# Annex O Vessel Salvage and Lightering

This document is a Federal On-Scene Coordinator's (FOSC) guide to salvage and lightering evolutions. This document is designed to work in concert with the Incident Command System Operational Period Planning Cycle and should be used as a reference before or *during* an incident in order to assist with initial actions when preparing an Incident Action Plan for a salvage and/or lightering evolution. This document is *not* intended to be an all-inclusive technical guide to vessel salvage or lightering. For technical guidance, FOSCs should refer to resources and references covered in Sections 800 and 900.

**Appendix 5 – SERT Rapid Salvage Survey**

## 100. NOTIFICATION OF MARINE CASUALTIES

### 101. Requirements of 46 CFR 4

Regulations contained in 46 Part 4 of the Code of Federal Regulations require owners, agents, masters, operators, or persons in charge, immediately after addressing resultant safety concerns, to notify the nearest Marine Safety Office, Marine Inspections Office, or Coast Guard Group Office whenever a vessel is involved in a marine casualty. These casualties include:

1. An unintended grounding or an unintended strike of, or allision, with a bridge;
2. An intended grounding, or an intended strike of a bridge, that creates a hazard to navigation, the environment, or the safety of a vessel;
3. Loss of main propulsion, primary steering, or any associated component or control system that reduces the maneuverability of the vessel;
4. An occurrence that adversely affects the vessel's seaworthiness or fitness for service or route, including fire, flooding, or failure of or damage to fixed fire extinguishing systems, life saving equipment, auxiliary power generating equipment, or bilge pumping systems;
5. Loss of life;
6. An injury that requires professional medical treatment;
7. Any occurrence resulting in more than $25,000 of property damage, not including salvage cost.

### 102. Requirements of 33 CFR 160

33 Part 160.215 requires vessels carrying hazardous materials to notify the nearest Coast Guard Marine Safety Office whenever a hazardous condition exists, either aboard a vessel or caused by a vessel or its operation.

## 200. RESPONSIBILITES OF THE RESPONSIBLE PARTY AND FOSC

In the case of an incident, the Responsible Party (RP) must take adequate measures to mitigate and/or remove damage, or risk of damage, caused by the vessel or the release of any materials from the vessel. The RP will pay for all legitimate response measures, up to their limit of liability. If an RP cannot be identified, or the acting RP fails to adequately respond, it is the responsibility of the Captain of the Port or FOSC to take over control of a particular aspect of, or the entire response. In this case, funding will be provided by the federal government until an RP is identified and charged for the response.

## 300. TYPES OF MARINE CASUALTIES

The primary objective in any salvage scenario, whether a single event casualty or combination of casualties, is to minimize the risk to human health, the environment, and property. The following six types of casualties are listed in order of frequency:

### 301. Hull or Machinery Damage

A vessel's hull or machinery may be damaged by shifting cargo, storm damage, or other causes, and may render a vessel unable to maneuver. The greatest threats to the vessel, cargo, and environment exist when loss of maneuverability happens close to shore or hazards to navigation. Use of anchors or towing vessels may be the best defense in slowing the unintended movement of a vessel drifting towards a hazard.

**302. Stranding or Grounding**

Unintentional groundings may result from navigational error, anchor drag, loss of maneuverability, or for other reasons. Ground reaction, which is usually measured in long tons or metric tons, is the weight of the vessel that is being supported by the ocean bottom instead of the water. Ground reaction can cause a vessel to capsize, become holed, break apart, or become difficult to remove from ground. A salvor or naval architect can make a good estimate of ground reaction using the information gathered by the crew or response personnel including pre-casualty drafts, post-casualty drafts, tide cycle, location/depth of ground (usually determined with soundings), and the type of bottom. Once ground reaction is determined, it is fairly simple to estimate the force-to-free, which is the measure of the force needed to pull the vessel off the ground. Force-to-free is usually listed in short tons, which is equivalent to tug bollard pull. In order to float a vessel free or pull it off with tugs/ground tackle, ground reaction must usually be reduced in a controlled manner by deballasting, lightering, and/or tidal lifting.

**303. Collision**

The most common result of a collision at sea is hull damage and flooding. Collisions are sometimes accompanied by fire and explosions, as many ship's systems and/or cargo may be damaged upon impact. The general priorities after a collision usually include damage assessment, flooding control, and firefighting. Typically, a vessel is not well-equipped to handle rapid flooding, and, when left unchecked, can lead to capsizing and foundering. Often vessel crews are not well-versed in damage control, requiring a prompt response to ensure professional salvors and marine inspectors are on scene as soon as possible.

**304. Fire and Explosion**

Fires of any size onboard a vessel should be treated with extreme caution as they may quickly turn into a conflagration. Most commercial vessels will be equipped with fixed fire fighting systems to contain fires started in the engine room (the most common source of shipboard fires). Large commercial vessel crews are generally trained to combat fires that originate in the engine room or accommodation spaces. Crews are generally not trained to fight fires originating in or spreading to the cargo. Most professional salvors offer shipboard firefighting capability - either with in-house resources or via subcontractor capabilities. Shore based fire fighters often do not have an appreciation for the special considerations for shipboard firefighting, especially fixed fire fighting systems or vessel stability, and therefore should be monitored closely when employed to extinguish a fire in port.

**305. Allision**

Allisions occur when a vessel strikes a fixed object. Most of the considerations are the same as a collision, with the addition of assessing the damage sustained by the object, especially if the object was a bridge or critical piece of infrastructure. Immediate notification should be made to the Army Corp of Engineers and Federal and State Departments of Transportation. Appropriate actions should be taken to ensure the object does not pose a risk to future transportation onshore or to other vessels.

**306. Stress Fractures**

Stress fractures are failures in the construction of the vessel and may be due to stresses imposed on a vessel because of a heavy seaway, improper loading or ballasting, or construction material fatigue. Cracks can lead to pollution or flooding incidents and, under extreme circumstances, total ship loss. Therefore, it is important to quickly assess the size, location, and orientation of the crack. Surveyors, shipyards, and Coast Guard Marine Inspectors are familiar with methods to arrest or repair cracks.

## 400. INITIAL RESPONSE AND CASUALTY ASSESSMENT

*Common to all casualties is a need for the quick and substantial allotment of response resources*. The Unified Command will set the objectives of a vessel casualty response. Early dissemination of an accurate assessment of the vessel's condition and deployment of appropriate response resources is essential.

### 401. Initial Actions to be taken by the Crew

A prudent vessel captain will take certain actions to mitigate the threat to the crew and vessel. Upon receiving notification of a marine casualty, the Incident Commander should verify that the vessel master, if possible and appropriate, has taken the following actions listed to the right:

| Initial actions to be taken by vessel's crew | |
|---|---|
| | Have ship's personnel report to emergency stations |
| | Secure watertight fittings |
| | Take appropriate fire fighting actions |
| | Notify the ship's operations controller |
| | Obtain an accurate cargo storage plan |
| | Request shore personnel request salvage assistance |
| | Display day shapes & sound appropriate signals |

### 402. Critical Information

There is certain information that is critical to planning a successful salvage operation. This information, essential to the response planning process, should be gathered from the vessel master or on-scene response personnel, as appropriate to the situation. The information gathered should be used to determine the "window of opportunity" - i.e., when the most factors align for a successful operation. Refer to Appendix 2 for incident-specific critical information that should be gathered and shared with all interested parties.

### 403. Identify Response and Salvage Assets

The RP should immediately contract and set into motion adequate response and salvage resources. Historically, there has been reluctance on behalf of the vessel's representatives to engage a professional salvor. A decision to attempt operations without a professional salvor should be examined critically by the FOSC. To assist the RP in contracting a professional salvor, the FOSC may share information of proven response and salvage resources as listed in Appendix 4. In addition to ensuring that the RP has contracted adequate response resources, the FOSC should identify and deploy appropriate Coast Guard resources to respond to the incident. These response teams should include unit Pollution Investigators, Casualty Investigators, and Vessel Inspectors. Furthermore, the SERT team at the Marine Safety Center should be engaged and, potentially, the Navy SUPSALV. Contact numbers for these assets may be found in Section 800.

## 500. SETTING THE FIRST OPERATIONAL OBJECTIVES

Once enough information has been gathered to proceed with a decisive action plan, the USCG Operational Commander, IC or UC will set forth the operational period objectives. These objectives *may* include but are not limited to:

1. Evacuate crew
2. Control vessel movement
3. Get response personnel and equipment on-scene
4. Extinguish shipboard fire
5. Stop/slow flooding
6. Stop/slow vessel movement toward potential hazards
7. Contain pollution

8. Identify suitable port of refuge
9. Create a salvage plan
10. Mitigate potential impacts of the casualty on other vessel traffic and port activities
11. Evaluate risk to public- i.e., hazardous material release, air quality, etc.
12. Prepare and approve press release
13. Establish a safety zone
14. Contact all appropriate Federal, State and local agencies, as well as foreign governments
15. Evaluate/mitigate the environmental impacts of incident
16. Identify an appropriate lightering vessel

## 600. OIL/HAZARDOUS MATERIAL RELEASE MITIGATION AND LIGHTERING

Oil spills or hazardous material releases are of the greatest potential during groundings and almost a certainty during a major collision or other event when there is a breach in the hull. There are several ways to establish if there is an oil spill or hazardous material release. The primary method may be observation of a sheen emanating from the damaged vessel. However, this method may be of limited usefulness at night and is not indicative of damages inboard of the hull structure. Bunker and cargo tanks should be immediately sounded and monitored closely for changes that would indicate a breach. Given the high correlation between major marine casualties and pollution incidents, it is prudent to provide, at a minimum, a containment boom to surround the vessel(s).

### 601. Lightering

One of the most effective ways to mitigate or prevent an oil spill or hazardous material release is to remove all remaining cargo and unnecessary bunker fuel from the vessel. This is particularly useful when the risk of a hull breach is increasing due to changing environmental or physical conditions on the vessel. Vessels may be lightered to another vessel, or lightered to mobile facilities ashore. Choosing which is most appropriate will depend on the location of the vessel and availability of each. Whichever is chosen, it is important to ensure the receiving vessel or facility is qualified to handle the lightered material and that any cargo/residue in hoses and holding tanks are compatible with lightered material. Furthermore, the effects on the stability of the vessel should be taken into account when lightering a vessel. While lightering may present benefits when attempting to re-float a vessel, it may also present additional structural stresses upon the vessel. It is important to work with naval architects as well as the person in charge of loading/offloading the vessel, who is frequently the Chief Officer or First Mate of the vessel.

## 700. VESSEL/CARGO SALVAGE PLAN REVIEW

A plan is essential to any successful salvage operation. Depending on the urgency and complexity of the operation, the quality of the plan may vary from a bound document approved by engineers to a sketch on a cocktail napkin. All involved parties must ensure that the plan provided is appropriate given the constraints of the operation. Given optimal conditions as well as time and resources available, a *complete* salvage plan will include the elements listed in Appendix 3.

When evaluating a salvage plan, it is essential to rely upon the resources available to an IC or UC for these particular incidents. The two major public resources are the Coast Guard's SERT and the Navy's SUPSALV. Information on these resources and their contact information are provided in Section 800.

## 800. RESOURCES

In addition to mobilizing unit investigators, inspectors, and responders, the first calls of a response should include contact with these resources. The missions of these resources are explicitly to assist Incident Commanders and on-scene response personnel in addressing matters of vessel salvage. In the table provided below, a number one indicates the best suited resource, while a two indicates a capable, though secondary resource. It is important to note that employing either a commercial salvor or Navy SUPSALV will require a funding source.

| | Commercial Salvor | SERT Team* | Strike Team* | Navy SUPSALV |
|---|---|---|---|---|
| Vessel Assessment | 1 | 2 | | 2 |
| Pollution Assessment | 2 | | 1 | |
| Salvor Equipment | 1 | | 2 | 1 |
| Salvage Plan Assessment | | 1 | | 2 |

* Coast Guard teams will provide services to a Coast Guard unit at no cost.

### 801. Marine Safety Center Salvage Emergency Response Team (SERT)

(202) 327-3985/3987 (24 hours) or via the Coast Guard Command Center at (800) 323-7233 (24 hours)

*Excerpt from* http://www.uscg.mil/hq/msc/salvage.htm:

The Marine Safety Center Salvage Emergency Response Team (SERT) is on call to provide immediate salvage engineering support to the Coast Guard Captains of the Port (COTP) and Federal On-Scene Coordinators (FOSC) in response to a variety of vessel casualties. Specifically, SERT can assist the COTP and FOSC manage and minimize the risk to people, the environment, and property when responding to vessels that have experienced a casualty. SERT provides this assistance by performing numerous technical evaluations including: assessment and analysis of intact and damaged stability, hull stress and strength, grounding and freeing forces, prediction of oil/hazardous substance outflow, and expertise on passenger vessel construction, fire protection, and safety.

SERT has mobile computing capability for on-scene deployment. The MSC maintains a database containing over 5,000 hull files that can be used to generate computer models of vessels used in salvage engineering. External relationships with organizations like the Navy Supervisor of Salvage (SUPSALV), Coast Guard Intel Coordination Center, and the Office of Naval Intelligence (ONI), as well as all major class societies, also enable the salvage team to quickly locate and transfer information about a damaged vessel that would otherwise be difficult to access.

When requesting SERT assistance, the Rapid Salvage Survey Form, which contains the minimum essential casualty details, should be utilized. The Survey form and the information required for the creation of a salvage plan are available at: http://www.uscg.mil/hq/msc/salvage.htm.

### 802. U.S. Coast Guard Strike Teams

National Strike Team Coordination Center: 252-331-6000 (24 hours)

The National Strike Force (NSF) was established in 1973 as a direct result of the Federal Water Pollution Control Act of 1972. The NSF's mission is to provide highly trained, experienced personnel and specialized equipment to Coast Guard and other federal agencies to facilitate preparedness and response to oil and hazardous substance pollution incidents in order to protect public health and the environment. The NSF's area of responsibility covers all Coast Guard Districts and Federal Response Regions.

The Strike Teams provide rapid response support in incident management, site safety, contractor performance monitoring, resource documentation, response strategies, hazard assessment, oil spill dispersant and operational effectiveness monitoring, and high capacity lightering and offshore skimming capabilities

**803. NAVSEA Supervisor of Salvage and Diving (SUPSALV)**
(202) 781-3889 (24 hours)

The Office of the Director of Ocean Engineering, Supervisor of Salvage and Diving (SUPSALV), is a component of the Naval Sea Systems Command (NAVSEA). SUPSALV is located at the Washington Navy Yard in Washington, DC. SUPSALV is responsible for all aspects of ocean engineering, including salvage, in-water ship repair, contracting, towing, diving safety, and equipment maintenance and procurement.

The Salvage Operations Division maintains standing worldwide commercial contracts for salvage, emergency towing, deep ocean search and recovery operations, and oil pollution abatement. Additionally, they own, maintain and operate the worldwide Emergency Ship Salvage Material (ESSM) system, which incorporates the world's largest standby inventory of salvage and pollution abatement equipment. They also own, maintain, and operate a large number of deep ocean search and recovery systems, with depth capabilities up to 20,000 feet. They also routinely provide salvage technical assistance to fleet salvors, as well as to other federal agencies.

Within the National Oil and Hazardous Substance Pollution Contingency Plan (NCP), SUPSALV has been assigned as 1 of 7 "Special Teams" available to the Federal On-Scene Coordinator (FOSC). Thus, they provide assistance (personnel and/or equipment) for commercial oil or hazardous substance spills, or potential spills (i.e., salvage operations), as requested by any FOSC. Assistance ranges from salvage technical or operational assistance to mobilization of SUPSALV and other Navy resources to support a partial or full federal response to a marine casualty. Be aware, however, these services are provided on a reimbursable basis only – *they are not free*.

**804. American Salvage Association**
(703) 373-2267

Leading U.S. salvors have formed the American Salvage Association (ASA). Created in response to the need for providing an identity and assisting in the professionalizing of the U.S. marine salvage and firefighting response, the intention of the ASA is to professionalize and improve marine casualty response in U.S. coastal and inland waters.

The American Salvage Association meets with various federal and state agencies to exchange views on the improvement of salvage and firefighting response in the U.S.

## 900. REFERENCES


American Salvage Association (ASA) Safety Standards, March 2003.
Available at: http://www.americansalvage.org/

Cook Inlet Subarea Contingency Plan, July 1997.
Available at: http://akrrt.org/CIplan/CookInletSCP.shtml

George, W. E., 1983. Stability and Trim for the Ship's Officer. Cornell Maritime Press, Centreville, Maryland.

Milwee, W. I. Jr., 1996. Modern Marine Salvage. Cornell Maritime Press, Centreville, Maryland.

NAVSEA Instruction 4740.8 (series), Salvage, Recovery and Open Sea Spill Response Programs.

Naval Sea Systems Command letter dated October 28, 2004. Emergency Response Resources Available to Navy and Other Federal Agencies Through the Navy Supervisor of Salvage. Available at: http://www.supsalv.org/.

OPNAV Instruction 4740.2 (series), Salvage and Recovery Program.

SeaRiver Emergency Response Plan, West Coast Notifications Field Manual, September 1997.

U.S. Coast Guard Marine Safety Center available at: http://www.uscg.mil/hq/msc/salvage.htm.

**Appendix 1 - Stranded Vessel QRC**

Establishing a quick and effective towing arrangement on a stranded vessel or one that has simply lost its ability to maneuver may mean the difference between a simple maneuvering evolution and disaster. The following Quick Response Card is provided to ensure that RPs are taking appropriate and adequate actions to mitigate risk to the vessel and further impact of the casualty.

**Vessels Adrift – Risk identification**

| | | | |
|---|---|---|---|
| | Vessel position | | *°Latitude, °Longitude* |
| | Current vessel set and drift | *degrees True* | *knots* |
| | Predicted set and drift due to weather/tide/current* | *degrees True* | *knots* |
| | Nearest shoal, hazard, or shipping lane | | *identification* |
| | Distance to nearest shoal, hazard or shipping lane | | *nautical mile (nm)* |
| | Time to reach nearest shoal, hazard or shipping lane (*nm/knots of drift)* / Estimated time | ** *hours* | *hh:mm* |

*Vessels adrift may slow their set and drift with the use of a drogue or by lowering their ground tackle, even if it does not reach the sea floor. Slowing set and drift increases critical available response time.

**Towing Vessels – Time to rig tow**

| | | | |
|---|---|---|---|
| | Time to recall vessel crew / Estimated time | *hours* | *hh:mm* |
| | Time to get towing vessel underway en route to stranded vessel position / Estimated time | *hours* | *hh:mm* |
| | Distance from towing vessel to stranded vessel | | *nm* |
| | Cruising speed of towing vessel | | *knots* |
| | Time til towing vessel on scene (*nm/knots)* / Estimated time | *hours* | *hh:mm* |
| | Time to rig tow / Estimated time | *hours* | *hh:mm* |
| | Time to re-setup for tow if first attempt fails | | *hours* |
| | Total time to take control of vessel *(hours til on scene + hours to rig tow)*/ Estimated time | ** *hours* | *hh:mm* |

** Time to take control of vessel must not exceed the time to reach the nearest shoal or hazard.

Towing assets should be called upon in the following priority while ensuring adequate response time: (1) Commercial towing vessels (2) U.S. Coast Guard assets (3) DOD assets (4) U.S. vessels in the vicinity (5) Foreign vessels in the vicinity. *For commercial towing assets, refer to Appendix 4.*

**Appendix 2 - Incident Specific, Critical Information**

Following the report of an incident, certain initial information must be gained to mount a successful response and salvage operation. This list is not all-inclusive, but may be used to ensure certain critical information is gathered from on-scene personnel as well as from response resources. Many of the ship design particulars may be retrieved from the vessel's Shipboard Oil Pollution Emergency Plan (SOPEP) and Vessel Response Plan (VRP).

| Incident | | Critical Information |
|---|---|---|
| All Incidents | | |
| | Safety status of crew | |
| | Proximity to navigation hazard | |
| | On-scene weather conditions | |
| | Forecasted weather conditions | |
| | Contracted resources | |
| | Potential damage / breaches in hull | |
| | Potential for spill or plume | |
| | Status of ground tackle | |
| | Communications nature and schedule | |
| | Quantity/nature of cargo/fuel/ballast | |
| | Status of propulsion & steering | |
| Grounding | | |
| | Pre-casualty drafts | |
| | Post-casualty drafts | |
| | Tide height at grounding | |
| | Location/depth of soundings | |
| | Time/Height of next high tide | |
| | Liquid level of all tankage | |
| | Availability of salvage resources | |
| | Bottom type | |
| Fire | | |
| | Status of shipboard fire pumps | |
| | Status of fixed firefighting systems | |
| | Risk of further damage to vessel | |
| | Status of emergency electrical systems | |
| | Availability of fire fighting resources | |
| Collision/Allision/Flooding | | |
| | Relative stability of each vessel | |
| | Status of ships dewatering systems | |
| | DOT, ACOE, State notified (allisions) | |

**Appendix 3 – Elements of a Salvage Plan**

| | |
|---|---|
| All Incidents | |
| | Pre-incident drafts fore and aft |
| | Cargo listing / volume |
| | Fuel volume |
| | Status of vessel propulsion and steering systems |
| | Post casualty drafts |
| | Contingency planning identifying possible failure points |
| | Lightering considerations |
| | Clear understanding or contractual agreement of responsibility for control of vessel |
| | Strength of hull girder, damaged areas, attachment points, and rigging |
| | Booming considerations |
| | Means for controlling interference between pollution response and salvage efforts |
| | Potential pollution risks and precautions to avoid or minimize impact |
| | Communications plan |
| | Anticipated start time and predicted tides, currents, weather |
| Grounding | |
| | Post casualty drafts/locations/soundings |
| | Bottom type |
| | Estimated ground reaction |
| | Force-to-free |
| | Towing assets available/utilized and horse power of each |
| | Predicted stability when re-floated |
| | A summary of the engineering rationale for retraction & refloating techniques |
| | Tow/rigging plan including attachment points |
| Lightering | |
| | Volume of cargo/fuel to be lightered |
| | Type of cargo to be lightered |
| | Identification of compatible receiving facilities |
| | Special procedures to handle hazardous cargo/materials |
| Flooding | |
| | Identification and listing of all dewatering systems to be employed |
| | Order of dewatering to ensure satisfactory stability of vessel |
| Transit Plan | |
| | Identification of transit route and final destination |
| | Means for controlling the vessel as it is freed |
| | Route identified, with special attention to increased draft and beaching areas |
| | Vessel escorts, if any, to be employed and horse power of each |
| | Any preparation of vessel necessary to gain permission for entry into destination |

**Appendix 4 - Area Specific Commercial Salvage Resources**

Areas should keep a current listing and contact information for professional salvor resources located within their zone. This list may be referred to or provided to an RP when ensuring a time allocation of tug and salvage assistance. These are all commercial resources that require funding.

When populating this list with salvors, consider company's 24-hour capabilities, employee training, response history, and ability to create an acceptable salvage plan.

If zone involves international border, consider including international assets in this list.

| Resource | 24-hour phone number | Internet address |
|---|---|---|
| Towing / Salvage | | |
| | | |
| | | |
| | | |
| Oil Spill Response | | |
| | | |
| | | |
| | | |
| HazMat Response | | |
| | | |
| | | |
| | | |
| Fire Response | | |
| | | |
| | | |

**Appendix 5 – SERT Rapid Salvage Survey**

Fill this sheet out as completely as possible, when seeking salvage engineering assistance, and contact the SERT duty member using the contact information listed on page 2 of this Appendix. All fields marked with an "*" are necessary for increased accuracy of salvage calculations. This document can be found at www.uscg.mil/hq/msc/casinfo.pdf.

Vessel Name: _____ O.N. / Class ID: _____

Dimensions: *L: _____ *B: _____ *D: _____

Vessel Specifics: *Full Load Draft: _____ *Service Speed: _____

*Vessel Type:
- ☐ Barge Carrier
- ☐ Barge w/o rake
- ☐ Barge w/rake
- ☐ Tank Ship
- ☐ Bulk Carrier
- ☐ Break Bulk
- ☐ Containership
- ☐ RO/RO
- ☐ LPG/LNG Carrier
- ☐ OBO
- ☐ Other: _____

**Type of Casualty:** *(Check all that apply)*

- ☐ Fire
- ☐ Explosion
- ☐ Grounding
- ☐ Collision/Allision
- ☐ Flooding
- ☐ Sinking
- ☐ Capsizing
- ☐ Oil/HAZMAT spill
- ☐ Structural Damage
- ☐ Other:_____

**Date/Time of Casualty:** _____ **Position:** **Lat.** _____ **Long.** _

## Reported Damage/Pollution

_____

_____

***Drafts*

| Pre-Casualty Date/Time Taken:_____. | | | Post-Casualty Date/Time Taken:_____. | |
|---|---|---|---|---|
| Port | Starboard | | Port | Starboard |
| | | Forward | | |
| | | Midships | | |
| | | Aft | | |

***Bottom Type**

- ☐ Silt/mud
- ☐ Sand
- ☐ Coral
- ☐ Rock
- ☐ N/A

**Description of Vessel Cargo**

_____

_____

**Aim/intent of Salvage Operation:** *(Check all that apply)*

☐ Lighter/Transfer ☐ Dewatering ☐ Lifting ☐ Towing
☐ Patching ☐ Beach Gear ☐ Other_____

Technical Assistance Requested: ***(Check all that apply)***

What technical assistance would you like us to provide:

☐ Salvage Plan Review ☐ Oil Outflow Analysis ☐ Ground Reaction
☐ Force to Free ☐ Structural Analysis ☐ Stability Analysis
☐ Review Lightering Plan ☐ Other: _____

*Salvage Information Available:* **(Check all that apply)**

☐ Gen. Arangement Plan ☐ Loading Plan ☐ Trim & Stability Book
☐ Section Modulus ☐ Midship Section
☐ Computer Model (HECSALV, GHS, SCHP, Etc.) ☐ Other_____

Your Contact Information

CG Contact: _____(name) _____(phone)

_____(fax) _____(other)

# SERT Contact Information

Workday Contact Information (M-F, 0700-1600):

**Day Telephone: (202) 366-6480**
Duty Member Cell: (202) 327-3985
Day Fax: (202) 366-3877 (MARK FAX "Salvage Team - URGENT")

After Hours Contact Information:

**Flag Plot 1-800-323-7233**
Duty Member Cell: (202) 327-3985