Corps of Engineers Exhumation of the Battleship Maine, 1912

CPT David A. Pounds
References


• [http://www.spanamwar.com](http://www.spanamwar.com)


• *USS Maine Investigation on History’s Mysteries*, The Discovery Channel.
Background

• 15 February 1898 - *USS Maine* destroyed in Havana Harbor
• Initial investigation conducted
• Spanish American War
• Public outcry for recovery of missing bodies
• Public/political questions of the mine theory
Problem Introduction

(1 of 3)

- 70 of 260 bodies not recovered
- *USS Maine* investigation (public pressure)
- *USS Maine* location (Cuban pressure)
Problem Introduction
(2 of 3)

USS Maine’s location in Havana Harbor (C)
Problem Introduction

(3 of 3)

• 9 May 1910 Legislation passed to authorize Secretary of War and Chief of Engineers to take action.

• Assignment given to Corps of Engineers
  – Remove the *USS Maine*
  – Recover the remaining 70 bodies
Key Players

• **BG William H. Bixby**
  – Chief of Engineers

• **MAINE Board**
  – **COL William Black**
  – **MAJ Mason M. Patrick**
  – **CPT Harley B. Ferguson**
The Engineer’s Problem

- **USS MAINE**
  - Roughly 350’ x 120’ of wreckage

- **Harbor Conditions**
  - 37’ Water (+/- 2’)
  - 18’ Red Loam and Shell
  - 46.5’ Blue Clay
  - 3’ of stiff Yellow Clay
  - 12’ of Yellow Clay and Marl

- **Coordination Required**
  - Cuba
  - Spain (declined to participate)
  - US Navy (advising/investigation)
Engineer’s Solution

- Sheet pile Cofferdam Construction
- Concrete and Wood Bulkhead
Execution
(1 of 2)

- 29 AUG 10 - Maine Board Meeting
- 13 OCT 10 - Project Approved
- DEC 10 - Cofferdam Construction Started
Execution
(2 of 2)

• 7 JUN 11 - Cofferdam Completed
• OCT 11 - Pumping completed
• DEC 11 - Navy Completed Investigation
• 13 FEB 12 - Dam Flooded/ Maine floated
• 16 MAR 12 - Maine removed
• 02 DEC 12 - All work completed
Other Problems/Solutions

• High water saturation of clay fill within cylinders
  – Multi-staged dewatering of cofferdam
  – Well emplacement in cylinders
  – Drain holes inside cofferdam

• Cofferdam sliding and/or tilting inward
  – 14,900 cy stone toe and counterbalance/ monitoring
  – Timber and concrete bracing

• Wreckage stuck in mud
  – Dredge and excavate 13’
  – 6” Holes cut and water tight flanges installed
The Outcome

• Recovered remains of about 75 bodies
• Removed *USS Maine* wreckage
• Graded Havana harbor to 37.5’
• Facilitated US Navy’s investigation