

OSCAR

Oil Spill Containment And Recovery System



What are the issues?

- Oil sheen containment and capture
- Floating oil from small spills
- Ineffectiveness of polypropylene booms
- Labor intensive methodology
- Skimmer shortcomings for sheen removal
- Cost prohibitive vacuuming procedures
- Inability to leave devices in place for long periods

Development parameters

- Effort to find a solution
- Goal to utilize past experience
- Guardian's experience with SheenGuard blankets
- Enviro-USA's experience with years of boom development and construction
- Utilize Guardian's proprietary solidifying absorbent for maximum effectiveness

Design parameters

- Effectiveness for removing oil sheen from fresh or salt water
- Effectiveness in containing floating oil and sheen
- Ease of deploying boom
- Ease of attaching blankets to boom
- Ease of replacing spent blankets
- Eliminate the need for additional polypropylene booms
- Compatibility with skimmer equipment

Introducing “OSCAR”



Construction

- Standard containment boom is 18” approved “protected port” type
- Custom boom lengths & widths available
- Standard blanket constructed of heavy weight nylon mesh with supplemental flotation filled with PetroGuard
- Standard size 36 “ wide and 86” long to conform to containment boom.
- Blankets can be joined together to provide greater surface area to capture oil
- Blanket adaptable to other containment boom sizes and applications

OSCAR System

- Sample section construction



PetroGuard-D The absorbent

- PetroGuard® advanced molecular capture oil spill solidification polymer
- The original solidifier introduced and in use since 1992
- High capacity and light weight
- Will not release after absorption
- Suitable for waste to energy disposal facilities or solid landfill options

PetroGuard – the absorbent

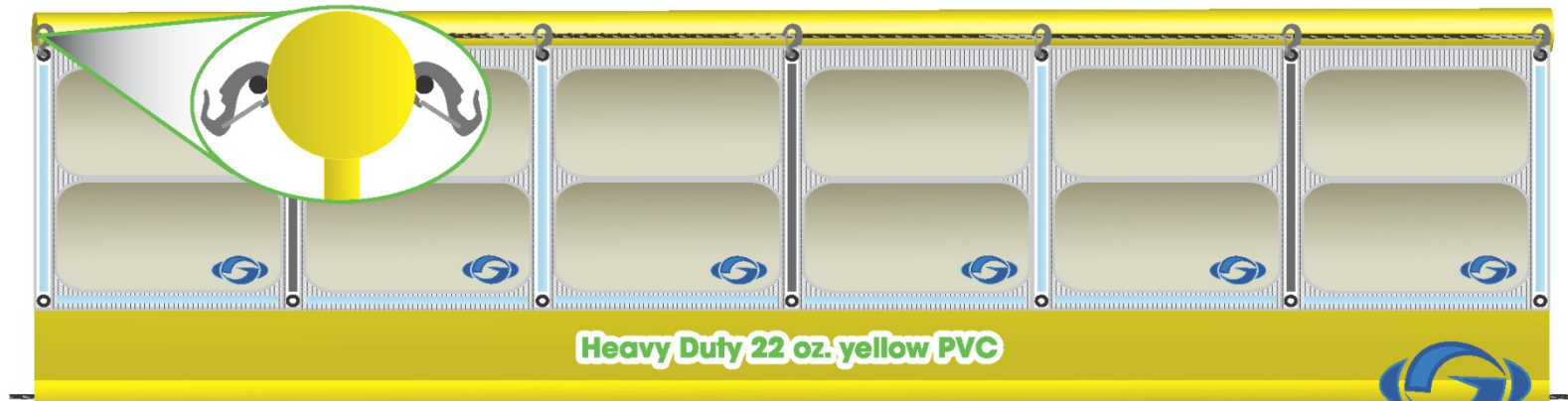
Example organics absorbed and immobilized

- Diesel and fuel oils
- Silicone oils
- Polynuclear aromatic hydrocarbons
- Chlorinated hydrocarbons
- Ethyl acetate
- Trichloroethylene
- Crude oil
- Methylene chloride
- Naphtha
- Carbon tetrachloride

Boom and blanket design

Dual cables as tension members and for attaching OSCAR Blanket.

ASTM Universal Slide marine grade aluminum connectors.



5/16" (8 mm) galvanized chain as bottom tension and ballast



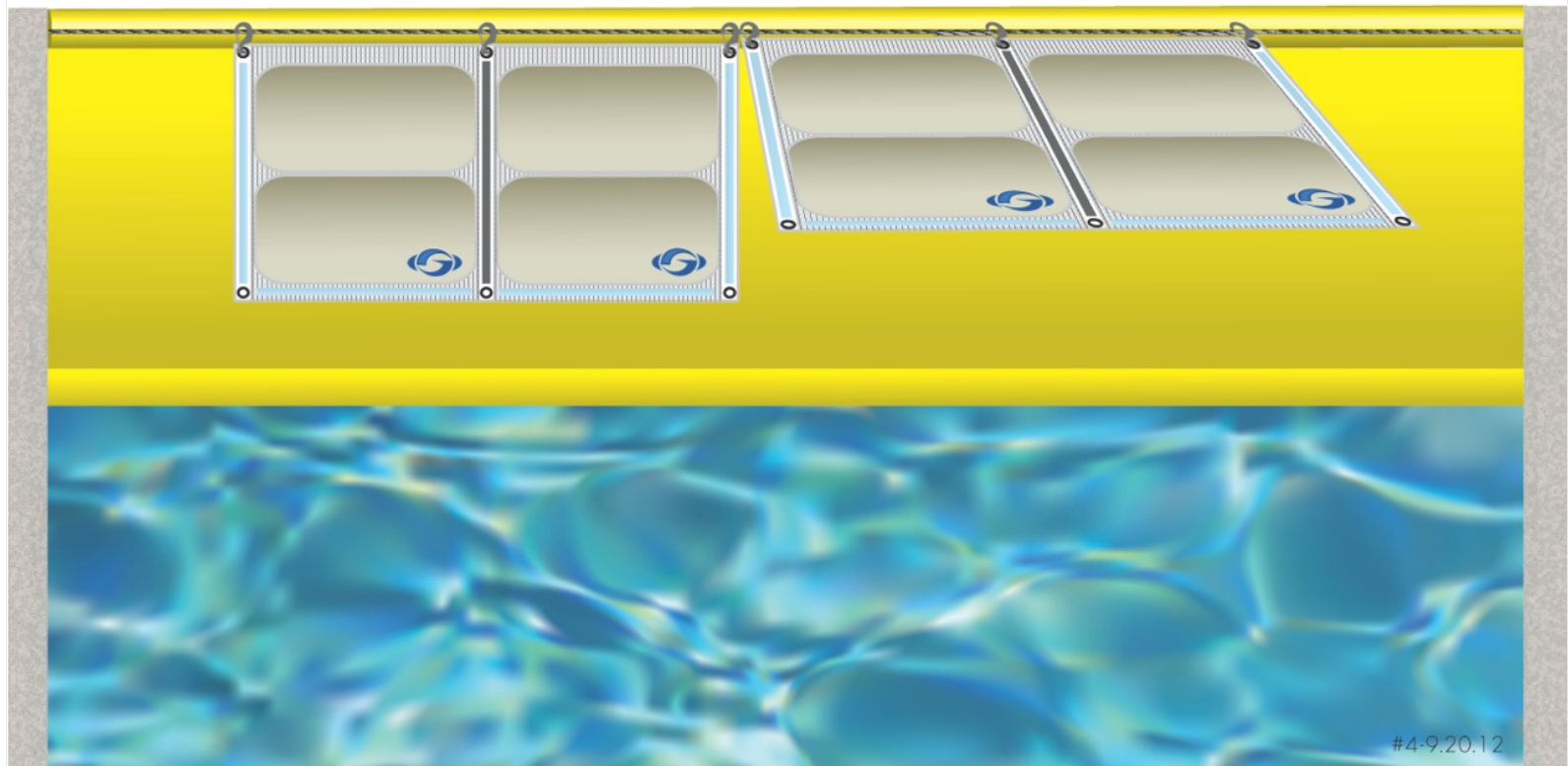
OSCAR's unique features

- Easy attachment to special cable fitted to containment boom using heavy weight zip-ties or optional Carabiner clips
- Easy replacement of spent blankets leaving long lasting boom in place
- Blankets can be ganged together to provide wider or larger surface area

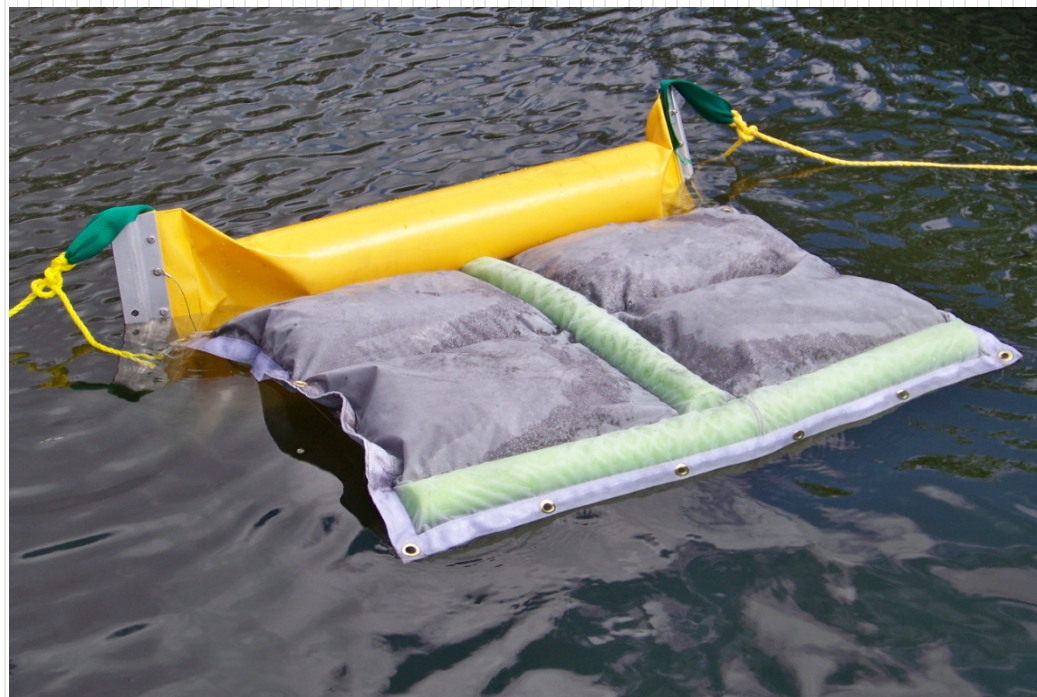


Design

Blanket attaches to boom



Demo unit in water



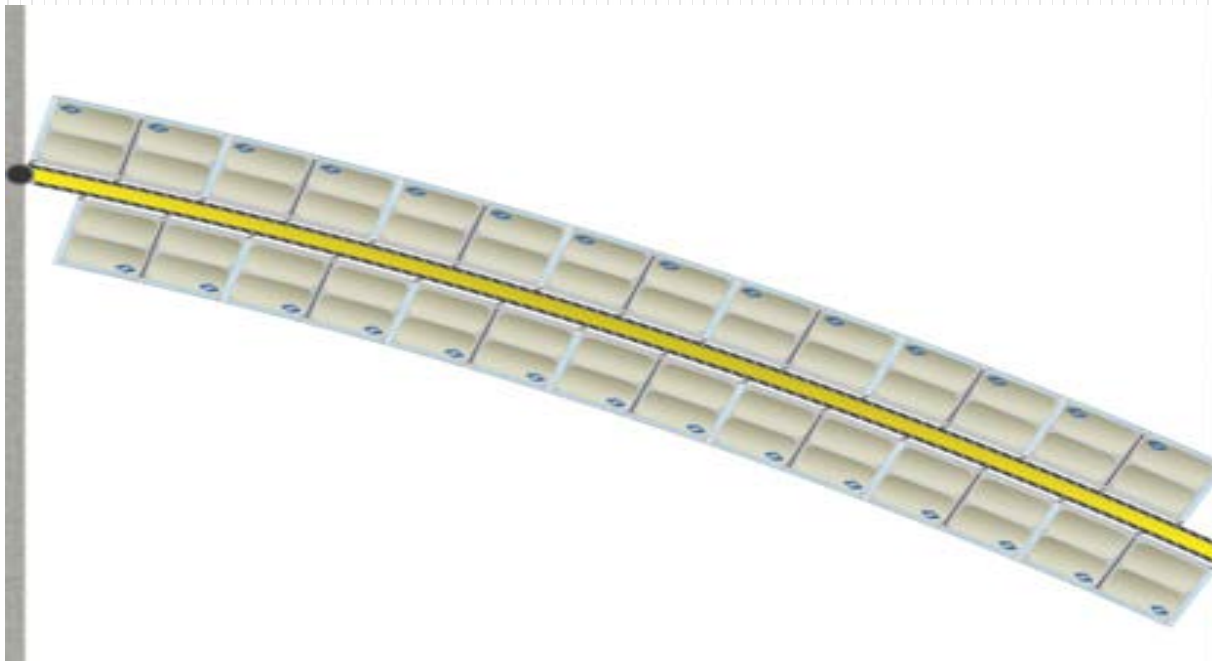
Demo in water

OSCAR attached to single side

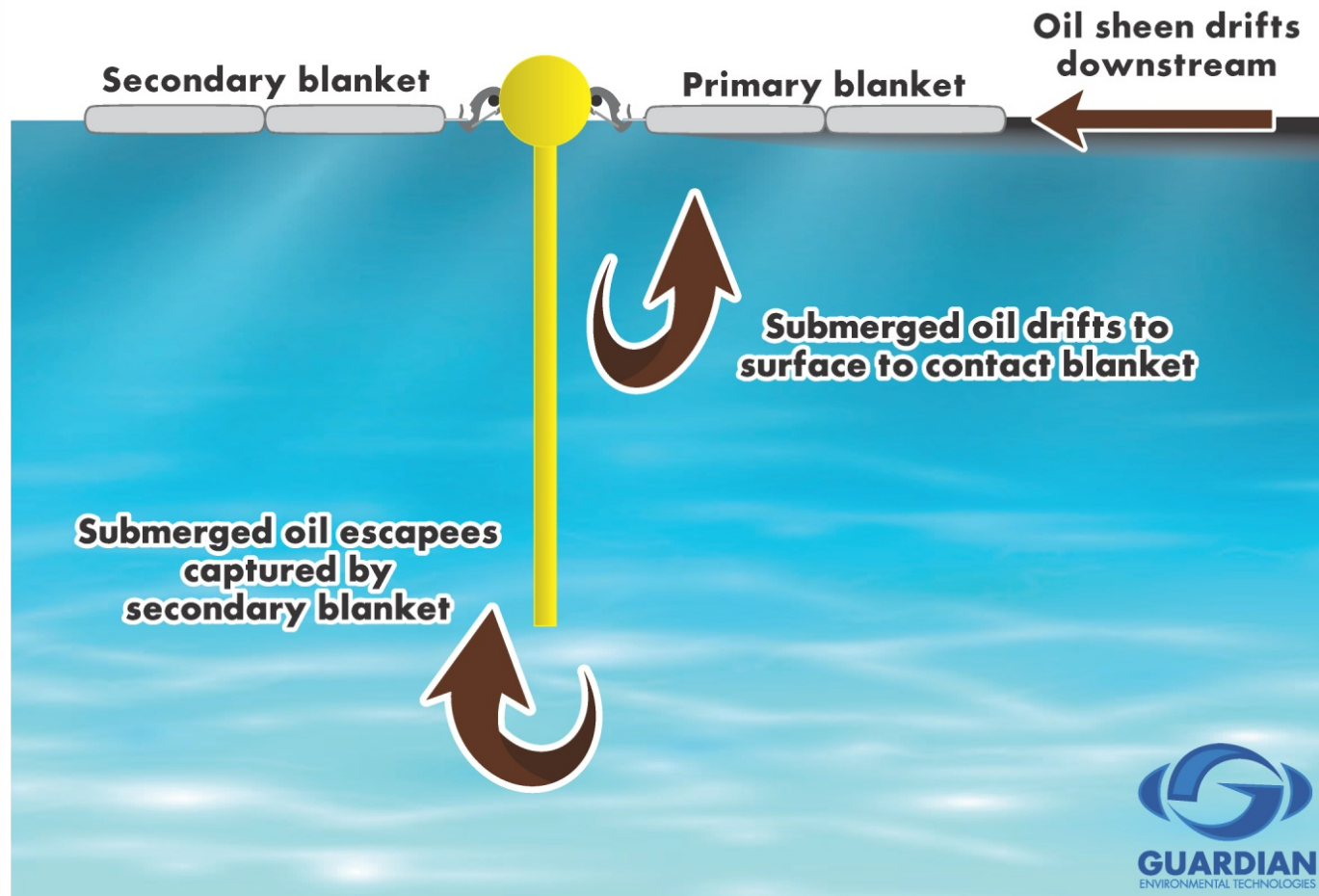


Single or double action

- Attach OSCAR to one side of boom or to both sides for additional protection
- Secondary blanket will capture oils that escape under boom



Primary and secondary blankets



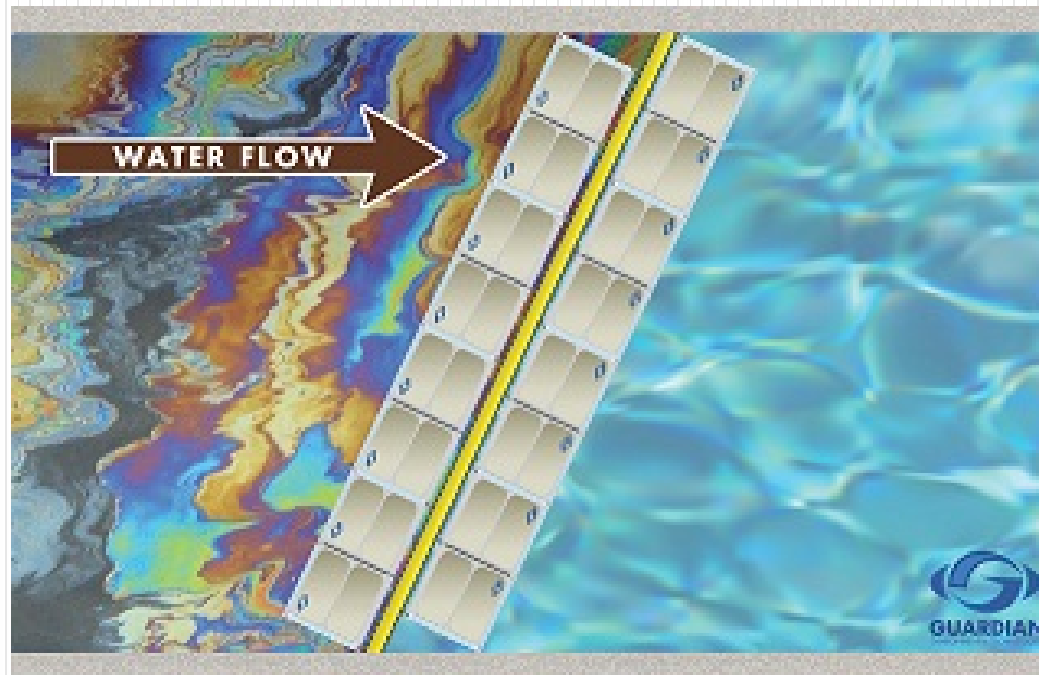
OSCAR shoreline protection



OSCAR on river application



OSCAR across restricted body



Ship protections





Advantages

- Actually removes oil sheens permanently
- Reduces labor costs
- Long lasting (some blankets in use for 4 months)
- Re-useable boom
- No environmental impact

Approvals

- PetroGuard-D approved by USEPA as sorbent



- SheenGuard Exemption by California Department of Fish and Game dated 4/21/2011



- Enviro-USA products compliant with:
 - ASTM F 1523: Calm, Current & Protected Water
 - US Coast Guard – OSRO: River/Canal, Inland & Great Lakes
 - OPA 90: River/Canal, Inland & Great Lakes

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