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MINUTES FROM RESTORATION ADVISORY BOARD MEETING 18 OCTOBER 2007 NSWC
INDIAN HEAD MD
10/18/2007
NAVFAC CHESAPEAKE

INSTALLATION RESTORATION PROGRAM



NAVAL SUPPORT FACILITY INDIAN HEAD
4219 SOUTH PATTERSON ROAD, SUITE 100
INDIAN HEAD, MARYLAND
20640-5133



RESTORATION ADVISORY BOARD (RAB) MEETING

Date of Meeting: October 18, 2007, 5:00 pm

Restoration Advisory Board (RAB) Member Participants:

Mr. Elmer Biles (C)	Mr. Shawn Jorgensen (N) *
Mr. Curtis DeTore (S)	Mr. Wayne McBain (C)
Mr. Vincent Hungerford (C) *	Mr. Joseph Rail (N)

RAB Members Not in Attendance:

Mr. Dennis Orenshaw (F)	Ms. Karen Wiggen (L)
Ms. Faye Reed (L)	

Additional Attendees:

Mr. Jeff Bossart (N)	Mr. Tod Ricks (C, N)
Mr. Butch Dye (S)	Mr. Alex Schuman (C, N)

* Co-Chair

- C** = Community
- F** = Federal Official
- K** = Contractor
- L** = Local Official
- N** = Navy Official
- R** = Newspaper Reporter
- S** = State Official

Major Issues Discussed/Accomplished:

1. Arrival/Welcome

Mr. Shawn Jorgensen of the Naval Support Facility Indian Head (NSF-IH) began the meeting by introducing himself and welcoming everyone to the Indian Head Senior Center. Mr. Jorgensen then presented the meeting agenda, which is included in Attachment A. Due to an issue with the computer used to display the presentations, the first and second topics on the agenda were reversed.

2. Munitions Response Program (MRP) Site Prioritization Rankings

Mr. Joe Rail of the Naval Facilities Engineering Command, Washington (NAVFACWASH) provided a brief description of the MRP Site Prioritization Protocol, which is used to rank MRP sites. The protocol uses 28 tables to evaluate explosive hazards (Tables 1 - 10), chemical hazards (Tables 11-20), and health hazards (Tables 21 - 28) from each site. The final site priority is calculated in Table 29 based on the other 28 tables. The final site ranking can range from 1 (highest) to 8 (lowest).

A copy of Mr. Rail's presentation, including Tables 1 through 29 used to evaluate MRP Site UXO 1, Stump Neck Air Blast Pond, is provided in Attachment B. Also included is a list of all MRP sites at Stump Neck Annex, the Main Installation, and Water Areas with their rankings.

3. Brief Updates on Site 28 Soil Removal Action, Site 66 Site Inspection, and Site 1 Site Screening Process Investigation

Mr. Jorgensen provided updates on various sites, including the Site 28 soil removal action, the Site 66 Site Inspection, and the Site 1 Site Screening Process Investigation. Additional sites discussed included 19, 27, 36, 38, 43, and Solid Waste Management Unit (SWMU) 14.

A copy of Mr. Jorgensen's presentation is included in Attachment C.

4. Site 6 Update

Mr. Rail provided a brief update on the planned remediation efforts for Site 6 within the fenced area. Silver-contaminated soil will be removed and disposed of off-site and the area will be backfilled and regraded. The site will then be seeded and re-vegetated.

A copy of Mr. Rail's presentation is included in Attachment D.

5. IR/MRP Budget for Fiscal Year 2008

Mr. Rail discussed the various projects planned for fiscal year 2008 at NSFIIH, which include remedial actions, remedial investigations, remedial designs, long-term monitoring, and site inspections. The budget for IR sites at NSFIIH for fiscal year 2008 is 3 million dollars and the budget for MRP sites is 2.2 million dollars.

A copy of Mr. Rail's presentation is included in Attachment E.

6. Comments, Questions, and Answers

Numerous comments were made and questions asked during the meeting. These comments, questions, and answers are provided in Attachment F.

7. Conclusion

Mr. Jorgensen presented the schedule for RAB meetings in 2008, which is included in Attachment G.

Mr. Jorgensen also presented the tentative agenda for the next RAB meeting, which is included in Attachment H.

Mr. Jorgensen then concluded the meeting at 6:10 pm and thanked all in attendance.

**NAVAL SUPPORT FACILITY, INDIAN HEAD
INSTALLATION RESTORATION (IR) PROGRAM
RESTORATION ADVISORY BOARD (RAB) MEETING
AGENDA**

October 18, 2007

- 5:00 - 5:05** **ARRIVAL/WELCOME**
Mr. Shawn Jorgensen
Naval Support Facility, Indian Head (NSF-IH)
Remedial Project Manager
- 5:05 - 5:20** **BRIEF UPDATES ON SITE 28 SOIL REMOVAL ACTION, SITE 66
SITE INSPECTION, AND SITE 1 SITE SCREENING PROCESS
INVESTIGATION**
Mr. Shawn Jorgensen
- 5:20 - 5:40** **MUNITIONS RESPONSE PROGRAM (MRP) SITE
PRIORITIZATION RANKINGS**
Mr. Joseph Rail
Naval Facilities Engineering Command, Washington (NAVFACWASH)
Remedial Project Manager
- 5:40 - 5:55** **SITE 6 UPDATE**
Mr. Joseph Rail
- 5:55 - 6:10** **IR/MRP BUDGET FOR FISCAL YEAR 2008**
Mr. Joseph Rail
- 6:10 - 6:30** **COMMENTS, QUESTIONS, AND ANSWERS**
- 6:30** **ADJOURN**



Munitions Response Site Prioritization Protocol

Stakeholder Involvement

RAB- June 2007

Presented by Joseph Rail
Remedial Project Manager Indian Head
NAVFAC Washington

Outline



- Introduction
- Protocol Requirements
- Conducting Stakeholder Involvement
- Stakeholder Process

Introduction



- DoD understands that communication and cooperation with federal and state regulatory agencies, American Indian and Alaskan Native Tribes, and stakeholder organizations (referred to collectively as stakeholders) is fundamental to the success of the Protocol
- The Protocol requires Components to offer stakeholders opportunities to comment and participate in the application of the Protocol and sequencing recommendations



Stakeholder Involvement

Protocol Requirements for Components



- Provide stakeholders with information on prioritization or sequencing changes and request their comments
- Notify stakeholders of the opportunity to participate in the Protocol application
- Publish announcements to request involvement in the application of the Protocol and information pertinent to prioritization or sequencing
- Include a copy of all notices and announcements in the Munitions Response Site (MRS) Administrative Record, information repository, or project file
- Include information influencing the priority or sequencing decision in the MRS Administrative Record, information repository, or project file
- Incorporate stakeholders' input in prioritization and sequencing decisions

See 32 CFR §179.5 for specific regulatory language

Conducting Stakeholder Involvement

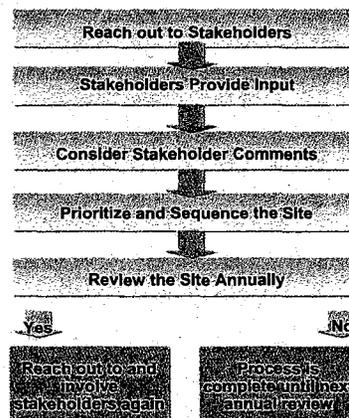


- **Component representatives should –**
 - Involve stakeholders as early as possible and throughout the process
 - Educate stakeholders on the Protocol and how to apply it
 - Request input from stakeholders in Protocol data collection efforts, application, prioritization, and sequencing
 - Include community organizations in event preparation
- **An installation or property is encouraged to use its Restoration Advisory Board (RAB) as a mechanism to work with the local community during the prioritization process. RABs–**
 - Act as an information conduit between an installation or property and the community
 - Enable early and continuous flow of environmental restoration information among the affected community, DoD, and regulators

Continued Stakeholder Involvement



- **During a site's annual review and if the site sequencing changes, the Component will provide stakeholders with the reason for the change and request their review and comment**
- **Stakeholder involvement only ends when all the necessary munitions response actions have been completed at the site or if the site contains no known or suspected hazards**



Stakeholder Involvement



Questions?

Continued Stakeholder Involvement

Continued Stakeholder Involvement

Continued Stakeholder Involvement

Example: UXO 1- Air Blast Pond

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
Sensitive	<ul style="list-style-type: none"> ◆ 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. 	30
High explosive (used or damaged)	<ul style="list-style-type: none"> ◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: <ul style="list-style-type: none"> ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability. 	25
Pyrotechnic (used or damaged)	<ul style="list-style-type: none"> ◆ 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: <ul style="list-style-type: none"> ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability. 	20
High explosive (unused)	<ul style="list-style-type: none"> ◆ DMM containing a high-explosive filler that: <ul style="list-style-type: none"> ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability. 	15
Propellant	<ul style="list-style-type: none"> ◆ 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: <ul style="list-style-type: none"> ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability. 	15
Bulk secondary high explosives, pyrotechnics, or propellant	<ul style="list-style-type: none"> ◆ 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. 	10
Pyrotechnic (not used or damaged)	<ul style="list-style-type: none"> ◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: <ul style="list-style-type: none"> ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability. 	10
Practice	<ul style="list-style-type: none"> ◆ 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: <ul style="list-style-type: none"> ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability. 	5
Riot control	<ul style="list-style-type: none"> ◆ UXO or DMM containing a riot control agent filler (e.g., tear gas). 	3
Small arms	<ul style="list-style-type: none"> ◆ 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.) 	2
Evidence of no munitions	<ul style="list-style-type: none"> ◆ 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. 	0
MUNITIONS TYPE	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 30).	25

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

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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> The MRS is a former military range on which only practice munitions without sensitive fuzes were used. 	6
Former maneuver area	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment. 	5
Former industrial operating facilities	<ul style="list-style-type: none"> The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility. 	4
Former firing points	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	DIRECTIONS: Record <u>the single highest score</u> from above in the box to the right (maximum score = 10).	10

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

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

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

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	♦ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	♦ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	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.	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.	0
EASE OF ACCESS	DIRECTIONS: Record <u>the single highest score</u> from above in the box to the right (maximum score = 10).	8

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

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
Non-DoD control	<ul style="list-style-type: none"> ♦ 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. 	5
Scheduled for transfer from DoD control	<ul style="list-style-type: none"> ♦ 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. 	3
DoD control	<ul style="list-style-type: none"> ♦ 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. 	0
STATUS OF PROPERTY	DIRECTIONS: 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.

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

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

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

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

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

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

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.	(3)
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
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record <u>the single highest score</u> from above in the box to the right (maximum score = 5).	3

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

Table 10
Determining the EHE Module Rating

Source Score Value

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** box below.
4. Circle 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.

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.

Explosive Hazard Factor Data Elements

Munitions Type	Table 1	25	35
Source of Hazard	Table 2	10	

Accessibility Factor Data Elements

Location of Munitions	Table 3	25	33
Ease of Access	Table 4	8	
Status of Property	Table 5	0	

Receptor Factor Data Elements

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	

EHE MODULE TOTAL			84
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EHE Module Total	EHE Module Rating
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 Explosive Hazard
EHE MODULE RATING	B

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"> ♦ CWM that are UXO (i.e., CWM/UXO) ♦ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged. 	30
CWM mixed with UXO	<ul style="list-style-type: none"> ♦ 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. 	25
CWM, explosive configuration that are undamaged DMM	<ul style="list-style-type: none"> ♦ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged. 	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"> ♦ Nonexplosively configured CWM/DMM either damaged or undamaged ♦ Bulk CWM (e.g., ton container). 	15
CAIS K941 and CAIS K942	<ul style="list-style-type: none"> ♦ 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. 	12
CAIS (chemical agent identification sets)	<ul style="list-style-type: none"> ♦ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS. 	10
Evidence of no CWM	<ul style="list-style-type: none"> ♦ 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. 	0
CWM CONFIGURATION	DIRECTIONS: Record the single highest score 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.

Table 12

CHE Module: Sources of CWM Data Element Table

DIRECTIONS: Below are 11 sources of CWM hazards and their descriptions. Review these classifications and circle the scores that correspond with all the sources of CWM hazards known or suspected to be present at the MRS.

Note: The terms *CWM/UXO*, *CWM/DMM*, *CAIS/DMM*, *surface*, *subsurface*, *physical evidence*, and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Live-fire involving CWM	<ul style="list-style-type: none"> ♦ The MRS is a former military range that supported live-fire of explosively configured CWM and the CWM/UXO are known or suspected of being present on the surface or in the subsurface. ♦ The MRS is a former military range that supported live-fire with conventional munitions, and CWM/DMM are on the surface or in the subsurface commingled with conventional munitions that are UXO. 	10
Damaged CWM/DMM surface or subsurface	♦ There are damaged CWM/DMM on the surface or in the subsurface at the MRS.	10
Undamaged CWM/DMM surface	♦ There are undamaged CWM/DMM on the surface at the MRS.	10
CAIS/DMM surface	♦ There are CAIS/DMM on the surface.	10
Undamaged CWM/DMM, subsurface	♦ There are undamaged CWM/DMM in the subsurface at the MRS.	5
CAIS/DMM subsurface	♦ There are CAIS/DMM in the subsurface at the MRS.	5
Former CA or CWM Production Facilities	♦ The MRS is a facility that formerly engaged in production of CA or CWM, and CWM/DMM is suspected of being present on the surface or in the subsurface.	3
Former Research, Development, Testing, and Evaluation (RDT&E) facility using CWM	♦ The MRS is at a facility that formerly was involved in non-live-fire RDT&E activities (including static testing) involving CWM, and there are CWM/DMM suspected of being present on the surface or in the subsurface.	3
Former Training Facility using CWM or CAIS	♦ The MRS is a location that formerly was involved in training activities involving CWM and/or CAIS (e.g., training in recognition of CWM, decontamination training) and CWM/DMM or CAIS/DMM are suspected of being present on the surface or in the subsurface.	2
Former Storage or Transfer points of CWM	♦ The MRS is a former storage facility or transfer point (e.g., intermodal transfer) for CWM.	1
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.	0
SOURCES OF CWM	DIRECTIONS: Record <u>the single highest score</u> from above in the box to the right (maximum score = 10).	0

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

Table 13

CHE Module: Location of CWM Data Element Table

DIRECTIONS: Below are seven classifications of CWM locations and their descriptions. Review these locations and circle the scores that correspond with all the locations where CWM are known or suspected of being found at the MRS.

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

Classification	Description	Score
Confirmed surface	<ul style="list-style-type: none"> ◆ Physical evidence indicates that there are CWM 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 CWM, regardless of configuration, occurred) indicates there are CWM on the surface of the MRS. 	25
Confirmed subsurface, active	<ul style="list-style-type: none"> ◆ Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM 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 CWM. ◆ Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM 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 CWM. 	20
Confirmed subsurface, stable	<ul style="list-style-type: none"> ◆ Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed. ◆ Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed. 	15
Suspected (physical evidence)	<ul style="list-style-type: none"> ◆ There is physical evidence, other than the documented presence of CWM, indicating that CWM may be present at the MRS. 	10
Suspected (historical evidence)	<ul style="list-style-type: none"> ◆ There is historical evidence indicating that CWM may be present at the MRS. 	5
Subsurface, physical constraint	<ul style="list-style-type: none"> ◆ There is physical or historical evidence indicating that CWM 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 CWM. 	2
Evidence of no CWM	<ul style="list-style-type: none"> ◆ Following investigation of the MRS, there is physical evidence that there is no CWM present or there is historical evidence indicating that no CWM are present. 	0
LOCATION OF CWM	<p>DIRECTIONS: Record <u>the single highest score</u> from above in the box to the right (maximum score = 25).</p>	0

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

Table 14

CHE 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	♦ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	♦ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	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.	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.	0
EASE OF ACCESS	DIRECTIONS: Record <u>the single highest score</u> from above in the box to the right (maximum score = 10).	

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

Table 15

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

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

Table 16

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

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

Table 17

CHE 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.	(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.	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
POPULATION NEAR HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	

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

Table 18

CHE 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/structures classifications at the MRS.

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

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

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

Table 19

CHE 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.	3
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
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record <u>the single highest score</u> from above in the box to the right (maximum score = 5).	

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

Table 20
Determining the CHE Module Rating

Score 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		
Sources of CWM	Table 12		
Accessibility Factor Data Elements			
Location of CWM	Table 13		
Ease of Access	Table 14		
Status of Property	Table 15		
Receptor Factor Data Elements			
Population Density	Table 16		
Population Near Hazard	Table 17		
Types of Activities/Structures	Table 18		
Ecological and/or Cultural Resources	Table 19		
CHE MODULE TOTAL			
CHE Module Total		CHE Module Rating	
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			

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
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)		

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

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

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.	H
Potential	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
Confined	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

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

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

Classification	Description	Value
Identified	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
Potential	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
Limited	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

RECEPTOR FACTOR	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).
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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
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)		
CONTAMINANT HAZARD FACTOR	DIRECTIONS: 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
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.	H
Potential	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
Confined	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
MIGRATORY PATHWAY FACTOR	DIRECTIONS: 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
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	DIRECTIONS: 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
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)		
CONTAMINANT HAZARD FACTOR	DIRECTIONS: 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
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.	H
Potential	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
Confined	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
MIGRATORY PATHWAY FACTOR	DIRECTIONS: 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
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	DIRECTIONS: 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
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)		
CONTAMINANT HAZARD FACTOR	DIRECTIONS: 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
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.	H
Potential	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
Confined	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
MIGRATORY PATHWAY FACTOR	DIRECTIONS: 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
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	DIRECTIONS: 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

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
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)		
CONTAMINANT HAZARD FACTOR	DIRECTIONS: 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
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.	H
Potential	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
Confined	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
MIGRATORY PATHWAY FACTOR	DIRECTIONS: 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
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	DIRECTIONS: 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
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)		
CONTAMINANT HAZARD FACTOR	DIRECTIONS: 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
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.	H
Potential	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
Confined	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
MIGRATORY PATHWAY FACTOR	DIRECTIONS: 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
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	DIRECTIONS: 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 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)					
Sediment/Human Endpoint (Table 23)					
Surface Water/Ecological Endpoint (Table 24)					
Sediment/Ecological Endpoint (Table 25)					
Surface Soil (Table 26)					

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.

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 media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G

Alternative Module Ratings

Evaluation Pending

No Longer Required

No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter rating for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle 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.

Note: 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	

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: _____

Component: _____

Installation/Property Name: _____

Location (City, County, State): _____

Site Name/Project Name (Project No.): _____

Date Information Entered/Updated: _____

Point of Contact (Name/Phone): _____

Project Phase (check only one):

<input type="checkbox"/> PA	<input 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:

Description of Pathways for Human and Ecological Receptors: _____

Description of Receptors (Human and Ecological): _____

NAVAL SUPPORT FACILITY-INDIAN HEAD
MRP SITE PRIORITIZATION RANKINGS
June-07

Site #	Site Name	EHE Module Scores									CHE Module Scores Tables 11-20	HHE Module Scores Tables 21-28	MRS Priority Table 29	
		Table 1	Table 2	Table 3	Table 4	Table 5	Table 6	Table 7	Table 8	Table 9				Table 10
STUMP NECK ANNEX														
UXO 0001	Air Blast Pond	25,10	10	25	8	0	3	5	5,4,3	3	84 (B)	No known or suspected	EP	3 (B)
UXO 0002	Area 8	25,10	10	5	8	0	3	5	5,4,3,2	3	64 (D)	CWM hazard	EP	5 (D)
UXO 0004	IED Area	25,20,10,2	10	5	8	0	3	5	5,4,3,2	3	64 (D)	*	EP	5 (D)
UXO 0005	IOD Area	30,20,10,5	10	25	8	0	3	5	5,4,3,2	3	89 (B)	*	EP	3 (B)
UXO 0010	Stump Neck Impact Area	25,20,15	10	10	8	0	3	5	5,4,3	3	69 (D)	*	EP	5 (D)
UXO 0012	Torpedo Burial Site	25,15	5	10	8	0	3	5	5,4,3,2	3	64 (D)	*	EP	5 (D)
UXO 0014	Marine Rifle Range	2	1	1	8	0	3	5	5,4,3	5	30 (G)	*	EP	8 (G)
UXO 0015	Old Skeet & Trap Range	2	1	1	8	0	3	5	5,4,3	5	30 (G)	*	EP	8 (G)
UXO 0016	Rum Point Skeet Range	2	1	1	8	0	3	5	5,4,3	5	30 (G)	*	EP	8 (G)
UXO 0017	Small Arms (Pistol) Range	2	1	1	8	0	3	5	5,4,3	3	28 (G)	*	EP	8 (G)
UXO 0021	Test Area 1	10	10	5	8	0	3	5	5,4,3	3	49 (E)	*	EP	6 (E)
UXO 0022	Test Area 2	0	0	0	0	0	0	0	0	0	NR	*	NR	NR
UXO 0023	Torpedo Casing Disposal Area	25	5	5	8	0	3	5	5,4,3	3	59 (E)	*	EP	6 (E)
UXO 0025	Ranch Road Rifle Range	2	1	1	8	0	3	5	5,4,3	3	28 (G)	*	EP	8 (G)
UXO 0026	The Valley Impact Area	25	10	10	8	0	3	5	5,4,3	5	71 (C)	*	EP	4 (C)
UXO 0028	EOD School Demo Area	25,10	10	5	8	0	3	5	5,4,3	3	64 (D)	*	EP	5 (D)
MAIN INSTALLATION														
UXO 0006	NG Slums Burning Ground	10	8	5	8	0	3	5	5,4,3,2	3	47 (F)	*	EP	7 (F)
UXO 0009	Single Base Propellant Grain Spill Area	10	4	25	8	0	3	5	5,4,2	3	63 (D)	*	EP	5 (D)
UXO 0011	The Valley	25	10	25	8	0	3	5	5,4,3,2	3	84 (B)	*	EP	3 (B)
UXO 0013	FDR Skeet Range	2	1	1	8	0	3	5	5,4,2	3	28 (G)	*	EP	8 (G)
UXO 0020	Safety Thermal Treatment Point	25,20,15,10,2	8	10	8	0	3	5	5,4,3,2	3	67 (D)	*	EP	5 (D)
UXO 0029	Southwestern Pistol Range	2	1	1	8	0	3	5	5,4,3,2	3	28 (G)	*	EP	8 (G)
UXO 0030	Gate 3 Burning Ground	25,20,15,10,2	8	10	8	0	3	5	5,4,3,2	3	67 (D)	*	EP	5 (D)
WATER AREAS														
UXO 0018	Battle Range Firing Area	25,10	10	15,5	8	5	3	5	5,4,3,2	3	79 (C)	*	EP	4 (C)
UXO 0019	Igniter Area	25,20,15	5	25	8	5	3	5	5,4,3,2	3	84 (B)	*	EP	3 (B)
UXO 0027	Sonar Training Area	25	10	10	8	5	3	5	5,4,3,2	3	74 (C)	*	EP	4 (C)
UXO 0031	Pope's Creek	25	10	5	10	5	3	5	5,4,3,2	3	71 (C)	*	EP	4 (C)
UXO 0033	Water Impact Area	25,10	10	15	10	5	3	5	5,4,3,2	3	81 (C)	*	EP	4 (C)

NR= Not Required
EP= Evaluation Pending



**NAVAL SUPPORT FACILITY,
INDIAN HEAD
RESTORATION ADVISORY BOARD**



Site Updates

Shawn Jorgensen

NAVFAC Washington PWD

October 18, 2007



Site Updates



Updates on the following sites:

Site 1 – Thorium Spill

Site 19 – Catch Basins at Chip Collection Houses

Site 27 – Thermal Destructor 1

Site 36 – Closed Landfill

Site 38 – Rum Point Landfill

Site 43 – Toluene Disposal

SWMU 14 – Photographic Lab Septic Tank System

Site 66 – Turkey Run Disposal Area

Site 28 – Original Burning Ground/Zinc Recovery Furnace



Site Updates



Site 1- Thorium Spill

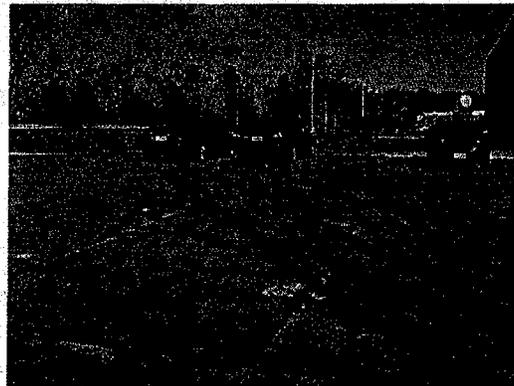
- Potential thorium contamination from radiation training exercises near building 1662
- Approximate area of 60 x 90 feet
- In 1972, soil removal and backfilling took place
- In 2004, RASO (Radiological Affairs Support Office) indicated characterization surveys are necessary



Site Updates



Site 1- Thorium Spill





Site Updates



Site 1- Thorium Spill

Completed Work:

- Soil sampling to 36 inches bgs and analysis of thorium-232
- Site size increased to 60 x 140 feet due to scale error on drawing
- Additional samples taken to adequately characterize the site
- Tetra Tech conducted modeling of the site in consultation with RASO
- Modeling determined a cleanup level of 4 picoCuries per gram (pCi/g).
- Result will be the remediation of 4-6 small hot spot areas (6-foot diameter circle by 3 feet deep)



Site Updates



Site 19- Catch Basins at Chip Collection Houses

- Located west of Silo Rd.
- Consists of drainage areas leading from two chip collection houses, Buildings 785 and 1051
- Releases from catch pad outfalls may have contaminated stream sediments
- Only Building 785 remains in operation
- Wastewater is now recycled rather than discharged to swales
- Contaminants of concern include inorganics and explosives



Site Updates



Site 19- Catch Basins at Chip Collection Houses (1051)



Site Updates



Site 19- Catch Basins at Chip Collection Houses (785)





Site Updates



Site 19- Catch Basins at Chip Collection Houses

Completed Work

- Surface soil samples were taken and analyzed for inorganics and explosives
- No contaminants found at Building 1051.
- High nitroglycerin concentrations correlate with high copper and lead.
- Additional samples have been taken to better characterize the site. We are awaiting results of the samples.



Site Updates



Site 27- Thermal Destructor 1

- Site is located north of Hershey Road and 400' from the Mattawoman Creek
- Former destructor was located on concrete pad (Building 1584)
- The incinerator operated from 1976-1979 and burned hydrazine-containing fuel and UDMH-contaminated wastewater
- Potential spills from operations may have contaminated soils surrounding concrete pad



Site Updates



Site 27- Thermal Destructor 1



Site Updates



Site 27- Thermal Destructor 1

Completed Work

- Subsurface soil samples taken and analyzed for inorganics, organics, energetics, and unsymmetrical dimethylhydrazine (UDMH) and hydrazine.
- Metals found at slightly elevated levels.
- Additional samples taken to better characterize the site. We are awaiting results of the samples.



Site Updates



Site 36- Closed Landfill

- Site is a closed landfill 1-2 acres in size along Roach Road
- Fill is believed to contain metal casings such as mines, bombs, and torpedos
- Landfill was used from 1972-1974 and has since been inactive
- A 2002 site screening investigation was limited to a geophysical survey
- Surface debris can be seen along the shoreline



Site Updates



Site 36- Closed Landfill

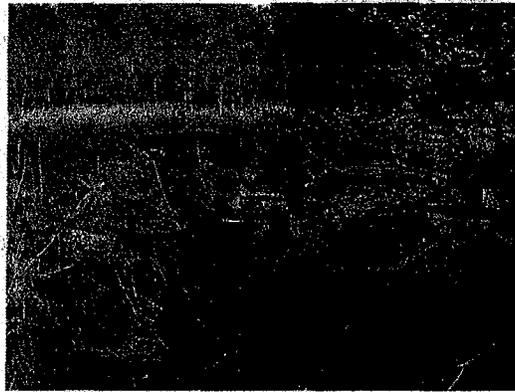




Site Updates



Site 36- Closed Landfill



Site 36- Closed Landfill

Completed Work

- Soil, sediment, surface water, groundwater, and pore water samples taken and analyzed for full suite of analytes.
- Compounds from all analysis groups detected; only a few retained as COPCs.
- For human health, potential risks exist in groundwater, sediment, and pore water.
- For ecological receptors, potential risks exist in sediment, and surface water.



Site Updates



Site 36- Closed Landfill

Completed Work (CONT.)

- Recommendations include refining the HH risk assessment to evaluate more realistic exposure scenarios.
- Additional study is recommended to refine potential risks to ecological receptors from exposure via the food chain.
- Results from studies will be factored into a Feasibility Study to evaluate remedial alternatives.

17



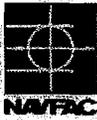
Site Updates



Site 38- Rum Point Landfill

- Site is an unlined landfill 1.5-2 acres in size located west of Rum Point Road
- Inactive since 1989 and reportedly was used to dispose of biodegradable wastes only
- Site is a large, flat area overgrown with vegetation
- A 1997 RCRA investigation reported wastes were visible and included pieces of metal, empty drums, tires, wood, and construction debris

18



Site Updates



Site 38- Rum Point Landfill



19



Site Updates



Site 38- Rum Point Landfill



20



Site Updates



Site 38- Rum Point Landfill

Completed Work

- Soil, sediment, surface water, and groundwater samples taken and analyzed for VOCs, SVOCs, TAL metals, and hexavalent chromium.
- Potential unacceptable risks to HH from exposure to soil and shallow groundwater based on residential land use.
- Minimal risks to plants from exposure to PAHs in soil.
- Food-chain modeling is needed to evaluate potential risks to wildlife and aquatic life.

21



Site Updates



Site 38- Rum Point Landfill

Completed Work (CONT.)

- Migration of TCE from soil to groundwater may be problematic based on soil and groundwater concentrations.
- Recommendations include refining the HH risk assessment to evaluate more realistic exposure scenarios.
- Additional downgradient monitoring wells have been installed.
- Results from studies will be factored into a Feasibility Study to evaluate remedial alternatives.

22



Site Updates



Site 43- Toluene Disposal

- Site includes two separate areas- the first is near a utility pole near Building 1041 and the second is near the northern corner of Building 1040
- During parts-cleaning operations, unknown quantities of spent solvents may have been disposed in a drainage ditch outside the door of Building 1040 and at the base of utility pole near Building 1041
- Disposed solvents suspected to include acetone and toluene

23



Site Updates



Site 43- Toluene Disposal (Building 1041)



24



Site Updates



Site 43- Toluene Disposal (Building 1040)



25



Site Updates



Site 43- Toluene Disposal

Completed Work (BUILDING 1040 AREA)

- 2 soil borings taken in the vicinity of Building 1040 and analyzed for TCL VOCs, TAL metals, explosives, and cyanide. Methylene chloride, nitrocellulose, and metals were detected.
- 1 groundwater sample taken and tested for same parameters. Cis-1,2-dichloroethene and TCE were detected at high concentrations along with RDX and several metals.
- For ecological screening, no chemicals were retained as Contaminants of Potential Concern.
- Source of TCE in shallow groundwater is unknown.

26



Site Updates



Site 43- Toluene Disposal

Completed Work (BUILDING 1040 AREA-CONT.)

- Unacceptable risks to HH based on residential land use.
- No unacceptable risks to ecological receptors based on exposure to surface soil.
- Additional investigation will be conducted this year to characterize the site.

27



Site Updates



Site 43- Toluene Disposal

Completed Work (BUILDING 1041 AREA)

- 3 soil borings taken in the vicinity of Building 1041 and analyzed for TCL VOCs, TAL metals, explosives, and cyanide. Several VOCs, 3-nitrotoluene, and metals were detected.
- 1 groundwater sample taken and tested for same parameters. Four VOCs, two explosives, and several metals were detected.
- The human health risk characterization resulted in an ILCR of 5.0E-05, which is within the EPA acceptable range.

28



Site Updates



Site 43- Toluene Disposal

Completed Work (BUILDING 1041 AREA-CONT.)

- Based on ecological risk screening, no chemicals were retained as Contaminants of Potential Concern.
- No unacceptable risks to HH based on residential land use.
- No unacceptable risks to ecological receptors based on exposure to surface soil.
- Concluded that Building 1041 area does not pose a threat to human health or the environment.

29



Site Updates



SWMU 14- Photographic Lab Septic Tank System

- SWMU 14 is located on north side of Stump Neck Annex 300ft south of the Potomac River
- Site consists of a photo lab (Building 22SN), X-ray facility (Building 2009), septic tank, discharge lines, and drain fields
- Discharges from the septic systems may have contaminated soil and/or groundwater in the vicinity of drain fields

30



Site Updates



SWMU 14- Photographic Lab Septic Tank System



SWMU 14- Photographic Lab Septic Tank System

Completed Work

- Subsurface soil and groundwater samples were taken and analyzed for inorganics and organics. Cobalt was detected in groundwater above the screening level.
- Additional shallow groundwater samples have been obtained. We are awaiting results of the samples.



Site Updates



Site 66 – Turkey Run Disposal Area

- Site 66 is located in a wooded area upgradient of Building 1440
- Site consists of various wastes, including lead flooring, ash, concrete, metal, lab bottles, which are deposited near a stream (Industrial Wastewater Outfall 21)
- Discharges from the septic systems may have contaminated soil and/or groundwater in the vicinity of drain fields

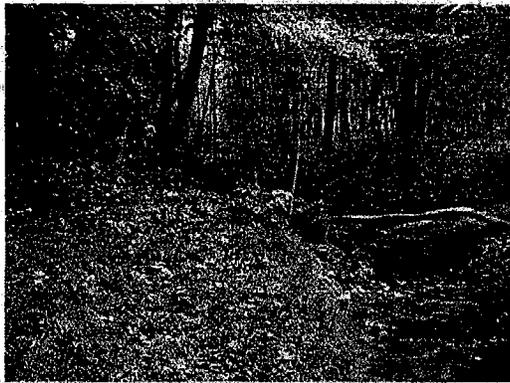
33



Site Updates



Site 66 – Turkey Run Disposal Area



34



Site Updates



Site 66 – Turkey Run Disposal Area

Completed Work

- Surface soil, subsurface soil, sediment, and groundwater samples were taken and analyzed for inorganics and organics.
- Preliminary results indicate metals present at the site
- Next step is the preparation of the Site Inspection Report



Site Updates



Site 28 – Original Burning Ground/Zinc Recovery Furnace

- Site soils contain zinc and lead
- Pre-construction meeting for soil removal action held today
- Soil removal and regrading expected to be completed late December 2007
- Wetland plants will be installed in April 2008



Site Updates



Site 28 – Original Burning Ground/Zinc Recovery Furnace





NAVAL SUPPORT FACILITY, INDIAN HEAD



Site 6 Soil Removal Action Update

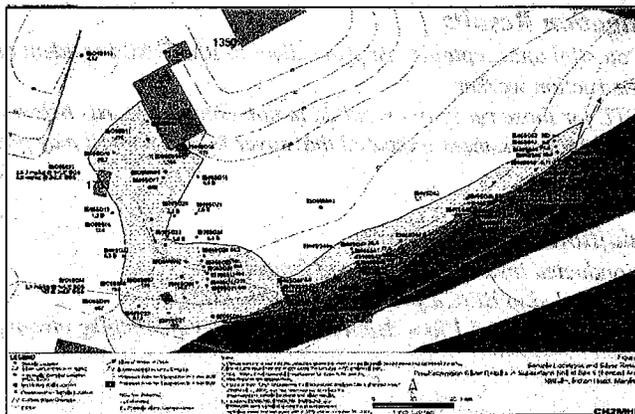
Joseph Rail

NAVFAC Washington

October, 2007



Site 6 RA Update





Site 6 RA Update



- **Site 6- Radiographic Facility, Building 1349**
 - Includes Buildings 1349, 1718, and 1140
 - X-ray photographs were developed at Building 1140
 - Spent fixer and developer discharged to open ditch
 - Ditch extends south of Building 1718
- **Site 6 History**
 - Identified in Initial Assessment Study (IAS) in 1983
 - Phase II RCRA Facility Assessment (RFA) conducted in 1988
 - RI, baseline human health risk assessment (HHRA), and screening ecological risk assessment completed in 2004



Site 6 RA Update



Investigation Results

- Potential unacceptable risk from silver to RME child resident and construction worker
- CTE for those receptors resulted in non-cancer hazards below target value
- Eco risk assessment indicated that silver in surface soil may pose potential risk

Additional Investigation

- Conducted inside and outside of fenced area
- Results led to EE/CA preparation (April 2007)
- EE/CA proposed 1 foot depth soil removal with 2 mg/kg cleanup level



Site 6 RA Update



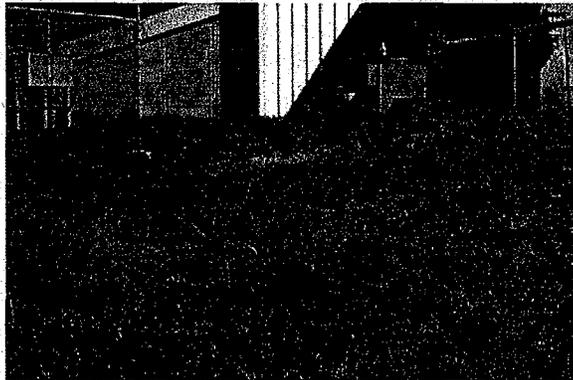
- **Site 6- Radiographic Facility, Building 1349**

Planned work (inside fence) includes:

- Site preparation
- E&S control measures
- Excavation & disposal of contaminated soil
- Backfilling & re-grading
- Seeding & Re-vegetation



Site 6 RA Update

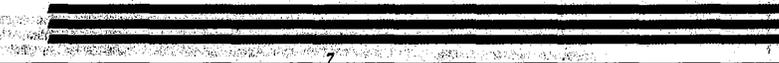




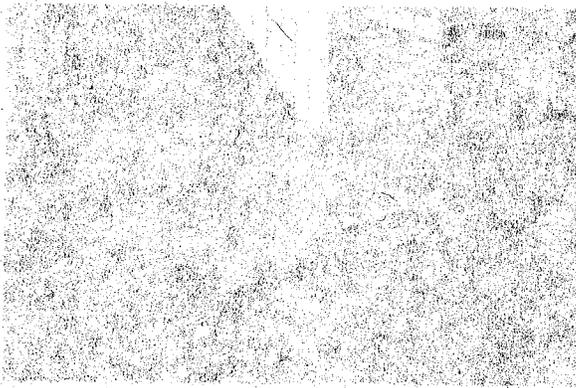
Site 6 RA Update



Questions?



Site 6 RA Update





**NAVAL SUPPORT FACILITY,
INDIAN HEAD**



**FY08
Budget Update**

Joseph Rail
NAVFAC Washington

October, 2007

1



FY08 Budget Update



• ***Approximate budget for FY 2008-***

\$3 mil for IRP

\$2.2 mil for MRP

Planned work includes:

- Remedial Action*
- Remedial Investigation*
- Remedial Design*
- Long-Term Monitoring*
- Site Inspections*

2



FY08 Budget Update



- **Remedial Actions for:**
 - Site 11- Caffee Road Landfill
 - Site 57- Building 292 TCE Contamination
 - UXO 32- Scrap Yard

- **Remedial Investigation for:**
 - Site 8- Mercury Contamination from Building 766



FY08 Budget Update



- **Remedial Designs for:**
 - Site 6- Building 1349, Hypo Spill
 - Site 28- Original Burning Ground
 - Site 43- Toluene Disposal Site

- **Long-Term Monitoring for:**
 - Site 11- Caffee Road Landfill
 - Site 12- Town Gut Landfill



FY08 Budget Update



- **Site Inspections for:**

- 7 MRP sites on IH's main area

NG Slums Burning Site Single-Base Propellant Grains Spill
The Valley FDR Skeet Range
EOD School Demo Area Southwestern Pistol Range
Gate 3 Burning Ground

- 4 Water Ranges

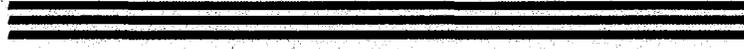
Battle Range Firing Igniter Area
Sonar Training Area Pope's Creek



FY08 Budget Update



Questions?



INSTALLATION RESTORATION PROGRAM



NAVAL SUPPORT FACILITY,
INDIAN HEAD
4219 SOUTH PATTERSON ROAD, SUITE 100
INDIAN HEAD, MARYLAND
20640-5133



RESTORATION ADVISORY BOARD (RAB) MEETING COMMENTS, QUESTIONS AND ANSWERS

October 18, 2007

Arrival/Welcome

No questions were asked nor comments made during this topic.

Munitions Response Program (MRP) Site UXO 32 - Scrap Yard Update

Question: Where did the information that you placed in the tables come from?

Answer: The information came from the Preliminary Assessment of the MRP sites that was prepared by Malcolm-Pirnie.

Question: For the sites that moved from the Installation Restoration (IR) Program to the MRP, how long were they IR sites?

Answer: Fifteen years.

Question: Is there a difference in how the MRP sites will be addressed as opposed to IR sites?

Answer: The cleanup process for MRP sites will be the same as it is for IR sites. This process is identified in the Comprehensive Environmental Restoration, Compensation, and Liability Act (CERCLA). The tables discussed today come from Navy guidance for MRP sites and assist us in determining the priority of our sites within the Navy. This process has been standardized throughout the Navy so higher priority sites in the country can be addressed first.

We are currently preparing a work plan for limited sampling of the MRP sites. Once the sampling has been completed, the information obtained will be included in the tables and the priorities of the sites may change.

Various Site Updates

Question: Are any of the sites in the proposed ALCOA plant area?

Answer: Yes. MRP Site UXO 09, Single-Base Propellant Grains Spill Area is within the area being viewed as a possible location for the ALCOA plant.

Question: Were you consulted on this?

Answer: Yes.

Site 6 Update

No questions were asked nor comments made during this topic.

IR/MRP Budget for Fiscal Year 2008

Question: How many contractors do you have for long-term monitoring?

Answer: We currently only have one contractor and it is a small business.

Question: Is it a multi-year contract?

Answer: The contract is usually in place for two years.

Question: Are any contractors doing work for the IR Program or MRP from Charles County?

Answer: The contractors conducting work for the IR Program and MRP already have contracts with the Navy. Individual jobs are just added to the existing contracts. However, subcontractors are often hired by the contractor to conduct work for these projects and some may be from Charles County.

Question: Where is the Pope's Creek site? Is it in Maryland or Virginia?

Answer: The Pope's Creek site is a water range located in the Potomac River between Maryland and Virginia.

Question: Do you have costs for sampling the MRP sites?

Answer: We will have the costs for sampling these sites once the Navy, EPA, and MDE concur on the sampling to be conducted and the work plan has been finalized.

Question: When will you award the contract for sampling the sites?

Answer: We plan to award the contract in March or April 2008.

Question: When do you plan to put the cap on the Caffee Road Landfill?

Answer: We are scheduled to cap the Caffee Road Landfill next summer. However, potential issues with the shoreline may delay this project.

INSTALLATION RESTORATION PROGRAM



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RESTORATION ADVISORY BOARD (RAB) MEETINGS for 2008

1. **Thursday, February 21**
2. **Thursday, June 19**
3. **Thursday, October 16**