UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). *DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: *Damaged by burning or detonation *Deteriorated to the point of instability	<input type="checkbox"/> 15
Bulk secondary high explosives, pyrotechnics, or propellant	*DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). *DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	<input type="checkbox"/> 10
Pyrotechnic (not used or damaged)	*DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: *Have not been damaged by burning or detonation *Are not deteriorated to the point of instability.	<input type="checkbox"/> 10
Practice	*UXO that are practice munitions that are not associated with a sensitive fuze. *DMM that are practice munitions that are not associated with a sensitive fuze and that have not: *Been damaged by burning or detonation *Deteriorated to the point of instability	<input type="checkbox"/> 5
Riot control	*UXO or DMM containing a riot control agent filler (e.g., tear gas).	<input type="checkbox"/> 3
Small arms	*Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	<input type="checkbox"/> 2
Evidence of no munitions	*Following investigation of the MRS, there is a physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	<input type="checkbox"/> 0
<b>Munitions Type</b>	<b>DIRECTIONS: Record the single highest score from above in the box to the right(maximum score = 30).</b>	25

DIRECTIONS: Document any MRS - specific data used in selecting the Munitions Type classifications in the space provided.) Based on the 2018 RI Addendum #3 investigation, MEC exists in the MRS: 4-inch Mk10 APHE projectile, 57mm Mk1 APHE projectile, 57mm M86 and M303 rounds, and a 3-inch Mk3 projectile. These items are not considered inherently sensitive (See 2018 RI Addendum #3 Report, see photos of MEC items in Appendix G).

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Table 2

## EHE Module: Source of Hazard Data Element Table

Directions: Below are 11 classifications describing sources of explosive hazards. Check the scores that correspond with all the sources of explosive hazards known or suspected to be present at the MRS.

Notes: The terms former range, practice munitions, small arms range, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	*The MRS is former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	<input checked="" type="checkbox"/> 10
Former munitions treatment (i.e., OB/OD) unit	*The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	<input type="checkbox"/> 8
Former practice munitions range	*The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	<input type="checkbox"/> 6
Former maneuver area	*The MRS is a former maneuver area where no munitions other than flares, simulators, smokes and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	<input type="checkbox"/> 5
Former burial pit or other disposal area	*The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	<input type="checkbox"/> 5
Former industrial operating facilities	*The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	<input type="checkbox"/> 4
Former firing points	*The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	<input type="checkbox"/> 4
Former missile or air defense artillery emplacements	*The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	<input type="checkbox"/> 2
Former storage or transfer points	*The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	<input type="checkbox"/> 2
Former small arms range	*The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g. grenades] were used or are present to place an MRS into this category.)	<input type="checkbox"/> 1
Evidence of no munitions	*Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	<input type="checkbox"/> 0
<b>Source of Hazard</b>	<b>DIRECTIONS: Record the single highest score from above in the box to the right(maximum score = 10).</b>	10

DIRECTIONS: Document any MRS - specific data used in selecting the Source of Hazard classifications in the space provided.) MRS 08 was part of the United States Army's first official proving ground for testing weapons and ordnance. Firing points and targets are as identified in the Ordnance History-Fort Hancock (1874-1919) (see Sections 1.2.2 and 1.3 of the 2014 RI Report).

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Table 3

## EHE Module: Location of Munitions Data Element Table

Directions: Below are eight classifications of munitions locations and their descriptions. Check the scores that correspond with all the locations where munitions are known or suspected to be present at the MRS.

Notes: The terms confirmed, surface, subsurface, small arms ammunition, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	*Physical evidence indicates that there are UXO or DMM on the surface of the MRS. *Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	<input type="checkbox"/> 25
Confirmed subsurface, active	*Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, constructions, dredging) at the MRS are likely to expose UXO or DMM. *Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	<input checked="" type="checkbox"/> 20
Confirmed subsurface, stable	*Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. *Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	<input type="checkbox"/> 15
Suspected (physical evidence)	*There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	<input type="checkbox"/> 10
Suspected (historical evidence)	*There is historical evidence indicating that UXO or DMM may be present at the MRS.	<input checked="" type="checkbox"/> 5
Subsurface, physical constraint	*There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	<input type="checkbox"/> 2
Small arms (regardless of location)	*The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	<input type="checkbox"/> 1
Evidence of no munitions	*Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	<input type="checkbox"/> 0
<b>Location of Munitions</b>	<b>DIRECTIONS: Record the single highest score from above in the box to the right(maximum score = 25).</b>	20

DIRECTIONS: Document any MRS - specific data used in selecting the Location of Munitions classifications in the space provided.) Based on the 2018 RI Addendum #3 investigation (Sections 5.1 and 5.7), MEC exists in the subsurface of the MRS: 4-inch Mk10 APHE projectile, 57mm Mk1 APHE projectile, 57mm M86 and M303 rounds, and a 3-inch Mk3 projectile. As this is a coastal environment, the possibility exists for naturally occurring phenomena (e.g., flooding, erosion, or tidal action) at the MRS to expose munitions items.

**C02NJ0004 Fort Hancock - 08 - MMRP - NPS Excluded Area****Table 4****EHE Module: Ease of Access Data Element Table**

Directions: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Check the score that corresponds with the ease of access to the MRS

Notes: The term barrier is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	*There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible.	<input checked="" type="checkbox"/> 10
Barrier to MRS access is incomplete	*There is a barrier preventing access to parts of the MRS, but not the entire MRS.	<input type="checkbox"/> 8
Barrier to MRS access is complete but not monitored	*There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	<input type="checkbox"/> 5
Barrier to MRS access is complete and monitored	*There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	<input type="checkbox"/> 0
<b>Ease of Access</b>	<b>DIRECTIONS: Record the single highest score from above in the box to the right(maximum score = 10).</b>	10

DIRECTIONS: Document any MRS - specific data used in selecting the Ease of Access classifications in the space provided.) The MRS is open to the public, upon entry into the Sandy Hook Unit of Gateway National Recreation Area (a national park). (2018 RI Addendum #3, Section 2.1).



**C02NJ0004 Fort Hancock - 08 - MMRP - NPS Excluded Area****Table 5****EHE Module: Status of Property Data Element Table**

Directions: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Check the score that corresponds with the status of property at the MRS.

Notes:

Classification	Description	Score
Non-DoD control	*The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. *The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	<input checked="" type="checkbox"/> 5
Scheduled for transfer from DoD control	*The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	<input type="checkbox"/> 3
DoD control	*The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 2 hours per day, every day of the calendar year.	<input type="checkbox"/> 0
<b>Status of Property</b>	<b>DIRECTIONS: Record the single highest score from above in the box to the right(maximum score = 5).</b>	<b>5</b>

DIRECTIONS: Document any MRS - specific data used in selecting the Status of Property classifications in the space provided.) The MRS is located on the Sandy Hook Peninsula of New Jersey. The location of the MRS is currently managed by the Department of the Interior (NPS). (2018 RI Addendum #3, Section 1.2).



**C02NJ0004 Fort Hancock - 08 - MMRP - NPS Excluded Area****Table 6****EHE Module: Population Density Data Element Table**

Directions: Below are three classifications for population density and their descriptions.

Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Check the most appropriate score.

Notes: Use the U.S. Census Bureau tract data available to capture the highest population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	*There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	<input checked="" type="checkbox"/> 5
100-500 persons per square mile	*There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	<input type="checkbox"/> 3
< 100 persons per square mile	*There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	<input type="checkbox"/> 1
<b>Population Density</b>	<b>DIRECTIONS: Record the single highest score from above in the box to the right(maximum score = 5).</b>	5

DIRECTIONS: Document any MRS - specific data used in selecting the Population Density classifications in the space provided.) The 2020 population density of Monmouth County, NJ is 1,344.7 persons per square mile....  
([www.census.gov/quickfacts/fact/table/monmouthcountynewjersey/PST040223](http://www.census.gov/quickfacts/fact/table/monmouthcountynewjersey/PST040223))

**C02NJ0004 Fort Hancock - 08 - MMRP - NPS Excluded Area****Table 7****EHE Module: Population Near Hazard Data Element Table**

Directions: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and check the score that corresponds with the number of inhabited structures.

Notes: The term inhabited structures is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	*There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	<input checked="" type="checkbox"/> 5
16 to 25 inhabited structures	*There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	<input type="checkbox"/> 4
11 to 15 inhabited structures	*There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	<input type="checkbox"/> 3
6 to 10 inhabited structures	*There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	<input type="checkbox"/> 2
1 to 5 inhabited structures	*There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	<input type="checkbox"/> 1
0 inhabited structures	*There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	<input type="checkbox"/> 0
<b>Population Near Hazard</b>	<b>DIRECTIONS: Record the single highest score from above in the box to the right(maximum score = 5).</b>	<b>5</b>

DIRECTIONS: Document any MRS - specific data used in selecting the Population Near Hazard classifications in the space provided.) Inhabited structures include NPS and USCG buildings, residences, a school and daycare facility, and beach houses for use by recreational visitors (see Section 2.1.7 of the 2014 RI Report; Google Earth was used to calculate the total number of inhabited structures within the two-mile radius for this MRS).

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## Table 8

### EHE Module: Types of Activities/Structures Data Element Table

Directions: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and check the scores that correspond with all the activities/structure classifications at the MRS.

Notes: The term inhabited structure is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	*Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	<input checked="" type="checkbox"/> 5
Parks and recreational areas	*Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	<input checked="" type="checkbox"/> 4
Agricultural, forestry	*Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	<input type="checkbox"/> 3
Industrial or warehousing	*Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	<input type="checkbox"/> 2
No known or recurring activities	*There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	<input type="checkbox"/> 1
<b>Types of Activities/Structures</b>	<b>DIRECTIONS: Record the single highest score from above in the box to the right(maximum score = 5).</b>	<b>5</b>

DIRECTIONS: Document any MRS - specific data used in selecting the Types of Activities/Structures classifications in the space provided.) Types of activities/structures within 2 miles include NPS and U.S. Coast Guard (USCG) buildings, residences, a school and daycare facility, and beach houses for use by recreational visitors. An active USCG Station is positioned on the northwest corner of the peninsula (approximately 68 acres) (see Section 2.1.7 of the 2014 RI Report).

**C02NJ0004 Fort Hancock - 08 - MMRP - NPS Excluded Area****Table 9****EHE Module: Ecological and/or Cultural Resources Data Element Table**

Directions: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and check the score that corresponds with the ecological and/or cultural resources present on the MRS.

Notes: The terms ecological resources and cultural resources are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	*There are both ecological and cultural resources present on the MRS.	<input checked="" type="checkbox"/> 5
Ecological resources present	*There are ecological resources present on the MRS.	<input type="checkbox"/> 3
Cultural resources present	*There are cultural resources present on the MRS.	<input type="checkbox"/> 3
No ecological or cultural resources present	*There are no ecological resources or cultural resources present on the MRS.	<input type="checkbox"/> 0
<b>Ecological and/or Cultural Resources</b>	<b>DIRECTIONS: Record the single highest score from above in the box to the right(maximum score = 5).</b>	5

DIRECTIONS: Document any MRS - specific data used in selecting the Ecological and/or Cultural Resources classifications in the space provided.) This MRS exhibits a diverse fauna that depend on a wide variety of habitats including forest, wetland, dune shrubland, dune grassland, and beach as well as intertidal marine habitats. Beach and dune flora is predominantly characterized by grasses, forbs and stunted shrubs. Inland flora is predominantly characterized by evergreen and mixed maritime forests, with deciduous forests (both maritime and non-maritime) on the western portion of the MRS. Based on previous archaeological investigations, Fort Hancock may include archaeological artifacts, features and locations that are associated with the former military use of Fort Hancock. The Fort Hancock and Sandy Hook Proving Ground Historic District, which includes all of the Fort's structures, and the Sandy Hook Lighthouse are National Historic Landmarks (see Sections 1.2 and 2.1.8 of the RI Report).

# C02NJ0004 Fort Hancock - 08 - MMRP - NPS Excluded Area

## Table 10

### EHE

Directions: 1. From Tables 1-9, record the data element scores in the Score boxes to the right. 2. Add the Score boxes for each of the three factors and record this number in the Value boxes to the right. 3. Add the three Value boxes and record this number in the EHE Module Total below. 4. Check the appropriate range for the EHE Module Total below. 5. Circle the EHE Module Rating that corresponds to the range selected and record this value in the EHE Module Rating box found at the bottom of the table.

Notes: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
<b>Explosive Hazard Factor Data Elements</b>			
Munitions Type	Table 1	25	35
Source of Hazard	Table 2	10	
<b>Accessibility Factor Data Elements</b>			
Location of Munitions	Table 3	20	35
Ease of Access	Table 4	10	
Status of Property	Table 5	5	
<b>Receptor Factor Data Elements</b>			
Population Density	Table 6	5	20
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	5	
<b>EHE Module Total</b>			90
<b>EHE Module Total</b>		<b>EHE Module Rating</b>	
92 to 100		A	
82 to 91		B	
71 to 81		C	
60 to 70		D	
48 to 59		E	
38 to 47		F	
0 to 37		G	
Alternative Module Ratings	<input type="checkbox"/> Evaluation Pending		
	<input type="checkbox"/> No Longer Required		
	<input type="checkbox"/> No Known or Suspected Explosive Hazard		
<b>EHE Module Rating</b>		B	

EHE Module Description (4000 characters max):

**C02NJ0004 Fort Hancock - 08 - MMRP - NPS Excluded Area**

**Table 11**

**CHE Module: CWM Configuration Data Element Table**

Directions: Below are seven classification of CWM configuration and their descriptions. Check the scores that correspond with all the CWM configurations known or suspected to be present at the MRS.

Notes: The terms CWM/UXO, CWM/DMM, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: *CWM that are UXO (i.e., CWM/UXO) *Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	<input type="checkbox"/> 30
CWM mixed with UXO	*The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	<input type="checkbox"/> 25
CWM, explosive configuration that are undamaged DMM	*The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	<input type="checkbox"/> 20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: *Nonexplosively configured CWM/DMM either damaged or undamaged *Bulk CWM (e.g., ton container).	<input type="checkbox"/> 15
CAIS K941 and CAIS K942	*The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M2/E11.	<input type="checkbox"/> 12
CAIS (chemical agent identification sets)	*CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	<input type="checkbox"/> 10
Evidence of no CWM	*Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	<input checked="" type="checkbox"/> 0
<b>CWM Configuration</b>	<b>DIRECTIONS: Record the single highest score from above in the box to the right(maximum score = 30).</b>	<b>0</b>

DIRECTIONS: Document any MRS - specific data used in selecting the CWM Configuration classifications in the space provided.) Both physical and historical evidence indicates that CWM was not present at this MRS (see Sections 1.2.1 and 1.4.2 of the RI Report). Therefore, Tables 12 through 19 are intentionally omitted according to Army Guidance.

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## Table 20

### CHE

Directions: 1. From Tables 11-19, record the data element scores in the Score boxes to the right. 2. Add the Score boxes for each of the three factors and record this number in the Value boxes to the right. 3. Add the three Value boxes and record this number in the CHE Module Total box below. 4. Check the appropriate range for the CHE Module Total below. 5. Check the CHE Module Rating that corresponds to the range selected and record this value in the CHE Module Rating box found at the bottom of the table.

Notes: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
<b>CWM Hazard Factor Data Elements</b>			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12		
<b>Accessibility Factor Data Elements</b>			
Location of CWM	Table 13		0
Ease of Access	Table 14		
Status of Property	Table 15		
<b>Receptor Factor Data Elements</b>			
Population Density	Table 16		0
Population Near Hazard	Table 17		
Types of Activities/Structures	Table 18		
Ecological and/or Cultural Resources	Table 19		
<b>CHE Module Total</b>			11
<b>CHE Module Total</b>	<b>CHE Module Rating</b>		
92 to 100	A		
82 to 91	B		
71 to 81	C		
60 to 70	D		
48 to 59	E		
38 to 47	F		
0 to 37	G		
Alternative Module Ratings	<input type="checkbox"/> Evaluation Pending		
	<input type="checkbox"/> No Longer Required		
	<input checked="" type="checkbox"/> No Known or Suspected CWM Hazard		
<b>CHE Module Rating</b>	No Known or Suspected CWM Hazard		

CHE Module Description (4000 characters max):



**C02NJ0004 Fort Hancock - 08 - MMRP - NPS Excluded Area**  
**Table 21**  
**Groundwater**

**Contaminant Hazard Factor (CHF)**

Directions: Record the maximum concentrations of all contaminants in the MRS's groundwater and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional groundwater contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
<b>CHF Scale</b>	<b>CHF Value</b>	<b>Sum The Ratios</b>	0
CHF > 100	H (High)	$\text{CHF} = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS: Record the CHF Value from above in the box to the right (maximum value = H).</b>	
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**Migratory Pathway Factor**

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure	<input type="checkbox"/> H
Potential	Contamination in the groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	<input type="checkbox"/> M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possible due to the presence of geological structures or physical controls).	<input type="checkbox"/> L

<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).</b>	
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**Receptor Factor**

Classification	Description	Value
Identified	Identified receptors have access to groundwater to which contamination has moved or can move.	<input type="checkbox"/> H
Potential	Potential for receptors have access to groundwater to which contamination has moved or can move.	<input type="checkbox"/> M
Limited	Little or no potential for receptors to have access to groundwater to which contamination has moved or can move.	<input type="checkbox"/> L

<b>RECEPTOR FACTOR</b>	<b>Check the value that corresponds most closely to the groundwater receptors at the MRS.</b>	
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No Known or Suspected Groundwater MC Hazard ☒

DIRECTIONS: Document any MRS - specific data used in selecting the ground water contaminants in the space provided.

Groundwater samples from multiple MRSs were used to represent conditions across all MRSs; groundwater samples did not contain MC above background (Secs 4.2.3 and 5.3.3, 2014 RI Report).  
 Detections are not indicative of munitions activities and would not impact the MRS Score.

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## Table 22 Surface Water - Human Endpoint

### Contaminant Hazard Factor (CHF)

Directions: Record the maximum concentrations of all contaminants in the MRS's surface water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
Arsenic	2.80	4.50	0.62222222
Iron	777	11000	0.07063636
Lead	6.60	15	0.44
Thallium	1.30	0.16	8.1250
Antimony	0.61	6	0.10166667
Copper	18	620	0.02903226
Manganese	37.30	320	0.11656250
<b>CHF Scale</b>	<b>CHF Value</b>	<b>Sum The Ratios</b>	9.50512001
CHF > 100	H (High)	$CHF = \sum \frac{[Maximum\ Concentration\ of\ Contaminant]}{[Comparison\ Value\ for\ Contaminant]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS: Record the CHF Value from above in the box to the right (maximum value = H).</b>	M
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### Migratory Pathway Factor

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure	<input type="checkbox"/> H
Potential	Contamination in the surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	<input checked="" type="checkbox"/> M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possible due to the presence of geological structures or physical controls).	<input type="checkbox"/> L

<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).</b>	M
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### Receptor Factor

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	<input type="checkbox"/> H
Potential	Potential for receptors have access to surface water to which contamination has moved or can move.	<input checked="" type="checkbox"/> M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	<input type="checkbox"/> L

<b>RECEPTOR FACTOR</b>	<b>Check the value that corresponds most closely to the surface water receptors at the MRS.</b>	M
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No Known or Suspected Surface Water (Human Endpoint) MC Hazard ☐

DIRECTIONS: Document any MRS - specific data used in selecting the surface water contaminants in the space provided.

Surface water results are summarized in Table 2.12 of Appendix G-1, 2014 RI Report

# C02NJ0004 Fort Hancock - 08 - MMRP - NPS Excluded Area

## Table 23 Sediment - Human Endpoint

### Contaminant Hazard Factor (CHF)

Directions: Record the maximum concentrations of all contaminants in the MRS's sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
2,6-Dinitrotoluene	0.16	18	0.00888889
Arsenic	7.70	34	0.22647059
Iron	14600	55000	0.26545455
Lead	286	400	0.7150
Total Chromium (1:6 ratio Cr VI:Cr III)	34.60	1600	0.021625
Antimony	2.20	31	0.07096774
Copper	41.20	3100	0.01329032
<b>CHF Scale</b>	<b>CHF Value</b>	<b>Sum The Ratios</b>	1.32169709
CHF > 100	H (High)	$\text{CHF} = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS: Record the CHF Value from above in the box to the right (maximum value = H).</b>	L
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### Migratory Pathway Factor

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure	<input type="checkbox"/> H
Potential	Contamination in the sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	<input checked="" type="checkbox"/> M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possible due to the presence of geological structures or physical controls).	<input type="checkbox"/> L

<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).</b>	M
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### Receptor Factor

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	<input type="checkbox"/> H
Potential	Potential for receptors have access to sediment to which contamination has moved or can move.	<input checked="" type="checkbox"/> M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	<input type="checkbox"/> L

<b>RECEPTOR FACTOR</b>	<b>Check the value that corresponds most closely to the sediment receptors at the MRS.</b>	M
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No Known or Suspected Sediment (Human Endpoint) MC Hazard ☐

DIRECTIONS: Document any MRS - specific data used in selecting the sediment contaminants in the space provided.  
Sediment sample results are summarized in Table 2.11 of Appendix G-1, 2014 RI Report.

# C02NJ0004 Fort Hancock - 08 - MMRP - NPS Excluded Area

Table 24

## Surface Water - Ecological Endpoint

### Contaminant Hazard Factor (CHF)

Directions: Record the maximum concentrations of all contaminants in the MRS's surface water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
Lead	6.60	2.50	2.64
Thallium	1.30	0.80	1.6250
Antimony	0.61	30	0.02033333
Arsenic	2.80	150	0.01866667
Manganese	37.30	120	0.31083333
Copper	18	9	2
Iron	777	1000	0.7770
<b>CHF Scale</b>	<b>CHF Value</b>	<b>Sum The Ratios</b>	7.39183333
CHF > 100	H (High)	$CHF = \sum \frac{[Maximum\ Concentration\ of\ Contaminant]}{[Comparison\ Value\ for\ Contaminant]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS: Record the CHF Value from above in the box to the right (maximum value = H).</b>	M
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### Migratory Pathway Factor

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure	<input type="checkbox"/> H
Potential	Contamination in the surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	<input checked="" type="checkbox"/> M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possible due to the presence of geological structures or physical controls).	<input type="checkbox"/> L

<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).</b>	M
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### Receptor Factor

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	<input type="checkbox"/> H
Potential	Potential for receptors have access to surface water to which contamination has moved or can move.	<input checked="" type="checkbox"/> M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	<input type="checkbox"/> L

<b>RECEPTOR FACTOR</b>	<b>Check the value that corresponds most closely to the surface water receptors at the MRS.</b>	M
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No Known or Suspected Surface Water (Ecological Endpoing) MC Hazard ☐

DIRECTIONS: Document any MRS - specific data used in selecting the surface water contaminants in the space provided.  
Surface water sample results are summarized in Tables 2.12 of Appendix G-1, RI Report.

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## Table 25 Sediment - Ecological Endpoint

### Contaminant Hazard Factor (CHF)

Directions: Record the maximum concentrations of all contaminants in the MRS's sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Arsenic	7.70	9.80	0.78571429
Mercury	0.34	0.18	1.88888889
Selenium	2.50	2	1.25
Iron	14600	20000	0.73
Lead	286	35.80	7.98882682
Antimony	2.20	2	1.10
Copper	41.20	31.60	1.30379747
2,6-Dinitrotoluene	0.0160	0.0398	0.40201005
Total Chromium (1:6 ratio Cr VI:Cr III)	34.60	43.40	0.79723502
<b>CHF Scale</b>	<b>CHF Value</b>	<b>Sum The Ratios</b>	16.24647254
CHF > 100	H (High)	$\text{CHF} = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS: Record the CHF Value from above in the box to the right (maximum value = H).</b>	M
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### Migratory Pathway Factor

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure	<input type="checkbox"/> H
Potential	Contamination in the sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	<input checked="" type="checkbox"/> M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possible due to the presence of geological structures or physical controls).	<input type="checkbox"/> L

<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).</b>	M
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### Receptor Factor

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	<input type="checkbox"/> H
Potential	Potential for receptors have access to sediment to which contamination has moved or can move.	<input checked="" type="checkbox"/> M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	<input type="checkbox"/> L

<b>RECEPTOR FACTOR</b>	<b>Check the value that corresponds most closely to the sediment receptors at the MRS.</b>	M
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No Known or Suspected Sediment (Ecological Endpoint) MC Hazard ☐

DIRECTIONS: Document any MRS - specific data used in selecting the sediment contaminants in the space provided.  
Sediment sample results are summarized in Table 2.11 of Appendix G-1, 2014 RI Report.

**C02NJ0004 Fort Hancock - 08 - MMRP - NPS Excluded Area**  
**Table 26**  
**Surface Soil**

**Contaminant Hazard Factor (CHF)**

Directions: Record the maximum concentrations of all contaminants in the MRS's surface soil and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface soil contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
<b>CHF Scale</b>	<b>CHF Value</b>	<b>Sum The Ratios</b>	0
CHF > 100	H (High)	$\text{CHF} = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS: Record the CHF Value from above in the box to the right (maximum value = H).</b>	
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**Migratory Pathway Factor**

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure	<input type="checkbox"/> H
Potential	Contamination in the surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	<input type="checkbox"/> M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possible due to the presence of geological structures or physical controls).	<input type="checkbox"/> L

<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).</b>	
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**Receptor Factor**

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	<input type="checkbox"/> H
Potential	Potential for receptors have access to surface soil to which contamination has moved or can move.	<input type="checkbox"/> M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	<input type="checkbox"/> L

<b>RECEPTOR FACTOR</b>	<b>Check the value that corresponds most closely to the surface soil receptors at the MRS.</b>	
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No Known or Suspected Surface Soil MC Hazard ☐

**DIRECTIONS:** Document any MRS - specific data used in selecting the soil contaminants in the space provided.

Per the soil sampling DQO in the approved 2014 RI work plan and approved Work Plan Addendum, no soil samples were collected in MRS 08 during the 2018 RI Addendum #3 investigation, as no visible evidence of energetic material, e.g., munitions items which are breached, was observed. However, in adjacent MRS 06, 5 surface soil samples were collected during the 2007 SI and 21 surface soil samples were collected during the 2014 RI. No explosives were detected, and all metals were consistent with background concentrations (Secs 5.3.1.2, 6.1.1, and 6.2.3.5, 2014 RI Report).



# C02NJ0004 Fort Hancock - 08 - MMRP - NPS Excluded Area

Table 28

## Determining the HHE Module Rating

Directions: 1. Record the letter values (H, M, L) for the Contaminant Hazard, Migration Pathway, and Receptor Factors for the media (from Tables 21-26) in the corresponding boxes below. 2. Record the media's three-letter combinations in the Three-Letter Combination boxes below (three-letter combinations are arranged from Hs to Ms to Ls). 3. Using the HHE Ratings provided below determine each media's rating (A-G) and record the letter in the corresponding Media Rating box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)	
Groundwater (Table 21)						
Surface Water - Human Endpoint (Table 22)	M	M	M	MMM	D	
Sediment - Human Endpoint (Table 23)	L	M	M	LMM	E	
Surface Water - Ecological Endpoint (Table 24)	M	M	M	MMM	D	
Sediment - Ecological Endpoint (Table 25)	M	M	M	MMM	D	
Surface Soil (Table 26)						
<p>DIRECTIONS (cont.): 4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.</p> <p>Notes: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.</p>				<b>HHE MODULE RATING</b>		D
				<b>HHE Ratings (for reference only)</b>		
				<b>Combination</b>	<b>Rating</b>	
				HHH	A	
				HHM, HMH, MHH	B	
				HHL, HLH, LHH, HMM, MHM, MMH	C	
				HML, HLM, MHL, MLH, LHM, LMH, MML, LML, LLM	D	
				HLL, LHL, LLH, MML, MLM, LMM	E	
				MLL, LML, LLM	F	
				LLL	G	
Alternative Module Ratings		<input type="checkbox"/> Evaluation Pending				
		<input type="checkbox"/> No Longer Required				
		<input type="checkbox"/> No Known or Suspected MC Hazard				

HHE Module Description (4000 characters max):  
Based on the risk assessments showing no risks present (2014 RI), this module is evaluated as NKSH. Section 8.1.2 of the 2014 RI Report



**C02NJ0004 Fort Hancock - 08 - MMRP - NPS Excluded Area****Table 29  
MRS Priority**

In the chart below, circle the letter rating for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Check the corresponding numerical priority for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority, record this relative priority in the MRS Priority or Alternative MRS Rating at the bottom of the table.

An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		No Known or Suspected CWM Hazard		No Known or Suspected MC Hazard	
MRS Priority or Alternative MRS Rating				3	