INDUSTRY CHALLENGES TO RESTART DEEP WATER DRILLING

Presented by:
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• Better well construction planning, execution, verification and approvals

• Rapid response containment system

• Rapid response deep water oil recovery assets
DEEPWATER HORIZON ECO INVOLVEMENT SUMMARY

• First responder
• Firefighting
• Search & rescue
• Determine damage to BOP
• Attempts to close BOP
• Mapping debris on sea floor
SERVICES PROVIDED BY ECO

- “Top Hat” Cofferdam
- Decontaminating vessels
- Tanker assistance
- Containment and Disposal Project
- Containment, Skimming & Recovered Oil Storage
- Methanol transportation
- Terminal services
CHALLENGES
LEARNINGS FROM ONSITE OIL RECOVERY

• Rapid response to spill; immediate
• Skimming operations need to be 24 hour operation
• Skimming needs to continue in bad weather conditions
• High storage capacity for recovered oil is required
• Skimming Configurations must maintain wide swath openings to achieve maximum encounter rates
• Note oil in water while rig is still burning

SPILL RESPONSE MUST START IMMEDIATELY
MUCH OF CURRENT EQUIPMENT NOT EFFECTIVE IN ROUGH WEATHER

- In DWH, it was fortunate to have excellent weather for most of the incident.
MUCH OF CURRENT EQUIPMENT NOT EFFECTIVE IN ROUGH WEATHER

Note oil escaping boom in calm seas
SKIMMING OPERATIONS WERE NOT ALLOWED TO PROCEED AT NIGHT
HIGH CAPACITY STORAGE NEEDED
VESSELS LIMITED TO 4,000 Bbls OF RECOVERED OIL STORAGE
HIGH CAPACITY STORAGE NEEDED
DECK TANKS ADDED TO INCREASE STORAGE CAPACITY
WIDE SWATH WIDTHS FOR BOOM CONFIGURATIONS MUST BE MAINTAINED TO BE EFFECTIVE
Proposed Rapid Response Deep Water Oil Spill Recovery Solutions
SKIMMING CONFIGURATIONS ARE INEFFECTIVE & LACK ORGANIZATION CONTROLS – MUST BE IMPROVED

- 6 skimming configurations consisting of 14 total vessels on 1.5 sq.n.mi. of open ocean
- Note unorganized positioning & directions of skimming of the 6 configurations
- Note improper positioning of skimmers with respect maximum oil thickness
- 1750 ft. of Swath Width for all 6 configurations
UTILIZE PROVEN EFFECTIVE SKIMMING CONFIGURATIONS

“J” Skimming Configuration

- Hi-Efficiency Skimmer (60k bbl/day Potential)
- Hi-Efficiency Containment Boom
- 12,000 bbl Skimmer Boat
- ’J’ Boom Boat

~130' ~200' ~250' ~400'
UTILIZE PROVEN EFFECTIVE SKIMMING CONFIGURATIONS

“J” & “U” Skimming Configuration

Hi-Efficiency Skimmer (60k bbl/day Potential)

Hi-Efficiency Containment Boom

12,000 bbl Skimmer Boat

~130'

~250'

~200'

~400'

Hi-Efficiency Containment Boom

U-Booem Boat

~2300 ft.

U-Booem Boat
UTILIZE PROVEN EFFECTIVE SKIMMING CONFIGURATIONS

- Note 2 “U” & “J” Configurations side by side overlaid on DWH active skimming operation
- These combined configurations utilize 8 vessels verses 14 vessels and offer 4600 ft of Swath Width Coverage, verses 1750 ft
UTILIZE PROVEN EFFECTIVE SKIMMING CONFIGURATIONS

- Note skimming of oil from discharge at North Sea platform
- Effective plan is to contain oil as soon as possible at the source
UTILIZE PROVEN EFFECTIVE SKIMMING CONFIGURATIONS IMMEDIATELY

- Note 2 combined “U” & “J” configurations superimposed over spill site on day 3 of the event
- Note 3rd “U” & “J” configuration behind to recover any entrained oil from lead configuration
UTILIZE ADVANCED DYNAMIC POSITIONING TECHNOLOGY

Radar Display from Skimming Vessel of Skimming Configuration in Picture on Right

Picture taken from Skimming Vessel of “J” Boom Boat & 2 “U” Boom Boats
UTILIZE SKIMMING EQUIPMENT CAPABLE OF OPERATION IN ADVERSE WEATHER CONDITIONS
MINIMUM SPECIFICATIONS - OSRV

- ABS Oil Spill Response Vessel Class for Recovered Oil <60 degree C
- ABS Dynamic Positioning Class 2 (DP 2)
- ABS Fire Fighting Class 1 (FiFi 1)
- 12,000 Barrel in-hull Recovered Oil Capacity (Minimum)
- Oil Water Separators to insure that RO Storage Capacity is for Recovered Oil, and not an oil/water emulsion
- High Efficiency Skimmer
  - 400 m3/hr recovery rate with oil viscosities 1-15,000 cSt
  - 125 m3/hr recovery rate with oil viscosities up to 500,000 cSt
- High Efficiency Containment Booms & Reels
  - 1 x 300m boom for “J” configuration (2.5m significant waves)
  - 2 x 400m booms for “U” configurations (2.5m significant waves)
- Workboat with minimum 3.0 mtns of bollard pull and suitable davit
- Configured for 24 hour skimming operation
  - Oil Sensing Radar Installation with means to measure depth of the oil
  - Dual Halogen/UV Searchlight allowing for 360 degree coverage
UTILIZE MORE EFFECTIVE VESSELS IN SPILL RESPONSE

Example of 280 ft.
MULTI-ROLE VESSEL
RECOVERED OIL CAPACITY
V1 = 15,416 Bbls (2,451 m³)
V2 = 13,460 Bbls (2,140 m³)

MODIFICATIONS

1. ABS OSRV Class
   a) Containment Boom Reels for “U” Configuration
   b) Containment Boom Reel for “J” Configuration
   c) Recovered oil Deep Well pumps
   d) TransRec 150 Skimmer Unit
   e) 10m Fast Rescue/ Daughter Craft and Davit
   f) Fire Barrier

2. Optional Items
   a) FIFI 1 (If not already Equipped)
   b) Oil Spill Detection System (Radar)
   c) 4 x Ocean Therapy Separator Units
   d) Fire Boom Reel and Pump System
   e) Halogen Searchlights
   f) Current Meter
   g) Dispersant Boom & Tank
AREAS WHERE GOVERNMENT CAN HELP INDUSTRY
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• Provide Regulations Defining Capabilities of OSRVs

• Require OSRVs to be Classed by the American Bureau of Shipping under their Rules for Oil Spill Recovery Vessels

• Require that USCG and Congress Revise Regulations, Policy and Statutes that Limit the Size of OSRVs to <500 GT
EXAMPLES OF NORTH SEA STANDBY SPILL RESPONSE VESSELS ALL >500 GT
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U.S. PRESCRIPTIVE REGULATIONS CAN RESTRICT INDUSTRY EFFORTS TO IMPROVE SPILL RESPONSE

• This vessel is submitted as an example of what is needed

• M/V NANUQ
  • 301’ x 60’ x 24’ OSV w/Spill Response Capabilities
  • Built & delivered in 2007
  • USCG Certificated as Sub L & Sub I
  • Cargo Authority for Grade “B” & lower
  • ABS Classed as Unrestricted Oceans, Ice A1, OSRV Capability Class 1
  • Convention Tonnage is 3575GT
  • Fully complies with all USCG & ABS requirements as set forth in policy and rules for a Class 1 OSRV
  • Recovered Oil Holding Capacity of 12,690 Barrels
Even though designed, approved, inspected, tested and delivered as a Class 1 OSRV, the Nanuq has the following restrictions placed against it by the USCG:

- When operating in Alaska, the Nanuq must contact USCG prior to initiating any skimming or response operations and request a letter of authority as a Vessel of Opportunity (VOO)

- The Nanuq may NOT act as an OSRV in waters other than Alaska without applying for and receiving specific authority from USCG Headquarters

- In short, the Nanuq, even though the most complete & sophisticated Oil Spill Response Vessel in the US Fleet today, is restricted by the USCG to a level equal to the following vessel.............
WHY, YOU ASK?
• Currently US Flag OSRVs must be certificated by USCG in order to perform Oil Spill Operations……

• Current US Policy and Law requires that dual service OSV/OSRVs be <500 GT……..

• The Coast Guard Authorization Bill of 1996 (PL104-324) directed USCG to promulgate regulations for OSRVs, however USCG have never promulgated these regulations……

• Since the Nanuq is >500 GT, USCG considers it equal to the shrimp boat with respect to authority to recover and store spilled oil……….Both have to request and obtain VOO authorization before doing any spill response work…..

• At industries request, the Senate Committee on Commerce, Science and Transportation staff proposed larger (>500 GT) dual purpose PSV/OSR vessels to the United States Coast Guard. The USCG response, in 2009, was:
"The Coast Guard remains concerned about the proposal's impact on the dedicated fleet of oil spill response vessels (OSRVs) and, by extension, the Nation's overall oil spill response capacity.

Specifically, the Coast Guard is concerned that the enactment of this provision could irreparably diminish that capacity in the Gulf.

While there is little appreciable effect on safety and environmental protection, altering the status quo enabling current OSV’s to compete against dedicated OSRVs would likely have a detrimental effect on the Nation’s oil spill response capability.”
As evidenced by the Spill Response Effort on the DWH Incident, changes must be made immediately to improve spill response effectiveness.

The American Bureau of Shipping has realized from the DWH spill that current US regulations are inadequate, and are currently doing a complete rewrite of their OSRV Class rules.

Given the past history of the slow pace of regulatory changes within the USCG, it is recommended:

- that the new ABS OSRV Class rules be accepted as the interim standard for US Flag OSRVs, and
- that the USCG work closely with ABS during their rulemaking process in order to utilize ABS’s knowledge base gained from the development of the new ABS OSRV Class Rules.
SUMMARY CONCLUSIONS

Neither industry or government handled the DWH incident very well. However for the future…………

• Elevated levels of regulatory control and oversight by the government, along with

• the Drilling Industries’ new Marine Well Containment Company and their $1 billion investment in a 10,000 ft/100k Barrel per day Deep Water Containment system, and

• implementation of the Proposed Plans for Standby Spill Response Vessels immediately available to begin Oil Recovery Operations should a blowout occur

will eliminate the concerns associated with Deep Water Drilling in the Gulf of Mexico.
~ QUESTIONS ~