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GNSS: Fixed

22.0m

Recent Developments in Conventional Spill Response and Remote Sensing Elastec/American Marine

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Chevron/OSPR Oil Spill Workshop February 2015

Recent Developments at Elastec/American Marine

- **1. Offshore Spill Response**
 - A launch & retrieval system for large skimmers
- 2. Arctic Spill Response

Temporary storage device for on-deck installation

- 3. Spill Surveillance & Monitoring
 - OceanEye[™]

Offshore Spill Response

1. LAUNCH & RETRIEVAL SYSTEM FOR LARGE OFFSHORE SKIMMERS

X-150 Advancing Disc Skimmer

 Highly effective skimmer
 1400-pound weight can be difficult to deploy from a vessel of opportunity without crane
 Solution: Purpose-built LARS

Goals of the LARS Project

- Provide lifting device, power pack, sweep boom storage, umbilical storage and integrated controls for the X-150 and other ocean skimmers.
- Complete unit to fit INSIDE a 20-foot container to combat 3rd-world pilferage
- Easy lash-down no vertical restraint required



Shown on a road trailer ready to be spotted
Conventional oceanographic "Gallows" design
HPU on far end. Boom roller on near end

Fixed boom rotates over-center.
 Back reach > 6 feet
 Outreach: > 10 feet

LARS 1



 Sweep boom is paid out as unit is swung out and lowered into the water

×15

RS 1

• All functions are controlled wirelessly

12

LARS 1

DUCTION PUMP

SPEED 100%

-zui

SERIAL

MAST

MAST



PART# 195-51807-1000

REEL

REEL

All functions are controlled wirelessly

 Long, synthetic pendant on the skimmer makes disconnect/reconnect easy

 Connections made with "soft shackle," which can be wound up on lift drum without damaging lines.





Results of LARS 1 Testing

- Wireless controls worked well
- Long lifting pendant made disconnecting and making-up lift line easy.
- Coordinating sweep reel payout with boom swing required practice.
- Controlling the X-150 swing with sweep tension required LOTS of practice or tag lines!
 Conclusion: Need better way to control skimmer motions during deployment.

 Horizontal telescoping boom design with integrated "reverse cradle"

LARS 2

AUNCHING SYSTEM

LARS - Full Cycle.mp4

[Note: video removed from this version.]

- Proved easier for operator to coordinate sweep and skimmer movement during deployment.
- Reverse cradle provides positive control of skimmer during horizontal movements.
- Same reach, lift and exterior dimensions as LARS 1 – still fits inside 20-foot container

Arctic Spill Response

2. TEMPORARY STORAGE DEVICE – ON DECK INSTALLATION

USCG R&D Center

- Elastec/American Marine proposal under a competitive procurement, HSCG32-14-R-R00010. (Contract No. HSCG32-14--R00010)
- Lump sum for the delivery of a prototype, engineering calculations and operating manuals.
 The Coast Guard offers no endorsement of this product.

Goals of the Project

- Portable tanks for installation on deck of WLB
- Aggregate capacity of 12,000 gallons
- Able to pass through 102" x 156"hatch when empty
- Able to withstand (when full)
 - 0.27g longitudinal
 - 0.46g transverse
 - 1.53g vertical

Note: We used more conservative set of accelerations from DnV Cargo Lashing guidelines

- Larger accelerations when empty for shipping
- Utilize recessed tie-downs on deck

Goals of the Project

- Why on deck?
- Current technology
 - Towable bladders
 - Fast tanks
 - Pillow tanks
 - Onion ta<u>nks</u>









"Circus Tent" Concept

• Fabric shell supported by multiple external tent poles.



"Circus Tent" Concept

• 4 x 4,000-gallon units will fit on the deck.



Design Considerations

- Membrane stress
 - Hydrostatic loads
 - Dynamic loads
- Concentrated loads
 - Tie-down loads
 - Tent-pole loads
- Penetrations
 - Loading connection
 - Discharge, decanting & stripping connections
 - Temperature gauge
 - Vents
 - Access for decontamination
- Static accumulation

Stored on Pallet

48"w x 84"l x 48"h
950 lbs

GATORS

Laid out for Installation

• 6' x 24' footprint

Assembling the Tent Poles

PATORS

1100



Tension member connections

Top & Bottom Tensioners

LB. MA

40

Erected, ready to fill



Design Details

Note

Bonding Cable

Decant/stripping Connection

Temperature Gauge

IATORS

Is this the answer? It may be part of the answer.

3. OCEANIEYE TM AEROSTAT-BASED SURVEILANCE SYSTEM

Spill Response – Remote Sensing and Surveillance

Key Features

- 24/7 aerial surveillance
- Triple sensor unit (EO/IR/AIS)
- Real-time day & night video and imagery
- Elevated AIS receiver for increased ship detection range
- Detection range of 4nm. at 150 meters altitude
- Completely self-contained and rapidly deployable
- Lightweight and compact for easy portability
- Footprint, similar to standard ISO pallet
- Compact for air freight & small vehicle transport
- Rugged viewer terminal with touch screen
- Proprietary "OverView" viewer terminal software with sea-chart
- TargetPosFinder latitude/longitude of video-view cross-hair
- Operates in fog & poor visibility when aircraft cannot
- Balloon can be docked to base unit while inflated
- Training & global operational support

OceanEye Video

Note: Video removed from this version.



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63°26.385' N 10°23.954' E

Recent Developments from Elastec/American Marine

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