USCG Marine Safety Center (MSC)

SERT

Salvage Engineering Response Team

Daniel Y. Burke, Lieutenant, USCG
Marine Safety Center (MSC)

- Independent USCG HQ Command
- Commercial vessel plan review and engineering assessment for
  - Vessel stability, structures, fire protection, machinery, electrical systems, piping systems, automation, etc.
- Advanced concept review
- Technical advisory, policy interpretation
- Oversight of 3rd party engineering (class societies, etc.)
- Industry liaison
- Technical training
- **Technical support for casualty response (SERT)**
- Technical support for casualty investigations
What is SERT?  ...SERT 1990

EXXON VALDEZ (1989)

MEGA BORG (1990)

JUPITER (1990)
What is SERT?  ...SERT 2017
What Does SERT Do?

Grounding

Collision, allision, flooding

Structural failure

Fire

Sinking, capsizing
What Does SERT Do?

- **USCG technical experts for salvage and salvage engineering**
  - Remote, IC/UC, on-scene

- **Independent technical assessments**
  - Initial casualty response and salvage operations planning
  - Review and advise development of salvage plans

- **Direct technical liaison**
  - Salvors (SMFF), RP tech reps, class societies, Navy SUPSALV, etc.

- **24/7 availability (SERT Duty Officer)**
  - (202)327-3985  sert.duty@uscg.mil
What Does SERT Do?

- Independent technical assessments and analyses
  - Stability (intact and damaged)
  - Ground reaction, freeing force, list and trim
  - Oil outflow (spillage from damaged oil and fuel tanks)
  - Weight removal and refloating
    - Lightering (cargo removal, fuel and oil removal)
    - Deballasting
    - Dewatering (patching, pumping and compressed air)
  - Tide and river level effects
  - Structural integrity and strength (intact and damaged)
  - Rigging, lifting, pulling and “parbuckling” systems
How Does SERT Do It?

- Normal duties
  - Commercial vessel plan review and engineering assessment
    - Vessel stability and structures
- Specialized training, qualifications & experience
  - Undergraduate & graduate degrees
    - Naval architecture & marine engineering
  - SERT-specific training (1+ year)
    - Salvage and salvage engineering
    - Specialty naval architecture and salvage computer tools
- Other experience
  - At-sea experience
  - Qualified marine inspectors
  - Licensed professional engineers (P.E.)
- Naval architecture and salvage software (HECSALV™ & GHS™)
- Specialty in-house software/spreadsheet tools

How Does SERT Do It?
SERT Cases FY 2017

52 Casualties – 32 CG Units

SERT Cases By Casualty Type (FY 2017)

- Grounding: 40%
- Sinking: 38%
- Capsizing: 12%
- Collision/allision: 4%
- Structural Failure: 4%
- Other: 2%
Example – Hurricane Harvey
Example – PARAGON DPDS1

- Grounding
- Hull Damage and Flooding
- Tow Plan
Example – FERREL

- Capsize
- Grounding
- Unexploded Ordinance
Example – ERIC HANEY

- Grounding
- Lightering plan analysis
- Refloating plan analysis
- Lifting Plan
Example – PACIFIC PARADISE

- Deployed on scene
- Grounding
- Refloating plan analysis
Example – ATB B. No. 255

- Explosion and Fire
- Hull Damage and Flooding
- Oil Spill
Example – KULLAK

- Grounding
- Stability analysis
- Refloating plan analysis
Example – COUGAR ACE

- Severe list (lolling)
- Stability analysis
- Righting plan analysis
Example – ARGO

- Sinking (1937)
- Lightering plan assessment (“hot tap”)
- Vapor recovery system analysis
Example – EL FARO

- Investigation support to NTSB & USCG MBI
- Forensic engineering
- Deployed on search & recovery missions
SERT Guidance Documents

- SERT Guidance Documents (Google: Salvage Engineering Response Team)
  - SERT Brief Sheet: Overview of SERT
  - SERT Brief Sheet: Inland and Harbor Salvage Plans
  - SERT Brief Sheet: Coastal and Offshore Salvage Plans
  - SERT Activation Guide & Rapid Salvage Survey Form (RSS)
Contacting SERT

SERT Rapid Salvage Survey Form (RSS)

Instructions: Initial contact with the SERT Duty Officer should be made by phone at (202)327-3985. The Duty Officer will provide initial assessment of the casualty and guide requests for additional information. If requested, fill this sheet out as completely as possible with the information available. If unsure, mark with an asterisk (*) or use the most critical for initial action, and should also be as accurate as possible. Once completed, scan or save the form and e-mail as an attachment to: sert.duty@uscg.mil

This document can be found by searching for "Salvage Engineering" on the Coast Guard Homeport site http://homeport.uscg.mil

Basic Vessel Information:
- Vessel name:
- Official Number:
- Classification Society:
- Length (L.P.):*
- Beam:*
- Depth:*
- Full load draft:*
- Service speed: (if known)
- Vessel type:
  - Bulk carrier
  - LPG/LNG carrier
  - OBO carrier
  - Product carrier
  - Crude carrier
  - Container ship
  - RO/RO ship
  - Break-bulk ship
  - Other:
- Vessel Response Plan (VRP):
  - Does the vessel have a VRP? (if known)
  - Has the VRP been activated? (if known)
  - Who is the designated SRF/MTS provider on the VRP? (if known)

Type of Casualty: (check all that apply)
- Grounding
- Sinking
- Capsizing
- Flooding
- Fire/explosion
- Oil/HAZMAT spill
- Structural Damage
- Other:

Date/Time of Casualty:*
- Position: Latitude
- Longitude

Vessel drafts: (as accurate as possible)

<table>
<thead>
<tr>
<th>Pre-Casualty Drafts*</th>
<th>Post-Casualty Drafts*</th>
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<tbody>
<tr>
<td>Date/Time Taken:</td>
<td>Date/Time Taken:</td>
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<tr>
<td>Port/Starboard</td>
<td>Part/Starboard</td>
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<td></td>
<td>Forward</td>
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<td>Midships</td>
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<td>Aft</td>
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Bottom Type: (for grounding or sinking, check all that apply)
- Mud/silt
- Sand
- Gravel
- Rock
- Coral

Water Depth Information: (for grounding or sinking)
- Tides: (if applicable): Time/height at time of casualty (if known):
- Time/height at next high tide:
- Time/height at next low tide:
- River height or lake level trend: (if applicable):

Vessel Damage: (if applicable)
- Flooding:
- Structural Damage:

Vessel Cargo:
- Cargo type and quantity:
- Cargo damage, loss, hazards:

Pollution:
- Reported pollution, oil spill:
- Fuel oil type and quantity:

Initial SERT Assistance Required: (check all that apply)
- Ground reaction, force to free, refloating analysis
- Stability analysis
- Structural analysis
- Damage, oil outflow analysis
- Salvage/refloating plan review
- Lifting/rigging plan review
- Other:
- Any/all of the above (as required)

Documentation Available: (if known, check all that apply)
- General Arrangement Plan
- Capacity Plan, Deadweight Scale
- Structural Drawings (Midship Section Plan, Shell Expansion Plan, Deck Plans)
- Other:

Onboard Loading Computer: (if known)
- CARGOMAX (HECSALV)
- GLM (GIIS)
- NAPA
- Other:
- None/unknown

Additional Information: (if applicable)

Primary Contact Information:
- Name:
- Organization:
- Phone (mobile):
- E-mail:

Secondary Point of Contact: (if applicable)
- Name:
- Organization:
- Phone (mobile):
- E-mail:

SERT Contact Information (24/7):
- SERT Duty Officer Cell Phone: (202)327-3985
- SERT Duty Officer E-mail: sert.duty@uscg.mil

*Please scan or save completed form, then e-mail as attachment to: sert.duty@uscg.mil
Contacting SERT

- Early communication = best response
- SERT Duty Officer (24/7)
  - (202)327-3985
  - sert.duty@uscg.mil
Questions?

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