

Maturing the *In Situ* Burning Process Improving on Success

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In Situ Burning

“ISB proved to be an effective tool for removing large volumes of oil from the water’s surface, preventing impact to environmentally and economically sensitive areas.”

USCG Incident Specific Preparedness Review – Deepwater Horizon Oil Spill

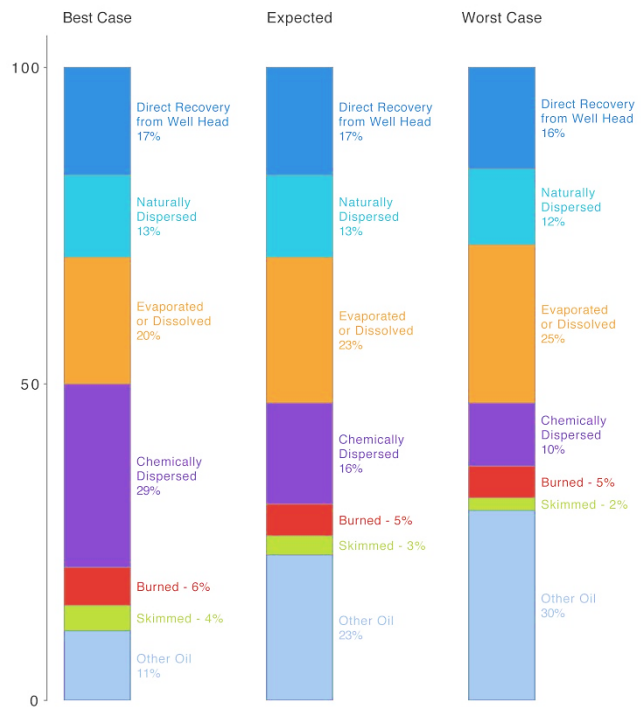
In Situ Burning

In Situ Burning (ISB - aka Controlled Burning)
has come of age.

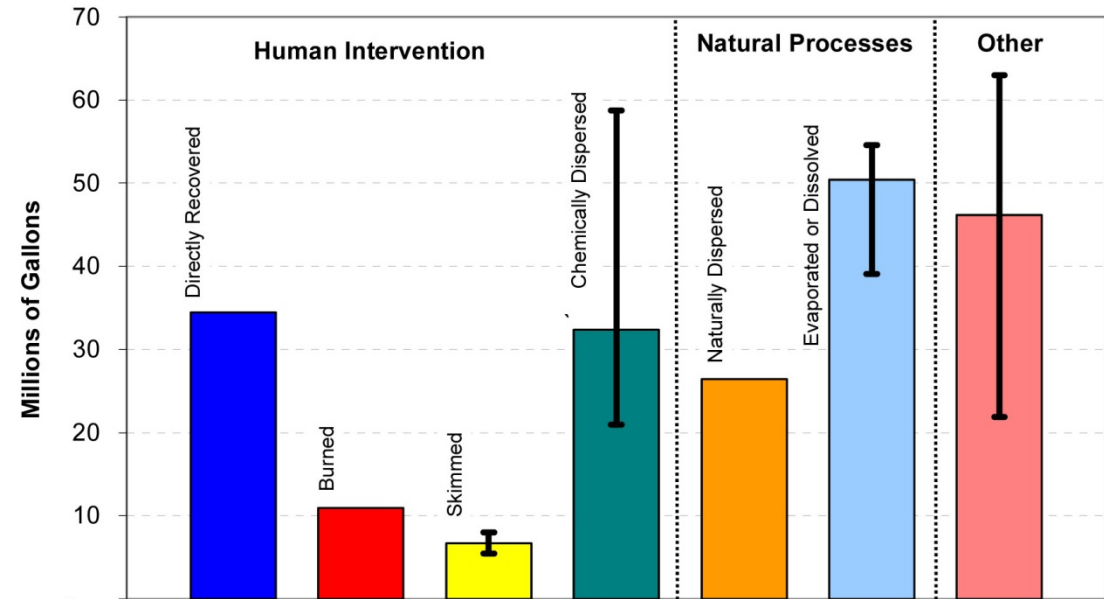


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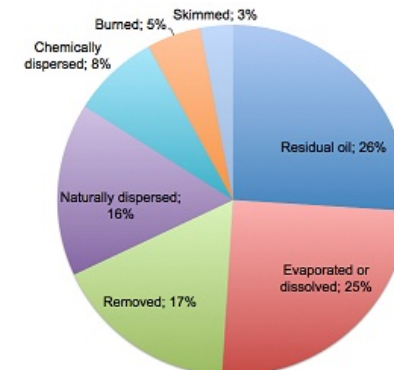
“Quantifying” the Success



The Federal Interagency Solutions Group – November 2010



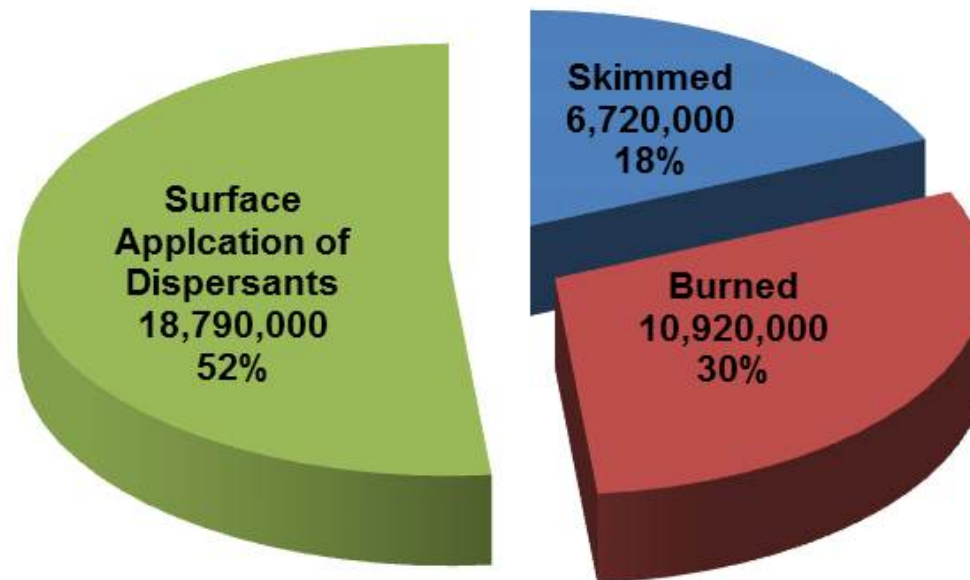
Congressional Research Service, Ramseur – December 2010



The Federal Interagency Solutions Group - August 2010

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“Quantifying” the Success of Surface Response Technologies



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Maturing the ISB Process

- The ISB concept has been discussed and researched since the late 1960' s
- Rarely employed
- Only mentioned in passing, if at all, in many contingency plans
- The success of the technique in the Gulf of Mexico has generated new interest
- The literature provides considerable guidance on the decision process leading up to ISB
- However, the acquisition of fire boom alone does not constitute an ISB program

Maturing the ISB Process

The GoM experience revealed a lot of positives to be noted and emulated:

- Communications up and down the chain of command were excellent
- Vessel of opportunity sweep teams were well chosen, trained and incentivized
- The on-scene command and control, and the operators quickly became a well oiled machine
- Scarce resources were squeezed for everything that could be obtained, and used to exhaustion

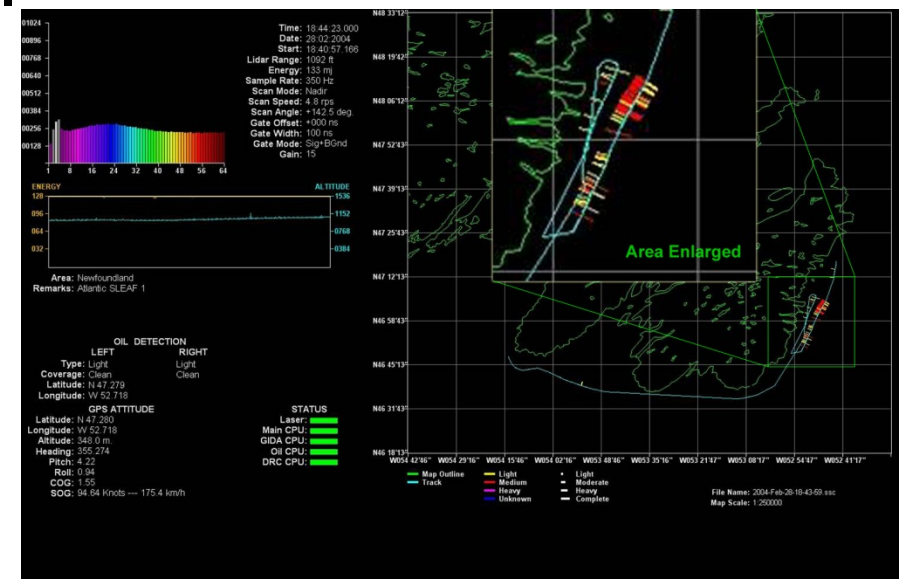
Maturing the ISB Process

From an operational perspective, three areas showed a need for improvement and should be points of emphasis for future ISB planning:

- Detection and tracking
- Concentration and containment
- Managing highly weathered or emulsified oil, and post burn residue

Detection & Tracking

- Airborne spotters are OK, but a robust and capable detection and tracking system which can transmit a geo-referenced map product to the on-water responders is needed.
- An active scanning system, like Environment Canada's SLEAF system would be ideal.



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Picture courtesy of C. Brown, Environment Canada

Concentration and Containment

- Oil needs to be collected and thickened in order to support the ISB process.
- Sweep operations are the conventional means of accomplishing this.
- Avoiding the loss of oil via entrainment is difficult in most any sweep operation, with vessels of opportunity it is a real challenge.
- Desmi AFTI has a fast water fire boom concept that can meet this challenge.

Concentration and Containment

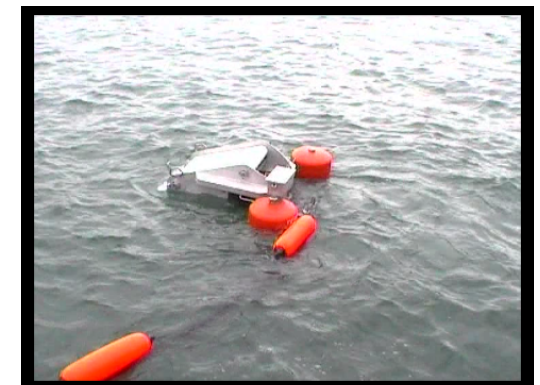
- Certain fire booms have been demonstrated in modest broken ice conditions.
- With broken ice exceeding about 3/10^{ths} coverage the use of boom becomes impractical.
- Sponsored by a major oil company Desmi AFTI, is working with S.L. Ross to obtain U.S. EPA listing for three oil herders.



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Managing Highly Weathered or Emulsified Oil and Post Burn Residue

- Weathered or emulsified oil may be collected, but then found to require more heat flux to ignite than is available with the igniters on hand.
- As thorough a removal technique as ISB may be, there will be some residue after the burn is completed.
- A capable system for collecting and removing these materials from the water's surface is necessary.



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Conclusion

ISB has been shown to be an effective oil removal technique worthy of full consideration and incorporation in spill response strategies. There are integration needs that can both compete, or be in common, with those of mechanical recovery and dispersant operations. A more optimum solution will result from a full evaluation of the requirements, benefits and time phasing of ISB as part of a complete plan.



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Thank You!

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