You Sank My Battleship!
Emergency Operations and Repair
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Brief Overview

- June 9-22 Flooding Event
- June 23-July 6th Flooding Event
- Recovery
- Lessons Learned
- Battleship TEXAS Moving Forward
June 9th-June 22\textsuperscript{nd}- First Event

- Leak in C-94-F (under the Porte Engine Room)
- Inflow $\sim 1100$ gpm at peak
- Flooded 13 tanks and 15 compartments
Environmental Issues

- Residual oil, sludge, and oily debris in bilges and tanks (3 tanks, 2 compartments)
- Clean Harbors contracted for oil/water containment, disposal, and compartment decontamination
- ~6500 gallons of oil/water mix removed daily
- Additionally, four environmentally unsafe compartments were flooded
- Notification of federal and state regulatory agencies
Damage Control/Salvage Operations

- Bringing all our pumps to bear/trying to minimize flooding
- Correcting collateral flooding in blister tanks
- Hired T&T Marine to locate hole, effect patching, and aide with dewatering.
- 24/7 operations
- Daily logging of draft and trim
- Daily sounding of ship
Location of Leak: C-94-F
Leak in C-94-F
Impact of this Flooding Event

- Operations
- Ship’s integrity
June 23rd- July 13th- Second Event

- Started in blister and caused hull failure and leak into interior.
- At peak ~3000 gpm
- Had some 5,000 tons of water aboard
- Draft at stern increased by 8ft and decreased by ~4ft at the bow
- Because of how we attacked the leak; the ship took 6 degree heel to starboard
- More oil contaminated compartments were flooded
Sanitary Pump Room, D-26-P Leak
More Environmental Issues

- Bunker oil in two 40mm magazines contaminated four compartments
- Residual bunker oil in piping contaminated two compartments
- Asbestos
Damage Control/Salvage Operations

- Remobilized T&T Marine
- Activated what pumps we had and brought in more
- One concrete patch was placed in D-26-P and one aluminum strong back patch was installed on the blister shell
- Patching collateral leaks in blisters and Trimming Tank D-12 lasted until August 2nd
D-26-P patched June 28th
Impacts

- Stress to the ship caused the need for ~95 blisters patches and 2 concrete and 23 epoxy patches in Trim Tank D-12 Patches
- Mooring system damage
- Fire Alarm system damaged
- Waste water system
- Operations
Blister Tank Isometric Drawing
Blister Patches
Trimming Tank, D-12 Patches
Monopile repairs
Lessons Learned

- Dewatering Plan
- Environmental impacts
- Ship Operations
- Safety
- Media
- Clean Up
- Financial
- We were not alone.
Dewatering Plan

- Have one.
- Key elements
  - Know your watertight integrity
  - Pump placement
  - Set condition X-Ray through out the ship
  - Establish contacts with a salvage company
  - Should include a plan regarding ship operations
Ship Operations

- Limited public access
- Ship closure
  - Providing off-ship interpretation
  - Keeping the public informed
- Reopening
  - Determining the best time
Environmental Hazards

- Don’t wait until water is coming in to know where the environmental hazards
- Get rid of them ahead of time
- Know the regulations
- Know who to call and when to call:
  - NRC
  - State environmental
  - Environmental response contractor
Safety

- Clutter
- Confined space entry
- Electrical
- Cathodic Protection
- Mooring/Ship access
- Coordinating/communicating with contractor(s)
Media

- Have a media point of contact
- Have a consistent message
- Get ahead of the story
- Be responsive
- Be prepared for an overwhelming number of offers
Getting Cleaned Up

- Hazardous material removal (135k gal through Aug-2)
- Flooded compartment inspection and decontamination
- Ship dehumidification
- Pump repairs and replacement
- Cathodic protection repair (rebonding monopiles)
- Fire Alarm repairs
- Evaluating flooded objects/artifacts
- Returning to normal operations
Financials

- June 11, 2011-July 8, 2011
  - $101,434.53 revenue
  - 10,980 visitors
- June 9, 2012-July 6, 2012
  - $72,192.83 revenue
  - 4,892 visitors

- $29,241.70 / 29% loss in revenue
- 6,088 / 55% loss in visitation
Financials-continued

- T&T marine- ~$1.3M($135k 1st event) for emergency response, pumping, diving, patching, and monopile repairs.
- Clean Harbors-~$990k for emergency response, pumping, hazardous materials removal and decontamination, boom management, and testing.
- Other
  - Equipment rental (pumps, compressors)- ~$15k
  - Services (electrical, hazmat testing, fire alarm)- ~$20k
  - Misc. (diesel, consumables)- ~$8k
T & T Marine

• From 6/15 to 6/23: HPU / MSP-300 at ½ standard rate, plus standby at no charge. Total savings estimate: $26,250.00
• From 6/24 to 7/6: Standby Equipment and Hoses (No Charge): Totals savings estimate: $158,000.00
• From 7/7 to 8/31: HPU/MSP-150 at ¼ standard rate and no charge for hoses and two standby HPU’s: Total savings estimate: $449,550.00
• Did not charge a project management fee for at least 50 days: Total savings estimate: $90,000
• All personnel were charged at hourly rates instead of the standard salvage daily rates: Total savings estimate: $309,903.75
• In sum, TPWD were provided an estimated equipment cost savings of $633,800.00 and an estimated personnel cost savings of $399,903.75 for a total of $1,033,703.75
It takes a village

Organizations:
- Battleship TEXAS Foundation
- First TEXAS Volunteers

Companies:
- Clean Harbors (environmental)
- S&J Diving (salvage and dive)
- T&T Marine (pump rental, salvage, and dive)
- Pfeiffer & Son (electrical)
- All Pump (pump rental and repair)
- Master Pump (pump repair)
- Atlas Copco (compressor repair)
- Protection One (fire alarm repairs)
- RSC Equipment Rental (compressor rental)
- Suncoast (diesel)
- J.A.M. (diesel)
- Sitex (confined space entry and safety)
- Anode Solutions (cathodic protection repairs)
- SSCI (environmental)
- NRI (patching products)
- Phoenix International (environmental)
Battleship TEXAS Moving Forward

- Repairs
- Future Plans
It was part of a Federal, big-government program.

Let it sink...

We won’t...
Questions?