



# Restoration Advisory Board Meeting

**RAB Meeting #25  
May 18, 2010**

Vieques, Puerto Rico

# Agenda



6:00 – 6:15	Welcome and Introductions	Kevin Cloe/Navy Co-chair
6:15 – 6:30	RAB Administrative Issues (membership renewal)	RAB members
6:30 – 7:00	Environmental Program Progress (AOC E and I Pilot Study)	Brett Doerr/CH2M HILL
7:00 – 7:30	Munitions Program Progress	Daniel Hood / Navy
7:30 – 7:45	Break	
7:45 – 8:15	USFWS Update	Rich Henry/USFWS
8:15 – 8:30	EOB Update	Wilmarie Rivera/EOB
8:30 – 8:45	EPA Update	Daniel Rodriguez/EPA
8:45 – 9:00	Questions and Comments from the Public	Members of the Public

# Action Items from the Last meeting



## Action Item

## Status

Navy will send a charter with suggested edits (in track changes) to the confirmed RAB members for their review and comment

Navy will send the revised charter for review after the renewal process is completed

RAB members to discuss the election of a Community Co-chair

Pending selection of RAB members

Navy to propose a date for a RAB workshop on Risk Assessment Procedures

# RAB Administrative Issues

- Summary of Community Meetings
- RAB Renewal Process
- Charter Revisions
- Planning the next meeting



# Summary of Community Meetings



TRC Meetings	9
RAB Meetings	24
RAB Site Visits	6
Public Availability Sessions	3
Public Hearings	2
Public Workshops	2
Outreach Programs	2
Newsletters	6
Flyers	34 x 300 pieces
Media Day	1

# RAB Renewal Process



- Membership
  - Renewal Application
  - New Members
- Charter Revisions



## Planning the next meeting



- Next meeting date – August 2010?
- Proposed Topics







# Environmental Program Progress

- AOC E and AOC I Remediation Pilot Study



# AOC E and AOC I Remediation Pilot Study

## AOC E Background



- Former underground storage tank used for storing waste oil from vehicle maintenance
- Tank removal and subsequent investigation activities showed tank leaked, contaminating a small area of soil and groundwater
- In 2002, a pilot study was done to recover free product, groundwater, and soil vapor
- Recent sampling (2008 and 2009) has shown low levels (near Federal Maximum Contaminant Levels [MCLs] or risk-based levels) of contaminants in groundwater, and an isolated area of free product

# AOC E Questions to be Answered by the Pilot Study (Objectives)



- Will the pilot study be effective on free product?
- Can we reduce already low concentrations of contaminants in groundwater to acceptable levels?
- Can we shorten the time it takes for groundwater contaminant levels to reach acceptable levels?
- Can we reduce soil contaminant concentrations to levels that are not likely to leach to groundwater and re-contaminate it?



## AOC E Pilot Study Approach

- Collect groundwater samples prior to starting the pilot study
  - Baseline data to compare against future groundwater data
- Inject chemical (sodium persulfate) in the groundwater
  - Supplies oxygen and stimulates naturally occurring bacteria to break down the contaminants
- Add an oxygen releasing compound (ORC) to groundwater
  - Maintains the oxygen levels in groundwater
- Inject chemical (calcium nitrate) in the soil
  - Stimulates naturally occurring bacteria to break down contaminants that could otherwise leach to groundwater
- Periodically collect additional groundwater samples
  - Compare to baseline data to evaluate pilot study performance

## AOC I Background

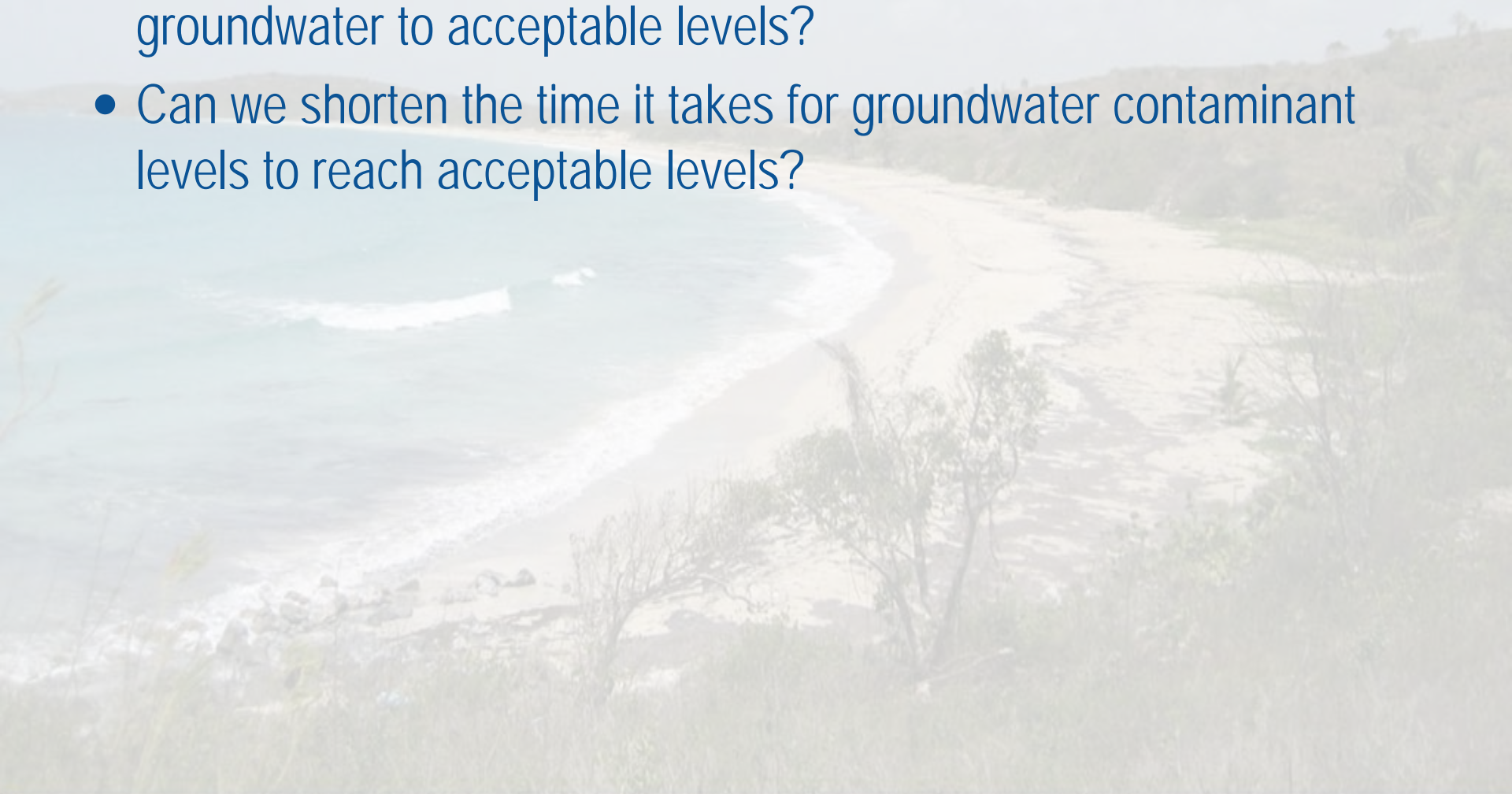
- Former asphalt mixing facility
- In operation from the 1960s through 1988
- Minor drips and spills are likely the source of contaminants observed in groundwater
- Recent sampling (2008) has shown low levels (near Federal Maximum Contaminant Levels [MCLs] or risk-based levels) of contaminants in groundwater



# AOC I Questions to be Answered by the Pilot Study (Objectives)



- Can we reduce already low concentrations of contaminants in groundwater to acceptable levels?
- Can we shorten the time it takes for groundwater contaminant levels to reach acceptable levels?



## AOC I Pilot Study Approach

- Collect groundwater samples prior to starting the pilot study
  - Baseline data to compare against future groundwater data
- Inject chemical (sodium persulfate) in the groundwater
  - Supplies oxygen and stimulates naturally occurring bacteria to break down the contaminants
- Add an oxygen releasing compound (ORC) to groundwater
  - Maintains the oxygen levels in groundwater
- Periodically collect additional groundwater samples
  - Compare to baseline data to evaluate pilot study performance



**Questions?**



# Munitions Response Program Progress

- SIA Surface Removal Action
- SWMU 4 Sub-surface Removal
- Playa La Plata Area Investigation
- Summary of All Removal Actions
- ECA Munitions Items Found



# Surface Munitions Removal Continues in the SIA



- Risk reduction - source removal actions are being conducted in all accessible areas within the SIA
- Slopes greater than 30 degrees are unsafe.
- 548 out of 1182 acres completed



## Sub-surface Removal of Munitions in SIA



- Selected roads within the SIA will also have a sub-surface removal completed.

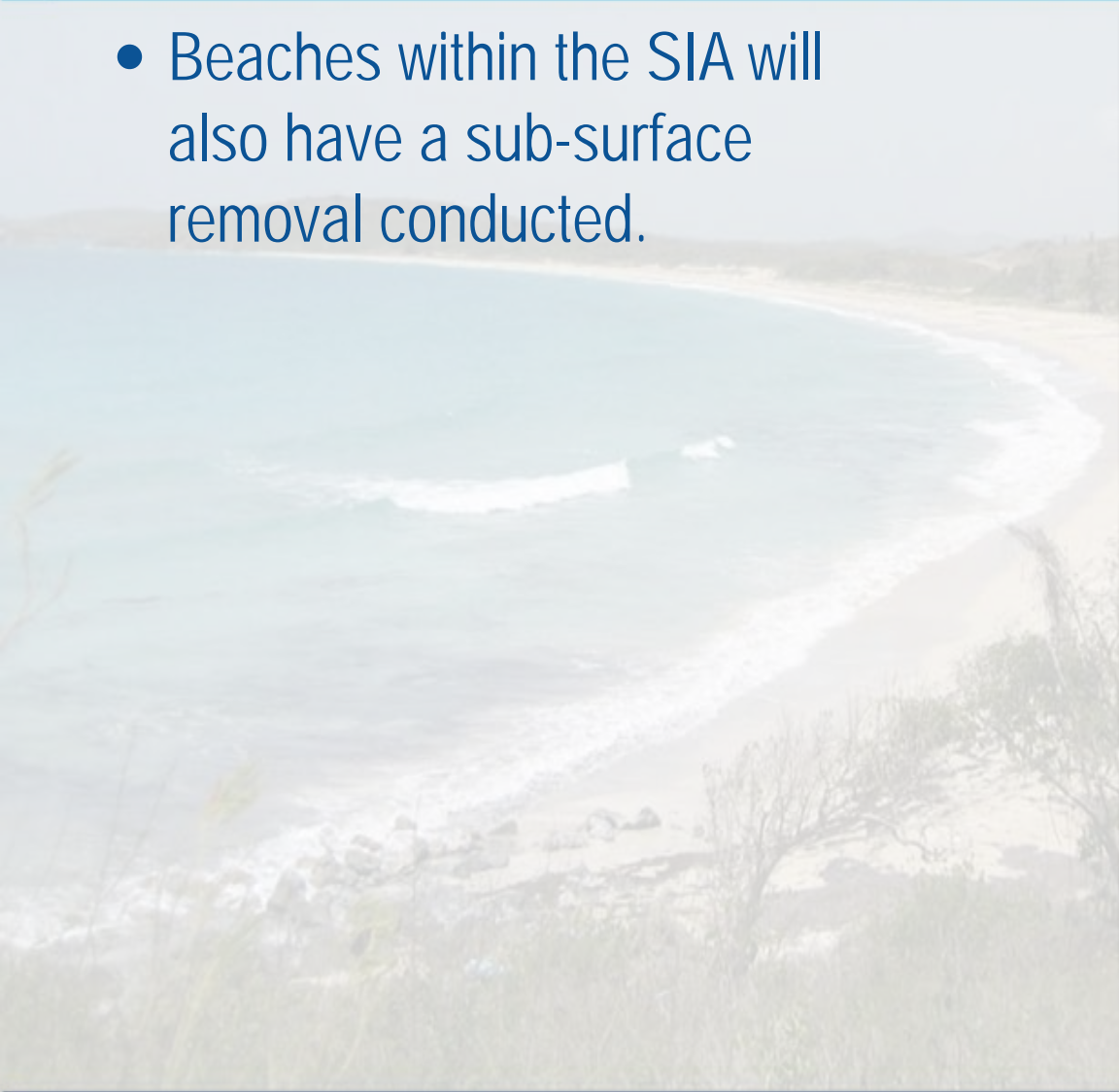




# Sub-surface Munitions Removal in the SIA



- Beaches within the SIA will also have a sub-surface removal conducted.



# SWMU 4 Sub-surface Munitions Removal



- Removal at SWMU 4 Complete
- Approximately 10,000 anomalies excavated
- Approximately 250 MEC/MPPEH items recovered, most 20 mm projectiles





## SWMU 4 Sub-surface Removal



- Team leader records all items uncovered during the excavation
- Team member verifies the anomaly has been removed



# Playa La Plata Beach Area Investigation



- Investigation conducted to determine if these areas were impacted by munitions use
- Geophysical survey performed to identify metallic objects below the surface





# Playa La Plata Beach Area Investigation



- 214 anomalies identified for investigation
- No munitions-related items were discovered
- All beaches were reopened prior to the start of Holy Week





# Playa La Plata Beach Areas Investigation



- Due to sparse vegetation on these beaches, no vegetation removal was required.



## Summary of all Removal Actions



- Surface removal has been completed on 1,523 acres
- Sub- surface for beaches - roads removal at SWMU 4 interim action complete
- Sub-surface nearly complete at Bahia Icacos
- 33,736 munitions and explosives of concern items have been recovered and destroyed. Items recovered declining as the removal moves westward
- 15.5 million pounds of metal debris have been recovered from removal areas
- 12.6 million pounds of that metal debris have been processed and shipped to recyclers



# Surface Removal Progress Map





## ECA Removal – Items Found

- Surface removal complete in the ECA
- Sub-surface for roads complete (except a small portion in the westernmost area)
- 1312 MEC/MPPEH items recovered during the surface removal
- 2 MEC/MPPEH items recovered during the sub-surface removal

# Recent Community Questions/Concerns

- What are munitions made of?
- Washing project vehicles in the community could be spreading contamination

# Recent Community Questions/Concerns: What are munitions made of?



MUNITIONS CLASSIFICATION	EXAMPLE MUNITIONS ITEM	PRIMARY METAL	SECONDARY METAL	POSSIBLE ADDITIONAL METALS	LIKELY FILLER
BOMBS	MK 82 500 LB BOMB	STEEL			TRITONAL OR H6
PROJECTILES	155MM HE PROJECTILES	STEEL PROJ. BODY (IRON)	COPPER ROTATING BAND	POSSIBLE GUILDING METAL ROTATING BAND (90% COPPER 10 % ZINC)	TNT OR COMPOSITION B
ROCKETS	2.75 INCH HE ROCKET WARHEAD	STEEL			COMPOSITION B
	2.75 INCH ROCKET MOTOR	ALUMINUM			DOUBLE BASE BALLISITE (NITROCELLULOSE AND NITROGLYCERINE) PROPELLANT
		STEEL (IRON)			BLACK POWDER (potassium nitrate, charcoal, sulfur)
FLARES/ PROJECTILES	105 MM ILLUMINATION PROJECTILE	STEEL PROJ. BODY (IRON)	COPPER ROTATING BAND	POSSIBLE GUILDING METAL ROTATING BAND (90% COPPER 10 % ZINC)	MAGNESIUM ILLUMINATING COMPOUND
SUB MUNITIONS	MK 118 SUB MUNITIONS	STEEL			COMPOSITION B



# Recent Community Questions/Concerns: What are munitions made of? (Explosives)



EXPLOSIVE	COMPOSED OF
PETN	PENTAERYTHRITOL TETRANITRATE
HMX	CYCLOTETRAMETHYLENETETRANITRAMINE
TETRYL	TRINITROPHENYLMETHYLNITRAMINE
TNT	TRINITROTOLUNE
RDX	CYCLOTRIMETHYLENETRINITRAMINE
EXPLOSIVE D	AMMONIUM PICRATE
COMPOSITION A3	RDX & WAX
COMPOSITION B	RDX & TNT
OCTOL	HMX & TNT
PENTOLITE	PETN & TNT
H 6	TNT,RDX & ALLUMINUM

## Recent Community Questions/Concerns: Washing project vehicles in the community could be spreading contamination



### Actions Taken

- Wash area designated on site and vehicles assigned to the project are washed there
- Mud/dirt from washed vehicles was collected and placed in drums
- A composite sample was taken from different depths in the drum

# Recent Community Questions/Concerns: Washing project vehicles in the community could be spreading contamination



## Results

- No explosives or perchlorate were detected in the analysis of the sediment sample
- 16 metals were detected at levels below the residential land use, risk-based screening levels.
- All metals detected were below risk base levels



# Acronyms Used in This Presentation



AOC	Area of Concern
ECA	Eastern Conservation Area
EPA	US Environmental Protection Agency
FWS	Fish and Wildlife Service
EQB	Environmental Quality Board
MCL	Maximum Contaminant Level
MEC	Munitions and Explosives of Concern
MPPEH	Material Potentially Presenting an Explosive Hazard
ORC	Oxygen Release Compounds
RAB	Restoration Advisory Board
SIA	Surface Impact Area
SWMU	Solid Waste Management Unit
TRC	Technical Review Committee



# Other Questions and Comments from the Public?