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MINUTES FROM RESTORATION ADVISORY BOARD MEETING 21 JUNE 2007 NSWC
INDIAN HEAD MD
6/21/2007
NSWC INDIAN HEAD

INSTALLATION RESTORATION PROGRAM



NAVAL SUPPORT FACILITY,
INDIAN HEAD
101 STRAUSS AVENUE
INDIAN HEAD, MARYLAND
20640-5035



RESTORATION ADVISORY BOARD (RAB) MEETING

Date of Meeting: June 21, 2007, 5:00 pm

Restoration Advisory Board (RAB) Member Participants:

Mr. Curtis DeTore (S)	Mr. Jeff Morris (N)
Mr. Shawn Jorgensen (N)*	Mr. Joseph Rail (N)

RAB Members Not in Attendance:

Mr. Elmer Biles (C)	Mr. Dennis Orenshaw (F)
Mr. Vincent Hungerford (C)*	Mr. Faye Reed (L)
Mr. Wayne McBain (C)	Ms. Karen Wiggen (L)

Additional Attendees:

Mr. Jeff Bossart (N)	Mr. Glenn Markwith (N)
Mr. Butch Dye (S)	Mr. Tod Ricks (C, N)

* Co-Chair

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

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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.

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. Site 28 Soil Removal Action

Mr. Jorgensen discussed the soil removal action that is planned for Site 28, Original Burning Ground and Zinc Recovery Furnace. The soil at the site contains metals that pose potential human health and ecological risks. The action will be conducted to remove these potential risks.

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

4. Proposed Communication Strategy for IR Site 28

Mr. Glenn Markwith of the Navy Environmental Health Center (NEHC) briefly discussed NEHC's role in the Navy cleanup process. He also explained why it is important to keep the community informed of our cleanup efforts and presented some of the techniques that we plan to use at Site 28, which include posting a sign at Slavins Dock, distributing fact sheets about the project to the community, and discussing the project with community members within eyeshot of the site. Mr. Markwith then asked for recommendations from the meeting attendees. Additional efforts suggested include discussing the project with Parks and Recreation as well as pastors at nearby churches. Another

recommendation was to set up a web site where information on the project could be found that would allow community members to provide comments and ask questions concerning the project. The Navy will take these suggestions under advisement.

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

5. Status of All Sites

Mr. Jorgensen provided meeting attendees with a table of all IR and Munitions Response Program (MRP) sites and a table that contains just the active sites, which are the sites that require further investigation or remediation. The tables were created at the request of a RAB member who was interested in seeing the status of all IR and MRP sites in one place and the costs spent to date on each site. Although the table does not currently contain the dollars spent for each site, Mr. Jorgensen stated that they will be added at a later date.

The tables provided to meeting attendees are included in Attachment E.

6. Conclusion

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

Mr. Jorgensen then concluded the meeting at 6:40 pm and thanked all in attendance.

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

June 21, 2007

- 5:00 - 5:05** **ARRIVAL/WELCOME**
Mr. Shawn Jorgensen
Naval Support Facility, Indian Head (NSF-IH)
Remedial Project Manager
- 5:05 - 5:25** **MUNITIONS RESPONSE PROGRAM (MRP) SITE
PRIORITIZATION RANKINGS**
Mr. Joseph Rail
Naval Facilities Engineering Command, Washington (NAVFACWASH)
Remedial Project Manager
- 5:25 - 5:45** **SITE 28 SOIL REMOVAL ACTION**
Mr. Shawn Jorgensen
- 5:45 - 6:15** **PROPOSED COMMUNITCATION STRATEGY FOR IR SITE 28**
Mr. Glenn Markwith
Navy Environmental Health Center (NEHC)
Environmental Programs
- 6:15 - 6:30** **STATUS OF ALL SITES - NEW TABLE**
Mr. Shawn Jorgensen
- 6:30 - 7:00** **COMMENTS, QUESTIONS, AND ANSWERS**
- 7:00** **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

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NAVFAC Washington

10/15/2007

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**



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10/15/2007

Stakeholder Involvement



Questions?

Continued Stakeholder Involvement

(This section contains a diagram and text that are extremely faint and difficult to read. The diagram appears to be a flowchart or process flow, and the text likely describes the steps of 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	<p>DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 10).</p>	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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 the single highest score 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 the single highest score 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

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	<ul style="list-style-type: none"> There are damaged CWM/DMM on the surface or in the subsurface at the MRS. 	10
Undamaged CWM/DMM surface	<ul style="list-style-type: none"> There are undamaged CWM/DMM on the surface at the MRS. 	10
CAIS/DMM surface	<ul style="list-style-type: none"> There are CAIS/DMM on the surface. 	10
Undamaged CWM/DMM, subsurface	<ul style="list-style-type: none"> There are undamaged CWM/DMM in the subsurface at the MRS. 	5
CAIS/DMM subsurface	<ul style="list-style-type: none"> There are CAIS/DMM in the subsurface at the MRS. 	5
Former CA or CWM Production Facilities	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> The MRS is a former storage facility or transfer point (e.g., intermodal transfer) for CWM. 	1
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
SOURCES OF CWM	DIRECTIONS: Record the single highest score 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 the single highest score 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	<p>DIRECTIONS: Record <u>the single highest score</u> from above in the box to the right (maximum score = 5).</p>	

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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 <u>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 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 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 *Ecological and/or Cultural Resources* classification in the space provided.

CWM Hazard Factor Data Elements

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).		

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).	

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).	

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 the CHF Value 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 the single highest value 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 the single highest value 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 the CHF Value 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 the single highest value 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 the single highest value 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 the <u>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 the <u>single highest value</u> 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 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 the <u>single highest value</u> from above in the box to the right (maximum value = H).
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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 the CHF Value 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 the single highest value 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 the single highest value 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 the CHF Value 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 the single highest value 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 the single highest value 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	D
HML	E
MMM	F
HLL	G
MML	
MLL	
LLL	
Alternative Module Ratings	<div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block; margin-bottom: 5px;">Evaluation Pending</div> 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	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	5,4,3	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	5,4,3	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**

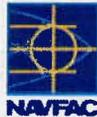


Soil Removal Action

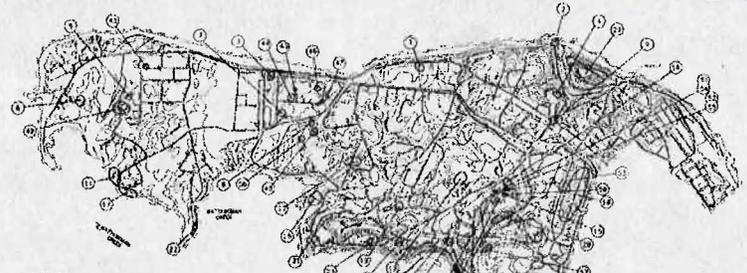
**Site 28 - Original Burning Ground
and Zinc Recovery Furnace**

*Shawn Jorgensen
Remedial Project Manager
Naval Support Facility, Indian Head*

June 21, 2007



**NSF - Indian Head
IR Site Map**



LEGEND	
1	Site 1
2	Site 2
3	Site 3
4	Site 4
5	Site 5
6	Site 6
7	Site 7
8	Site 8
9	Site 9
10	Site 10
11	Site 11
12	Site 12
13	Site 13
14	Site 14
15	Site 15
16	Site 16
17	Site 17
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89	Site 89
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93	Site 93
94	Site 94
95	Site 95
96	Site 96
97	Site 97
98	Site 98
99	Site 99
100	Site 100





Soil Removal Action Site 28



- **Background of Site 28 - Original Burning Ground and Zinc Recovery Furnace**

- Approximately 1.8 acres near Slavin's Dock on Mattawoman Creek
- Burning cage(s) located near the shoreline of Mattawoman Creek
- Smokeless powder burned in cages, based on time of use (1890 to 1942)
- Zinc recovery furnace (Building 415) built prior to 1926 and potentially used until the mid-1950s (based on old maps)
- Used as Central Area for Salvaging Zinc for the Navy (based on Annual Secretary of the Navy Reports)
 - 1926 - 212,000 lbs. of Zinc Reclaimed
 - 1927 - 435,000 lbs. of Zinc Reclaimed

3



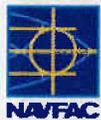


 **Soil Removal Action** 
Site 28



6

A photograph showing a site with a boat and a large area of gravel and soil removal. The site is surrounded by trees and vegetation.



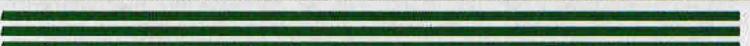
*Soil Removal Action
Site 28*



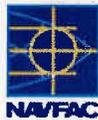
7



*Soil Removal Action
Site 28*



8



Soil Removal Action Site 28



- *Findings of Remedial Investigation Conducted May through September 2003*

- *Soil around the former zinc recovery furnace contains elevated levels of metals, especially zinc.*
- *Elevated levels of zinc and other metals are present in the sediment downgradient of the former zinc recovery furnace and in shallow groundwater samples collected at the site.*
- *VOCs, SVOCs, and explosives compounds were detected at the site, but they provide negligible contribution to human health and ecological risk.*

9



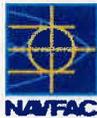
Soil Removal Action Site 28



- *Engineering Evaluation and Cost Analysis of September 2006*

- *Removal Action Objectives*
 - *Reduce Potential Risks to Human Health and Ecological Receptors from Metals in Soil*
 - *Restore the Site to Existing, but Improved, Conditions*
- *Alternatives Developed*
 - *1 – No Action (required as a baseline)*
 - *2 – Soil Removal for Human Health and Ecological Risks*
 - *3 – Soil Removal for Human Health Risk and In-situ Treatment for Ecological Risks*
- *Selected Remedy – Alternative 2*

10



Soil Removal Action Site 28



- **Cleanup Levels**

- Human Health: Lead - 1,000 mg/kg
- Ecological:

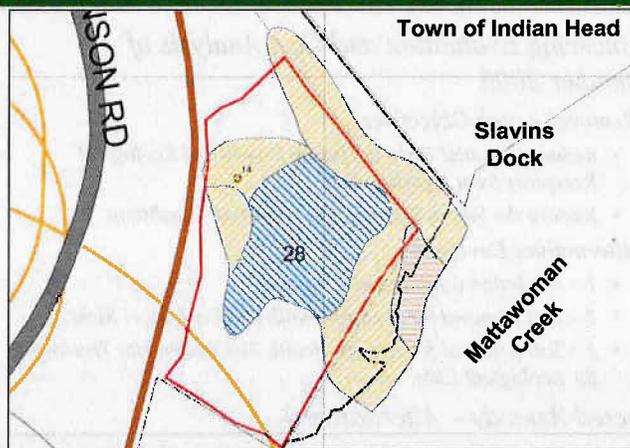
COC	Action Level * (mg/kg)	Pre-Removal Conc. (mg/kg)	Post-Removal Conc. (mg/kg)
Antimony	1.1	1.7	0.4
Cadmium	1.4	15.7	0.8
Copper	40.6	119	10
Lead	583	794	30
Mercury	3	0.6	0.1
Nickel	16.8	10.6	7.1
Silver	425	1.7	0.9
Zinc	219	9,594	121

* Based on results of Site 47 Baseline Ecological Risk Assessment

11



Soil Removal Action Site 28



12



Soil Removal Action Site 28



- *Cost for Work Performed at Site 28 to date – \$830,000*
 - *Remedial Investigation*
 - *Pilot Study (Metals Sequestration) ** FREE to us ***
 - *BERA*
 - *Feasibility Study*
 - *Proposed Plan*
 - *ROD*
 - *Remedial Design*
- *Cost for Soil Removal Action - \$1.18M*
- *Total Estimated Cost for Site 28 to date - \$2M*





Naval Support Facility Indian Head, MD
June 2007 Restoration Advisory Board (RAB) Meeting

Proposed Communication Strategy **Installation Restoration Site 28**

Glenn Markwith
Navy Environmental Health Center
Portsmouth, VA



Navy Environmental Health Center

- Medical command located in Portsmouth, VA;
 - Navy/Marine Corps center for public health services;
 - Risk communication subject matter experts;
 - Community involvement planning worldwide;
 - www-nehc.med.navy.mil
-



Site 28 (Original Burning Ground/Zinc Recovery Furnace) – Quick Review...



Site 28 (Original Burning Ground/Zinc Recovery Furnace) – Quick Review...

- Soil removal action*
- Potential human health risk to future residents and construction workers from soil and shallow groundwater - lead*
- *Potentially unacceptable ecological risk from soil and sediment – antimony, arsenic, cadmium, copper, lead, mercury, selenium, silver, zinc*
- Removal will reduce potential risks and restore site*
- Estimated cost \$1.5M*



Site 28 (Original Burning Ground/Zinc Recovery Furnace) – Quick Review...



- relatively small, localized area
- < one acre
- soil removal up to 5 feet (main site)
- soil/sediment removal to 1 foot (perimeter areas)



Why Involve the Community?

- **Short Answer**
 - We are required to!
 - CERCLA, NEPA, OSHA, etc.
- **Longer Answer**
 - Increase knowledge & understanding;
 - Increase trust & credibility;
 - Resolve conflict;
 - Minimize delays (time/\$).

Bottom Line: People are entitled to information that may affect them...

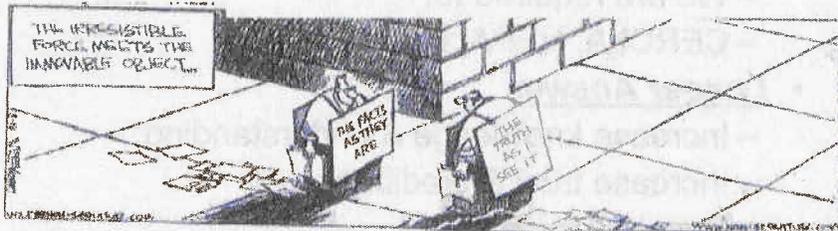


Why Involve the Community?

- **The Letter of the Law - 40 CFR 300.430(c)(2)(ii)**
 - (A) Ensure the public appropriate opportunities for involvement in a wide variety of site-related decisions, including:
 - Site analysis and characterization;
 - Alternatives analysis;
 - Selection of remedy.
 - (B) Determine, based upon community interviews, appropriate activities to ensure such public involvement.
 - (C) Provide appropriate opportunities for the community to learn about the site.



Why Involve the Community?



Translation: "The success of community involvement has a direct impact on the success of the overall cleanup!"



Community Involvement Objectives

- Keep the public well informed (both current & planned activities);
 - Encourage and enable public involvement;
 - Listen carefully to what the public is saying;
 - Identify and deal responsibly with public concerns;
 - Change planned actions where public comments or concerns have merit;
 - Explain to citizens how their comments were considered (and how a decision was reached)!
-



General Approach...

- **Brief RAB;**
 - Develop communication strategy;
 - Develop informational products;
 - Distribute information;
 - **ASSESS EFFECTIVENESS!**
-



Who should we inform?

- Local officials;
 - Community residents (esp. people who live close to the site);
 - Heads of community organizations;
 - Public interest groups;
 - Other interested or affected parties (RAB input is important here!)
-



When should we inform them?

- | | |
|------------------------------------|-----------|
| • Pre-construction/Kickoff Meeting | 13 Aug 07 |
| • Equipment/Personnel On-Site | 20 Aug 07 |
| • Site Setup | 21 Aug 07 |
| • Clearing & Grubbing | 24 Aug 07 |
| • Erosion & Sediment Control | 31 Aug 07 |
| • Material Excavation & Hauling | 05 Sep 07 |

BOTTOM LINE: We need to get the word out to the general public well in advance of 13 August!

Information should be distributed July 07 timeframe...



Next Steps...

- Determine what information the general public most wants to know about the project;
 - Adjust our existing community involvement strategy to get this information about site 28 to the community;
 - Determine the best way to get the information out to the public
 - signage at local park/boat landing,
 - fact sheets,
 - poster stations,
 - public meetings, etc.
-



SUMMARY

- RAB is the principle means of community participation.
 - People are entitled to have input into decisions that may affect their lives.
 - Participation and cooperation build trust and credibility.
 - Early and frequent involvement leads to greater understanding.
 - Input from the community helps the Navy make better decisions.
-

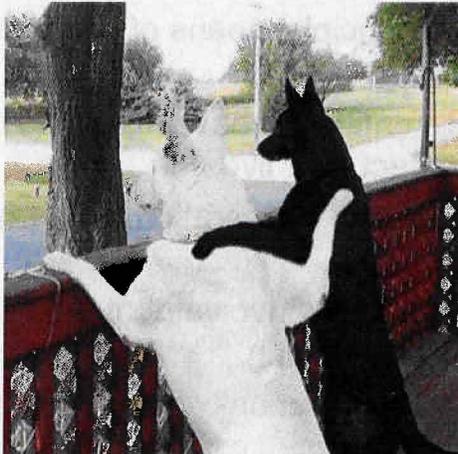


Considerations for RAB input!

- Who to inform;
 - Content of informational products;
 - Community needs and concerns;
 - Format for conveying information (website, fact sheets, posters, presentations, meetings, etc.);
 - Schedule (any community constraints, special events, etc. we should know about?);
 - Add your considerations here!
-



THANKS FOR YOUR INPUT!



**All IR/MR Sites , SWMUs, and AOCs
Naval Support Facility Indian Head**

IR Site ID	MR Site ID	SWMU ID	AOC ID	Main Area (MA)/ Stump Neck (SN)/ Water Area (WA)	Program	Misc. Notes	IR Site Name	Status IR or MEC/MC	Relative Risk/MRS Priority
1			E	MA	IR	RASO	Thorium Spill	SSI	Medium
2				MA	IR	NFA - DD	Waste Crank Case Oil Applied to Torrense Road	SC	Low
3				MA	IR	NFA - DD	Nitroglycerin Explosion, Nitration Building Area	SC	Low
4				MA	IR	NFA - DD	Lloyd Road Oil Spill Sites	SC	Low
5				MA	IR	NFA - RoD	X-Ray Building 731	SC	Medium
6				MA	IR	IRA planned	Building 1349, Hypo Spill	FS	High
7				MA	IR	NFA - DD	Building 682, HMX Spill	SC	Medium
8		7		MA	IR		Building 766, Mercury Deposits	SSI	High
9				MA	IR	NFA - DD	Patterson Avenue, Oil Spill	SC	Low
11				MA	IR		Coffee Road Landfill	FS	High
12				MA	IR	LTM	Town Gut Landfill	RC	High
13				MA	IR	NFA - RoD	Paint Solvents Disposal Ground	SC	High
14				MA	IR	Lab Area	Waste Acid Disposal Pit (includes all Lab Area sites)	FS	Medium
15				MA	IR	Lab Area	Mercury Deposits in Manhole, Fluorine Lab		High
16				MA	IR	Lab Area	Laboratory Chemical Disposal		High
17				MA	IR	Bench-Scale Study	Disposal Metal Parts Along Shoreline	FS	High
18				MA	IR	NFA - DD	Hog Island	SC	Low
19				MA	IR		Catch Basins at Chip Collection Houses	SSI	Low
20				MA	IR	NFA - DD	Single-base Powder Facilities	SC	Low
21				MA	IR		Bronson Road Landfill	FS	High
23				MA	IR	NFA - DD	Hydraulic Oil Spill Discharges From Extrusion Plant	SC	Low
24			K	MA	IR	NFA - DD	Abandoned Drain Lines	SC	Medium
25				MA	IR	NFA - RoD	Hypo Discharge X-Ray Building No. 2	SC	High
26				MA	IR		Thermal Destructor 2	SSI	Low
27		62		MA	IR	NFA - DD	Thermal Destructor 1	SC	Low
28	8			MA	IR	IRA planned	Original Burning Ground	IRA	High
32		11		SN	IR	NFA - DD	Suspected Tool Burial Site	SC	Low
33		7		SN	IR	NFA - DD	Scrap Metal Pit	SC	Low
34		8		SN	IR	NFA - DD	Tool Burial Site	SC	Low
36		10		SN	IR		Inactive Disposal Site	SSI	Low
37	3	24		SN	IR		Causeway	RI	Low
38		1		SN	IR		Rum Point Landfill	SSI	Medium
39				MA	IR	NFA - RoD	Organics Plant	SC	High

**All IR/MR Sites , SWMUs, and AOCs
Naval Support Facility Indian Head**

IR Site ID	MR Site ID	SWMU ID	AOC ID	Main Area (MA)/ Stump Neck (SN)/ Water Area (WA)	Program	Misc. Notes	IR Site Name	Status IR or MEC/MC	Relative Risk/MRS Priority
40				MA	IR	NFA - DD	Palladium Catalyst in Sediments	SC	Low
42				MA	IR	LTM	Oison Road Landfill	RC	High
43				MA	IR		Toluene Disposal Site	RI/FS	High
44				MA	IR	NFA - RoD	Soak Out Area	SC	Medium
45				MA	IR	NFA - RoD	Abandoned Drums	SC	Medium
46				MA	IR	NFA - DD	Cadmium Sandblast Grit	SC	Low
47				MA	IR	Bench-Scale Study	Mercuric Nitrate Disposal Area	FS	High
48				MA	IR	NFA - DD	Nitroglycerine Plant Disposal Area	SC	Low
49				MA	IR	Lab Area	Chemical Disposal Area		Medium
50				MA	IR	Lab Area	Building 103, Crawl Space		High
51				MA	IR	NFA - DD	Building 101, Dry Well	SC	Low
52				MA	IR	NFA - DD	Building 102, Dry Well	SC	Low
53				MA	IR	Lab Area	Mercury Contamination of the Sewage System		High
54				MA	IR	Lab Area	Building 101		High
55				MA	IR	Lab Area	Building 102		High
56				MA	IR	NFA - DD	IW87 - Lead Contamination	SC	Low
57				MA	IR		TCE Building 292 Area	PP	High
58		2		SN	IR	NFA - DD	Range 3 Burn Point	SC	High
59		3		SN	IR	NFA - DD	Chicamuxen Creek's Edge Site A	SC	High
60		4		SN	IR	NFA - DD	Chicamuxen Creek's Edge Site B	SC	Medium
61		5		SN	IR	NFA - DD	Range 6	SC	Medium
66				MA	IR		Turkey Run Disposal Area	SI	NE
67				MA	IR	ESTCP	Hog Out Area	RI/FS	Low
		4,5		MA	IR	NFA - DD	Underground Storage Tanks (Bldg. 290 and 525)	SC	Low
		6		MA	IR	NFA - DD	Used Battery Accumulation Area (Bldg/Bldg. 766)	SC	Low
		27		MA	IR	NFA - DD	Waste Oil Storage Area (Goddard Power Plant)	SC	Low
		38		MA	IR	DTA	Coffee Road Waste Oil Storage Area (w/Site 11)	FS	Low
		40-46		MA	IR	NFA - DD	Wastewater Collection/Treatment Tanks (Moser Plant)	SC	Low
		47-51		MA	IR	NFA - DD	Spent Acid Storage/Treatment Tanks (Moser Plant)	SC	Low
		64-66		MA	IR	NFA - DD	Waste Water Storage Tanks (Bldg/Bldg. 1596)	SC	Low
		69		MA	IR	NFA - DD	Temp Accumulation Dumpster for Explosive Scrap	SC	Low
		70		MA	IR	NFA - DD	Temp Accum Areas for Drummed Explosive Scrap	SC	Low
		72		MA	IR	NFA - DD	Oil/Water Separators	SC	Low

**All IR/MR Sites , SWMUs, and AOCs
Naval Support Facility Indian Head**

IR Site ID	MR Site ID	SWMU ID	AOC ID	Main Area (MA)/ Stump Neck (SN)/ Water Area (WA)	Program	Misc. Notes	IR Site Name	Status IR or MEC/MC	Relative Risk/MRS Priority
		74		MA	IR	NFA - DD	Unlined Overland Drainage Ditches	SC	Low
			G	MA	IR	NFA - DD	Sand Blasting Sand Storage Area	SC	Low
			H	MA	IR	NFA - DD	Drum at Fuel Storage Area	SC	Low
		21		MA	IR	DTA	Coffee Road Decontamination Burn Point (w/Site 11)	FS	Low
		12		SN	IR	NFA - DD	Waste Oil Storage Site	SC	Low
		15		SN	IR	NFA - DD	Spent Photographic Solution Storage	SC	Low
		17		SN	IR	NFA - DD	Building 2015 – Chem Lab Accumulation Area	SC	Low
		18		SN	IR	NFA - DD	Waste Pile	SC	Low
		19		SN	IR	DTA	Disposal Area #1 (located on UXO 4)	SI	Low
		20		SN	IR	DTA	Disposal Area #2 (located on UXO 15)	SI	Low
		21		SN	IR	NFA - DD	Drum Storage Area	SC	Low
		16		SN	IR	NFA - DD	Thermal Treatment Tank	SC	Low
		14		SN	IR		Photographic Lab Septic Tank System	SSI	Low
		30		SN	IR	NFA - DD	Bldg. 2015 Dry Well	SC	Low
62	1	6		SN	MR	Reassigned	Air Blast Pond	SI/SI	5
63	2	25		SN	MR	Reassigned	Area 8	SI/RI	7
64	4	26		SN	MR	Reassigned	Basic IED	SI/RI	4
65	5	27		SN	MR	Reassigned	Advanced IED	RI/RI	4
22	6			MA	MR		NG Slums Burning Site	SI/SI	7
31	7	23		SN	MR	NFA - DD	Old Demolition Range	SC	Low
10	9			MA	MR	Reassigned	Single-base Propellant Grains Spill	SI/RI	5
30	10	22		SN	MR	Reassigned	Stump Neck Impact Area	SI/SI	5
29	11			MA	MR	Reassigned	The Valley	SI/SI	3
35	12	9		SN	MR	Reassigned	Buried Torpedoes (Torpedo Burial Site)	SI/SI	5
	13			SN	MR		FDR Skeet Range	NFA/SI	8
	14			SN	MR		Marine Rifle Range	NFA/SI	8
	15	28		SN	MR	Reassigned	Old Skeet & Trap Range	NFA/SI	8
	16			SN	MR		Rum Point Skeet Range	NFA/SI	8
	17	29		SN	MR	Reassigned	Small Arms Range (Old Pistol Range)	NFA/SI	8
	18			WA	MR		Battle Range Firing	SI	4
	19			WA	MR		Igniter Area	SI	3
	20	20		MA	MR	Reassigned	Safety Thermal Treatment Point (Safety Burn Point)	SI/RI	5
	21			SN	MR		Test Area 1	SI/SI	7
	22			SN	MR	Based on PA	Test Area 2	NFA/NFA	NE

**All IR/MR Sites , SWMUs, and AOCs
Naval Support Facility Indian Head**

IR Site ID	MR Site ID	SWMU ID	AOC ID	Main Area (MA)/ Stump Neck (SN)/ Water Area (WA)	Program	Misc. Notes	IR Site Name	Status IR or MEC/MC	Relative Risk/MRS Priority
	23			SN	MR		Torpedo Casing Disposal Area	SI/SI	EP
	25			SN	MR		Roach Road Rifle Range	NFA/SI	8
	26			SN	MR		Valley Impact Area	SI/SI	4
	27			WA	MR		Sonar Training Area	SI	6
	28			SN	MR		EOD School Demo Area	SI/SI	6
	29			MA	MR		Southwestern Pistol Range	NFA/SI	8
	30			MA	MR		Gate 3 Burning Ground	SI/SI	NE
	31			WA	MR		Popes Creek	SI	5
41	32			MA	MR	Reassigned	Scrap Yard	IRA	4
	33			WA	MR		Water Impact Area	SI	4
		13		SN	RCRA	DTA	Pink Water Treatment Tank	SC	Low

AOC - Area of Concern
 DD - Decision Document
 DTA - Desk-Top Audit
 EP - Evaluation Pending
 ESTCP - Environmental Security Technology Certification Program
 FS - Feasibility Study

IR - Installation Restoration
 IRA - Interim Removal Action
 LTM - Long Term Monitoring
 MC - Munitions Constituents
 MEC - Munitions and Explosives of Concern
 MR - Munitions Response
 NE - Not Evaluated
 NFA - No Further Action

PA - Preliminary Assessment
 PP - Proposed Plan
 RASO - Radiological Affairs Support Office
 RC - Response Complete
 RCRA - Resource Conservation and Recovery Act
 RI - Remedial Investigation
 RoD - Record of Decision
 SC - Site Closed Out

SI - Site Inspection
 SSI - Site-Screening Investigation
 SWMU - Solid Waste Management Unit
 28 - current program
 65 - previous program

**Active IR/MR Sites , SWMUs, and AOCs
Naval Support Facility Indian Head**

IR Site ID	MR Site ID	SWMU ID	AOC ID	Main Area (MA)/ Stump Neck (SN)/ Water Area (WA)	Program	Misc. Notes	IR Site Name	Status IR or MEC/MC	Relative Risk/MRS Priority
1			E	MA	IR	RASO	Thorium Spill	SSI	Medium
6				MA	IR	IRA planned	Building 1349, Hypo Spill	FS	High
8		7		MA	IR		Building 766, Mercury Deposits	SSI	High
11				MA	IR		Coffee Road Landfill	FS	High
12				MA	IR	LTM	Town Gut Landfill	RC	High
14				MA	IR	Lab Area	Waste Acid Disposal Pit (includes all Lab Area sites)	FS	Medium
15				MA	IR	Lab Area	Mercury Deposits in Manhole, Fluorine Lab		High
16				MA	IR	Lab Area	Laboratory Chemical Disposal		High
17				MA	IR	Bench-Scale Study	Disposal Metal Parts Along Shoreline	FS	High
19				MA	IR		Catch Basins at Chip Collection Houses	SSI	Low
21				MA	IR		Bronson Road Landfill	FS	High
26				MA	IR		Thermal Destructor 2	SSI	Low
28	8			MA	IR	IRA planned	Original Burning Ground	IRA	High
36		10		SN	IR		Inactive Disposal Site	SSI	Low
37	3	24		SN	IR		Causeway	RI	Low
38		1		SN	IR		Rum Point Landfill	SSI	Medium
42				MA	IR	LTM	Olson Road Landfill	RC	High
43				MA	IR		Toluene Disposal Site	RI/FS	High
47				MA	IR	Bench-Scale Study	Mercuric Nitrate Disposal Area	FS	High
49				MA	IR	Lab Area	Chemical Disposal Area		Medium
50				MA	IR	Lab Area	Building 103, Crawl Space		High
53				MA	IR	Lab Area	Mercury Contamination of the Sewage System		High
54				MA	IR	Lab Area	Building 101		High
55				MA	IR	Lab Area	Building 102		High
57				MA	IR		TCE Building 292 Area	PP	High
66				MA	IR		Turkey Run Disposal Area	SI	NE
67				MA	IR	ESTCP	Hog Out Area	RI/FS	Low
		14		SN	IR		Photographic Lab Septic Tank System	SSI	Low
		19		SN	IR	DTA	Disposal Area #1 (located on UXO 4)	SI	Low
		20		SN	IR	DTA	Disposal Area #2 (located on UXO 15)	SI	Low
		21		MA	IR	DTA	Coffee Road Decontamination Burn Point (w/Site 11)	FS	Low
		38		MA	IR	DTA	Coffee Road Waste Oil Storage Area (w/Site 11)	FS	Low
62	1	6		SN	MR	Reassigned	Air Blast Pond	SI/SI	5
63	2	25		SN	MR	Reassigned	Area 8	SI/RI	7
64	4	26		SN	MR	Reassigned	Basic IED	SI/RI	4
65	5	27		SN	MR	Reassigned	Advanced IED	RI/RI	4

**Active IR/MR Sites , SWMUs, and AOCs
Naval Support Facility Indian Head**

IR Site ID	MR Site ID	SWMU ID	AOC ID	Main Area (MA)/ Stump Neck (SN)/ Water Area (WA)	Program	Misc. Notes	IR Site Name	Status IR or MEC/MC	Relative Risk/MRS Priority
22	6			MA	MR		NG Slums Burning Site	SI/SI	7
10	9			MA	MR	Reassigned	Single-base Propellant Grains Spill	SI/RI	5
30	10	22		SN	MR	Reassigned	Stump Neck Impact Area	SI/SI	5
29	11			MA	MR	Reassigned	The Valley	SI/SI	3
35	12	9		SN	MR	Reassigned	Buried Torpedoes (Torpedo Burial Site)	SI/SI	5
	13			SN	MR		FDR Skeet Range	NFA/SI	8
	14			SN	MR		Marine Rifle Range	NFA/SI	8
	15	28		SN	MR	Reassigned	Old Skeet & Trap Range	NFA/SI	8
	16			SN	MR		Rum Point Skeet Range	NFA/SI	8
	17	29		SN	MR	Reassigned	Small Arms Range (Old Pistol Range)	NFA/SI	8
	18			WA	MR		Battle Range Firing	SI	4
	19			WA	MR		Igniter Area	SI	3
	20	20		MA	MR	Reassigned	Safety Thermal Treatment Point (Safety Burn Point)	SI/RI	5
	21			SN	MR		Test Area 1	SI/SI	7
	22			SN	MR	Based on PA	Test Area 2	NFA/NFA	NE
	23			SN	MR		Torpedo Casing Disposal Area	SI/SI	EP
	25			SN	MR		Roach Road Rifle Range	NFA/SI	8
	26			SN	MR		Valley Impact Area	SI/SI	4
	27			WA	MR		Sonar Training Area	SI	6
	28			SN	MR		EOD School Demo Area	SI/SI	6
	29			MA	MR		Southwestern Pistol Range	NFA/SI	8
	30			MA	MR		Gate 3 Burning Ground	SI/SI	NE
	31			WA	MR		Popes Creek	SI	5
41	32			MA	MR	Reassigned	Scrap Yard	IRA	4
	33			WA	MR		Water Impact Area	SI	4

AOC - Area of Concern
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EP - Evaluation Pending
ESTCP - Environmental
Security Technology
Certification Program
FS - Feasibility Study

IR - Installation Restoration
IRA - Interim Removal Action
LTM - Long Term Monitoring
MC - Munitions Constituents
MEC - Munitions and Explosives of Concern
MR - Munitions Response
NE - Not Evaluated
NFA - No Further Action

PA - Preliminary Assessment
PP - Proposed Plan
RASO - Radiological Affairs Support Office
RC - Response Complete
RCRA - Resource Conservation and Recovery Act
RI - Remedial Investigation
RoD - Record of Decision
SC - Site Closed Out

SI - Site Inspection
SSI - Site-Screening
Investigation
SWMU - Solid Waste
Management Unit
28 - current program
65 - previous program

**NAVAL SUPPORT FACILITY,
INDIAN HEAD**

**INSTALLATION RESTORATION (IR) PROGRAM
RESTORATION ADVISORY BOARD (RAB)
MEETING AGENDA
(Tentative)**

October 18, 2007

- 1. Scrap Yard Removal Action Update**
- 2. Update on Site 28 Soil Removal Action**
- 3. Results of Site 66 Site Inspection**
- 4. Update on Site 1**
- 5. Site 6 Update**
- 6. IR/MRP Budget for Fiscal Year 2008**

NAVAL SUPPORT FACILITY INDIAN HEAD, MARYLAND ENVIRONMENTAL CLEANUP PROGRAM – SITE 28 FACT SHEET

August 2007

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



For More Information, Please Contact:
Naval Support Activity South Potomac
Public Affairs Office: (540) 653-8153
Approved for Public Release

Background:

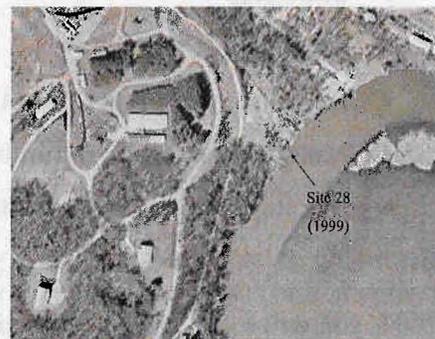
Naval Support Facility (NSF) Indian Head, which is a Naval Support Activity South Potomac (NSASP) facility within the Naval District Washington region, occupies approximately 3,500 acres and is located 25 miles southwest of Washington, DC in Charles County, MD. NSF Indian Head was originally established in 1890 as a proving ground for testing of guns, munitions and armor plating for Navy ships. It is the nation's longest continually operating munitions facility and has provided support to our armed forces by conducting research and development, test and evaluation, and manufacturing and production of munitions and munitions related components for over 115 years.

Prior to the enactment of state and federal environmental laws and regulations, wastes generated from industrial processes were historically disposed or treated on-site. In cooperation with the Environmental Protection Agency (EPA) and the Maryland Department of the Environment (MDE), NSF Indian Head has been actively investigating these historic sites to determine what cleanup actions are necessary to protect both human health and the environment. One of these areas is called Site 28, which is located in a highly visible area of our facility along the fence line that parallels Mattingly Road. Since the planned cleanup of this site will be visible from the Slavin's Dock landing and from Mattawoman Creek, we are taking steps to inform the community about the cleanup project well in advance of actual construction activities. The purpose of this fact sheet is to provide key information about the planned project, site history and future actions, and to identify a point of contact to answer any additional questions you may have regarding our ongoing environmental cleanup program.

Where is Site 28 and what was historically done there?

Site 28 is a 1.8 acre site located in the northeastern corner of the NSF Indian Head. Site 28 is bordered on the north by Mattingly Road (Slavin's Dock area) and on the east by the Mattawoman Creek. This site is just inside the corner of the Navy fence line and is clearly visible from the public landing at the end of Mattingly Road.

Historic documents reference Site 28 as being the "Original NOS (Naval Ordnance Station) Burning Ground." Research into the history of this location indicates that a "zinc recovery furnace" and a "shoreline burning cage" were originally located in the area. The zinc recovery furnace was erected in 1928 as part of the metal-recycling program initiated during World War I. These operations were centered in Building 415 (which was subsequently demolished sometime in the early 1950s). The shoreline burning cage was historically used to burn debris (e.g. wooden crates, packaging materials, etc.). Based upon the time period the shoreline burning cage was in operation, smokeless powder may also have been burned at this location. Although historical maps show the location of the former shoreline burning cage to be outside the existing perimeter fence line, the exact location is unknown. However, burned debris, glass and slag-like materials have been located along the edge of a small swale just inside the eastern perimeter of the fence line. Although it is no longer in use as a source for potable water, Well #14, which was constructed in 1918 is also located at Site 28.



Site 28 is located on the NE corner of the Naval Support Facility Indian Head. It occupies approximately 1.8 acres and is bordered by the Slavin's Dock area on the east and Mattawoman Creek on the south.



ENCLOSURE (2)

What actions have been completed at Site 28 to date?

Since discovery of this site, a number of studies have been conducted to determine the type and extent of contamination resulting from historic operations. Soil, sediment, groundwater and surface water have all been sampled and analyzed to help determine appropriate cleanup actions. The results of this sampling indicate that the contaminants of concern at Site 28 are primarily metals such as lead, zinc, mercury and cadmium. Some levels of metals (lead) are present in high enough concentrations to cause potential human health impacts if people were to come in contact with the soils at the site. Other metals in the soil, such as cadmium, mercury and zinc were identified in concentrations high enough to have potential impacts on plants and animals at the site. A detailed study, called a Baseline Ecological Risk Assessment, was conducted to identify additional potential ecological impacts of Site 28. The study was completed in September 2006 and reports that sediment at Site 28 poses low or no risks to ecological receptors. Reports on investigations and studies conducted at Site 28 are located at the NSF Indian Head General Library, Building 620 and are available for review. Contact the NSASP Public Affairs Office for more information.

What are the planned future actions at Site 28?

As a federal facility, NSF Indian Head is committed to the long-term protection and conservation of our environmental and natural resources. Since conducting the environmental sampling and analysis of the site, the Navy has completed a detailed Engineering Evaluation/Cost Analysis (EE/CA) to determine potential cleanup options for Site 28. The results of the EE/CA indicate the most appropriate cleanup action for Site 28 would be to remove the contaminated soils, bring in clean topsoil, and restore and replant the site to minimize erosion and sedimentation. This cleanup action is protective of both human health and the environment as it reduces the potential risk by removing the contaminated soils or "hot spots" from the site. Based on this plan of action, cleanup operations will begin in the fall, following the proposed schedule below:

- | | |
|------------------------------------|------------|
| • Pre-construction/Kickoff Meeting | 24 Sept 07 |
| • Equipment/Personnel On-Site | 01 Oct 07 |
| • Site Setup | 02 Oct 07 |
| • Clearing & Grubbing | 05 Oct 07 |
| • Erosion & Sediment Control | 12 Oct 07 |
| • Material Excavation & Hauling | 19 Oct 07 |
| • Site Restoration and Replanting | 14 Nov 07 |

Beginning in late September 2007, you will see increased activity on Site 28, including equipment delivery and laydown, site set-up and preparation, and placement of sediment and erosion controls. Beginning in October 2007, you will see digging and hauling operations, followed by site regrading and restoration.

Where can I go for additional information?

If you have any additional questions or need more information concerning this site, please contact:

Naval Support Activity South Potomac
Attn: Public Affairs Office, Code N00P
6380 Welsh Road
Dahlgren, VA 22448-5106
Phone: (540) 653-8153