

# Ordnance Holdings, Inc. (OHI)

Managing UXO/MEC  
During Dredging Projects

Presentation:

Western Dredging Association  
Conference – October 2016

Jonathan Sperka

Technical Director, OHI



# Agenda



- Sources of UXO / MEC
- History Snap Shot – Surf City, NJ
- UXO Inventory Issues / Concerns
- DoD's UXO Programs
- Policy / Guidance Overview
- Terminology Overview
- Planning Phase
- Staffing (UXO Positions)
- Field Work / Operations
- Munitions Management (cradle-to-grave)
- Other Potential Hazards



# Sources of UXO



- Sea Disposal Operations (early military procedures)
- Training Ranges / Bomb Target Areas\*
- Ammunition loading areas / ports / harbors\*
- Coastal Defense Batteries
- Wars / Conflicts



# Sources of UXO – Historic Policy



Bureau of Ordnance Publication, Ammunition Ashore (OP5) Volume 1  
June 1944

“Ammunition and explosives that are dangerously deteriorated or damaged, obsolete or otherwise unserviceable.....are destroyed. The preferred method of disposal is by dumping at sea.”



# Sources of UXO – Historic Policy



Msg. 0400Z5Oct 1945

“All toxic munitions on hand Middle Pacific are declared excess. Take immediate action to dispose of all ordnance and CWS ground and air toxics..... Dumping at sea will be coordinated with Navy.”

CNO Letter dated 24 April 1945

“The area selected should be about 10 miles square and located outside regular steamer lanes....The dumping area must be in water over 150 fathoms deep and least 10 miles off shore.”



**CWM Filled Munitions Being Disposed of through Deep Sea Dumping (1946)**

# History Snapshot – Surf City, NJ



- 2006/7 (time frame) Long Beach Island, NJ
- Over 3,000 munition items brought ashore during dredging (WWII era sea disposal site)
- Result - extensive UXO cleanup effort (1.5 miles of beach impacted)
- Numerous beach closures and restrictions
- Expensive UXO cleanup which was preventable

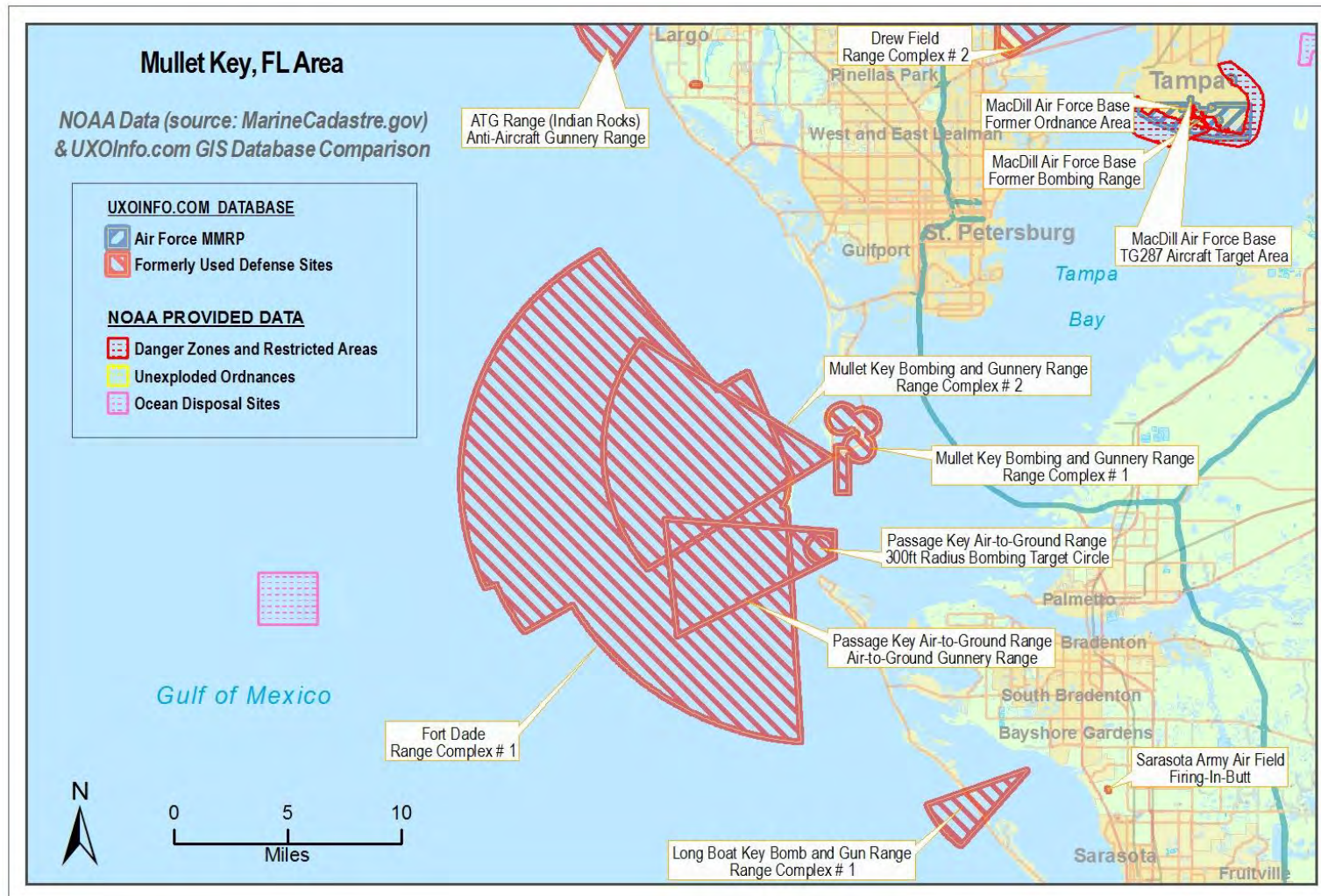


# UXO Inventory Issues (Example)



Mullet Key – WWII Era Bombing & Gunnery Range  
Tamp Bay, FL – Graphic of Historic Range Fans

Mullet Key  
Bombing &  
Gunnery  
Range  
(FUDS)

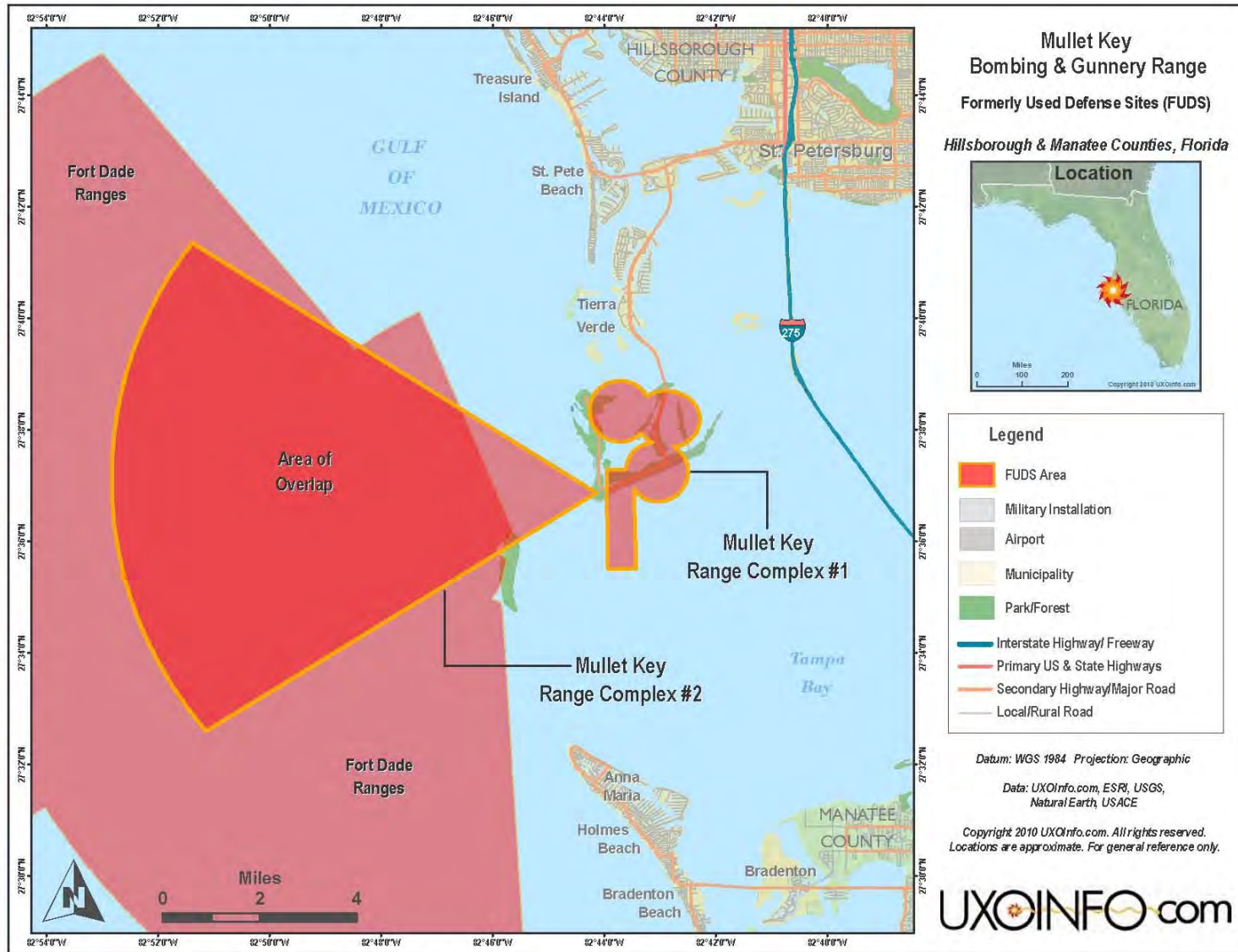


# UXO Inventory Issues (Example)



## Tampa Bay, FL – Historic Range Fans (Combined)

Mullet Key  
Bombing &  
Gunnery  
Range  
(FUDS)  
And  
Fort Dade  
(Edgemont  
Key) FUDS



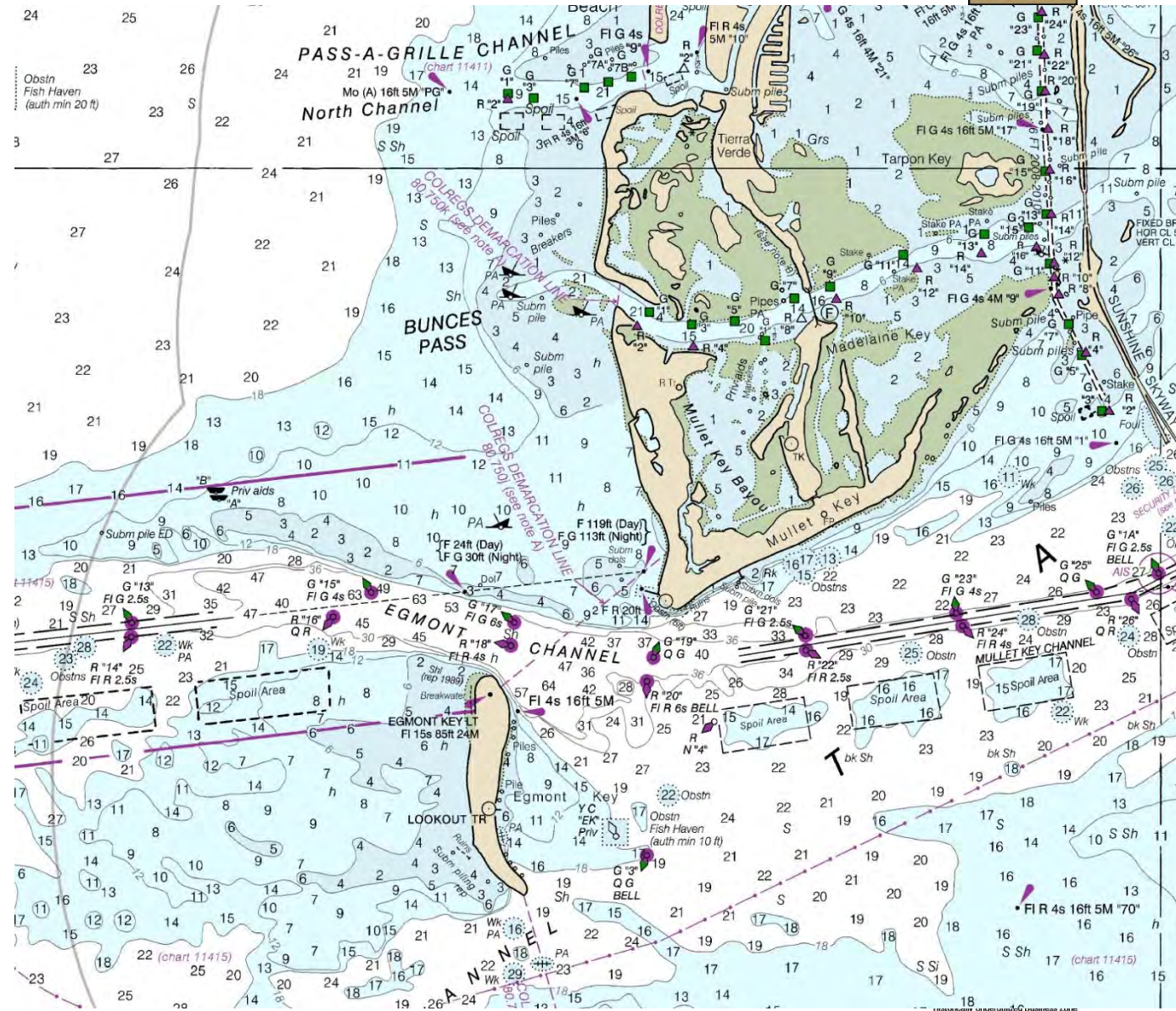


# UXO Inventory Issues (Example)



NOAA Chart  
11412  
Current  
NOAA  
Website

No UXO  
hazards  
areas noted



# Early FUDS Eligibility



Old FUDS Eligibility Requirements\* limited investigations to only the area within 100 yards of the shoreline – also limited areas that were “acts of war”

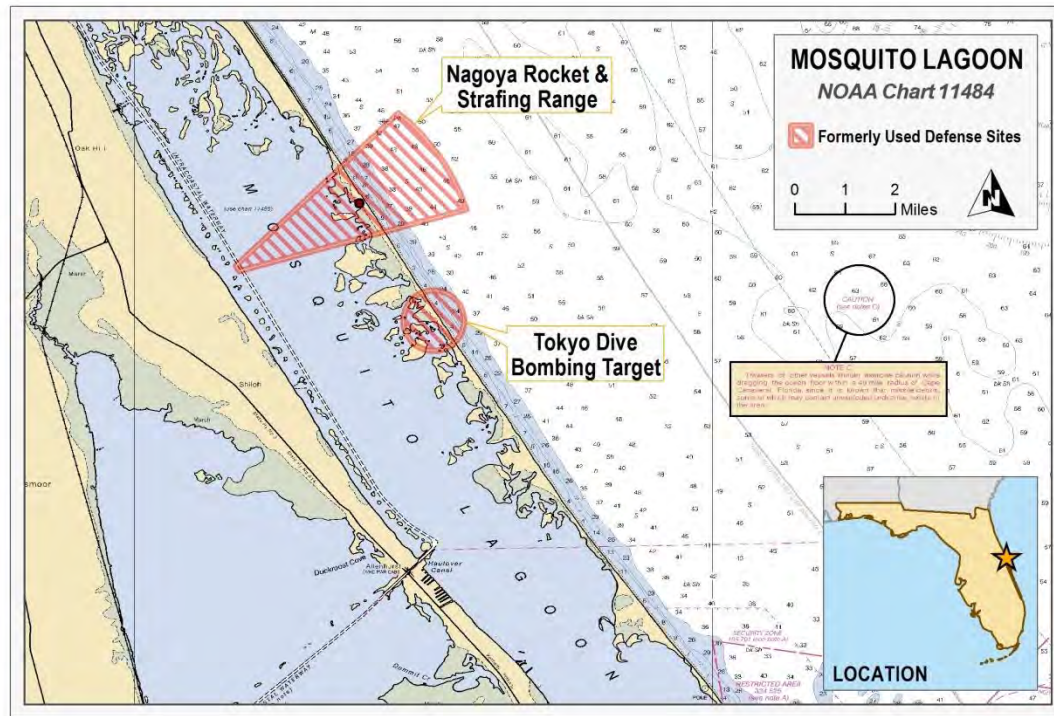
\*ER 200-3-1 Formerly Used Defense Sites Program Policy dated 10 May 2004, Chapter 3 (3-1.5.3.8)

# UXO Inventory Issues (Example)



Mosquito Lagoon Target area – Volusia County, FL

- 121 acre area (mostly water)
- Naval Air Training Area 1945 – 1946
- Current part of a National Park – area open for recreation
- In FUDS program - 2010 Site Inspection found evidence of munitions
- Former range areas not on NOAA charts



# DOD's UXO Programs



## Military Munitions Response Program (MMRP)

<b>Army</b>	<b>Air Force (USACE) FUDS (USACE)</b>	<b>Army National Guard</b>	
<b>Navy (NAVFAC)</b>	<b>Marines (NAVFAC)</b>	<b>BRAC (all services)</b>	<b>Air National Guard</b>

## Operational Ranges

<b>Army</b>	<b>Air Force</b>	<b>Air National Guard</b>
<b>Navy</b>	<b>Marines</b>	<b>Army National Guard</b>

## Sea Disposal Sites

<b>Army (unofficial lead)</b>
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## Other

<b>Historical battle field (including Civil War sites)</b>
<b>Former Non-Government / DoD Facilities (Private companies / States)</b>

# Terminology Overview



## ***Military Munitions***

*Unexploded  
Ordnance (UXO)*

*Discarded Military  
Munitions*

## ***Munitions and Explosives of Concern (MEC)***

*Contaminated Facilities*

*Explosive Soil*

# Terminology Overview



- DMM – “Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include unexploded ordnance, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of consistent with applicable environmental laws and regulations.” Signs of DMM:

- Unfuzed munitions
- Un-scared rotating band
- Intact safeties (e.g., arming wires, pins)



# Munitions Related Items (MPPEH)



**37mm APT w/o Windsheild**  
**Found 1/2 mile south of Carolina Forest Blvd**  
**During USAE separate contract**



# Policy and Guidance Overview



- NAVSEA Ordnance Pamphlet (OP) 5 Volume 1, *Ammunitions and Explosives Safety Ashore*; (NAVSEA), July 2011 (Navy only)
- DoD Manual 6055.9-M, *DoD Ammunition and Explosives Safety Standards*; (DDESB), March 2012
- EP 385-1-95a, *Basic Safety Concepts and Considerations for Ordnance and Explosives Operations*; (USACE), March 2007
- EM 385-1-1, *Safety and Health Requirements Manual*, (USACE)
- EM 385-1-97, *Explosives Safety and Health Requirements Manual*
- Other USACE Guidance (various)
- **Explosives Safety Submission (ESS)\* (not required at all sites)**

\* **ESS contains site specific guidelines that MUST BE FOLLOWED**



# Explosive Safety Submission



- Not Required at all dredging sites
  - Navy dredging sites - most likely required
  - USACE - use of probability model – low probability sites – ESS not required
- Lengthy approval process (60-90 days)
  - USACE District – MMCX – USATCES – DDESB
  - NAVFAC – NOSSA – DDESB
- **ESS MUST BE FOLLOWED (non-negotiable)**
- **Amendments require written approval (process varies by Service)**

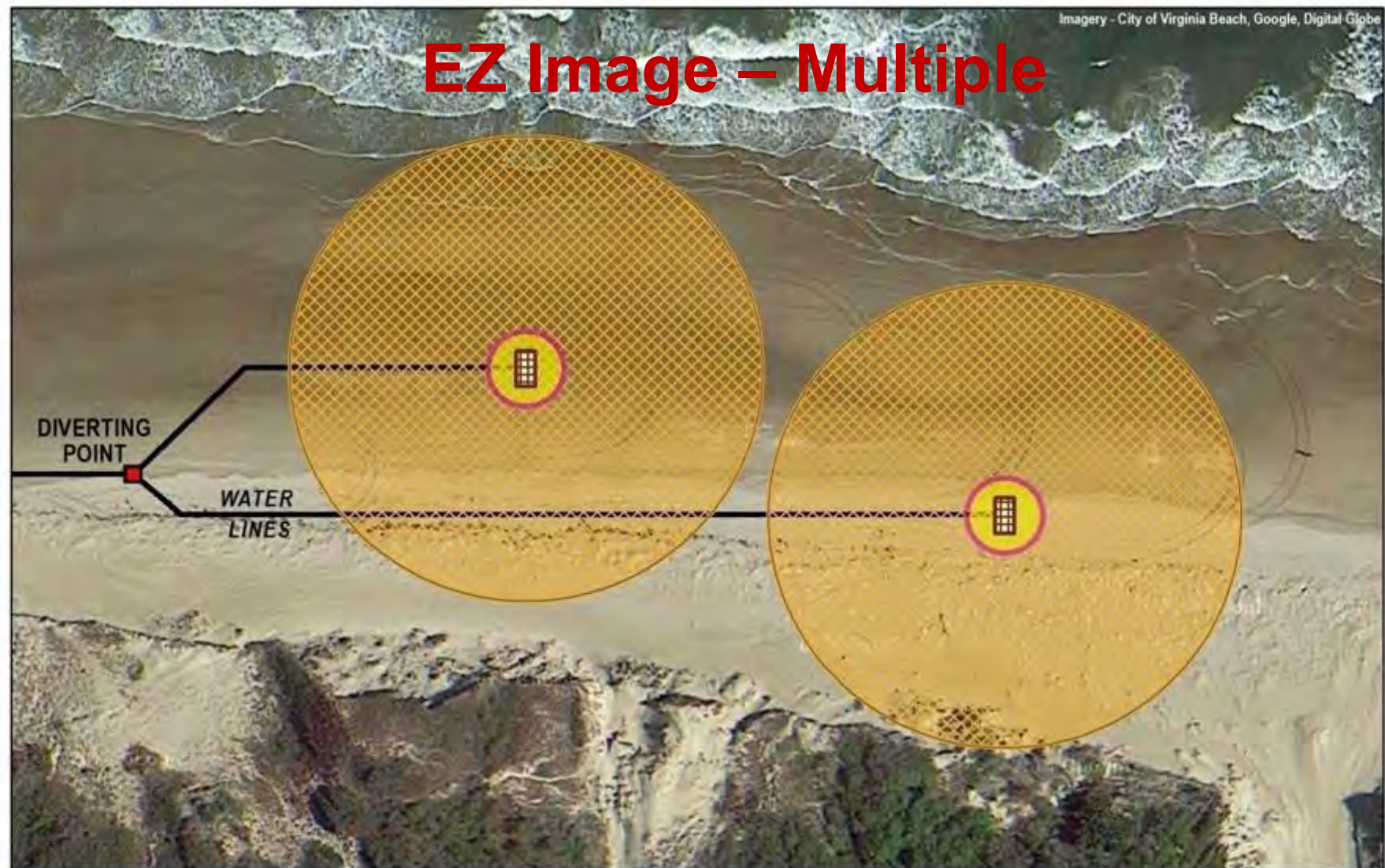
# EZ Table (From ESS)



MGFD	Munition Item	HFD (Ft)	MGFD (Ft)	K24 (Ft)	K18 (Ft)
Primary	20 mm HEI M97	66	651	6	5
Cont No 1	37mm HE M63	1,044	144	11	8
Cont No 2	3-inch Stokes	1,379	423	31	23

- Hazard Fragmentation Distance (HFD) – establishes working exclusion zone (EZ)
- MGFD – Munition with the greatest fragmentation distance
- ESS may require armoring of equipment (plexiglass) per DDESB TP -16 requirements
- Finding an item larger than your contingencies requires work shutdown and ESS amendment





# EZ Image - Multiple



## PROPOSED EXCLUSION ZONES

Beach Replenishment Site

Draft - Locations TBD

-  Basket Locations (proposed)
- 5 ft radius  K18 distance for a 20 mm projectile
- 6 ft radius  K24 distance for a 20 mm projectile
- 66 ft radius  HFD (Hazard Fragmentation Distance)

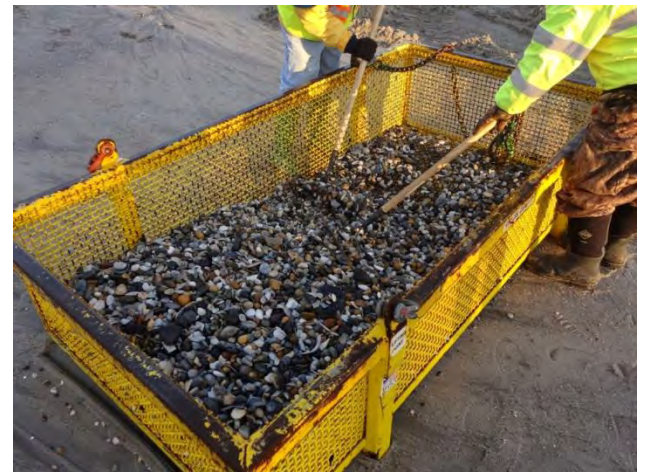
UTM Zone 18N - NAD83



# Pending UXO/MEC Dredging Policy



- MEC Construction Support (USACE)
  - Draft language issued – in many contracts now (primarily East Coast)
    - MEC Work Plan
    - Worker Training
    - Screening devices (on dredge intake and MEC basket)
  - Official promulgation pending (likely integrated with EM 385-1-1 or EM 385-1-97)
  
- USACE Engineer Construction Bulletin
  - Recommending UXO contractor support for all dredging contracts
  - USACE / OESS shifting over to a QA role



# Staffing (UXO Positions)



## DDESB Technical Paper – 18 (Personnel Qualifications)

Position Description	Minimum Years Experience Necessary	Special Requirements
UXO Technician I	0	Successful completion of an approved course
UXO Technician II	N/A 3 years	Prior military EOD Experience in UXO remediation/range clearance
UXO Technician III	6 years 8 years	Prior military EOD Plus documented supervisory experience/training
Senior UXO Supervisor	10 years	Experienced in all aspects of UXO operations. Five years experience in supervisory positions
UXO QC Specialist	8 years	Experienced in all aspects of UXO operations. Documented QC training/experience
UXO Safety Officer	8 years	Experienced in all aspects of UXO operations. Documented Safety Training/experience

# Support Staff



- Can dredge personnel (i.e., non-UXO qualified) support UXO operations?
  - Yes – with restrictions and limitations
  - DDESB TP -18 allows for UXO Sweep Personnel (basically laborers):
    - must be given site-specific safety and explosives recognition training
    - not allowed physical contact with munitions and/or explosive materials
    - escorted by a UXO Technician when in EZ
    - must be supervised by a UXO Technician III (or above) at all times

# Standard Operating Procedures



- Maintaining EZs
- MEC Screen and Screening Basket Clearing
- Field Operations (what to plan for)
- MEC Responses (Emergency and Non-Emergency)
- MPPEH Processing
- Other Hazards



# SOP – Exclusion Zone (EZ)



- Established by the ESS
  - Access to EZ needs to be monitored
  - Only essential personnel and authorized visitors allowed in EZ
  - Visitors are escorted by UXO technician while in EZ and intrusive operations cease
  - K18 distance usually requires double hearing protection
  - K24 distance – shielding requirements (if needed by ESS)\*
- \* Navy sites – likely required, USACE – probability driven





# Field Operations – What to Plan For



- UXO Team (quals, positions, responsibilities)
- UXO Responses
  - Routine finds vs. Emergency response (what defines an emergency, who responds, how)
  - Plan for the “What-If’s”
    - UXO found on dredge (at sea, at off-load area)
    - UXO that is determined un-safe to move
    - Can we store MEC / UXO (refer to ESS)?
    - How much MPPEH can we store on-site (refer to ESS)?
    - CWM – Emergency response (EOD)

# MEC Responses



- Emergency responses usually conducted by active duty Explosive Ordnance Disposal (EOD) personnel – follow established protocol in contacting EOD
- EOD typically handles any underwater explosives issues
- UXO Contractor can handle “non-emergency” responses
  - ◆ UXO contractors are limited in authority to:
    - Transport UXO (only on short distances on-site)
    - Controlled detonation (not allowed to render safe UXO)
    - Constrained by the ESS / ATF / DOT / DOD policy
  - ◆ 24-hour guard required on all MEC item(s) found until disposal is carried out (magazine exemption if allowed)

# MPPEH / MD Processing



- Requires 100% inspection by two authorized individuals
- Explosive condition must be documented (MDEH / MDAS)
- 100% chain of custody
- Material stored in locked containers (to prevent comingling)
- Properly dispose of MDAS through qualified recycler (get destruction paperwork)
- Properly dispose (detonate) MDEH



# Takeaways



- NOAA charts not accurate (from a UXO perspective)
- Develop detailed plans
  - Work and safety plan addendums for UXO
  - Develop contingencies (plan for the “*what if’s*”)
  - Define response protocols (emergency vs. routine)
  - Line up shielding (plexiglass supplier)
- If you find one UXO – chances are good there are more
- Never mix munitions debris with cultural debris – even ‘inert’ munitions scrap needs to be processed
- DO NOT deviate from the ESS
- Prepare for the worst, hope for the best

# OHI Contacts



UXOINFO.com

Jonathan Sperka

Technical Director

443-522-2933 (O) 410-961-0364 (C)

jsperka@ordnanceholdings.com

Jenna Coven Perman

Client Relations Manager

443-857-7474 (C)

jenna@ordnanceholdings.com