

STATEMENT OF RESPONSE TO MUNITIONS AND EXPLOSIVES OF CONCERN

Surf City and Ship Bottom Public Beaches

17 May 2007

This statement documents the Time Critical Removal Action (Phase I) completed in response to munitions and explosives of concern (MEC) found on public beaches in Surf City and Ship Bottom, New Jersey. The military munitions found were inadvertently placed on the beach areas during a recent coastal storm damage reduction project. The affected beach areas have been carefully investigated, and all detectable MEC has been removed.

The coastal storm damage reduction project (approximately 71-acre site) included placement of about 800,000 cubic yards of sand over 8,100 linear feet of berm (flat beach) to approximate depths of eight feet from North 25th Street in Surf City, New Jersey, to South 5th Street in Ship Bottom, New Jersey. A pre-existing dune was supplemented to create a project dune of 6,600 linear feet with a crest elevation of + 22 feet NAVD, a 30-foot wide flat top, sloping down seaward 70 feet to the flat beach. The coastal storm damage reduction project also included the surf zone, or the underwater area adjacent to the beach, from North 25th Street in Surf City to South 11th Street in Ship Bottom.

Prior to conducting the Time Critical Removal Action (Phase I), a Geophysical Prove-Out (GPO) study was performed in a test plot on the Surf City beach. A variety of geophysical instrumentation was used to determine the maximum detection depth for the type and size of munitions expected to be encountered. The study concluded that Digital Geophysical Mapping (DGM) using an EM-61 towed array was capable of consistently detecting 34 of 36 GPO seed items buried at depths from 0 to 36 inches below the ground surface for a 94.4% detection rate. The handheld Schonstedt Magnetometer detected 20 of 30 GPO seed items to depths of 18 inches below the ground surface. The Forester Mk 26 Magnetometer detected all GPO seed items buried at 36 inches below the ground surface.

The Time Critical Removal Action (Phase I) investigated the following five beach areas for MEC:

1. The 6,600 linear feet of Dune Top was investigated by Digital Geophysical Mapping (DGM) using an EM-61 towed array of four coils. All anomalies were analyzed and those that provided a signature indicative of MEC were intrusively investigated and resolved to the detection depth.

2. The 6,600 linear feet of Dune Slope was investigated and resolved for MEC using Mag and Dig techniques with the handheld Schonstedt Magnetometer. The 18-inch detection depth was considered sufficient because the dune is restricted to pedestrian traffic, with crossovers and pedestrian access points provided.

3. All 24 pedestrian crossovers, 3 vehicle access areas (N. 5th St., N. 12th St, and N.18th St.), and the handicap ramp (N. 12th St.) located in the 6,600 linear feet of the Dune Top and the Dune Slope were investigated and resolved for MEC using the Forester Mk 26 Magnetometer to the detection depth.

4. The 8,100 linear feet of the berm area was investigated for MEC from the toe of the Dune Slope out to the mean low water mark by DGM using the EM-61 towed array. All anomalies were analyzed and those that provided a signature indicative of MEC were intrusively investigated and resolved to the detection depth.

5. The surf zone was investigated and resolved for MEC using the Forester Mk 26 Magnetometer from the low tide mark out to 150 feet or 4 feet of water depth, whichever occurred first. If an offshore sandbar was present, the trough between the berm and the sandbar, and the entire sandbar to the ocean-side edge was investigated and resolved for MEC using the handheld Schonstedt Magnetometer.

To date, over 1,100 MEC items have been recovered from the beach by the TCRA investigation or turned in by citizens. An attached table provides a summary of the distribution of the MEC items found by the TCRA investigation, as of 14 May 2007, across the project site according to the street designations. These items include unfired, fuzed, low explosive loaded Mark I 37mm projectiles, Mark II and III booster assemblies, and Mark II Point Detonating Fuzes. Due to the location where the MEC items were dredged from, and the configuration of the MEC items (fuzes with boosters, and boosters by themselves), these items are considered to be discarded military munitions (DMM).

Military Munitions are manufactured to withstand a certain amount of rough handling such as transport, soldier maneuvers and a significant jolt when fired. Subsequently, the probability of detonation of the DMM items due to human contact would be extremely low. The problem occurs not with the contact, but with the actions after contact. Explosives will detonate when exposed to "heat, friction or shock" or any combination of the three.

The TCRA investigation for MEC to detection depth results in a low potential for an explosive hazard to be encountered on the public beaches. Additionally, the type of military munitions recovered, along with extensive public information about the potential presence of munitions on the beach, and what to do should a munition be discovered, reduces the potential for an explosive incident to occur.

This Time Critical Removal Action has lowered the likelihood that the public will encounter MEC. However, there remains the potential for MEC to be present below the depth of detection, and beach instability and weather may cause MEC to surface. Erosion and wave action may also cause MEC to migrate into the areas previously investigated or beyond the project limits. Very little erosion of the Dune Top and Dune Slope is expected, except in the case of a major climatic event, such as a Nor'easter or hurricane. The MEC potentially present offshore, and outside the areas of the surf zone investigated, could potentially be moved into the surf zone during periods of heavy wave action.

The US Army Corps of Engineers recommends the following Land Use Controls be implemented and/or maintained to reduce the potential for MEC to be encountered on the beach during recreational activities:

- Public information signs addressing the 3Rs (Recognize, Retreat, Report) of explosives safety be posted at public and private access points.
- Public information brochures be distributed.
- The use of metal detectors on the beach be prohibited.
- A dig restriction -- no digging below a depth of one-foot -- be implemented.
- The dune (except at crossover areas) be restricted from public access with fences and signage.
- A private crossover construction policy be implemented to ensure that MEC is not encountered during construction.

In addition to the Time Critical Removal Action (Phase I) and the implementation of Land Use Controls, the US Army Corps of Engineers will implement a Public Information Plan. This plan will include training for police, lifeguards, beach pass inspectors, and beach maintenance staff, and the presence of a USACE Ordnance and Explosives Safety Specialist throughout the summer to provide MEC contingency response.

This action has been conducted in accordance with Army Regulation 405-90.

APPROVED:



GWEN E. BAKER
Lieutenant Colonel, Corps of Engineers
Commanding

5-18-07
Date

Attachment: Distribution of MEC found as of 14 May 2007

MEC-TCRA at Surf City and Ship Bottom Beaches

Project Summary MEC to 5/14/2007

Total MEC Items: 1,074

<i>Street</i>	<i>MEC</i>	<i>MEC Items</i>
DIV		
	<i>MKII BOOSTER</i>	18
	<i>MKIII BOOSTER</i>	22
	<i>Projectile 37 mm</i>	4
	Total MEC Items:	44
N10TH		
	<i>Base Detonating Fuze - 1906</i>	4
	<i>MKII BOOSTER</i>	95
	<i>MKIII BOOSTER</i>	99
	<i>Projectile 37 mm</i>	14
	Total MEC Items:	212
N11TH		
	<i>MKII BOOSTER</i>	23
	<i>MKIII BOOSTER</i>	86
	<i>Projectile 37 mm</i>	4
	Total MEC Items:	113
N12TH		
	<i>MKII BOOSTER</i>	4
	<i>MKIII BOOSTER</i>	9
	<i>Projectile 37 mm</i>	1
	Total MEC Items:	14

<i>Street</i>	<i>MEC</i>	<i>MEC Items</i>
N13TH	<i>Base Detonating Fuze - 1906</i>	1
	<i>MKII BOOSTER</i>	60
	<i>MKIII BOOSTER</i>	65
	<i>Projectile 37 mm</i>	1
Total MEC Items:		127
N14TH	<i>Base Detonating Fuze - 1906</i>	3
	<i>MKII BOOSTER</i>	31
	<i>MKIII BOOSTER</i>	38
	<i>Projectile 37 mm</i>	3
Total MEC Items:		75
N15TH	<i>Base Detonating Fuze - 1906</i>	1
	<i>MKII BOOSTER</i>	24
	<i>MKIII BOOSTER</i>	83
Total MEC Items:		108
N16TH	<i>MKII BOOSTER</i>	15
	<i>MKIII BOOSTER</i>	14
Total MEC Items:		29
N17TH	<i>MKII BOOSTER</i>	11
	<i>MKIII BOOSTER</i>	7
Total MEC Items:		18

<i>Street</i>	<i>MEC</i>	<i>MEC Items</i>
N18TH	<i>MKII BOOSTER</i>	16
	<i>MKIII BOOSTER</i>	20
	<i>Projectile 37 mm</i>	2
	<i>Total MEC Items:</i>	38
N19TH	<i>MKII BOOSTER</i>	10
	<i>MKIII BOOSTER</i>	6
	<i>Total MEC Items:</i>	16
N1ST	<i>Base Detonating Fuze - 1906</i>	1
	<i>MKII BOOSTER</i>	17
	<i>MKIII BOOSTER</i>	13
	<i>Projectile 37 mm</i>	5
	<i>Total MEC Items:</i>	36
N20TH	<i>MKII BOOSTER</i>	4
	<i>MKIII BOOSTER</i>	7
	<i>Total MEC Items:</i>	11
N21ST	<i>MKII BOOSTER</i>	4
	<i>MKIII BOOSTER</i>	8
	<i>Total MEC Items:</i>	12
N22ND	<i>MKII BOOSTER</i>	2
	<i>MKIII BOOSTER</i>	2
	<i>Total MEC Items:</i>	4

<i>Street</i>	<i>MEC</i>	<i>MEC Items</i>
N23RD	MKII BOOSTER	2
	<i>Total MEC Items:</i>	
N24TH	MKIII BOOSTER	3
	Projectile 37 mm	1
	<i>Total MEC Items:</i>	
N2ND	MKII BOOSTER	9
	MKIII BOOSTER	6
	<i>Total MEC Items:</i>	
N3RD	MKII BOOSTER	4
	MKIII BOOSTER	30
	<i>Total MEC Items:</i>	
N4TH	MKIBOOSTER	1
	MKII BOOSTER	4
	MKIII BOOSTER	7
	<i>Total MEC Items:</i>	
N5TH	MKII BOOSTER	2
	MKIII BOOSTER	7
	<i>Total MEC Items:</i>	
N6TH	MKII BOOSTER	1
	MKIII BOOSTER	5
	<i>Total MEC Items:</i>	

<i>Street</i>	<i>MEC</i>	<i>MEC Items</i>
N8TH	<i>MKII BOOSTER</i>	9
	<i>MKIII BOOSTER</i>	5
	<i>Projectile 37 mm</i>	1
	Total MEC Items:	15
N9TH	<i>MKII BOOSTER</i>	7
	<i>MKIII BOOSTER</i>	59
	<i>Projectile 37 mm</i>	3
	Total MEC Items:	69
S1ST	<i>MKII BOOSTER</i>	3
	<i>MKIII BOOSTER</i>	2
	Total MEC Items:	5
S2ND	<i>MKII BOOSTER</i>	2
	<i>MKIII BOOSTER</i>	10
	<i>Projectile 37 mm</i>	1
	Total MEC Items:	13
S3RD	<i>MKII BOOSTER</i>	2
	<i>Projectile 37 mm</i>	3
	Total MEC Items:	5
S4TH	<i>MKIII BOOSTER</i>	1
	Total MEC Items:	1

<i>Street</i>	<i>MEC</i>	<i>MEC Items</i>
S5TH	<i>MKII BOOSTER</i>	11
	<i>MKIII BOOSTER</i>	9
	<i>Projectile 37 mm</i>	2
	Total MEC Items:	
S6TH	<i>MKII BOOSTER</i>	1
	<i>MKIII BOOSTER</i>	4
	Total MEC Items:	