APPENDIX J

MEC HA TABLES

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Site ID: **FUDS No. D01MA0595 (Former Cape Poge Little Neck Bomb Target Area of Investigation)**
Date: **4/30/2012**

Activities Currently Occurring at the Site

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1	Hiking, Biking, Recreational Activities	2,600	48	**124,800**	1	1 trip per month; 4 hours per trip
2	Residential	50	5,840	**292,000**	4	16 hours per day, year round
3	TTOR Maintenance	4	390	**1,560**	2	
4						
5						
6						
7						
8						
9						
10						
11						
12						
			Total Potential Contact Time (receptor hrs/yr):	**418,360**		
			Maximum intrusive depth at site (ft):		**4**	

Reference(s) for table above:

Draft Preliminary Assessment, Cape Poge Little Neck Bomb Target Site, Chappaquiddick Island, MA, FUDS Property Number - D01MA0595. USACE, 2009.

MEC HA Summary Information

		Comments
Site ID:	FUDS No. D01MA0595 (Former Cape Poge Little Neck Bomb Target Area of Investigation)	
Date:	4/30/2012	

Please identify the single specific area to be assessed in this hazard assessment. From this point forward, all references to "site" or "MRS" refer to the specific area that you have defined.

A. Enter a unique identifier for the site:

Former Cape Poge Littleneck Bomb Target, Land/Beach Areas	MEC HA does not include underwater areas (inland water and ocean)

Provide a list of information sources used for this hazard assessment. As you are completing the worksheets, use the "Select Ref(s)" buttons at the ends of each subsection to select the applicable information sources from the list below.

Ref. No.	Title (include version, publication date)
1	*Visual Ordnance Sweep Report.* VRHabilis, 2008.
2	*Draft Preliminary Assessment, Cape Poge Little Neck Bomb Target Site, Chappaquiddick Island, MA, FUDS Property Number - D01MA0595* . USACE, 2009.
3	*Explosives Site Plan, Correction 1, Remedial Investigation/Feasibility Study, Former Cape Poge Little Neck Bomb Target Site, Former Moving Target Machine Gun Range, Tisbury Great Pond, Martha's Vineyard, Massachusetts, D01MA0595* . USAECH, 2010.
4	D*raft Final Site Specific Final Report For The Time Critical Removal Action (TCRA) at Former Cape Poge Little Neck Bomb Target Site, Chappaquiddick Island, Dukes County, Massachusetts, and Former Movig Target Machine Gun Range at South Beach, Martha's Vineyard, Edgartown, Massachusetts* . USACE, 2010.
5	*Final Revision 3, Remedial Investigation Work Plan: Former Cape Poge Little Neck Bomb Target MRS, Former Moving Target Machine Gun Range at South Beach MRS, Tisbury Great Pond MRS, Martha's Vineyard, Massachusetts* . UXB, 2011.

B. Briefly describe the site:

1. Area (include units):	236 (No. D01MA0595 - 141 acres)	The FUDS boundary was expanded based upon previously identified MEC and/or MD.
2. Past munitions-related use:		
Target Area		
3. Current land-use activities (list all that occur):		
Hiking, biking, recreational activities, residential, and TTOR maintenance		
4. Are changes to the future land-use planned?	No	
5. What is the basis for the site boundaries?		
The expanded Area of Investigation boundary was based upon previously identified MEC and/or MD.		
6. How certain are the site boundaries?		
Site boundaries can be reduced based on RI field work, but the former target areas is highly contaminated.		
Reference(s) for Part B:		
Visual Ordnance Sweep Report. VRHabilis, 2008. **Draft Preliminary Assessment, Cape Poge Little Neck Bomb Target Site, Chappaquiddick Island, MA, FUDS Property Number - D01MA0595. USACE, 2009.** **Draft Final Site Specific Final Report For The Time Critical Removal Action (TCRA) at Former Cape Poge Little Neck Bomb Target Site, Chappaquiddick Island, Dukes County, Massachusetts, and Former Movig Target Machine Gun Range at South Beach, Martha's Vineyard, Edgartown, Massachusetts. USACE, 2010.** **Final Revision 3, Remedial Investigation Work Plan: Former Cape Poge Little Neck Bomb Target MRS, Former Moving Target Machine Gun Range at South Beach MRS, Tisbury Great Pond MRS, Martha's Vineyard, Massachusetts. UXB, 2011.**		

C. Historical Clearances

1. Have there been any historical clearances at the site? Yes, subsurface clearance
2. If a clearance occurred:
   a. What year was the clearance performed? 2009

   b. Provide a description of the clearance activity (e.g., extent, depth, amount of munitions-related items removed, types and sizes of removed items, and whether metal detectors were used):

TCRA, surface and subsurface - 127 munitions debris items recovered (AN-MK23 and AN-MK5). Hand-held analog detectors used in Mag/Dig approach. MD items were recovered between 0 and 1 ft bgs.

Reference(s) for Part C:

[redacted]

Draft Final Site Specific Final Report For The Time Critical Removal Action (TCRA) at Former Cape Poge Little Neck Bomb Target Site, Chappaquiddick Island, Dukes County, Massachusetts, and Former Movig Target Machine Gun Range at South Beach, Martha's Vineyard, Edgartown, Massachusetts. USACE, 2010.

D. Attach maps of the site below (select 'Insert/Picture' on the menu bar.)

Site ID: **FUDS No. D01MA0595 (Former Cape Poge Little Neck Bomb Target Area of Investigation)**
Date: **4/30/2012**

Cased Munitions Information

Item No.	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material Type	Is Munition Fuzed?	Fuzing Type	Fuze Condition	Minimum Depth for Munition (ft)	Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
1	Bombs	3	lb	AN-MK23	Spotting Charge	No			0	Surface and Subsurface	From PA, RI investigation
2	Bombs	3	lb	AN-MK5	Spotting Charge	No			0	Surface and Subsurface	From TCRA

Reference(s) for table above:
Draft Preliminary Assessment, Cape Poge Little Neck Bomb Target Site, Chappaquiddick Island, MA, FUDS Property Number - D01MA0595. USACE, 2009.
Draft Final Site Specific Final Report For The Time Critical Removal Action (TCRA) at Former Cape Poge Little Neck Bomb Target Site, Chappaquiddick Island, Dukes County, Massachusetts, and Former Movig Target Machine Gun Range at South Beach, Martha's Vineyard, Edgartown, Massachusetts. USACE, 2010.
Final Revision 3, Remedial Investigation Work Plan: Former Cape Poge Little Neck Bomb Target MRS, Former Moving Target Machine Gun Range at South Beach MRS, Tisbury Great Pond MRS, Martha's Vineyard, Massachusetts. UXB, 2011.

Bulk Explosive Information

Item No.	Explosive Type	Comments
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Reference(s) for table above:

Site ID: **FUDS No. D01MA0595 (Former Cape Poge Little Neck Bomb Target Area of Investigation)**
Date: **4/30/2012**

Energetic Material Type Input Factor Categories

The following table is used to determine scores associated with the energetic materials. Materials are listed in order from most hazardous to least hazardous.

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
High Explosive and Low Explosive Filler in Fragmenting Rounds	100	100	100
White Phosphorus	70	70	70
Pyrotechnic	60	60	60
Propellant	50	50	50
Spotting Charge	40	40	40
Incendiary	30	30	30

The most hazardous type of energetic material listed in the 'Munitions, Bulk Explosive Info' Worksheet falls under the category 'Spotting Charge'.

	Score
Baseline Conditions:	**40**
Surface Cleanup:	**40**
Subsurface Cleanup:	**40**

Location of Additional Human Receptors Input Factor Categories

1. What is the Explosive Safety Quantity Distance (ESQD) from the Explosive Siting Plan or the Explosive Safety Submission for the MRS?	6 feet	non-fragmenting round - K40 uesed
2. Are there currently any features or facilities where people may congregate within the MRS, or within the ESQD arc?	Yes	

3. Please describe the facility or feature.

Residential, TTOR land, Cape Poge Lighthouse

MEC Item(s) used to calculate the ESQD for current use activities

Item #1. Bombs (3lb, Spotting Charge)
Item #2. Bombs (3lb, Spotting Charge)

Comments

The following table is used to determine scores associated with the location of additional human receptors (current use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

4. Current use activities are 'Inside the MRS or inside the ESQD arc', based on Question 2.' ***Score***

Baseline Conditions: **30**
Surface Cleanup: **30**
Subsurface Cleanup: **30**

5. Are there future plans to locate or construct features or facilities where people may congregate within the MRS, or within the ESQD arc?

6. Please describe the facility or feature.

MEC Item(s) used to calculate the ESQD for future use activities

The following table is used to determine scores associated with the location of additional human receptors (future use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

7. Please answer Question 5 above to determine the scores. ***Score***

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Site Accessibility Input Factor Categories

The following table is used to determine scores associated with site accessibility:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Full Accessibility	No barriers to entry, including signage but no fencing	80	80	80
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain	55	55	55
Limited Accessibility	Significant barriers to entry, such as unguarded chain link fence or requirements for special transportation to reach the site	15	15	15
Very Limited Accessibility	A site with guarded chain link fence or terrain that requires special equipment and skills (e.g., rock climbing) to access	5	5	5

Current Use Activities

Score

Select the category that best describes the site accessibility under the current use scenario:

Full Accessibility

Baseline Conditions: **80**

Surface Cleanup: **80**

Subsurface Cleanup: **80**

Future Use Activities

Select the category that best describes the site accessibility under the future use scenario:

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Reference(s) for above information:

Response Alternative No. 6:
Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Potential Contact Hours Input Factor Categories

The following table is used to determine scores associated with the total potential contact time:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Many Hours	≥1,000,000 receptor-hrs/yr	120	90	30
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50	20
Few Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10
Very Few Hours	<10,000 receptor-hrs/yr	15	10	5

Current Use Activities :

Input factors are only determined for baseline conditions for current use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: **418,360** receptor hrs/yr
Based on the table above, this corresponds to a input factor score for baseline conditions of: **70** Score

Future Use Activities :

Input factors are only determined for baseline conditions for future use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: receptor hrs/yr
Based on the table above, this corresponds to a input factor score of: Score

Response Alternative No. 5:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time
Based on the table above, this corresponds to input factor scores of: **Score**
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time
Based on the table above, this corresponds to input factor scores of: **Score**
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Amount of MEC Input Factor Categories

The following table is used to determine scores associated with the Amount of MEC:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Target Area	Areas at which munitions fire was directed	180	120	30
OB/OD Area	Sites where munitions were disposed of by open burn or open detonation methods. This category refers to the core activity area of an OB/OD area. See the "Safety Buffer Areas" category for safety fans and kick-outs.	180	110	30

Function Test Range	Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial functioning or complete functioning of stockpile or developmental items.	165	90	25
Burial Pit	The location of a burial of large quantities of MEC items.	140	140	10
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	15	5
Firing Points	The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.	75	10	5
Safety Buffer Areas	Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from OB/OD areas.	30	10	5
Storage	Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground magazines, and open-air storage areas.	25	10	5
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	5

Select the category that best describes the ***most hazardous*** amount of MEC: ***Score***

Target Area

Baseline Conditions: **180**
Surface Cleanup: **120**
Subsurface Cleanup: **30**

Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories

Current Use Activities

The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: **0** ft
The deepest intrusive depth: **4** ft
The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240	150	95
Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	240	50	25
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150	N/A	95
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	50	N/A	25

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth will overlap after cleanup. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.' For 'Current Use Activities', only Baseline Conditions are considered. **240** ***Score***

Future Use Activities

Deepest intrusive depth: ft

Not enough information has been entered to determine the input factor category. ***Score***

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:
Response Alternative No. 6:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Migration Potential Input Factor Categories

Is there any physical or historical evidence that indicates it is possible for natural physical forces in the area (e.g., frost heave, erosion) to expose subsurface MEC items, or move surface or subsurface MEC items? Yes

If "yes", describe the nature of natural forces. Indicate key areas of potential migration (e.g., overland water flow) on a map as appropriate (attach a map to the bottom of this sheet, or as a separate worksheet).

Erosion is most critical

The following table is used to determine scores associated with the migration potential:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Possible	30	30	10
Unlikely	10	10	10

Based on the question above, migration potential is 'Possible.' ***Score***

Baseline Conditions: **30**
Surface Cleanup: **30**
Subsurface Cleanup: **10**

Reference(s) for above information:
Draft Preliminary Assessment, Cape Poge Little Neck Bomb Target Site, Chappaquiddick Island, MA, FUDS Property Number - D01MA0595. USACE, 2009.
Final Revision 3, Remedial Investigation Work Plan: Former Cape Poge Little Neck Bomb Target MRS, Former Moving Target Machine Gun Range at South Beach MRS, Tisbury Great Pond MRS, Martha's Vineyard, Massachusetts. UXB, 2011.

MEC Classification Input Factor Categories

Cased munitions information has been inputed into the 'Munitions, Bulk Explosive Info' Worksheet; therefore, bulk explosives do not comprise all MECs for this MRS.

The 'Amount of MEC' category is 'Target Area'. It cannot be automatically assumed that the MEC items from this category are DMM. Therefore, the conservative assumption is that the MEC items in this MRS are UXO.

Has a technical assessment shown that MEC in the OB/OD Area is DMM?

Are any of the munitions listed in the 'Munitions, Bulk Explosive Info' Worksheet: No

- Submunitions
- Rifle-propelled 40mm projectiles (often called 40mm grenades)
- Munitions with white phosphorus filler
- High explosive anti-tank (HEAT) rounds
- Hand grenades
- Fuzes
- Mortars

None of the items listed in the 'Munitions, Bulk Explosive Info' Worksheet were identified as 'fuzed'.

The following table is used to determine scores associated with MEC classification categories:

UXO	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
UXO Special Case	180	180	180
UXO	110	110	110
Fuzed DMM Special Case	105	105	105
Fuzed DMM	55	55	55
Unfuzed DMM	45	45	45
Bulk Explosives	45	45	45

Based on your answers above, the MEC classification is 'UXO'.

	Score
Baseline Conditions:	**110**
Surface Cleanup:	**110**
Subsurface Cleanup:	**110**

MEC Size Input Factor Categories

The following table is used to determine scores associated with MEC Size:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Small	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small enough for a receptor to be able to move and initiate a detonation	40	40	40
Large	All munitions weigh more than 90 lbs; too large to move without equipment	0	0	0

Based on the definitions above and the types of munitions at the site (see 'Munitions, Bulk Explosive Info' Worksheet), the MEC Size Input Factor is: Small

	Score
Baseline Conditions:	**40**
Surface Cleanup:	**40**
Subsurface Cleanup:	**40**

Scoring Summary

Site ID:	FUDS No. D01MA0595 (Former Cape Poge Little Neck Bomb Target Area of Investigation)	a. Scoring Summary for Current Use Activities
Date:	4/30/2012	Response Action Cleanup:
Input Factor		Input Factor Category
I. Energetic Material Type		Spotting Charge
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc
III. Site Accessibility		Full Accessibility
IV. Potential Contact Hours		100,000 to 999,999 receptor hrs/yr
V. Amount of MEC		Target Area
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.
VII. Migration Potential		Possible
VIII. MEC Classification		UXO
IX. MEC Size		Small
		Total Score Hazard Level Category

Site ID:	FUDS No. D01MA0595 (Former C	b. Scoring Summary for Future Use Activities
Date:	4/30/2012	Response Action Cleanup:
Input Factor		Input Factor Category
I. Energetic Material Type		
II. Location of Additional Human Receptors		
III. Site Accessibility		
IV. Potential Contact Hours		
V. Amount of MEC		
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		
VII. Migration Potential		
VIII. MEC Classification		
IX. MEC Size		
		Total Score Hazard Level Category

Site ID:	FUDS No. D01MA0595 (Former C	c. Scoring Summary for Response Alternative 1:
Date:	4/30/2012	Response Action Cleanup:
Input Factor		Input Factor Category
I. Energetic Material Type		Spotting Charge
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc
III. Site Accessibility		
IV. Potential Contact Hours		
V. Amount of MEC		Target Area
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		
VII. Migration Potential		Possible
VIII. MEC Classification		UXO
IX. MEC Size		Small
		Total Score Hazard Level Category

MEC HA Hazard Level Determination			
Site ID:	FUDS No. D01MA0595 (Former Cape Poge Little Neck Bomb Target Area of		
Date:	4/30/2012		
		Hazard Level Category	Score
a. Current Use Activities		2	820
b. Future Use Activities			
c. Response Alternative 1:			
d. Response Alternative 2:			
e. Response Alternative 3:			
f. Response Alternative 4:			
g. Response Alternative 5:			
h. Response Alternative 6:			

Characteristics of the MRS	
Is critical infrastructure located within the MRS or within the ESQD arc?	Yes
Are cultural resources located within the MRS or within the ESQD arc?	Yes
Are significant ecological resources located within the MRS or within the ESQD arc?	Yes