



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
**US ARMY INSTALLATION MANAGEMENT COMMAND**  
**US ARMY ENVIRONMENTAL COMMAND**  
5179 HOADLEY ROAD  
ABERDEEN PROVING GROUND, MD 21010-5401

IMAE-CDP

14 August 2008

MEMORANDUM FOR PICATINNY ARSENAL (AMSTA-AR-PSR/MR. TED GABLE), US  
ARMY RESEARCH, DEVELOPMENT AND ENGINEERING CENTER, BLDG 319,  
PICATINNY ARSENAL, NJ 07806-5000



SUBJECT: Military Munitions Response Program (MMRP) – Military Munitions  
Response Site Prioritization Protocol (MRSP) QA Panel Results.

1. In October 2005, the Department of Defense published the final MRSP (32 Code of Federal Regulations (CFR) Part 179) for assigning a relative priority for response actions at munitions response sites (MRS). The MRSP is used for assigning a relative priority to each MRS for response actions related to unexploded ordnance, discarded military munitions, and munitions constituents based on the overall conditions at the MRS.

2. In accordance with the 32 CFR 179.5 (d), the Army has established a quality assurance panel (QA Panel) to review MRSs prioritized using the MRSP. The QA Panel's objectives are to ensure that the Army is applying the MRSP in a consistent manner and that the decisions made when applying the MRSP are representative of site conditions.

3. The QA Panel met on 11-13 March 2008 to review the finalized MRSP priorities for Picatinny Arsenal as presented in the Site Inspection Report dated April 2008.

a. As a result of the QA Panel's review, the following MRS priorities were approved.

- (1) Former Munitions and Test Area (PICA-001-R-01)
- (2) 1926 Explosion Radius (PICA-003-R-01)
- (3) 1926 Explosion site (PICA-004-R-01)
- (4) Former Operational Area (PICA-006-R-01)
- (5) Lakes MRS (PICA-008-R-01)
- (6) Shell Burial Grounds (PICA-010-R-01)
- (7) Lake Denmark (PICA-012-R-01)
- (8) Inactive Munitions Waste Pit (PICA-013-R-01)
- (9) Inactive Munitions Waste Pit Off-Post (PICA-014-R-01) Anti-Tank
- (10) Rocket/Grenade Range (FTRU-001-R-01).

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b. The following Active-Army MRS priority was not approved for reasons described below. The revised priority score and associated score sheets are provided. (enclosure).

Green Pond MRS (PICA-005-R-01).

(1) EHE Module.

(a) Table 1 (Munitions Type – Data Element Table) was revised from a score of “25” to “30.” The presence of a 66-mm shell reportedly found at the MRS is considered a sensitive munition and warrants a score of “30.”

(b) Table 10 (Determining the EHE Rating Table) has been changed from an overall EHE module score of “81” and module rating of “C” to an overall EHE module score of “86” and module rating of “B.”

(c) Table 25 (MRS Priority Table). The EHE Rating was changed from a “C” and Priority of “4” to a “B” and Priority of “3”. The Overall MRS Priority was changed from a “4” to a “3.”

4. In accordance with 32 CFR 179.5 (d), involved stakeholders (installation, federal agencies, state regulatory agencies, RABS, etc.) should be afforded the opportunity to comment on these changes prior to the revised priorities becoming final. Please coordinate with your stakeholders regarding the revisions to the score sheets and overall priority change. If the stakeholders are in disagreement with QA Panel findings, please provide comments and justification to the QA Panel. Comments should be sent to Mr. Brett Merkel, 410-436-1523, [brett.merkel@us.army.mil](mailto:brett.merkel@us.army.mil). Comments will be reviewed and considered by the QA Panel and you will be notified of their decision.

5. If no comments are received within 45 days of receipt of this memorandum, then the revised priority, as determined by the QA Panel, will be considered final.


6. In accordance with the Protocol (32 CFR 179.5 (i)), MRS priorities should be reviewed annually by stakeholders and updated as additional site information becomes available. This memorandum and corresponding documentation pertaining to the priority of a MRS should be included in your Administrative Record and Information Repository.

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7. The US Army Environmental Command points of contacts are Mr. Timothy Rodeffer, 410-436-1616, [timothy.rodeffer@us.army.mil](mailto:timothy.rodeffer@us.army.mil) and Mr. Brett Merkel, 410-436-1523, [brett.merkel@us.army.mil](mailto:brett.merkel@us.army.mil).

FOR THE COMMANDER:



JAMES D. DANIEL  
Chief,  
Cleanup Division

Encl

CF (w/encl):

US ARMY ENVIRONMENTAL COMMAND (IMAE-CDN/MR. PAUL SCHAFER),  
5179 HOADLEY ROAD, ABERDEEN PROVING GROUND, MD 21010-5401

## 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, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

**Munitions Response Site Name/AEDB-R #:** Green Pond MRS (PICA-005-R-01)

**Component:** Army

**Installation/Property Name:** Picatinny Arsenal, NJ

**Location (City, County, State):** Morris County, New Jersey

**Site Name/Project Name (Project No.):** Green Pond MRS / Picatinny Arsenal SI (2118-096)

Revised by Tim Rodeffer, QA Panel, 8/6/08

**Date Information Entered/Updated:** August 10, 2007 / November 15, 2007

**Preparer's Name/Organization/Phone:** Larry Jordan, Malcolm Pirnie, Inc., (410) 230-9954

**Point of Contact (Name/Phone):** Nancy Flaherty (410) 779-2796

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

<input type="checkbox"/> PA	<input checked="" type="checkbox"/> SI	<input type="checkbox"/> RI	<input type="checkbox"/> FS	<input 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 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:

This MRS consists of the portion of Green Pond Brook located south of the 9th Street bridge and north of the boundary of the former DRMO Yard. Since this is a brook, it is possible that the stream channel and banks may be altered due to erosion and deposition. Therefore, this site extends from bank to bank, regardless of stream morphology, and includes a 15 foot buffer zone on each side of the banks. MEC have been found protruding from the banks and buried alongside the banks of Green Pond Brook, although the source of the MEC is unknown. The types of MEC found in the brook are unknown, with the exception of a 66-mm shell found where the 9th Street Bridge crosses the brook.

#### MC Summary

According to the 2005 Final ROD prepared under the IRP, the selected remedy for MC in sediment includes chemical and biological monitoring, along with LUCs. Therefore, MC are being addressed under the IRP and will not be included in the Active Army MMRP program.

#### Description of Pathways

Complete exposure pathways exist for PTA personnel, PTA residents, contractors/visitors, and biota who may contact MEC in surface soil or surficial sediment, via handling/treading underfoot. Potentially complete exposure pathways exist for contractors/visitors and

### **Green Pond MRS**

biota that may contact MEC in subsurface soil and subsurface sediment via intrusive activities.

#### Description of Receptors

Green Pond Brook, which is approximately 22,400 linear feet (6,828 meters), flows southwest from the outfall of Picatinny Lake through the center of the installation. Green Pond Brook generally has a wide, straight channel, with slow running, warm water, although there are seasonal variations in the flow due to fluctuations in precipitation. Portions of the brook are channelized and these portions have steep banks. The bottom of Green Pond Brook consists of fine sediment. The lower reach of the brook is considered a gaining stream. Green Pond Brook has banks lined with herbaceous and small woody plants; some reaches of the brook contain dense, submerged aquatic vegetation beds. Since Green Pond Brook is a modified aquatic habitat due to channelization, expected ecological receptors would include those species tolerant of slow, warm water.

# Green Pond MRS

**Table 1**  
**EHE Module: Munitions Type Data Element Table**

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

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

Classification	Description	Score
<b>Sensitive</b>	<ul style="list-style-type: none"> <li>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).</li> <li>Hand grenades containing energetic filler.</li> <li>Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.</li> </ul>	30
<b>High explosive (used or damaged)</b>	<ul style="list-style-type: none"> <li>UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive."</li> <li>DMM containing a high-explosive filler that have: <ul style="list-style-type: none"> <li>Been damaged by burning or detonation</li> <li>Deteriorated to the point of instability.</li> </ul> </li> </ul>	<del>25</del>
<b>Pyrotechnic (used or damaged)</b>	<ul style="list-style-type: none"> <li>UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades).</li> <li>DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: <ul style="list-style-type: none"> <li>Been damaged by burning or detonation</li> <li>Deteriorated to the point of instability.</li> </ul> </li> </ul>	20
<b>High explosive (unused)</b>	<ul style="list-style-type: none"> <li>DMM containing a high-explosive filler that: <ul style="list-style-type: none"> <li>Have not been damaged by burning or detonation</li> <li>Are not deteriorated to the point of instability.</li> </ul> </li> </ul>	15
<b>Propellant</b>	<ul style="list-style-type: none"> <li>UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor).</li> <li>DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: <ul style="list-style-type: none"> <li>Damaged by burning or detonation</li> <li>Deteriorated to the point of instability.</li> </ul> </li> </ul>	15
<b>Bulk secondary high explosives, pyrotechnics, or propellant</b>	<ul style="list-style-type: none"> <li>DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor).</li> <li>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.</li> </ul>	10
<b>Pyrotechnic (not used or damaged)</b>	<ul style="list-style-type: none"> <li>DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: <ul style="list-style-type: none"> <li>Have not been damaged by burning or detonation</li> <li>Are not deteriorated to the point of instability.</li> </ul> </li> </ul>	10
<b>Practice</b>	<ul style="list-style-type: none"> <li>UXO that are practice munitions that are not associated with a sensitive fuze.</li> <li>DMM that are practice munitions that are not associated with a sensitive fuze and that have not: <ul style="list-style-type: none"> <li>Been damaged by burning or detonation</li> <li>Deteriorated to the point of instability.</li> </ul> </li> </ul>	5
<b>Riot control</b>	<ul style="list-style-type: none"> <li>UXO or DMM containing a riot control agent filler (e.g., tear gas).</li> </ul>	3
<b>Small arms</b>	<ul style="list-style-type: none"> <li>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.)</li> </ul>	2
<b>Evidence of no munitions</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	0
<b>MUNITIONS TYPE</b>	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 30).	25 30

## Table 1

### EHE Module: Munitions Type Data Element Table

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

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

Classification	Description	Score
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**DIRECTIONS:** Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

It was reported that MEC were observed protruding from the banks of Green Pond Brook during a site walk in 1993; however, the types of MEC observed are unknown. A PTA safety map indicates the presence of a 66-mm shell in the brook. Since the type of shell is unknown, it is assumed, on a conservative basis, that it was high explosive filled; therefore, High Explosive (used for damaged) was selected (SI Report Section 4.5.4.5).

**Green Pond MRS**

**Table 2**

**EHE Module: Source of Hazard Data Element Table**

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

**Note:** 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 a 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.	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.	8
Former practice munitions range	♦ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	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.	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.	<u>5</u>
Former industrial operating facilities	♦ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	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.	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.	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).	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.)	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.	0
SOURCE OF HAZARD	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 10).	<u>5</u>

**DIRECTIONS:** Document any MRS-specific data used in selecting the **Source of Hazard** classifications in the space provided.

The source of the MEC in Green Pond Brook is unknown; however, it based on the proximity of the brook to the former DRMO Yard and the former burning ground, it is assumed the brook or an adjacent area was used for disposal (SI Report Sections 4.5.1 and 4.5.4.5.2)



**Table 3****EHE Module: Location of Munitions Data Element Table**

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

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

Classification	Description	Score
<b>Confirmed surface</b>	<ul style="list-style-type: none"> <li>Physical evidence indicates that there are UXO or DMM on the surface of the MRS.</li> <li>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.</li> </ul>	<b>25</b>
<b>Confirmed subsurface, active</b>	<ul style="list-style-type: none"> <li>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, construction, dredging) at the MRS are likely to expose UXO or DMM.</li> <li>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.</li> </ul>	20
<b>Confirmed subsurface, stable</b>	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	15
<b>Suspected (physical evidence)</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	10
<b>Suspected (historical evidence)</b>	<ul style="list-style-type: none"> <li>There is historical evidence indicating that UXO or DMM may be present at the MRS.</li> </ul>	<b>5</b>
<b>Subsurface, physical constraint</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	2
<b>Small arms (regardless of location)</b>	<ul style="list-style-type: none"> <li>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.)</li> </ul>	1
<b>Evidence of no munitions</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	0
<b>LOCATION OF MUNITIONS</b>	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 25).	<b>25</b>

**DIRECTIONS:** Document any MRS-specific data used in selecting the *Location of Munitions* classifications in the space provided.

During a site walk in 1993, MEC was observed protruding from the banks of Green Pond Brook in the area of this site; therefore, Confirmed Surface was selected (SI Report Sections 4.5.1 and 4.5.4.5).

**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. Circle the score that corresponds with the ease of access to the MRS.

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

Classification	Description	Score
No barrier	<ul style="list-style-type: none"> <li>There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).</li> </ul>	<u>10</u>
Barrier to MRS access is incomplete	<ul style="list-style-type: none"> <li>There is a barrier preventing access to parts of the MRS, but not the entire MRS.</li> </ul>	8
Barrier to MRS access is complete but not monitored	<ul style="list-style-type: none"> <li>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.</li> </ul>	5
Barrier to MRS access is complete and monitored	<ul style="list-style-type: none"> <li>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.</li> </ul>	0
EASE OF ACCESS	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 10).	<u>10</u>

**DIRECTIONS:** Document any MRS-specific data used in selecting the **Ease of Access** classification in the space provided.

Access to the Green Pond MRS is not restricted once on the installation (SI Report Section 4.5.4.1.5).

**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. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
<b>Non-DoD control</b>	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	5
<b>Scheduled for transfer from DoD control</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	3
<b>DoD control</b>	<ul style="list-style-type: none"> <li>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 24 hours per day, every day of the calendar year.</li> </ul>	0
<b>STATUS OF PROPERTY</b>	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 5).	0

**DIRECTIONS:** Document any MRS-specific data used in selecting the *Status of Property* classification in the space provided.

This MRS is located on land owned by DoD (SI Report Section 4.5.1).

# Green Pond MRS

## 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. Circle the most appropriate score.

**Note:** 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.	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.	<u>3</u>
< 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.	1
POPULATION DENSITY	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 5).	<u>3</u>

**DIRECTIONS:** Document any MRS-specific data used in selecting the *Population Density* classification in the space provided.

According to the census bureau website, in the 2000 census there were 148 people per square mile in the census tract associated with that portion of Rockaway Township that falls within a 2-mile radius of this MRS' perimeter and 310 people per square mile in the census tract associated with that portion of Jefferson Township that falls within a 2-mile radius of this MRS' perimeter (www.census.gov).

# Green Pond MRS

## 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 circle the score that corresponds with the number of inhabited structures.

**Note:** 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.	<u>5</u>
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.	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.	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.	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.	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.	0
<b>POPULATION NEAR HAZARD</b>	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 5).	<u>5</u>

**DIRECTIONS:** Document any MRS-specific data used in selecting the *Population Near Hazard* classification in the space provided.

Although this MRS is undeveloped, it is located within 2 miles of downtown PTA which contains hundred of buildings for residential, administrative, training, and maintenance purposes (SI Report Section 4.5.4.1 and Map 2-1).

Green Pond MRS

**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 circle the scores that correspond with all the activities/structure classifications at the MRS.

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

Classification	Description	Score
Residential, educational, commercial, or subsistence	<ul style="list-style-type: none"> <li>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.</li> </ul>	<u>5</u>
Parks and recreational areas	<ul style="list-style-type: none"> <li>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.</li> </ul>	<u>4</u>
Agricultural, forestry	<ul style="list-style-type: none"> <li>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.</li> </ul>	3
Industrial or warehousing	<ul style="list-style-type: none"> <li>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.</li> </ul>	<u>2</u>
No known or recurring activities	<ul style="list-style-type: none"> <li>There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.</li> </ul>	1
<b>TYPES OF ACTIVITIES/STRUCTURES</b>	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 5).	<u>5</u>

**DIRECTIONS:** Document any MRS-specific data used in selecting the *Types of Activities/Structures* classifications in the space provided.

Within a two mile radius of this site are residential dwellings, including military housing for 753 PTA personnel and their families, a child care center, fire and rescue services, a golf course and other recreational areas on PTA, and industrial buildings (SI Report Section 4.5.4.1 and Map 2-1).

## 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 circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

**Note:** 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.	5
Ecological resources present	♦ There are ecological resources present on the MRS.	<u>3</u>
Cultural resources present	♦ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	♦ There are no ecological resources or cultural resources present on the MRS.	0
<b>ECOLOGICAL AND/OR CULTURAL RESOURCES</b>	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 5).	<u>3</u>

**DIRECTIONS:** Document any MRS-specific data used in selecting the *Ecological and/or Cultural Resources* classification in the space provided.

According to NJDEP's I-Map Landscape Project layer, this site contains habitat with at least one occurrence of a state threatened species (SI Report Section 4.5.4.4.3) No known cultural resources are located within this MRS (SI Report Section 4.5.4.4).

**Table 10**  
**Determining the EHE Module Rating**

	Source	Score	Value
<b>DIRECTIONS:</b>			
1. From Tables 1–9, record the data element scores in the <b>Score</b> boxes to the right.			
2. Add the <b>Score</b> boxes for each of the three factors and record this number in the <b>Value</b> boxes to the right.			
3. Add the three <b>Value</b> boxes and record this number in the <b>EHE Module Total</b> box below.			
4. Circle the appropriate range for the <b>EHE Module Total</b> below.			
5. Circle the <b>EHE Module Rating</b> that corresponds to the range selected and record this value in the <b>EHE Module Rating</b> box found at the bottom of the table.			
<b>Note:</b> 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.			
<b>Explosive Hazard Factor Data Elements</b>			
Munitions Type	Table 1	<del>30</del> <del>25</del>	<del>30</del> 35
Source of Hazard	Table 2	5	
<b>Accessibility Factor Data Elements</b>			
Location of Munitions	Table 3	25	35
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
<b>Receptor Factor Data Elements</b>			
Population Density	Table 6	3	16
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	3	
<b>EHE MODULE TOTAL</b>			<del>84</del> <sup>86</sup>
<b>EHE Module Total</b>	<b>EHE Module Rating</b>		
92 to 100	A		
82 to 91	B		
<del>71 to 81</del>	<del>C</del>		
60 to 70	D		
48 to 59	E		
38 to 47	F		
less than 38	G		
Alternative Module Ratings	Evaluation Pending		
	No Longer Required		
	No Known or Suspected Explosive Hazard		
<b>EHE MODULE RATING</b>	<del>C</del> B		



Green Pond MRS

**Table 11**

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

**DIRECTIONS:** Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with all the CWM configurations known or suspected to be present at the MRS.

**Note:** 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: <ul style="list-style-type: none"> <li>• CWM that are UXO (i.e., CWM/UXO)</li> <li>• Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.</li> </ul>	30
CWM mixed with UXO	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	25
CWM, explosive configuration that are undamaged DMM	<ul style="list-style-type: none"> <li>• The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.</li> </ul>	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: <ul style="list-style-type: none"> <li>• Nonexplosively configured CWM/DMM either damaged or undamaged</li> <li>• Bulk CWM (e.g., ton container).</li> </ul>	15
CAIS K941 and CAIS K942	<ul style="list-style-type: none"> <li>• 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 M-2/E11.</li> </ul>	12
CAIS (chemical agent identification sets)	<ul style="list-style-type: none"> <li>• CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.</li> </ul>	10
Evidence of no CWM	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	0
CWM CONFIGURATION	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 30).	0

**DIRECTIONS:** Document any MRS-specific data used in selecting the **CWM Configuration** classifications in the space provided.

No known or suspected CWM hazard has been reported at Green Pond. In addition, there is no evidence of CWM use throughout PTA's history (SI Report Section 2).

### **Green Pond MRS**

Tables 12 through 19 are omitted according to Active Army Guidance.

**Table 20**  
**Determining the CHE Module Rating**

**Source      Score      Value**

**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. Circle the appropriate range for the **CHE Module Total** below.
5. Circle 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.

**Note:**

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.

**CWM Hazard Factor Data Elements**

CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	NA	

**Accessibility Factor Data Elements**

Location of CWM	Table 13	NA	NA
Ease of Access	Table 14	NA	
Status of Property	Table 15	NA	

**Receptor Factor Data Elements**

Population Density	Table 16	NA	NA
Population Near Hazard	Table 17	NA	
Types of Activities/Structures	Table 18	NA	
Ecological and/or Cultural Resources	Table 19	NA	

**CHE MODULE TOTAL      NA**

<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
less than 38	G

Alternative Module Ratings

Evaluation Pending

No Longer Required

**No Known or Suspected CWM Hazard**

**CHE MODULE RATING**

**No Known or Suspected CWM Hazard**

**Table 21**  
**HHE Module: Groundwater Data Element Table**

**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
MC are being addressed as part of the IRP. As such, the presence/absence of MC was not addressed as part of the SI.			
CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the CHF Value</u> from above in the box to the right (maximum value = H).		

**Migratory Pathway Factor**

**DIRECTIONS:** Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
<b>Evident</b>	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
<b>Potential</b>	Contamination in 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.	M
<b>Confined</b>	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	

**Receptor Factor**

**DIRECTIONS:** Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
<b>Identified</b>	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
<b>Potential</b>	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
<b>Limited</b>	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
<b>RECEPTOR FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard



**Table 22****HHE Module: Surface Water – Human Endpoint Data Element Table****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
MC are being addressed as part of the IRP. As such, the presence/absence of MC was not addressed as part of the SI.			
<b>CHF Scale</b>	<b>CHF Value</b>	<b>Sum The Ratios</b>	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the CHF Value</u> from above in the box to the right (maximum value = H).		

**Migratory Pathway Factor**

**DIRECTIONS:** Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
<b>Evident</b>	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.	H
<b>Potential</b>	Contamination in 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.	M
<b>Confined</b>	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	

**Receptor Factor**

**DIRECTIONS:** Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
<b>Identified</b>	Identified receptors have access to surface water to which contamination has moved or can move.	H
<b>Potential</b>	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
<b>Limited</b>	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
<b>RECEPTOR FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard



**Table 23****HHE Module: Sediment – Human Endpoint Data Element Table****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
MC are being addressed as part of the IRP. As such, the presence/absence of MC was not addressed as part of the SI.			
<b>CHF Scale</b>	<b>CHF Value</b>	<b>Sum The Ratios</b>	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the CHF Value</u> from above in the box to the right (maximum value = H).		

**Migratory Pathway Factor**

**DIRECTIONS:** Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
<b>Evident</b>	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
<b>Potential</b>	Contamination in 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.	M
<b>Confined</b>	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	

**Receptor Factor**

**DIRECTIONS:** Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
<b>Identified</b>	Identified receptors have access to sediment to which contamination has moved or can move.	H
<b>Potential</b>	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
<b>Limited</b>	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
<b>RECEPTOR FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard





**Table 24****HHE Module: Surface Water – Ecological Endpoint Data Element Table****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
MC are being addressed as part of the IRP. As such, the presence/absence of MC was not addressed as part of the SI.			
<b>CHF Scale</b>	<b>CHF Value</b>	<b>Sum the Ratios</b>	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the CHF Value</u> from above in the box to the right (maximum value = H).		
<b><u>Migratory Pathway Factor</u></b>			
<b>DIRECTIONS:</b> Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.			
<b>Classification</b>	<b>Description</b>		<b>Value</b>
<b>Evident</b>	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.		H
<b>Potential</b>	Contamination in 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.		M
<b>Confined</b>	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).		L
<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).		
<b><u>Receptor Factor</u></b>			
<b>DIRECTIONS:</b> Circle the value that corresponds most closely to the surface water receptors at the MRS.			
<b>Classification</b>	<b>Description</b>		<b>Value</b>
<b>Identified</b>	Identified receptors have access to surface water to which contamination has moved or can move.		H
<b>Potential</b>	Potential for receptors to have access to surface water to which contamination has moved or can move.		M
<b>Limited</b>	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.		L
<b>RECEPTOR FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).		
No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard			<input type="checkbox"/>

**Table 25****HHE Module: Sediment – Ecological Endpoint Data Element Table****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
MC are being addressed as part of the IRP. As such, the presence/absence of MC was not addressed as part of the SI.			
CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the CHF Value</u> from above in the box to the right (maximum value = H).		

**Migratory Pathway Factor**

**DIRECTIONS:** Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
<b>Evident</b>	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
<b>Potential</b>	Contamination in 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.	M
<b>Confined</b>	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	

**Receptor Factor**

**DIRECTIONS:** Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
<b>Identified</b>	Identified receptors have access to sediment to which contamination has moved or can move.	H
<b>Potential</b>	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
<b>Limited</b>	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
<b>RECEPTOR FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard ☐



**Table 26**  
**HHE Module: Surface Soil Data Element Table**

**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)	Ratio
MC are being addressed as part of the IRP. As such, the presence/absence of MC was not addressed as part of the SI.			
<b>CHF Scale</b>	<b>CHF Value</b>	<b>Sum the Ratios</b>	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the CHF Value</u> from above in the box to the right (maximum value = H).		

**Migratory Pathway Factor**

**DIRECTIONS:** Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
<b>Evident</b>	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.	H
<b>Potential</b>	Contamination in 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.	M
<b>Confined</b>	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	

**Receptor Factor**

**DIRECTIONS:** Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
<b>Identified</b>	Identified receptors have access to surface soil to which contamination has moved or can move.	H
<b>Potential</b>	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
<b>Limited</b>	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
<b>RECEPTOR FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard



### Table 27

## HHE Module: Supplemental Contaminant Hazard Factor Table

### Contaminant Hazard Factor (CHF)

**DIRECTIONS:** Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the media in which these contaminants are present. Then record all contaminants, their maximum concentrations and their comparison values (from Appendix B of the Primer) in the table below. Calculate and record the ratio for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF for each medium on the appropriate media-specific tables.

**Note:** Do not add ratios from different media.

[illegible]

**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)
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